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The Journal of Diving History

Second Quarter 2015, Volume 23, Number 83
FEATURES

6 DACOR
By Ed LaRochelle

As one of the pioneering American recreational sports diving equipment manufacturers, DACOR is a familiar name to the generation of divers who entered the sport during the Sea Hunt years. Founded by Sam Davison Jr. in Illinois in 1954, DACOR produced a series of two hose regulators that are now collector’s items. In this article Ed LaRochelle records the various models of DACOR two hose regulators along with his research into their serial numbers and number manufactured.

15 The Mississippi River Find Part II
By Don Creekmore

In the prior issue Don Creekmore told of his adventures in locating the retired inventory of a family owned commercial diving and salvage company located near the Great Lakes. Many years ago this Depression-era family had maintained and stored all their diving equipment ready for use on the next job, but that “next job” never came, and everything remained in storage. Finally, in 2014, the last living member of the family, who had started diving in the late 1940’s, decided to sell all of the company’s diving equipment. In Part II of The Mississippi River Find, Don details the major items of diving equipment that he found in the family’s storage units.

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ON THE COVER
The cover photo is the DACOR model R-1 first generation series 2500 regulator. The photograph is courtesy of Ed LaRochelle, whose article on DACOR two hose regulators is our cover story in this issue.
Daron Says Goodbye and Bonnie Says Hello

As the Journal of Diving History moves through its 23rd year of consecutive publication we say a sad farewell to our Managing Editor and graphics guru, Daron Jones, who has accepted a full-time position at the Houston Chronicle. (Who are able to pay their staff a lot more money that the HDS can?)

Lee Selisky and I recruited Daron at the 2008 Underwater Intervention conference in New Orleans. At the time Daron was working for Doyle Publishing who produced the ADCI’s Underwater magazine, and during the preceding years had become a good friend to the HDS.

About that time ADCI had decided to change publishers, so Daron became available, and working with him, we quickly converted the primarily black and white Historical Diver Magazine, to the full-color Journal of Diving History.

The first issue of the Journal was published in Spring 2008, issue 55, and the HDS received immediate praise for the new standards from several sponsors and members. We are now at issue 83, Spring 2015, and the Journal management team has managed to maintain the standards established by Daron in that first issue. All at HDS and the Journal wish our great friend and supporter Daron, every success at his new position.

The search for Daron’s replacement has caused a delay in the compiling and publishing of this issue, but to modify the title of a Beatles song, “Daron Says Goodbye and Bonnie Says Hello.”

Our new Managing Editor and graphics guru is Bonnie Toth, who will be familiar to members as the recipient of the 2013 HDS E. R. Cross Award, and recognizable among industry professionals as the past Chair and current President of the Women Divers Hall of Fame (WDHOF). Bonnie and her company have a career stretching back over three decades, working in graphic design, brand imaging and promotion for industry companies like ScubaPro, Seaquest, AquaLung, Moby’s, Parkway, and Atomic Aquatics. Her lengthy volunteer service to the industry has helped HDS fellow non-profits the Academy of Underwater Arts & Sciences and WDHOF.

With Bonnie now at the helm we are pleased to present our usual blend of subjects on diving history, which continues our coverage of 2015 as the Year of the Military Diver. This includes an article from our friend Captain Bobbie Scholley USN (Ret) who reports on a belated recognition for six divers who were prisoners of Hezbollah in the 1980’s. Bobbie will be familiar to US Navy diving historians as the leader of the USN team that raised the turret of the USS Monitor in 2002 and we are pleased to include her contribution in this issue.

History continues to be made!

—Leslie Leaney, Executive Editor
The Board of Directors are pleased to announce that long-time HDS member Buddy Ayers, of Slidell, Louisiana, is the recipient of the Society’s 2015 E.R. Cross Award, for services to the mission and goals of the HDS.

In making the announcement the Board noted Buddy’s early assistance to former President Leslie Leaney and Executive Director Andy Lentz in establishing an HDS booth at the Underwater Intervention conferences in the early 1990s. With Buddy’s continued assistance and support the HDS has maintained a booth at every U.I. conference since. In addition to numerous volunteer efforts in guiding HDS California-based staff through some of the more extreme “cultural” differences in New Orleans and the surrounding Parishes and bayous, Buddy volunteered his home as the local HDS storage space between shows. His attention to detail when storing HDS items was well rewarded when Hurricane Katrina took part of the roof of his house with it as it passed through town, but all the HDS product stored in Buddy’s loft survived.

His regular support of the HDS in the New Orleans area has gained him the friendship of past and current HDS Directors Lee Selisky, Dan Orr, Steve Kushner and Sid Macken. Leslie Leaney recalled: “Buddy’s assistance was pivotal in allowing the HDS to be able to operate in New Orleans. Andy and I drove three days straight to set up at the HDS’s first U.I. show. HDS had no money to operate so it was a hand-to-mouth type venture. Buddy took us under his wing the first day of U.I. and looked out for us. He was very well connected. By the third day he had me sitting opposite Joe Savoie who was bed ridden in his home in Boutte. Savoie allowed me to interview him, and this was shortly before he died. It was not an easy interview. Over the years Buddy arranged all sorts of Cajun-connected diving things that an outsider like me would never have been able to do. He still tells me that I am the only Limey to get in and out of Boutte without being chased out. “Assuming there was another Limey who got in.”

The Board congratulates Buddy on this well deserved recognition and looks forward to presenting the award to him at Underwater Intervention 2016. &

Ed LaRochelle to receive the 2015 HDS Nick Icorn Diving Heritage Award.

The Board of Directors are pleased to announce that long time HDS member, and Journal of Diving History columnist, Ed LaRochelle, is the recipient of the Society’s 2015 Nick Icorn Diving Heritage Award for his contributions in managing and staffing the HDS DEMA Decades booth at the national DEMA trade Show.

In making the announcement the Board noted Ed’s total commitment to the project by doing all of the historical research, acquiring all of the historical display items, packing them, shipping them, unpacking them, setting them up and displaying all the items, then repacking them and return shipping them. The display area covers several booths which Ed staffs himself for the complete four-day DEMA show.

The HDS DEMA Decades booth was inspired by the many mobile museum displays of vintage sports and military diving scuba equipment that Nick Icorn used to assemble. A former HDS Director, Nick was an oracle of American recreational diving history and his massive displays were both educational and inspirational for the many recreational divers who joined the HDS once it was formed. The Decades program is an important part of the affiliation between the Diving Equipment & Marketing Association (DEMA) and the HDS, which are both membership based 501(c) 3 non profit corporations, and has proved a very popular attraction at the DEMA show. Ed has consistently provided a wide array of vintage, and often very rare, equipment and memorabilia, that serves to remind industry professionals of the lineage of the latest regulators, fins, knives, computers etc. Several attendees and HDS members note that the only other displays that they have ever seen like Ed’s were done by Nick Icorn, so it is very fitting that this year’s award goes to Ed. Thanks to Ed’s column in the Journal of Diving History, several of the display items from the DEMA Decades booth are able to be shown in the pages here and shared with members around the world.

The Board congratulates Ed on this well deserved recognition and looks forward to presenting the award to him in the HDS DEMA Decades booth at DEMA Orlando in November this year. &
The Board of Directors are pleased to announce the appointment of Bonnie Toth as Managing Editor of *The Journal of Diving History*.

For more than three decades, Bonnie Toth has shared her passion and creativity through outstanding visual communications, and advancing exploration of the undersea world through her deep commitment to diving and leadership in the industry. It is when she combined these two interests that she built a legacy for which we can all be proud and thankful.

As creative director and owner of Bonnie Toth Advertising & Design in San Clemente, California, Bonnie brings more than 35 years of expertise in raising awareness and creating brand image through graphics, positioning, design, and promotion. During that time, she helped shape the visual identities of numerous diving industry giants through catalog design, advertising, packaging, manuals, and more — from ScubaPro, Seaquest, AquaLung, Moby’s, Parkway, Divegear, and Sea and Sea Underwater Imaging, to Atomic Aquatics, DiveNewswire, and Ideations (DiveAlert PLUS).

Bonnie’s enthusiasm for marine exploration and diving — and furthering opportunities for women to play a more prominent role in the industry and its history — is why she has also devoted so much of her time and expertise over the years to giving back. For the last decade, she has donated countless hours behind the scenes to promote, grow, and raise awareness for such organizations as the Women Divers Hall of Fame (WDHOF), Academy of Underwater Arts and Sciences (AUAS), and the HDS.

Under her leadership and guidance, as a Board of Trustees member, two-term chair, and currently as president of the Women Divers Hall of Fame, the organization and its scholarship and training grant programs have flourished, growing from five awards in 2004 to 30 in 2015.

In 2013, Bonnie played a key part in the HDS Santa Barbara Underwater Film Festival honoring Ernie Brooks by designing and producing the 48 page, four-color commemorative program for the event, as well as assorted advertising, posters and ads for the program itself. Recently she designed and produced a collectible poster commemorating the 100th Anniversary of the U.S. Navy Mark V Diving Helmet.

Bonnie has tirelessly supported the mission of WDHOF, AUAS, and HDS for many years. It is truly her love of the oceans and her genuine concern for the future of our water planet that motivate her passion and drive.

