



Dehydration

The Rhone: A Wreck for the Ages

IANTD Expedition Regina Margherita

2016

Cave and Wreck Exploration Tips

Shipwrecks of Lake Erie: Book

Review

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Welcome to the 26th issue of Tech Diving Mag. I'd like to thank our contributors and readers for the success Tech Diving Mag is enjoying today. As an endeavor to share knowledge and experience, Tech Diving Mag finds it inevitable to bring up controversial issues. Information published by Tech Diving Mag are always obtained from sources believed to be reliable. However, Tech Diving Mag can not guarantee neither the accuracy nor the completeness of any information published in its issues.

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Our generous contributors for this issue are world renowned industry professional Bret Gilliam, instructor trainer and explorer Bruce Konefe and IANTD Expedition *Regina Margherita* 2016 team. Take a look at their brief bio at www.techdivingmag.com/contributors.html.

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If you've ever wanted to get an article you've authored published to an audience of thousands of technical -and wanna-be technical-divers, it's about time to make this happen. You're always welcome to contribute a piece and/or some photos. The guidelines could be found at www.techdivingmag.com/guidelines.html.

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This is very much your magazine. If you want to share some views, drop a line to asser@techdivingmag.com. And please subscribe to the newsletter at www.techdivingmag.com/communicate.html to receive a brief email reminder when new issues are available for download.

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Asser Salama
Editor, Tech Diving Mag



Dehydration

By Asser Salama

Associating DCS with dehydration is as old as World War II, when it was reported as a factor that increases the risk of DCS in aviators. The mechanism was not clear at that time, and unfortunately it still is not.

Our current understanding is that when a considerable portion of the fluids leaves the body, the body concentrates the rest of the fluids internally, and peripheral flow is cut down. This would reduce the off-gassing capability of the tissues, as the capillary gas exchange at the extremities becomes less efficient due to the decreased circulation. So far, this hypothesis is not established.

A study was conducted in 2007 to investigate whether hydration 90 minutes before a dive could decrease bubble formation.¹ It concluded that pre-dive oral hydration using a saline–glucose beverage decreases circulatory bubbles, which in turn may reduce the risk of DCS.

References

1. Gempp E, Blatteau JE, Pontier JM, Balestra C, Louge P. Preventive effect of pre-dive hydration on bubble formation in divers. *Br J Sports Med.* 2009; 43:224-228. doi:10.1136/bjsm.2007.043240.

Excerpted from *Deep Into Deco: The Diver's Decompression Textbook*. The title is available at:

https://www.bestpub.com/books/scientific-diving/product/428-deep-into-deco-the-diver-s-decompression-textbook/category_pathway-42.html

<http://www.amazon.com/Deep-Into-Deco-Decompression-Textbook/dp/1930536798>

"*Deep Into Deco* is a stimulating read which covers almost every facet of diving from breathing to technical decompression. It is well referenced and dives into (forgive the pun) great detail concerning the past and present of diving theories. I recommend this book for all divers from novice to technical expert because Asser Salama makes even the most difficult topics seem easy and understandable. No diving collection is complete without this super overview book. I will keep mine on the coffee table as a discussion piece."

—Commander Joseph Dituri,
US Navy Saturation Diving Officer (ret) and Vice President of IANTD

"This book is long overdue. And it's worth the wait. What Asser Salama has accomplished with this book is remarkable. He has taken that early history of experimental trial and error and produced a stunning reference text that brings the science into sharp focus."

—Bret Gilliam, founder of TDI

"Asser's book is the best general overview of decompression modeling I have seen. The information it contains is relevant to divers of all levels, from the occasional sport diver who wants to know more about how their dive computer works to the technical diver planning extended decompression dives. It certainly is a welcome addition to my dive library!"

—Jeffrey Bozanic, PhD, author of *Mastering Rebreathers*



ASSER SALAMA, a technical diver and instructor, is founder of *Tech Diving Mag* and developer of Ultimate Planner decompression-planning software. He has a bachelor's degree in engineering and a master's degree in business administration. A software developer with an interest in decompression modeling, Salama plans to implement computational algorithms based on credible research papers to prevent some pioneering work from fading into academic obscurity.



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*The Rhone: A Wreck for
the Ages
By Bret Gilliam*



The British Virgin Islands' most popular dive is far and away the magnificent wreck of the Royal Mail ship *Rhone* launched in 1865 at Millwall Ironworks in England. The ship was massive for its era featuring two main masts to spread a fully-rigged sail plan as well as a steam-powered engine driving a single bronze propeller nearly 20 feet in diameter. The ship was 310 feet in length with a 40-foot beam and displaced nearly 3,000 tons. Her 500-hp engine was capable of pushing the ship to a top speed of 14 knots, even faster with a good breeze. With all sail inventory flying, her graceful clipper bow and long bowsprit gave her a rakish profile and she quickly became the company's most popular passenger vessel.