All at the HDS look forward to working with Bonnie and welcome her to our historical family.
By Ed LaRochelle

Images courtesy of the author

One of the first Dacor ad's July 1956.

DACOR is the World's First and Only Double Diaphragm Two Stage Regulator, assuring Double Protection and Safety to the Diver.

One of the first Dacor ad's July 1956.
The story of DACOR begins with its founder Sam Davison Jr., who during the post World War II years of the late 1940s and early 1950s began experimenting with different ways of breathing under water. Sam soon became aware of WWII surplus Diluter O2 regulators that were modified for use as scuba regulators from instructions published in Do It Yourself magazines. Also the French Cousteau – Gagnan CG45 Scaphandre Autonome regulators were being imported into America and receiving publicity in newspaper articles and other media. Inspired by the success of these products, Sam began sketching his own ideas for constructing a scuba regulator, and with a small sum of money borrowed from his mother he set about constructing one.

In 1954 Sam met with his longtime acquaintance Wallace (Wally) Mitchell, who was a design engineer by profession and also very wealthy. Wally agreed to help Sam with his scuba regulator ideas and transferred Sam’s sketches into draftsman blue prints and assisted with the mechanical issues involved. The two men worked swiftly and by mid to late 1954 they had the prototype and production designs for the first generation of regulators, which were referred to as Lung model R–1.

In selecting a name for his regulator Sam had to avoid “Aqua Lung” which was protected by the French manufacturer La Spirotechnique, and later by Rene Bussoz, who imported Aqua Lungs for his US Divers brand. The Northill Garrett Corporation had also entered the regulator manufacturing market and called their model the “Air Lung,” but Sam kept the “Lung” connection going by calling his model the “Diving Lung.” He also had to find a name for his new company and used the first two letters of his last name Davision and the first three letters of Corporation, to form DACOR.

Sam Davison Jr. filed to incorporate in April 1955, as the “DACOR Corporation,” and Wallace Mitchell filed for patent #3,028,859 for an Underwater Breathing Device on September 19 of that same year with DACOR as assignee. Production for the first generation series 2500 regulator began in the spring of 1955.

THE SERIES 2500 REGULATORS

DACOR would have three model versions of the series 2500 regulator during a seven-year production period from 1955 to the end of 1961. All three models used the same two-stage pressure block, the same case body, case cover, exhaust spacer, springs, levers and diaphragms, which left the three models with very few differences.

The following section records my research into the series 2500 in the first generation model R-1, then the second generation model R-2, and finally the third generation model R-3 regulators.
DIVING-LUNG model R-1
(see photo #3)

The R-1 is a two-stage pressure reduction system with two mechanical levers to activate flow. The unique design using two low-pressure diaphragms would become the trademark and strong sales feature for most of DACOR's two hose regulators.

During the design phase for the regulator Sam had a problem with the exhausting air in the breathing cycle. Cousteau-Gagnan had a patent for their exhaust design, and Sam did not like the method used in the Northill Air Lung where the exhausting air mingled in the same chamber as the inhaling air before exhausting out through a mushroom valve, creating a potential problem for water contamination. Sam's answer was to have the chambers separated via two diaphragms. The first diaphragm was to seal out water from the inhalation chamber and activate the levers on inhale. The second was to sense increased water pressure and transfer that pressure to the first diaphragm. Additionally, a mushroom valve was placed in the center of the diaphragm for the exhaling air from the diver. An afterthought was that the regulator now had a double protection feature and DACOR would use that as a major selling point. (see photos #4 & 5)

Air entering the regulator from the tank valve was filtered by two screens and a perforated brass metal disc. (see photo #6) The exterior parts of the regulator were finished in brushed nickel chrome, and a black painted nameplate was riveted to the cover. The nameplate reads, "DIVING LUNG, 2 stage regulator, Dacor Corporation, Evanston, ILL." which is followed by the serial number. (see photo #7) The main body case, diaphragms and cover were clamped together via six screws and nuts. The hoses were very soft and pliable, and only 17 inches long, with one inch and one and a quarter inch openings. Hoses were attached to the regulator and mouthpiece with tinnerman clamps. All DACOR model two hose regulators used tinnerman clamps. The mouthpiece assembly had an off-center mouthpiece design, for which DACOR held patent rights. (see photo #8)
DACOR SEEKS NAVY APPROVAL

With production underway, DACOR sought to expand its market by getting its regulator approved by the U.S. Navy. DACOR regulator serial number 588 was submitted to NEDU, but the official report stated that it failed. As the first report was not favorable, DACOR requested further evaluation of the apparatus, and in April 1956, after some adjustments, regulator 588 was re-submitted along with a second regulator serial number 923. This time the NEDU report stated that, “the DACOR Diving Lung demand regulator meets EDU laboratory criteria of suitability for the use in the Naval service.” Some comments were made that the small check valves on either side of the mouthpiece were too small and restrictive, but were marginally acceptable. DACOR could now include “Navy Approved” to their credits and use the term in their advertisements. (see photo #9)

From my research, verified serial numbers to date for the first generation series 2500 model R-1 are numbers 588 to 1,646. This takes into consideration the two regulators verified in NEDU test report. These figures equate to 1,058 regulators, with a probable 1,500 regulators made by the end of 1955. Since no regulators have surfaced with a serial number below 1,000, one can’t help wondering where the low-serial-numbered regulators went. Since only serial numbers in the 1,000 bracket have been found, I will only consider those in the total count for the collector. Verified serial numbers are from 1,183 to 1,646, this equates to only 463 regulators, with a probable of some 500 manufactured. This explains why we very seldom see an R-1 regulator come up for auction.

DACOR DIVING-LUNG model R-2
(see photo #10)

The model R-2 regulator was introduced in January 1956 and would continue in production until early in 1959. The R-2 was essentially the same as the R-1 but with some minor changes. The first and most notable was the label, which now read “DACOR, DIVING LUNG, double diaphragm, 2 stage regulator, Dacor Corporation, Evanston, ILL.” followed by the serial number. (see photo #11) Next were the hoses, which were now made with crush proof ribbing making the hoses stiffer
but still pliable enough to not interfere with a diver’s side-to-side head motion. The hoses had also been increased in length to 20 inches. At some point during the year DACOR replaced the three-piece inlet filter system with a single filter screen (sinter metal). (see photo #12) Verified serial numbers to date for the second generation series 2500 model R-2 regulator are, numbers 2,140 to 7,756. This equates to 5,616 confirmed regulators manufactured with a probable 6,000 made over the three-plus years of production. Since no regulators with serial number under 2,000 for the R-2 regulator have so far been located, it is presumed DACOR started the R-2 regulators with serial number 2,001.

**DACOR DIVING-LUNG model R-3 (dial-a-breath)**

(see photo #10)

The last model for the series 2500 was the R-3, which was nicknamed the “Dial-a-Breath” and introduced in April 1959. A small adjustable vane (butterfly valve) was added in the path of inhaling air to the already proven R-2 regulator. (see photo #13 & 14) The principle was that the airflow could be slowed or maximized depending on the diver’s need. This could be done by either presetting the vane direction before a dive or by reaching back and turning the knob during the dive. The low-pressure seat and lever assembly was rotated 90 degrees to inject air at the intake opening and around the butterfly dial-a-breath assembly. (see photo # 15) All other features for the model R-3 were the same as the model R-2, including the label. (see photo #11) During 1961 DACOR introduced a new mouthpiece with larger one-and-one-quarter-inch check valves, and hoses that were increased in size on one end to accommodate the larger mouthpiece and secured with tinnerman clamps. (see photo #8)

So for collectors of DACOR regulators it is likely that you may find a late serial number R-3 regulator with the newer hoses and mouthpiece assembly. The exterior finish of the “Dial-A-Breath” regulator was brushed nickel chrome as were the previous models, but several regulators at random times of production were finished in polished chrome. I have verified four of these to date: serial numbers 18,900, 30,328, 30,331 and 30,971, making these models an extra novelty. The “Dial-A-Breath” regulator would remain in production for nearly three years ending in December 1961. Serial numbers continued in sequence with the ending of the model R-2. To date, verified serial numbers for the series 2500 model R-3 are numbers 7,876 to 34,068. This equates to a whopping 26,192 confirmed regulators manufactured with a probable 27,000 made over the three year period.
THE 1960S. DACOR GREW TO BECOME A MAJOR SCUBA DIVING MANUFACTURING COMPANY

As a young company in the expanding field of scuba equipment manufacturing DACOR would survive through the trial years of the 1950s, and expand during the decade of the 1960s when it would become one of the major players in the fields of innovation and safety in that industry.

1962 DACOR MODEL R-4 (see photo #16)

By 1962 DACOR had almost eight years of success and it was time for a major makeover for their 2500 series two hose regulator designs. With access to new technology and a wealth of manufacturing experience, DACOR went back to the drawing boards and made several major changes to the internal workings of the regulator and produced the R-4 series. They added more adjustment features for fine-tuning the high pressure and the intermediate pressure setting, and completely changed the second-stage valve, poppet assembly, and levers. They also moved the location of the low-pressure spring, and added an adjustment screw for fine-tuning and lever height adjustment. By adding more ports for filling the inhalation chamber, they also increased the air-flow to the diver. (see photo #17)

The R-4 regulator maintained the double diaphragm system, and also the adjustable vane (dial-a-breath) feature. The newer design large mouthpiece and hose assembly patented in 1961 was used on this model and all future models. The label got a make-over as well, and now read “Double Diaphragm, two stage regulator, DACOR, Model R-4, Dacor Corporation, Evanston, ILL.” followed by the serial number. (see photo #18) The R-4 regulator would have an 11-year run, from 1962 to the end of 1973, which would be the longest of any of the DACOR model two hose regulators. During those 11 years DACOR Corp. would move their plant twice. The first move was to Skokie, ILL. and then later to Northfield, ILL. I have never located or seen an R-4 label with the Skokie address, but labels with the Northfield address start to appear in 1970 at around serial number 7,000. The famous dial-a-breath feature was eliminated in 1966 at around serial number 3,500, and the exterior finish would change from brushed nickel chrome to polished chrome in 1963 at around serial number 1,650. One gold-plated R-4 regulator with the serial number 1,111 was presented to DACOR to celebrate the start of a new generation regulator.

To date, verified serial numbers for the Model R-4 regulator are 1,057 to 9,162. This equates to 8,105 confirmed regulators, with a probable of 9,000 manufactured over the 11-year production cycle.
In 1963 DACOR introduced two models to their two hose regulator lineup: the R-4 and the new C-2. The patent protection held by Cousteau and Gagnan for the exhaust system design in the Aqua Lung had run its course and now could be copied. In producing the C-2, DACOR took the basic R-4 and kept the dial-a-breath feature, but removed the cover, exhaust diaphragm and exhaust chamber, and replaced them with a new cover and a duckbill exhaust valve. They called this new model the CLIPPER C-2. The front cover was now larger and boxier in shape so the main inhalation diaphragm also had to be changed in shape from the R-4. They also added a rubber spacer ring just under the cover to take up the slack where the second exhaust diaphragm would have gone. (see photo #20) On the cover face a small red CLIPPER label was placed at the top, and a blue WORLD symbol label at the bottom, giving the regulator a unique look. The black label read, “Two stage, regulator, DACOR, model C-2, Dacor Corporation, Evanston, ILL.” followed by serial number beginning with prefix C. (see photo #21) The regulator had a polished chrome finish and came with the same hoses and mouthpiece assembly as the R-4. The CLIPPER C-2 would have a three-year production run from 1963 to 1965.

I have noticed a void in the sequence of the serial numbers for some unknown reason. No CLIPPER C-2 regulators with serial numbers in the 2,000 series have yet to be located, so the only verified numbers in the 1,000 and 3,000 brackets will be counted. To date, verified serial numbers for the CLIPPER C-2 regulator are C-1,024 to C-1,981 and from C-3,058 to C-3,985 for a verified number of 1,884 and a probable of some 2,000 manufactured over the three-year period.
DACOR MODEL C-3 “CLIPPER” REGULATOR  See photo #22)

In 1966 DACOR introduced the model C-3 CLIPPER regulator, which replaced the model C-2 CLIPPER. The main body and internals remained the same with the exception of the dial-a-breath feature. That was now fixed in position and no longer usable, and the dial-a-breath sticker was removed from the regulator. A year later the entire dial-a-breath assembly (exterior) parts were removed and the interior butterfly was soldered in place. DACOR also eliminated the dial-a-breath feature from the model R-4 regulator that same year. The front cover had a new more streamlined shape, and this time it was adjusted to fit without having to use the rubber spacer as in the C-2 model. The CLIPPER and WORLD tags noted on the C-2 model were eliminated and the black label read; “CLIPPER, two stage regulator, DACOR, model C-3, Dacor Corporation SKOKIE, ILL.” followed by the serial number beginning with prefix C.  (see photo #23) Sometime in 1970, around serial number 4000, the address would change from Skokie to Northfield, ILL. It is worth noting that the model R-4 also changed address that year. The CLIPPER C-3 would be the only two hose regulator to have the Skokie address displayed, and would have an eight-year run, from 1966 to 1973. Confirmed serial numbers with the Skokie address are C-1,041 to 4,267, and regulators confirmed with the Northfield address are from C-4,948 to C-6,376. This equates to a total of 4,654 regulators with a probable number of 5,000+ manufactured during the eight years.

DACOR MODEL C-3N REGULATOR  (see photo #24)

1974 DACOR introduced the C-3N regulator. By this time the diving industry was shifting to a new standard in tanks, which were made from aluminum alloy and had a pressure rating of 3,000 psi. DACOR upgraded their regulator with a heavy-duty yoke and yoke screw to handle this increased pressure. They would also use the proven design of their high pressure and intermediate pressure parts, but did make some adjustments such as Teflon coating the high pressure seat assembly, free floating second stage seat, and low modulus diaphragm to lower inhalation effort. For the external parts DACOR would use the cover, exhaust ring assembly and inhalation diaphragm from the model R-4 and the duck bill exhaust valve used in the C-3 rather than bringing back the second exhaust diaphragm feature. The result was the look of their previous model R-4 with a new design for the C-3N. The black label reads; “Model C3-N, two stage regulator, DACOR, Dacor Corporation, Northfield, ILL.” followed by serial number beginning with prefix N. (see photo #25) The C-3N regulator would be featured in the company catalog for eight years, from 1974 to 1982. In 1978 the C-3NB, for balanced, regulator was introduced, but no label has been found showing the B or stating “Balanced” on the label. To date, verified serial numbers are, N-1,017 to N-3,367, for a total of 2,350 confirmed regulators over an eight-year period with a probable of some 3,000 manufactured.

THE END OF THE TWO HOSE REGULATOR FOR DACOR

By 1982 only the military and special interest groups were ordering two hose regulators. DACOR had always shown a strong interest in the single hose principle and actually had drawings early in the 1950s, but for unknown reasons the company chose not to enter the single hose market until 1961, when they introduced the “DACOR DART.” The company founder Sam Davison Jr. passed away in 1987, and the company remained in the family until 1998 when it was sold to Mares.

For 40 years DACOR thrived as a leading producer of scuba diving equipment and it is now recognized as one of the nation’s earliest pioneering regulator manufacturers. The contributions to the industry and sport of scuba diving made by Sam Davidson Jr. have been recognized by his induction into the International Scuba Diving Hall of Fame in 2013.

REFERENCES AND CREDITS


I would like to thank Jerry Powell “ScubaTech” for providing original photos of DACOR prototype R-1 regulator, data and input on serial numbers.
In the previous issue I recounted the story of my wife Jenny and I meeting Jack, who was part of a family of divers who operated a company from the 1930s into the 1990s in the Midwestern United States. We called our adventure the Mississippi River Find. We had agreed not to disclose his family name or location, but we will release these at a later date so the historical record for HDS can be completed. While speaking with Jack we would discover a wonderful person who had first-hand experience in the commercial diving industry, and who also happened to have his company’s entire inventory of equipment intact and ready for the next job. Part 2 of this story focuses on some of the items we found and also what we learned, not only from Jack, but from the equipment itself.

After a deal to purchase the equipment was made, Jack was kind enough to take us on a brief tour of where he grew up and some of the first places he dove. It seemed like there wasn’t a body of water he hadn’t worked in as we drove along and listened. It should be kept in mind that Jack wasn’t the type to brag or overly inflate stories. He was simply giving us a context for where he got his start in the diving business and what types of jobs he had to perform. After the tour we went to lunch and discussed further the rigors of commercial diving and the toll it takes on your body, both physically and mentally.

The physical side of handling the heavy gear and fighting rough currents in cold water was obvious to me. The physiological aspect of diving had me asking more questions. Jack said once in a while they would bring their gear to an area and let people try it on and even go underwater briefly. He said it was only a matter of seconds before you could tell if a man could be a diver or not, just from their reaction of putting the helmet on and then slowly slipping under the water.

After having an enjoyable morning and lunch with Jack and his wife, the hard work of moving all the equipment was about to get started. Initially I mostly focused on the beautiful diving helmets and didn’t give the mass of other equipment much thought. As my wife and I started surveying what we had just purchased, the reality of the situation set in - we are going to need a bigger truck! We quickly made arrangements to get the largest U-Haul we could find and all of the appropriate moving supplies. Luckily, Jack had some friends and family members ready to help, which was greatly appreciated.

Then and now. The two-diver pump manufactured in 1898 by Andrew J. Morse & Son, Boston, Mass.
Slowly we made a plan to start loading the truck with the heavy stuff, which in this case was the diving pumps weighing in at many hundreds of pounds each. The most difficult, but also the most exciting one, was a big Morse two-man pump. It was buried under two other pumps, but I immediately recognized it from numerous photos Jack had showed me. This pump can be seen in action in one of the marvelously detailed photos included in part one of this story.

Like all of the equipment, this pump was very well taken care of and fully functional. All of the hardware and small tools associated with it were kept inside a small wood tool box built for the inside of the pump, so it would be ready to take out to the next job. All the pump’s internal parts featured the same matching serial number and the outside case has a wonderful patina. The huge cast iron wheels had been removed and set beside it. Covering the shaft where the wheels mount were cast iron covers or cones. We quickly found out why the wheels were kept separated from the pump, as they seem to weigh a ton! The handles to each flywheel were kept inside the pump to save on space as well. It was all extremely well organized.