Passengers were accommodated in 253 First-Class, 30 Second-Class, and 30 Third-Class cabins and after initial service between England and South America, the *Rhone* was put on the West Indies route where she proved a seaworthy and fast performer. On her tenth voyage, and only the fourth to the West Indies, she called at Peter Island marking the first visit in the British Virgin Islands by a Royal Mail line ship. A protected anchorage was found in Great Harbor after Capt. F. Wooley decided to bypass the popular port of St. Thomas due to an outbreak of Yellow Fever.

The morning of October 29, 1867 began with no outward signs of danger. A fine morning sky transitioned to a heavy, humid atmosphere but Capt. Wooley dismissed the unseasonably hot weather to the vagaries of fall in the tropics. He shared tea with the purser and discussed the transfer of provisions and passenger baggage to the *Rhone* from a smaller Royal Mail paddle wheel steamer, the *Conway*, that was moored alongside. Wooley was determined to get all cargo stowed efficiently so the return voyage to England could proceed on schedule.



By 10:00 a.m. however, Wooley's attention was drawn to the darkening sky and freshening wind that had shifted to the north. The trade winds usually blew like clockwork from the east and the veteran captain was surprised as the *Rhone* pivoted on her anchor and swung closer to the rocky shore of Peter Island. Leaving the main deck, he entered his cabin to check the barometer and found that it had fallen precipitously since his morning rounds. With the wind now whipping up white caps in the bay and under an increasingly threatening sky, he ordered fires to be lit in the boilers to get up steam in case he needed to maneuver.

The mate was sent to fetch Capt. Hammock on the *Conway* and they huddled in discussion while some early rain drops cooled the torpid air. Wooley didn't like the look of the weather but both captains agreed that it was too late in the season for any significant storms or hurricanes. Nonetheless, Wooley anxiously watched the sky and ordered the passengers from the *Conway* to be transferred to his ship. Perhaps it was only a brewing norther, he mused, but the ships would fare better in Roadtown, Tortola's harbor as it offered better protection with its high mountains to the north. The passengers would most likely appreciate the ride aboard the larger ship if heavy weather developed.

Wooley nodded to his counterpart on the *Conway* as they prepared to get underway. As fate would have it, when the gangway was pulled in between the ships, The *Conway's* first officer, became stranded on the deck of the *Rhone*. Wooley casually said he would return the embarrassed officer when they rendezvoused in Roadtown, a distance of only five miles or so.

With little warning a sudden surge of wind rocked the vessels savagely from the north-northwest and a crew member urgently reported that the barometer had fallen suddenly to 27.95 inches. Wooley now knew something was terribly wrong. He was in a full blown hurricane with no warning. The once protected anchorage of Great Harbor was now beaten by rising swells and the wind blistered the wave tops causing pelting spray to lift off the water and douse the ship. As the howling wind tore at the shrouds and rigging, Wooley stared into the full fury of the storm as the ocean turned white with foam.

He ran forward to find that the ship was dragging anchor and ordered full steam and maximum RMP in forward gear to hold position. The *Rhone* continued to drag aft into the southern area of the harbor

where she would be dashed on the rocky beach less than half the ship's length away. He frantically ordered the windlass crew to haul anchor so he could clear the harbor and make for the relative safety of the open sea. Events again conspired to slow his escape as a shackle fouled in the hawsepipe and let go, dropping the 300 pound anchor and 300 feet of chain to the bottom.

With the rising wind and raging sea, visibility was severely reduced as Wooley drove his ship onward into Drake's Channel seeking room to maneuver as he tried to get his bearings and turn south for the passage between Dead Chest island and Salt Island. Blonde Rock, a shallow shoal, threatened the *Rhone's* deep draft and Wooley was determined to favor the east side of the passage and then hug the west side of Salt Island in his race for open water.

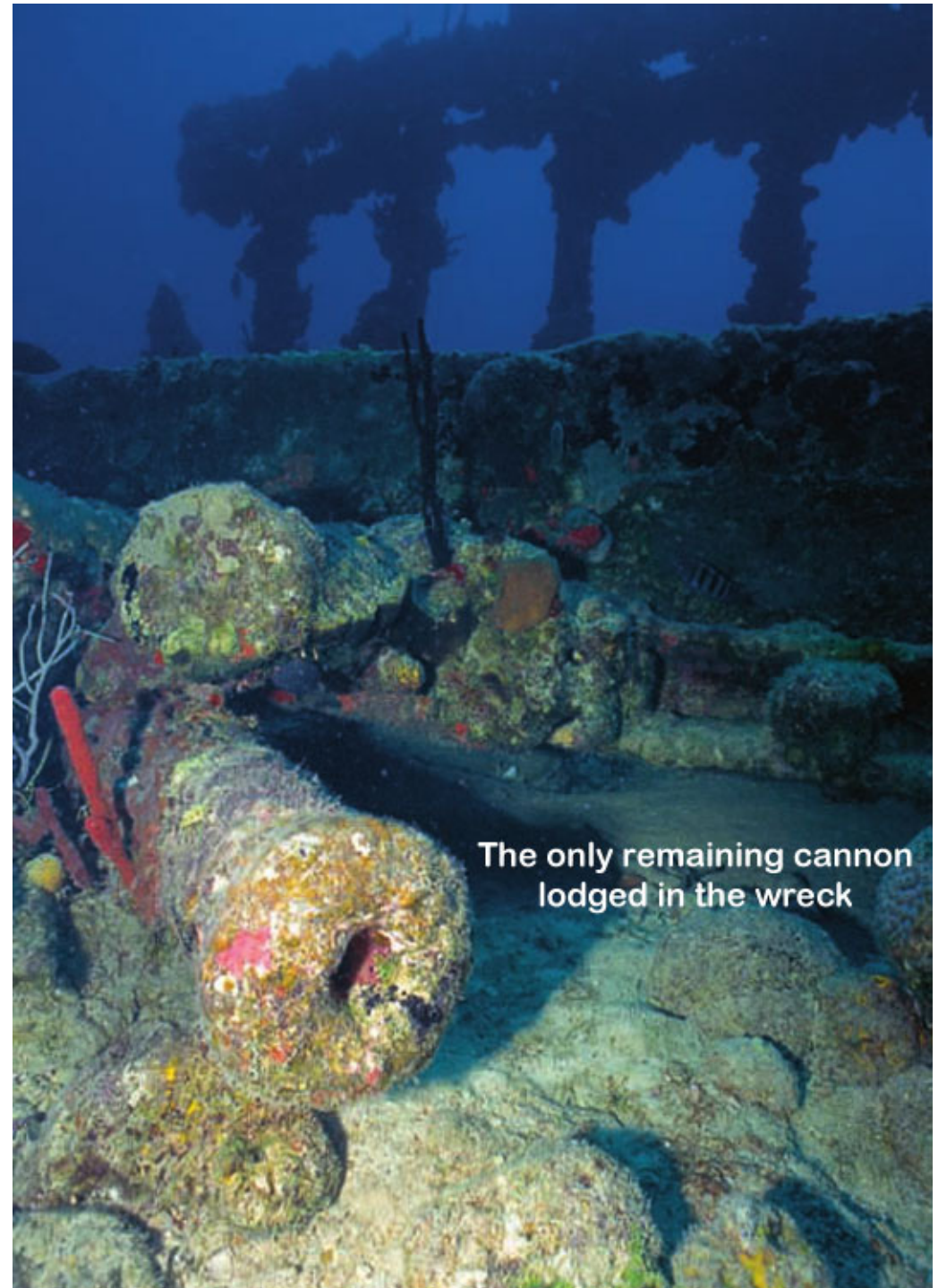
The storm peaked as the *Rhone* passed abeam of Blonde Rock and the ship severely rocked in the wild seas. A savage gust pitched her nearly 40 degrees to starboard and a spar from the foremast broke loose and crashed to the deck, killing the chief officer, Darby Topper.



Meanwhile, aboard the *Conway*, Capt. Hammock had his hands full as well. Lacking the power of the *Rhone*, the *Conway* had effectively lost all headway in the raging storm and wallowed dangerously in the channel. He peered into the obscured visibility and could see nothing. The electrical field generated by the intensity of the lightening and thunder had rendered the magnetic compass useless and it swung madly in all quadrants. Navigation, he realized, was impossible. He was determined to simply hold position in the deeper water until he could get a fix and run for cover in nearby Roadtown. But in which direction did the harbor lie?

Suddenly at 12:15 the storm stopped. The wind ceased and the sky began to clear. Both Wooley and Hammock grimly knew that they had entered the eye of the hurricane and the brief respite only delayed the next onslaught. At 12:30 it was flat calm but ten minutes later the sky closed in and it was nearly dark. At midday the switch from bright sunlight to darkness was surreal. Wooley expected a wind shift and knew his only chance was to clear the passage before the next fury was upon his ship.

The *Rhone* was driving under full steam desperately hoping to clear Salt Island when the storm renewed its destructive power with even greater force. This time, as expected, the wind did shift: into the worst possible quadrant for the *Rhone's* course, south-southeast! Visibility dropped again to less than 100 feet in the rain and blinding spray. As the bow pitched wildly in the heavy swells, Wooley heard his warrant officer, George Holdman, scream a warning that land was close by on the port side. A glance from his position at the helm confirmed the worst and he frantically struggled with the wheel to go on starboard tack and dodge the rocky southwest shore of Salt Island.



An intensified gust nearly flattened the ship to her port beam ends and she swept sideways onto the rocks. A massive wave came over the rail and wrenched Wooley from the helm nearly washing him overboard. As the water streamed away he was last seen clutching the top of a cabin skylight as he grimly held on against the wind and seas.