Once the pump was loaded on a furniture hand truck, four men proceeded with all their might to inch the pump up the loading ramp and into the U-Haul.

Everyone had a sense of accomplishment after the huge oak box with brass pistons and cylinders inside had been successfully moved. After a few seconds of everyone sharing a moment of victory we realized the large cast iron flywheels were next and then three more huge pumps after that!

It would later be found out from the Morse Company records that this pump was made in 1898 and was originally purchased by the U.S. Navy. According to their records, the pump was probably part of a larger order made by the Navy for use on salvage operations on the U.S.S. Maine and for additional use during the Spanish American War! In an A.J. Morse & Son catalog from 1904 the company even has an advert explaining that the Navy ordered 96 sets of Diving Outfit No. 1, which contained a two-man pump like this one.
The next pump to get loaded was a Morse Number 3 single diver pump which seemed half the size and much easier to move. Once again, with research from the Morse company, we were able to date this beauty to June 29th, 1918. The pump also had all its tools and hardware present, and had a crude, yet effective, piece of painted advertising on the side – “Commercial Diving.” As a matter of fact, this pump can be seen on the far left in the vintage photo featured on the cover photo HDS issue 82. Later, after getting the pump back in our shop and looking over that photo, little details such as a brass chain and lock are still present on the pump just as they were in the 1940s photo.

Details such as these were actually the norm rather than the exception. I can’t stress enough in just how good condition all the equipment was kept in. Nothing was out of place and everything was maintained or repaired professionally. The idea of not having tools ready for the next job was non-existent and it showed!

Other pumps to be manhandled into the truck were an Schrader single-diver pump, also shown on the cover of issue 82. This pump was a three-cylinder single action pump without a water cistern and rated for work up to 100 feet deep. The inside of the top lid was painted white and had a brass Schrader plaque attached. This unique detail made the pump easy to locate in the photos.

The last of the wood cased antique pumps was a single diver three-cylinder pump that was relatively nondescript in appearance. Like the other pumps, it was kept in very good condition with all its associated parts and tools with it. It would later be determined that the pump was likely made by Alfred Hale of Boston, Mass. A very similar pump illustration can be found in the Hale company catalog from 1917. Initially this seemed like an unusual pump to be found among this equipment, until the diving helmets in the find were inspected.

Once the big pumps were arranged and secured, literally many thousands of pounds of general diving equipment was waiting in a basement and garage to be moved. Dozens of weight belts, individual lead weights, air and communication lines, welding equipment, boots, suits, nozzles, lights, radios, gloves, clamps, chains, boxes and more boxes! This wasn’t just a small collection of items, but many decades of a company’s heavy equipment that had been purchased to be ready for any diving job. Many of the items were unused stock from World War II that simply never got used.

While heaving the weight belts and individual lead bars up basement stairs and into a truck I thought about all the times this occurred before a big dive job. Jack told me just getting the equipment to the job site and then back home again was a big job in itself. As the moving was progressing Jack would stop me and recount a story associated with an individual tool, or explain why his family purchased the item. Alas though, Jack wanted everything to go. As he put it, they were simply tools he no longer had a use for and he wanted the items to find a good home.

Another smaller Schrader pump next to it was a two-cylinder single-action pump. This pump was for smaller jobs and could be moved around a lot easier than the larger behemoths. It too was also present in many photos, including a press photo showing Jack retrieving a rifle dumped into a lake after a murder. The photo has two guys with suit jackets and hats on happily pumping away while others watch the diver. The photo was taken during the winter so pumping air probably wasn’t too bad a job that day.

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The second was from World War II, dated October 1943, and it appeared that the helmet was purchased after the war as unused stock and then used with care by Jack and his family. The helmet had almost all the tinning remaining and was in complete condition and ready to use. I asked Jack if he had a preference between the two Mark V’s, pointing out the dates on them. He said up to that point the date or manufacturer of the helmet made little difference to him. As long as the helmet was in good working order and got the job done, that was his primary concern.

With that comment made by Jack it reminded me that originally helmets and other equipment were purchased based on the quality and price of the tool. It’s sometimes easy as a collector and dealer in this equipment to forget that, to a diver, it really didn’t matter whether a Mark V was made by Morse, DESCO, Schrader or Miller Dunn - or even when it was made. As long as the helmet was safe and ready to use, that’s all that mattered. The year of manufacture, or whether the helmet had a USN inspection stamp in the right place, were of little concern.

The next helmet I picked up was a three-light commercial Schrader model dating to the 1910s with the New York, USA address on the breastplate and neck ring. The helmet was just a magnificent example that was complete and like all the other equipment, ready to use. Because this helmet was somewhat unique compared to the others, it was easy to spot it in vintage photos taken of Jack and his family during jobs. As a matter of fact some of the most strikingly detailed photos in the collection show this very Schrader helmet.

Personally, I feel that when something like a vintage diving helmet is shown in a period photo and the actual item is right in front of you, it’s like traveling back in time for a moment. In almost every case when an antique helmet is found, having a photo of it in use is quite rare. With most the helmets and other equipment in the Mississippi River Find, each one had at least one photo of it in action from the 1930s to the 1950s. Not only does that provide a spectacular provenance but it also is a direct link back to a place and time, which is about as close to a time machine as one can get in my opinion.

After more hours of moving lots of lead and brass, almost everything was packed up, except for the diving helmets themselves. When it came to loading the helmets Jack would tell me about the characteristics of using each different model. The two Schrader U.S. Navy Mark V helmets were familiar to me and were also Jack’s favorites. Jack loved using these as they were safe, durable and in his opinion the best hard-hat ever made. The first one loaded up was a superb example from World War I, dated April 3rd, 1918. The helmet was in great condition and had a lot of tinning still on it. For a helmet close to 100 years old, this helmet had been well taken care of its entire life.
The next two helmets were both early models made by Alfred Hale & Company of Boston, Mass., which Jack and the family had placed in storage long ago. One had an air fitting on the back of the breastplate just below the neck ring while the other was more traditional, with the air going into the back of the bonnet. Each helmet had Alfred Hale & Co Boston stamped into the breastplate rather than having a company manufacturer’s plaque. Both helmets were in great condition and hadn’t been used in a very long time. Jack mentioned to me that both were kept around but rarely ever used after the 1940s. They were considered to be older equipment by then and they just did not have the safety features and capabilities of the surplus US Navy helmets.

As we wanted to ensure that each helmet was safe and secure while traveling back to Kansas, we had purchased special blankets and containers for each helmet. Jenny carefully wrapped each one as Jack watched, while stressing that the helmets were durable and would be fine on the journey to Kansas. Jenny explained that we wanted to treat them with care and respect as we treasured each helmet and did not want to cause any dents or dings. He kind of snickered and said that when they went out on dives, the helmets would be put in the backseat with other gear - and on they went. They certainly were not wrapped in special blankets and put in special crates. Again, it goes back to the helmets being used as tools.

Of the general equipment that was loaded, the underwater lighting was quite interesting to me. Jack told me that in many cases the lights were of little use in a lake or fast moving river. That is probably why they didn’t carry many lights and worked mainly by touch since most of the time visibility was limited. In many cases on their dives in mid-western rivers and lakes they were not working very deep, so the ambient light would suffice.

One of the lights they did have was very old, with the bulb encased in heavy glass with a brass cage around it. Above the cage was a cylinder that held the electrical wires, and then above that a handle. The area where the wires were located was packed tight with wax to keep the internals waterproof. The other lights were the more traditional World War II surplus examples made of aluminum and with a large heavy-duty light bulb.

Among the individual items were quite a few large wood boxes. Many of these chests were taken on the job sites and can be seen in photographs provided to us by Jack. These chests in most cases had welding equipment for both underwater and above water use. One box even had smaller boxes stacked neatly inside with canvas gloves and canvas suit repair kits, still in their original boxes from companies such as Morse and DESCO. Jack told me the canvas suits would get ripped or gloves would wear out on the job so backups had to be at the ready.

Directly after World War II many surplus, or “Army Navy” stores, opened, sell-
During the entire trip home it was not thoughts of individual items we purchased that were on our minds, but rather that our big truck held a microcosm of how Americans in the Great Depression typically started with nothing, and with determination and effort continued to build a great country. Today, luckily, there are people who appreciate and enjoy learning about, and owning parts of, this history. It’s also why we felt strongly about sharing our experience so that the legacy of Jack and his family would live on in the pages of the Journal of Diving History, with the individual helmets, pumps and other equipment used to build the mighty infrastructure of America.

As they say, the show must go on. Almost immediately after we unloaded the truck at our shop, interested collectors around the world started buying their pieces of the Mississippi River Find. It was truly a rewarding experience to know we were helping preserve the history of these items by sending along information with all of the major items that sold. It also allowed us to meet some very special people who have a passion for preserving the history of diving, which is what the HDS is all about. Jenny and I were able to keep some of the special items to remember Jack and his family by, but it’s the memories, experience and knowledge gained that made this a once in a lifetime find for us!

THE AUTHOR.

Don Creekmore is an HDS member and, along with his wife Jenny, owner of Nation’s Attic Inc. in Wichita, Kansas, USA. Nation’s Attic is celebrating its 10th year in business specializing in the restoration of antique coin operated machines and the sale of antique diving helmets and related equipment. Both Don and Jenny enjoy travelling the world in search of elusive diving helmets for their customers and their own collection. They are shown here on either side of a Miler Dunn Divinhood Style 3.
The year 2015 has been historically significant for US Navy divers and military divers from all branches of service. The year marks the 100th anniversary of the first appearance of what would become the US Navy’s iconic Mark V helmet and diving system. It also marks the 35th anniversary of the establishment of the U.S. Navy Diving and Salvage Training Center (NDSTC) at Panama City, Florida.

To commemorate these milestones, the Navy designated 2015 as the Year of the Military Diver and held a week-long celebration from May 4th to 9th, with events at NDSTC and several other locations around the city. Notable activities included proclamations by the Governor of Florida and the Mayor of Panama City, an open house at the school, and diver reunions for all branches of US military services. Kirby Morgan’s Dive Lab hosted a barbecue and offered tours of their facility. The Museum of Man in the Sea likewise held a barbecue. Both celebrations were well attended by civilian and military personnel alike.
By far the largest event was an unprecedented open house held at NDSTC on May 6th. Not normally open to the public, the staff at NDSTC welcomed thousands of civilian and military visitors to the school’s grounds. A typical tour would include a stroll through the parking lot for a look at vendor booths which included the HDS and our member Leon Lyons, then down to the sea wall to view displays set up by Explosive Ordnance Disposal (EOD), Experimental Diving Unit (EDU), Salvage Units, Marine Recon divers, and a host of others. Tied up to the sea wall were two Navy diver support vessels. The final stop along the tour would be the CWO Robert A. Barth Aquatic Training Facility, a 40 foot deep training tank. On the top deck at poolside, visitors could watch dive tenders dress divers in and conduct dive support operations. At the viewing windows along the 20 foot level, they could see an Army diver in Mark V helmet and dress and a Navy diver wearing a Kirby Morgan 37 helmet engaged in their version of the Army/Navy football game.

For many civilians living in Panama City, this was their first look behind the gate of the Naval support facility, which has been their neighbor for many years. Curious non-divers and school classes, from kindergarten through high school, numbered among the thousands of visitors who came to view the Navy facility.

The Governor’s proclamation read in part, “Whereas, we commend our military divers for their dedication and sacrifice to our country; and Whereas we mark this day to remind the public about everything military divers have done not only for this state, but for our great nation; Now, therefore, I, Rick Scott, Governor of the State of Florida, do hereby extend greetings and best wishes to all observing May 6, 2015, as Military Diver Day in Florida.”

Our military divers, from all branches, be they combat swimmers, salvage, construction, ships husbandry divers, or any other military occupation which requires work underwater, have served our nation well. This tribute to their proud heritage was fitting and hopefully the first in a continuing series to recognize and celebrate their efforts.

Photo credits:
All photos by author
It was a typical deployment for the detachment. Pack up your gear and head overseas to work on a job in one of our allied countries. Put your skills to use supporting our operating forces worldwide. That’s what we do and have been doing for decades! They weren’t just divers though. They were highly skilled underwater construction battalion divers, or Seabees. The work they were doing was underwater maintenance at the Navy Communications Station in Nea Makri, Greece. When the job was complete, six members of the detachment boarded their flight for home in Athens, Greece on June 14, 1985. But that flight was TWA Flight 847 and the six members of Underwater Construction Team (UCT) Team ONE, Detachment NOVEMBER MIKE ’85, along with the other 147 passengers and crew, would not make it home this time on this flight.

Shortly after takeoff, two men waving pistols and a hand grenade with the pin removed stormed up the aisle and quickly hijacked the aircraft. They were Hezbollah terrorists, who demanded that the pilot land the aircraft in Beirut, Lebanon, then fly to Algeria, and then back to Beirut, all the while terrorizing the crew and passengers on the aircraft.

The terrorists singled out several members of the diving detachment, after recognizing them as members of the US military. They concentrated their abuse first on SW2(DV) Robert D. Stethem, dragging him to the first class cabin, binding him and beating him brutally for over 24 hours in an effort to get their demands answered. Petty Officer Stethem never gave into their torture. He never asked for mercy. His only concern was to try to keep the hijackers attention upon himself and away from the other passengers and divers. Ultimately, in a fit of rage, the terrorists shot Petty Officer Stethem and threw him from the aircraft onto the tarmac at Beirut. They then grabbed CE2(DV) Clinton Suggs, and started beating him more aggressively. If it hadn’t been for the intervention of the flight attendant Uli Derickson, Suggs might have suffered a similar fate.

The five surviving sailors were separated from the rest of the passengers and taken off the airplane in Beirut. Four of the sailors were taken by heavily armed Lebanese Amal Militia to a concrete cell in West Beirut. In the streets surrounding the cell, two different factions fought their own battles. The imprisoned sailors didn’t know what their fate would be. During their confinement they withstood death threats, mock executions and were forced to witness the beating death of a Palestinian prisoner. The constant threat of rocket attack and being overtaken by Palestinian guerillas, who were trying to kill the US captives to embarrass the Amal Militiamen, added to the horrific conditions.

The Hezbollah terrorists imprisoned the fifth sailor along with two other civilian passengers at a different location, until he was later reunited with his shipmates. Throughout their
imprisonment, the five divers maintained
the highest standards of honor, courage,
and commitment to our nation’s values.
On June 30, 1985, after 17 days of captivity,
the sailors were finally released to U.S.
representatives in Damascus, Syria.

Like all horrible tragedies, we tend
to look back at where we were when
we heard this news, and know that I
will never forget these events. I was a
young Lieutenant, just two years out of
dive school when this happened. This
hit me like a punch to the gut. It was
unfathomable! It would come back to me
throughout my career, as I would send my
own sailors out on deployments. We all
watched horrific death of Robert happen
before our eyes, but I never knew about
the other five who were held prisoner.
These five men went home, mourned the
loss of their shipmate, and then quietly
went back to work. Most of us never knew
anything about them. They all continued
their careers in either the active or reserve
navy. They all retired from the Navy and
moved back to their roots around this
great nation, and continued to inspire with
the same honor, courage and strength that
they showed during their imprisonment
in 1985.

But something was missing. After
almost 30 years, it was time to recognize
these six members of the Seabee and diving
community as the heroes that they are.
They had never sought out any attention
and preferred to live quietly as they always
have. However a friend, retired diver Keith
Reyes, who is a Purple Heart recipient
himself, started doing some research
and realized that they had not received
the Prisoner of War (POW) Medal. Keith
knew that they all deserved it but wasn’t
sure how to get through the paperwork
to make it happen. Being a determined
diver though, Keith was on a mission!

In the fall of 2013, he contacted the
Navy Diver Foundation-NDF (www.
navydiverfoundation.org) to see if they
could get help trying to make this happen.
NDF located the former Commanding
Officer of UCT ONE, CDR(ret) Buzz
Seltzer, who was immensely helpful. Next
they obtained critical advise from RADM
Martha Herb, who is the first salvage
diver to make Admiral in the U.S. Navy.
Eventually NDF was able to help Keith
fulfil his mission by sending an awards
package for all six divers to the Secretary
of Navy.

On December 4, 2014, the Secretary
of the Navy approved the Prisoner of
War Medal for EA1(DV) Stuart L.J. Dahl,
CE1(DV) Tony D. Watson, EO1(DV) Jeffrey
J. Ingalls, SW2(DV) Kenneth M. Bowen,
CE2(DV) Clinton Suggs, and SW2(DV)
Robert D. Stethem.

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At the request of all five survivors and the family of Robert Stethem, NDF, with the help of CDR(ret) Buzz Seltzer, organized an awards ceremony at the Inter-American Defense College at Ft. McNair, Washington, DC, on April 24, 2015. Once again it would take incredible teamwork to put together a worthy ceremony in just a few short months, but that’s what divers and Seabees do! Supported by this team comprising of retired, veteran and active duty personnel, who donated funding, time, services and support, the ceremony came together. The entire UCT ONE assisted with the planning of the ceremony and were an integral part of the event. Over 200 friends, family, and shipmates turned out on a beautiful sunny morning in late April on the parade field at Ft. McNair. There, in our nation’s capital, the Honorable Ray Mabus presented the Prisoner of War Medal to each of the five surviving divers for their heroism on that day 30 years ago. Then, last but not least, he presented a beautiful shadow box encasing the POW medal for SW2(DV) Robert D. Stethem to his parents, Richard and Patricia Stethem. (https://www.youtube.com/watch?v=vHCiUUouPAg)

Two weeks later all the divers were honored again during the Year of the Military Divers celebration at the Naval Diving and Salvage Training Center in Panama City, FL. In front of a standing room only crowd, they were presented with custom made USN MK V helmet plaques that represented the appreciation and admiration of their fellow divers. A surprise presentation was made with an honorary promotion to Chief Petty Officer for Clinton Suggs, approved by the Master Chief Petty Officer of the Navy. (https://youtu.be/-lJ57ES2Qf0) All of these events were our way of showing that WE WILL NEVER FORGET!