The towering swells drove the *Rhone* savagely against the rocks and holed the ship. Tons of water swept in and she bounced again on the bottom as her port side began to cave in under the beating. As cold water cascaded into the steam boiler, a violent explosion resulted and the ship was broken in two. The decks were covered with the panicked passengers and crew struggling to maintain a grip on any rail or lifeline. In less than a minute, the *Rhone's* stern section keeled over and sank. Secondary explosions in the other boilers rocked the ship and a 150-foot section from amidships to bow was severed neatly, as if from a surgeon's scalpel. The bow swung wildly back to north and plummeted to the bottom 90 feet below, taking 123 passengers and crew to their deaths.



A resident Nassau Grouper
on the wreck



The *Conway* fared better. Although her masts and funnel were blown completely off, Capt. Hammock managed to coax the sinking ship on to a mostly sand and mud shoal where she lodged without further harm. The remaining passengers and crew were unharmed. She was later re-floated and returned to service for many years.

Of the 146 people aboard the *Rhone*, only 23 survived. Just one passenger, an Italian immigrant from Pennsylvania, made it to shore. The other survivors were crew. Capt. Wooley and the ill-fated chief officer from the *Conway*, who had dallied too long aboard, were among the dead. One of the *Rhone*'s firemen was trapped below decks when the ship first struck the rocks and would almost certainly have drowned had the boiler explosion not blown him on deck as the ship broke in two. Miraculously, he found himself careening down the deck just as the bow section began to drop beneath the sea. As the foretopmast sheared away, he climbed the remnants still above water and clung there for 17 hours until help came to rescue him. Six other crew hung together on a section of wooden wreckage and were also rescued the next day.

As the storm subsided and the skies cleared, only 18 buildings remained standing on Tortola. The islands had been swept clean by the storm's fury. At least 75 vessels were sunk or seriously damaged. Over 500 lives were lost.

The few inhabitants of Salt Island heroically assisted in saving the survivors of the *Rhone*. For their efforts in handling the injured and burying the dead, the queen of England granted them ownership of the small salt producing island for life. Their yearly taxation, still collected to this day, is a single bag of salt. A monument to the *Rhone*'s dead along with the graves of several may be found on a slight bluff at the west end of the north bay.

*IAATO Expedition Regina
Margherita 2016
By Expedition Team*



R.N. R. MARGHERITA

Eleven years after the first expedition the IANTD Expeditions strikes back in Albanian waters on the wreck of the Regia Nave *Regina Margherita* with the task to celebrate the 100th anniversary of her sinking on 11th of December 1916 at around 21.30. During a stormed night, the Italian battleship bumped into two mines disappearing mysteriously near the exit of the bay of Valona (Albania), between the Saseno Island and the Punta Linguetta. The sinking cost the lives of 674 seamen and caused important effects in the Regia Marina (Royal Italian Navy) leadership and in the Italian naval war strategy. The Italian Commanders supposed an accidental contact with a mine of the defensive minefield; the Austro-Hungarian Navy accredited the sinking to the German mine-layer submarine UC-14. However, the historical events of the sinking, didn't ever clear entirely because also the Austrian secret service claimed the credit to its own saboteurs.

Given the importance of the anniversary, after detailed agreements with the Albanians authorities, an official IANTD expedition was organized in Valona between the 8th and 11th of December, 2016 with the aegis of the Ministry of Culture of the Albania Republic. The dives on this shipwreck of enormous historical significance were carried out by IANTD instructors and divers, expert in using trimix and nitrox gas mixtures and mastering the skills necessary for such diving expedition. The team consisted of: Cesare Balzi, expedition leader, Massimiliano Canossa, deputy expedition leader; Michele Favaron, underwater photographer; Haxhiaj Beni, photographer; Edoardo Pavia, underwater cameraman; Mauro Pazzi underwater photographer; Igli Pustina, organization manager (Albanian Divers Federation President). The activities have been supervised by the archaeologists Meshini Mariglen, representative of the Archaeological Service Agency of Tirana and Kriledian Cipa, representative of the South Regional Directorate of National Cultures of Vlora. IANTD and the representative of the Ministry of Culture of the Albanian

Republic, jointly depose a wreath on the shipwreck in remembrance of the fallen.

As part of the expedition, has been also located in the eastern waters of Karaburun peninsula, the wreck of the Italian torpedo boat *Andromeda*, sank in the night between the 16th and the 17th March, 1941, during World War Two, by British torpedo bombers Fairey Swordfish. The ship was lost with 50 men (45 ones resulted missed in action while only 5 bodies were recovered), 87 were rescued. To all the crew, fallen and survivors, was assigned the Croix de guerre for bravery on June 23rd 1941. The torpedo boat *Andromeda* lies now broken in two parts and mainly covered with fishing nets, at the deep of 53 meters. About the wreck was made a full video and photographic coverage which led to the official identification of the ship in partnership with the association "Amici del Museo e della Storia della Spezia", in particularly through the identification of the three 100/47 mm OTO mod .35 guns and recovery of the "Stella d'Italia" at the extremity bow.