NDSTC Command Master Chief Steve Mulholland surprised Clint Suggs with an honorary promotion to Chief Petty Officer, during the YOTMD celebration on May 8, 2015. Pictured from left to right, BMC(SEAL/EOD)(ret) Ken Stethem, LT(Ret) Stu Dahl, CUCM(DV)(ret) Kenny Bowen, CE1(DV) Clint Suggs, CDMMC(MDV/SW) Steve Mulholland, CDR Hung Cao, CO of NDSTC. Photo courtesy of NDSTC.

Stu Dahl and Kenny Bowen pin newly promoted Chief Suggs while Ken Stethem places a CPO cover on his head during a surprise honorary promotion at NDSTC during the YOTMD celebrations on May 8, 2015. Pictured left to right LT(ret) Stu Dahl, BMC(SEAL/EOD)(ret) Ken Stethem, CEC(DV) Clint Suggs and CUCM(DV) Kenny Bowen. Photo courtesy of NDSTC.
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The Journal of Diving History
We continue our salute to the Year of the Military Diver with this brief illustrated article about diving by the U.S. Navy at the Diving School at the Washington Navy Yard. Although only two pages in length, it was the cover feature for this *Mechanix Illustrated* issue. The publication was not historically oriented and the statement here that Badders and McDonald made a record dive to 500 feet in 1940 is slightly incorrect. Their 500 foot dive was at the Washington D.C. Navy Yard in 1938, a year before the *USS Squalus* sank. Also, the photos of the divers in USN Mark V equipment shown here are both reversed showing the components on the wrong side of the helmets. The new lightweight Jack Browne system by DESCO had been introduced during WWII and is shown here opposite the traditional USN helmet diving equipment.

– Leslie Leaney
Diver in full dress being lowered into one of the high-pressure tanks in which the diving record of 500 feet was established.

In this decompression chamber, diver recovers under gradually lowering air pressure preventing bends.

UNDER laboratory conditions, equivalent to the real thing, the record dive of 500 feet was established in 1940 by Navy divers McDonald and Badders at the Deep-Sea Diving School in the Washington, D.C., Navy Yard. The only deep-sea diving school, and the only one where a diver can attain a 1st class rating, has developed new and improved devices which make deep dives safer.
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After a less than successful attempt to convert a sailboat into a usable dive boat, retired professional diver Torrance Parker and his friend Rick Eriksen, who owns the ketch Seamark, decided to replace the ketch with a work boat that would be more practical for their interest in traditional surface supplied diving. To help share the load Parker and Eriksen invited their old friend, Charlie Orr, a hardhat equipment enthusiast and founder of the California Classic Equipment Divers, to join them as partner.

Back in 2006, Eriksen had spotted a tuna troller called Betsyanna, tied up in a Wilmington boatyard. Eriksen used to sail past it in the Los Angeles Harbor main channel and found out that owner Eric Puijman was agreeable to selling. In 1998 the vessel had been grounded at Catalina Island and suffered hull damage to her port bilge strakes, as well as some of the frames. Temporary repairs had been made with wood doublers over the gouged planking. When the Betsyanna was hauled out for surveying, the temporary repairs were removed and the extent of the damage was revealed, and a purchase price was agreed on. The cracked frames were sistered up and the hull planking was replaced and caulked over a period of 23 days in the yard of Wilmington boat works.

The newly built aluminum ladder was removed from the Seamark, modified, and installed starboard on the Betsyanna. A two-stage Quincy 325 air compressor belt-driven off the 471 Detroit Diesel engine was installed, while in the cargo hold a 60-gallon air receiver and a Deltech air filter were installed. The hatch cover for the cargo hold was removed and Parker designed a hose box that fits in the hatch opening, which still allows access to the hold. Wayne Ettle, owner and operator of the boatyard where the boat was found, and where it’s still moored, built the box with a roller installed at the base for ease in handling the 350 feet of hose and Kludge fathometer. Wayne also built the shelf for the intercom, and a clock was mounted to the underside of the box lid.

Parker, Eriksen and Orr re-christened their new dive boat the Charlie Smale, in honor of one of the first pioneer divers to work in the Los Angeles Harbor. At one time Smale was a competitor of Parker’s but later on they became good friends.
The tuna troller was originally built by John DiMeglio in the backyard of its original owner Wallace Cameron’s San Pedro residence on Walker Street. Construction began in 1980 and was finished in 1981, with the goal of using the vessel for albacore fishing. DiMeglio put mahogany planking on an oak frame, and the vessel featured a round bilge and fantail rimlog stern. The fastenings were Monel, ringnail and stainless steel. The Charlie Smale’s overall length is 37 feet, beam 12 feet, draft 4 feet 4 inches, and tonnage is 14 gross, 9 net. The hold was designed to hold five tons of albacore. The Charlie Smale’s tanks hold 300 gallons of diesel, 200 gallons of water, with a 45-gallon stainless steel holding tank port amidships. It has dual steering stations – one in the wheelhouse and one on the chariot bridge. All the varnished wood interior and exterior was salvaged teak planking from the cruiser U.S.S. Los Angeles and installed with yacht-quality workmanship.

The Charlie Smale has been used for diving demonstrations at the Los Angeles Maritime Museum, and has also been to Catalina Island for underwater filming at Eagle Reef and Emerald Bay, as well as White’s Point, Rocky Point and other locations off the Palos Verdes Peninsula. The last diving demonstration aboard the Charlie Smale featured Parker’s sponge diving demonstration at the Los Angeles Maritime Museum, in conjunction with the recent publication of his book 20,000 Divers Under the Sea, the history of sponge diving. The boat’s owner-partners have shared upkeep, and maintenance, and while Parker did most of the planning and engineering, Eriksen did the mechanical work and fabrication, Orr took care of the carpentry and painting. As a seasoned and well respected commercial diver Parker is very attached to the boat’s diving capabilities and recently noted, “I call the Charlie Smale our “Troller Yacht.” Built to troll for albacore off Mexico, and to fish salmon in Northern California she makes a stable and seaworthy work platform for diving operations. Her five-ton cargo hold enables us to carry a lot of equipment.”
of extra underwater equipment for our exploration and photographic projects, and her spacious after deck is essential when diving standard gear. A hydraulic anchor winch takes the work out of mooring over a diving site -- and after a dive it sure is nice to go into her wheelhouse for coffee, a little rest, and good fellowship. Whether working her far offshore or in port, she is a joy to dive from.”

The three partners keep everything on the boat in good working order. For the past eight years, the dive boat Charlie Smale has proven itself to be sea-friendly, with plenty of deck space, ease of handling and creature comforts, ensuring many years of enjoyment for its owners and divers in the future.
As noted in the prior article, Charlie Smale was a senior west coast diver and a friend of Torrance Parker. According to Parker’s book 20,000 Jobs Under the Sea, Smale started diving for gold with his father and brother in 1924, moving on to Merritt Chapman & Scott and eventually went independent in 1938. He became known as the “dean” of west coast divers and by 1950 calculated that he had spent almost 44,000 hours underwater. Just about 5 years. And he still had 11 years of his career ahead of him. This article is from 1938, the year Smale went independent, and is a rare first-hand account of the work of a commercial diver prior to World War II. – Leslie Leaney

Thirty fathoms under the sea, with a broken face-plate and water gurgling in the ears, is as near to death as any deep-sea diver would care to come. When this happened to me, I had no time to think of death. For a moment I was frantic and I dared not call the tender for fear he would jerk my air lines foul of the wreckage on which I was working. Ripping off my gloves, I jammed them through the broken glass in an effort to plug the hole. Then I shut off the air escapement so that all air must be released through the jagged hole. But it was useless. My suit was rapidly filling with water.

Keeping my voice calm, I reported trouble to the tender and headed for the ladder 200
feet away. I remember reaching the bottom and starting up, rapidly losing consciousness. The water-filled suit lost its buoyancy and confined my movements like an iron straight-jacket.

As I neared the top, the water in the suit rose over my mouth and nose. Searing pains shot through my chest from suffocation. My movements were but mechanical as the energy drained from my spent muscles. But with a final burst, I reached the deck, aided by a boost from the tender, and lay there, water-logged, just dimly conscious.

That was my first crucial experience as a deep-sea diver. Since then I have spent more than 10,000 hours under water. I have seen silver coin piled knee deep on the bottom of a sunken gambling ship. I have pulled bodies from airplanes 150 feet under the surface. I have dredged for gold on river bottoms, salvaged steamers, worked on underwater construction and have worked as a "double"
in seven motion pictures. I have suffered the paralysis of the “bends” and I have seen men writhing on the deck, spurring blood from ears and nose as a result of a “squeeze.” But I find deep-sea diving the most fascinating work in the world.

It is also probably one of the most dangerous occupations. I’ve often felt my ear drums pop outward when lowered too quickly into deep water without proper regulation of inside air pressure. And inexperienced divers, shooting to the bottom without proper adjustment of air, suddenly find their circulation cut off below the protection of the helmet and breastplate, the intense pressure of the cold water forcing their blood into the chest and head. Sometimes quick action saves them; more often the blood bursts from mouth, nose, and ears, with almost instant death resulting. This condition is known, in diver’s parlance, as a “squeeze.”

Once on the bottom, the air pressure is increased to a point where it lifts the weight of the gear from the body, reducing the weight of the body in the water to about 40 pounds. It is this pressure, plus sudden decompression, that causes the dreaded bends.