The last day a further photographic documentation has been accomplished on another one important wreck, the hospital ship *Po*, after those carried out on the same wreck during the 2005 and 2007 IANTD expeditions; sunk by English torpedo-bombers on the 14th of March 1941. The *Po* lies just near to the *Andromeda* torpedo boat. The sinking of this ship caused a great sensation in Italy due to the fact of Edda Ciano Mussolini – eldest daughter of the Duce – was serving on board as a red-cross nurse.

Cover photo: *Regina Margherita* circa 1912, Cimpincio Studio Taranto collection.



Regina Margherita battleship wreck

Expedition divers



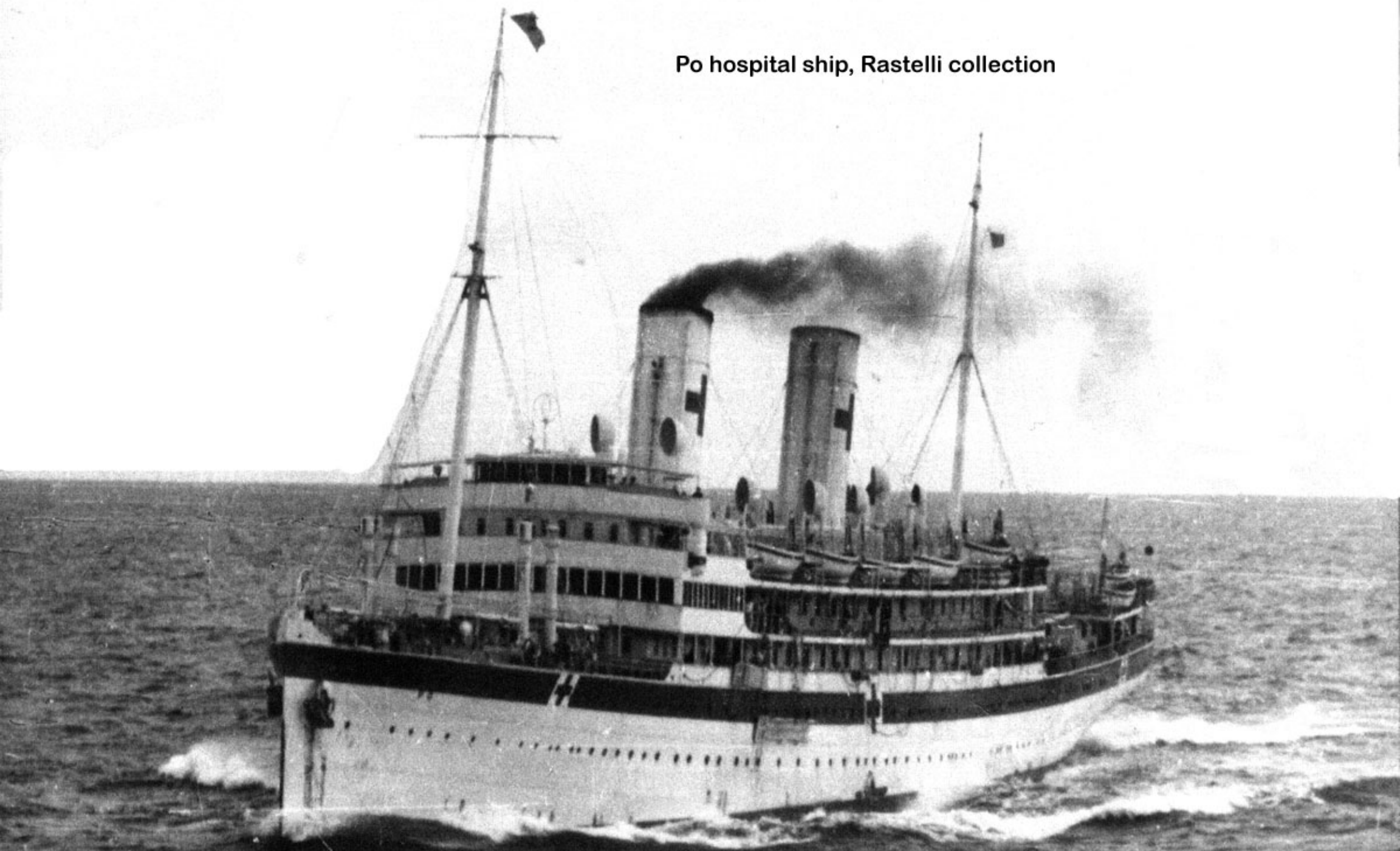
Andromeda, Erminio Bagnasco collection

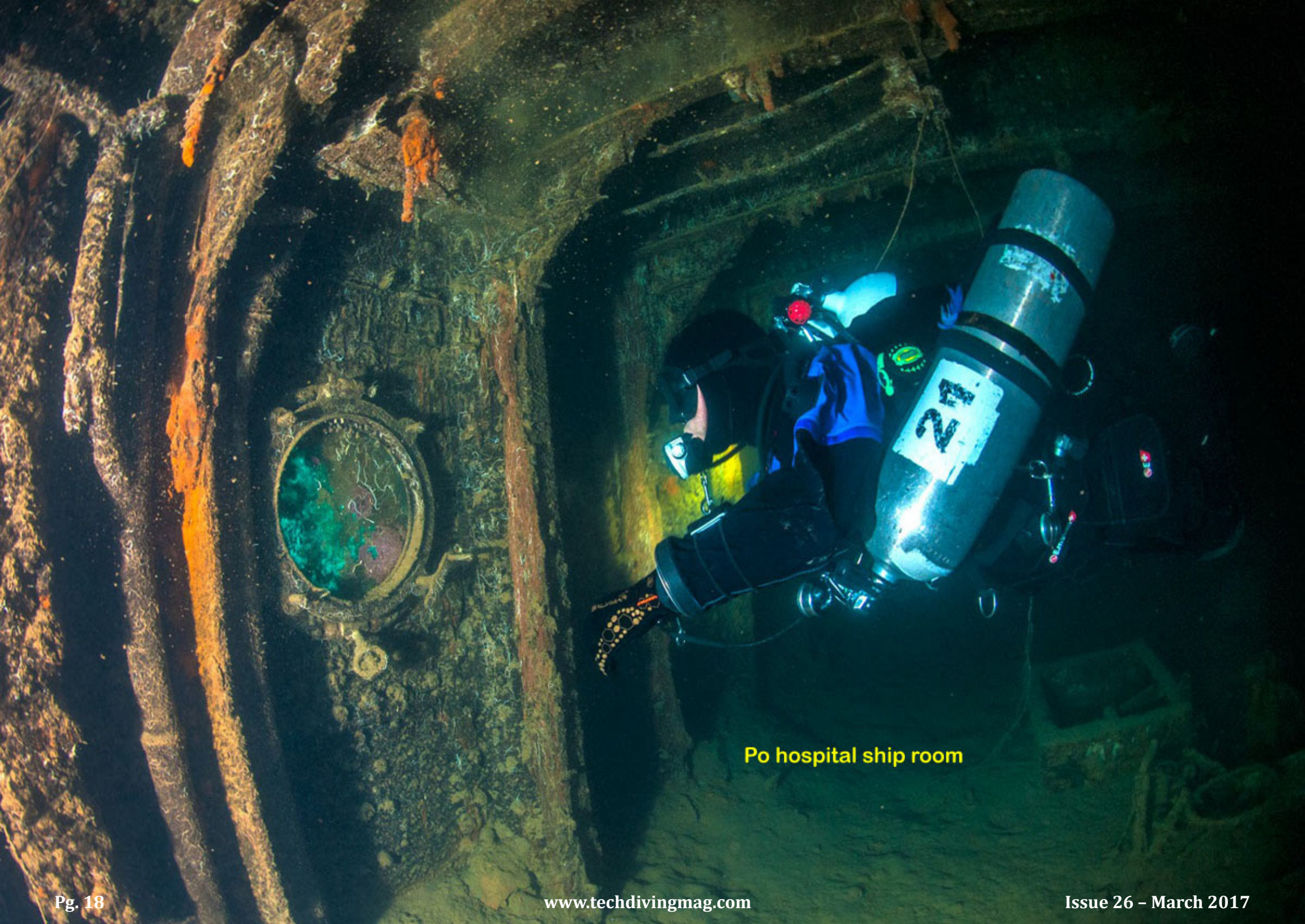


100/47 mm OTO mod .35 gun on the Andromeda



Po hospital ship, Rastelli collection





Po hospital ship room

Expedition full team



The project was supported by the following diving organizations: Aquamarina, Marina di Pisa, Acquelibere Sub, Padova; Nautica Mare Dive, Verona; Sea Dweller Divers, Roma and Sub Delphinus, Ravenna. The Nardi company, also, has provided a portable compressor very useful to logistical needs.

An expedition with technical dives planned to document a high historical value of wrecks like the *Regina Margherita* battleship, the *Andromeda* torpedo boat and the hospital ship *Po* is an important event; not only for the huge dimension of the *Regina Margherita* battleship (13.427 tons, more than 138 meters of overall length), but also for the necessity to carry to the place all the equipment and the technical support necessary, because of the total lack of logistical infrastructure to support the dives.

These conditions required a great commitment of all the team members, accomplished, as usual, with passion and competence to successfully carry out a demanding expedition to documents these wrecks of great historical significance of those wartime facts, and to honor the memory of the fallen.



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Cave and Wreck Exploration Tips *By Expedition Leader Bruce Konefe*



There always has to be the first one to find a wreck or cave that is has not been documented or charted. For the past 20 years I have spent my time looking for wrecks and caves that have not been explored yet. Going to a dive site where everybody dives day after day just not seem to excite me as much as being the first one inside. If you are going to a dive a mark that is on the map, someone has already been there. It is much more gratifying to be the person who can put that mark on the map. To me half of the adventure is going through the process of gathering all of the information and putting the logistics together, diving the site is just the cherry on top. Some of the caves we have explored we had to take boats up a river in the white water rapids, hiking through the jungles up and down the mountains. This sounds like one big camping trip to me with the luxury of being able to do some exploring. Being out in the sun and getting a good day of exercise is better than sitting in the office. My cave instructor once told me a saying that has always stuck with me and that is “If you do not go you will never know”. That is the only real way you are going to find out what is there.