“Bends” are the direct result of too much nitrogen in the blood-stream. When working at a depth of 100 feet, 50 pounds of pressure are required to force air down to the diver; ten more pounds are required so that the diver can breathe. Breathing under this pressure naturally forces an excess supply of oxygen and nitrogen into the lungs. The lungs can take care of the oxygen, but the nitrogen escapes to form a tiny gas bubble in the blood-stream.

Under ordinary decompression, it requires 45 minutes to raise a diver who has been working for an hour in 100 feet of water. Half of this time is taken on a resting platform at 50 feet, and the constant exercise of the diver on the way up drives off the nitrogen. But when the decompression is taken too fast, the size of the bubble increases as the pressure lessens, finally attaining a large enough proportion to stick in an artery, thus cutting off the blood supply and causing paralysis. If it lodges in the heart, it means death.

When decompression chambers are not included in the equipment, a man with the bends is immediately returned to the water under the custody of another diver until he revives.

I suffered the bends once—with neither decompression chamber nor diver available. They pulled me to the deck, and my legs crumpled under me. I lay there, paralyzed
from the waist down. I could hear them planning to throw me back—to take a chance on regulating my air supply until I recovered. I felt that death had caught up to me at last. I protested weakly, more weakly, and then fainted. I awoke on the floor of the ocean. Spent? Yes—but happy and thankful.

It’s things like that which cut down the average man’s length of time in actual diving service. There are about 100 divers in the United States; few of them have seen over five years service. A flat rate of pay amounting to between two and three hundred dollars per month with a bonus of seven dollars per dive is not enough to keep most men in the business when life balances on the other side of the scale. It is the variety and thrill that keeps me in the service.

Doing salvage work, I have covered the Pacific coast from Alaska to Mexico—perhaps diving 20 feet to raise a tug in San Francisco one day, then by plane to Seattle to dive 150 feet to patch up an ocean liner on the next.

The larger liners present difficulties. As a rule, we usually find them sunk in deep water with jagged holes in their sides that must be patched before they can be raised. To pull a diver down to their depths, modern diving equipment is necessary. This gear weighs about 240 pounds and usually consists of a heavy spun-copper helmet and breastplate, a canvas suit, an 80-pound belt, and two 14-pound sandals for the feet. When it is necessary to carry tools, a pair of overalls with pockets, known as “chafing pants,” is worn.

A downward trip into 150 feet of water re-
quires about five minutes, oftentimes more. As the diver slides down the line, he gradually increases the air pressure within the suit to offset the increased outer pressure of the deeper water.

The rush of air into the suit is controlled from a valve at the waist; stale air is forced out through a spring-set escapement valve in the rear of the helmet. Air escapement can be set in emergencies by pressure of the diver’s chin against a button conveniently located inside the helmet.

Dressed in this weird outfit, the diver pushes his way along the bottom of the ocean with an electric cutting torch to cut smooth the jagged edges of the hole torn in the ill-fated ship. Inch by inch the torch cuts into the heavy steel. The heat of the electricity creates a fog of steam around the flame as it cuts into the metal—the force of the air in the torch parting the metal like melted cheese.

Then comes the patching. On large jobs, bolt holes must be cut all around the gap. Then a wooden frame, lined with canvas and padded to conform to the contours of the ship’s side, is lowered and bolted into place.

This done, the ship is made air-tight. Water suction pumps on the barges above are set to work pumping out the water in the hold, at the same time sending down air to increase the buoyancy of the ship. And as the air enters, slowly, very slowly, the ship rises to the top to be hauled to the drydock for repairs.

This salvaging work is expensive. Sometimes it takes a year to raise a single ship, thus saving an investment of millions of dollars. But few projects have entertained me more than going down after a paltry 40,000 dollars which sank with the Mt. Falcon, a gambling ship anchored off the coast of Los Angeles.

The ship was sand ballasted and sat erect on the bottom. On the upper decks, the coin fell from the tables to the sand in the hold. In some places, the coin was piled three feet high, glinting slightly in the murky light cast by our electric safety lights. That was one time when I almost regretted the fact that they did not put pockets in diving suits!

We picked up what money we could see on the sand and then applied suction pumps to pull the sand on the deck, where they sluiced it, salvaging 98 percent of the total that went down with the ship. It’s things like that which make life interesting.

Although I have had many interesting experiences as a deep sea diver, my first experience under water remains with me as something I will never forget. The first time a face-plate was snapped shut before my eyes to make my diving suit watertight, I felt a lost, sinking sensation—as though absolutely cut-off from the rest of the world. People walked around me laughing, joking and slapping me on the back. And I stood sweltering in a 240-pound diving suit, alone, miserably waiting for the signal to go over the edge and down under the surface.

Finally it came. Clumsily, I maneuvered my 14-pound iron sandals onto the ladder. Cold water pressed the canvas suit close to my body. A weird, gurgling sound came to my ears as the air left the rear escapement valve and swiftly bubbled to the top. I stood alone in a new world of water, sand and seaweed—10 feet below the surface. All was silent except for the rushing stream of air bubbles. Shadowy forms of startled fish darted off into obscurity. And I was afraid. I vowed that this would be my first and last trip under. That was 15 years ago.

Since then I learned the secrets of diving, and that the first law in diving, as in other work, is never to take chances. But even when exceptional precaution is taken, there are times in the career of every diver when the question of what to do means life or death.

A diver never knows what his next job will be. It may be a treasure hunt or it may be a simple repair job. In either case it may mean death. One very close friend of mine had his helmet knocked off when he was jammed under a pipe line by a cave-in. Another died of the bends while working on the Golden Gate Bridge in San Francisco. Who knows, I may be next? It may be on a hunt for Captain Kidd’s lost gold. It may even be in bed!

Mechanix Illustrated—December, 1938
The Barcelona Underwater Camera Exhibition

By Franz Rothbrust

Introduction

This column has tried to put the history of underwater photography in its proper place amongst the history of other diving related technologies. The importance of underwater photography as an art, science and profession is becoming apparent to many diving historians. Nothing points this out better than two events which have occurred in Europe over the past three years. In 2012, the first International Meeting on Vintage Underwater Cameras took place in Tossa del Mar, Spain. This past year, a second meeting dedicated to the history of underwater photography took place in Barcelona. Instrumental in organizing both events were Dr. Andrés Clarós, an avid underwater camera collector from Barcelona; Spanish diver, photographer, and author Enrique Dauner; and Franz Rothbrust, President of the Historical Diving Society Germany. These two events have brought the history of underwater cameras and photography from near obscurity and placed it on an international stage. The following article and photographs from the 2014 meeting are provided by Franz. My congratulations go to these gentlemen, and everyone else involved in these meetings. – Sid Macken

Dr. Andrés Clarós, from Barcelona Spain, along with Enrique Dauner and the curators of the Barcelona Maritime Museum spent two years preparing for a unique exhibit of the history of underwater photography. The Aquazo Löbbecke Museum, Dusseldorf Germany, loaned cameras from Hans Hass and Kurt Schaefer for the exhibit. In the world of underwater photography, this is an extraordinary event. The exhibit is divided into six sections, beginning with the early experiments of French scientist Louis Boutan in the 19th century and ending in modern times. Not only are underwater cameras from different eras displayed, but the efforts of the early pioneers are graphically presented in various dioramas.

The cameras on display fill eighty showcases, and include nearly two hundred underwater photo and video cameras. A large number of these cameras and housings come from the collections of Dr. Clarós and Enrique Dauner. Still others were provided on loan from the “Musée International de la Plongée Frédéric Dumas (Sanary, France) and the Museu de l’Anxova i de la Sal (Girona, Spain).
Many unique pieces of historic underwater photo equipment were on display.

- Replicas of two underwater cameras by Louis Boutan
- The Rolleimarin prototype “PR 230”
- The Rolleimarin Stereo camera housing
- Diving equipment from the Catalan diving pioneer Edward Admetila, used for his 1957 world record dive during which he reached a depth of 100 meters (330 feet).
- The cameras of Christian Petron with which he filmed “The Big Blue” (1988) and “Titanic” (1997).
- A copy of the July, 1927 issue of *National Geographic* magazine which contained the first underwater color photographs taken by William Longley and Charles Martin.

Under the name “Underwater Cameras: The Challenge of Photographing Underwater,” the exhibition opened at the Barcelona Maritime Museum in October, 2014, and remained on display until April 2015. In addition to the exhibition, there was an extensive program of workshops and lectures.

On Friday, November 21st, 2014, the II International Meeting on Vintage Underwater Cameras was held at the Barcelona Maritime Museum, which included a series of lectures by noted experts on the subject of underwater photography.
photography. Patrick McCool traveled from Ireland to present a lecture about the Siemens motion picture cameras and housings used by Hans Hass. The text of his lecture will be published in an upcoming issue of TAUCHHISTORIE, the publication of the Historical Diving Society, Germany. John Wild, from England, spoke on the restoration of a stereo Rolleimarin housing for the “Double Rolleiflex” camera. Wulf Koehler spoke about his collaboration with Rollei and the design of its underwater housing. Franz Rothbrust presented three lectures on the Rolleimarin housing.