Do not be afraid to ask questions to the locals in the area, they are your biggest known source of information. The one thing that is exciting about cave and wreck diving is what some times looks like the end can be nothing but the beginning or entrance to a whole new chamber and passages. The more information that you can gather before the actual trip can give the trip that much more of being a success.

Caves: To know if there is an “underwater cave” you will never know if it is a cave or just a puddle of water unless you put your equipment on and go in. Getting to know where the water ponds are located the best source of information is the guides using for dry caving. The guides spend their time in the caves and sometimes they are stopped because of the water and cannot continue on. These small ponds are

called sumps and can actually lead to another large chamber. At first the guides had no idea of what I was looking for until I showed them some pictures. This was a big learning curve for both of us. We would try to put together possible 3-4 sites that we could explore to make the trip worth putting together. One of the very first trips that we put together we dove 7 new caves in a 7 day period.

The Guide normally will have all of the connections and can arrange the porters to help carry the equipment and tanks. The guide usually knows of the local boats that can be rented and hotel rooms can be used. One other big importance of hiring a guide is that they usually know the local regulations and procedures to do the dives. In the past we have had to get permits or just permission to certain areas before we could enter. Make sure you check to make sure how long it would take to get the permits processed. In some areas it may take 3 months or longer just to get the permits approved. To get the permits they are asking specific information on the cavers, location of exploration and how long you will be there. To make it more appealing to the locals we try to help them gain information that they need but finding where the waters actually goes or is coming from. I try to write articles and videos help trying to promote their towns. You have to remember that all land does belong to someone whether it that be a certain individual or a state, so getting proper permission is a must in all situations. When leaving the area make sure that it is as clean or if not cleaner then when you had arrived. We have had tourism departments supply us with transportation and additional help just for what we can help contribute. Make sure you bring all of your basic diving equipment that you will need since some of the locations there are no dive shops around for hours. Finding tanks and compressors to use can cause big issues the further you get away from the main diving areas.



I have had to contact local fisheries that were able to help supply tanks and fills for the trip. Some of the exploration trips we have put together there were days we toughed it out sleeping in the jungle or some of the more luxurious trips we stayed in hotel rooms.

Always check with your Embassy in the country you are planning to go if there are any special traveling warning that may be out. Listen to what they have to say because some places just do not like tourists.

Wrecks: For me finding new wrecks my best source were the local fisherman. In the area of where I live they will use two boats dragging large nets to help scoop up the fish. One thing that will upset a boat captain is actually hooking the nets on a wreck. Normally this will damage if not destroy the nest that they are dragging. A smart boat captain will put in the GPS location down in his magical book or log it into their computer where he snagged the nets. The boat captain may not know what is down there but once you dive it you can verify the site. The upside to snagging the nets on the wreck is that the fish find home in the wrecks to live and feed from. The boat captains will drag the nets around the outside of the wreck trying to catch the fish that they need. Head down to your local fishing port where the boats are loading and unloading and find someone willing to help you out.

Slipping the a few bucks goes a long way, hiring the boat to take you out to the site to dive will make them much more happy when you rent there boat. While sleeping at night out on the site there are usually other fishing boats that will pull up along side. A few bottles of beverages and they will give you all the GPS numbers you would want. We have been out on 5 day trips before and we were able to dive 4 unexplored wrecks which makes for a very happy dive team. A lot of the wrecks we have discovered were sunken freighters or fishing boats. These were normally sunk in bad weather. Talking to the boat





captains and we were told about pieces of pottery that were caught in the nets. When you come across something like this the best thing to do is to contact the local Under Water Archeology departments. Every area the laws can vary from place to place.

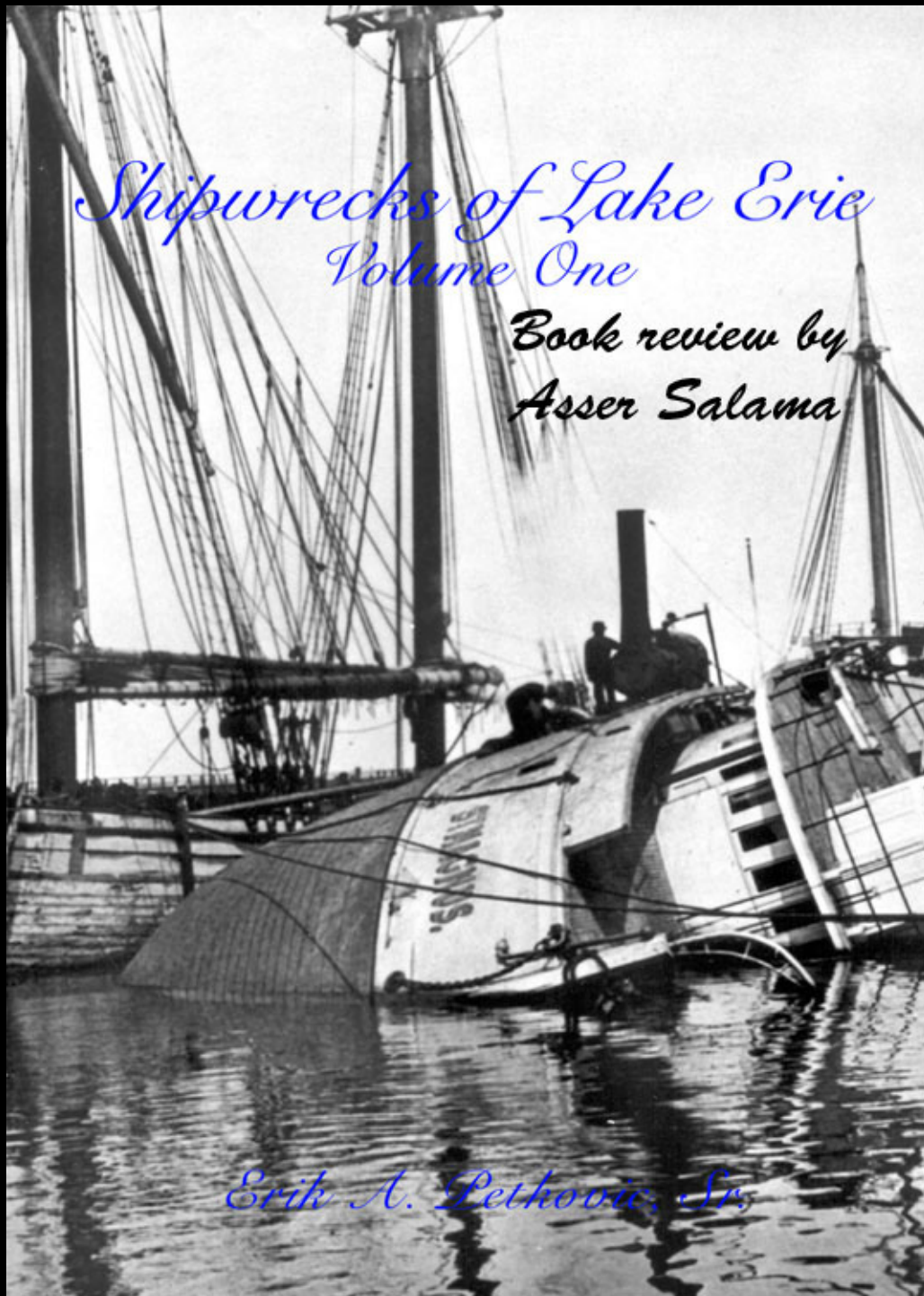
Some of the penalties are very high for diving or bringing up pieces of an ancient pottery wrecks. The UAD can find out the history of the wreck that has been discovered and can help share this information with the rest of the world.

A lot of cave divers I know like to go to Mexico for diving, I prefer to go to Samar Philippines. There are countless numbers of caves to explore there. One of the longest caves discovered so far is 4,490m long by a highly respected group of technical divers.

The two best guides in the Philippines that I like to use to help with the trip are Joni Bonificio of Trexplore the Adventure, Catbalogan Samar and Eleazar T. Labtic, Huplag Speleo Adventure Tour, Borongan City, Eastern Samar (huplagspeleo2010@gmail.com).

Read about are next cave and wreck exploration article that will be out July of 2017. We will be exploring what is to be a WWII wreck at a depth of 90m and 3-4 caves in the same area.

Bruce Konefe is a pioneer technical cave and deep wreck, sidemount and rebreather instructor training director – with over 20 years full-time experience planning and organizing the most ambitious technical diving expeditions throughout Thailand, Malaysia, Vietnam and the Philippines. Get to know more about him at www.deeptecdiver.com or contact him directly at sidemountdiver@hotmail.com.



Good books about shipwrecks are dependent on the author's ability to do research. And from the beginning, it is obvious that Erik Petkovic has done his homework. I was told it took him six years to come up with the information in this book; *Shipwrecks of Lake Erie – Volume One*, where he has fully utilized his research skills to uncover detailed accounts of the vessels involved.

Erik possesses the quality of producing fascinating accounts. He combined all the available details into a thoroughly absorbing read. His book is a good place to learn of those events and of the individual vessels now resting on the seabed. The book covers 18 shipwrecks: *Admiral, Brunswick, Carlingford, Clarion, Cortland, Dean Richmond, Duke Luedtke, Dundee, Erie, James B. Colgate, John B. Lyon, John J. Boland Jr, Little Wissahickon, Merida, Morning Star, Success, Two Fannies and Willis.*

The reader is taken through each wreck with detail paid to the history of the ship and the unhappy fate that she encountered. This makes *Shipwrecks of Lake Erie – Volume One* not only an interesting read, but also a very useful source of information.