The highlight of the Friday conference was an appearance by Dr. Kurt Schaefer. Dr. Schaefer spoke about the construction of his first underwater housing. That exciting story can be read in TAUCHHISTORIE. Dr. Schaefer is a true pioneer of underwater photography and he had built the first amphibious cameras in 1943. Early on, he built cameras for underwater macro photography and much more, and was very influential in Hans Hass’s design of the Rolleimarin housing.

**Additional information can be found at:**
Museu Maritim de Barcelona: www.mmb.cat
Marine Aquarium BBarcelona; www.aquariumbcn.com
Barcelona Underwater Festival: www.bcnunderwaterfest.com

Photos courtesy of Franz Rothbrust
These swim fins were made for Lotte Hass by Dr. Kurt Schaefer.

Displays included accommodation for sight impaired visitors. Shown here is a display in braille.

Dr. Kurt Schaefer built housings for Hans Hass’s early expeditions. He is shown here with his pre-Calypso-era amphibious underwater movie camera.

French underwater filmmaker, Christian Petron views the displays.
Fifty years ago, Ben Miller was an early innovator of the lightweight helmet along with Kirby Morgan. The Miller shell, however, was made of bronze and off-the-shelf parts. This rare and unique vintage helmet is available now.

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HELMETS OF THE DEEP

Sportklimex, NEMO Prototype
Prague, Czechoslovakia
1970

By Leslie Leaney

As international interest in the history of diving has slowly grown, the HDSUSA has assisted several other countries establish their own independently operated Society. Such was the case with the original HDS Germany, and again more recently when it was resurrected by Franz Rothbrust and his colleagues. Following along this course of mutual international co-operation, HDS Germany then assisted their fellow Europeans in Czechoslovakia to establish their own Society.

As reported several times in this Journal, HDS Germany is involved with promoting the annual gathering of divers and vintage equipment at Lake Marx, which it supports with an HDS lecture program and banquet at Neustadt. There is always a strong international

Katalog potápěčských příleb
z výstavy pořádané HDS CZ v Neratovicích dne 17. dubna 2010
representation among the attendees, and HDS Czechoslovakia turns up in force with vans loaded with diving equipment. Such was the scene when I visited in 2012 and was introduced to the HDS Czech group, which included my friend, and HDS USA member, Peter Katz. Peter may be familiar to members as he authored the very popular article, *Luftwaffe Below in the Wild, Wild East*, in issue 69 of the *Journal*.

The immediate thing I noticed about HDS Czech that set them apart from other exhibits was that the largest piece of pressurized equipment they had on display was a keg of Czech pilsner, the contents of which were available to all attendees. This HDS-Czech-sanctioned lubrication of HDS members certainly helped overcome many foreign language issues, and greatly assisted in the general atmosphere of good will and diver fellowship. As we said our collective farewells at the end of the day HDS Czech presented me with a copy of a book on diving helmets which they had published in 2010. A scan of the cover is shown here. The book contains 92 pages in color and features seven Czechoslovakian helmets, one Slovenian, 13 Russian, two South Korean, four (plus one mask) German, nine British (all Siebe Gorman), three Aquadynes, which are classed as both American and British, four American, and two Asian reproductions of the US Navy Mark V helmet. We are showing the first helmet in the book, which has captions in Czech and English, and the latter is scanned here.

The information that we currently have is that the book was published in a very limited quantity and was available to HDS Czech members only. Any update on its availability will be announced in a future issue of the *Journal*. ☞
Battleship Maine Diver Stereograph

By Gary Pilecki

This 1898 stereograph measures approximately 3½ x 7 inches total, with each photograph measuring 3 x 3 inches. Nothing is written or printed on the reverse. Printed at the bottom of the stereograph are the words Divers in Full Dress on Wrecked Battleship, Maine, Havana Harbor, Cuba. The publisher was the Keystone View Company.

Observations on the Photograph:

The diver appears to be wearing a three light A. Schrader helmet while standing on a ladder at the stern of a small boat. An assistant is helping to adjust his helmet.

Research:

The United States government sent the Battleship Maine to Havana Harbor in order to protect American interests in Cuba during the Cuban revolt for independence from Spain in January of 1898. On February 15, an explosion sank the Maine with three quarters of the crew losing their lives. The Spanish government concluded that it was an internal accidental explosion while the American government, along with the newspapers of the time, blamed Spain for planting a mine. As a result of the explosion and newspaper sensationalism, war broke out between the United States and Spain. Diving on the Battleship Maine took place in several phases; to investigate the cause of the explosion, to retrieve the bodies of the dead sailors, and to salvage the ship in order to clear the harbor. I suspect that this diver is either investigating the cause of the explosion or is retrieving bodies.
More Deep Sea Divers

By Peter Jackson

In this edition we show the covers of four more classic adventure stories from the first half of the twentieth century, including yet another from the prolific Percy Westerman and one from the pen of Sir Arthur Conan Doyle, creator of the world’s most famous and enduring fictional character – Sherlock Holmes. I hope you like them.

THE MARACOT DEEP and other Stories
Arthur Conan Doyle

WHERE YOUR TREASURE IS
by Holman Day
The Musson Book Company Ltd. Toronto. 1945

WHERE YOUR TREASURE IS
by Holman Day

THE MARACOT DEEP
by Arthur Conan Doyle
John Murray, Albemarle Street, London. 1931

THE SECRET OF THE REEF
by Harold Bindloss
Ward, Lock & Co. Ltd. London. 1914

CAPTAIN CAIN
by Percy F. Westerman
The Musson Book Company Ltd. Toronto. 1945
Like the US Navy Mark V and the classic Siebe Gorman helmets, the Dunn (later Miller-Dunn) Divinhood is one of the most recognizable series of helmets in the world. For many Americans, at least, they were instantly recognizable as the helmet worn by the divers at Marine Land and the other aquariums and marine parks which sprung up in the 1950s and early 1960s. It was a classic image used on postcards from these institutions, and still perhaps the most commonly encountered helmet diver postcard on this side of the Atlantic. Yet, even though this type of equipment attained a vague familiarity to most people with an interest in the underwater world, very little was known about its history. The HDSUSA representative in UK, Peter Jackson, has very successfully remedied this situation in his excellent new book, *The Divinhood*.

In its text, this new volume details not only the three basic models of the Divinhood, but also markings, modifications, weights and other accessories. Peter even devotes space to the major competitors of this famous shallow-water helmet and the equipment like the TECO mask and Desco’s Jack Browne mask which ultimately eclipsed it. It was amusing to even see the ubiquitous Aqua Bell helmet included, rightly, as a descendant of the Miller-Dunn helmet, and the homemade versions which many backyard tinkerers put together in imitation of it.

Although the text of *The Divinhood* is an important contribution to diving history, most readers will initially be struck by the amazing illustrations which fill page after page of this book. Mr. Jackson has obviously spent a great deal of time and effort gathering images of these helmets, and the reader will find illustrations ranging from period advertisements to personal photographs. These alone are worth far more than the cost of the book. Photos of the equipment are large and clear, and close-ups are provided of many of the specific markings, labels and other details. Coverage is even included on reproduction helmets, so that collectors will have some clues of how to distinguish the real from the fake. Mr. Jackson also includes a chapter...
on the care, collecting and use of these helmets which may prove invaluable to many HDS members. A chapter detailing the history of the Miller-Dunn company is also very interesting. It might seem that going from being a plumbing company to a manufacturer of diving equipment would be an unlikely event, but that is precisely the course which this company did take. Mr. Jackson follows the growth of the firm by tracking references to it in newspapers, city directories and even patents. The accompanying photographs of the interior of the Miller-Dunn plant will make any collector wish for the “good old days” when they could be purchased right off the shelf at what today seems a pittance.

An additional chapter provides information not only on William F. Miller and William Dunn, but also on other employees of the company, including details ranging from where they were born to their addresses at specific points in time. For anyone attempting even more detailed research into this company, this in itself could prove very valuable.

The various appendixes contain several advertising pamphlets, an instruction booklet, letters, and even the full patents for all three models of the helmet. This is all what an historian would term “primary source” material, and Mr. Jackson has done the diving community a great favor by gathering it all together in a single, very useful volume.

This is obviously a book which readers will find themselves referring to time and time again, if not for specific information, then at least for the sheer pleasure of paging through its wonderfully illustrated pages. While managing to provide fact-based information regarding Miller-Dunn helmets and their manufacture, it also offers almost a nostalgic look at a simpler age of diving, and the sheer exuberance which people experienced in their first glimpse beneath the surface. Mr. Jackson is to be commended for giving us the opportunity to take this journey with him, and his book will no doubt become a classic in the field of diving history.

The book is paperbound and contains 279 pages. It is self-published in England and is available for $25, plus shipping, from the author at pj.jackson@btinternet.com.
Hemenger’s Diving Armor, Part 2
By James Vorosmarti, MD

In the last issue of the Journal of Diving History (JoDH #82), we looked at the diving armor developed and patented by Arthur Hemenger of Algonac, Michigan, in the 1890s. An illustration of the second version of the dress, patented in 1893, was provided, but in this issue we will show the earlier 1890 design and recap the description from the last issue.

As previously mentioned, the first design shows the dress to be made up of several sections of sheet brass shaped to roughly conform to the body sections to be covered. The chest area was covered by two pieces, R and A. These were to be joined together by a flange and bolts. The helmet was to be “lap-joined” to piece R. There are no details of the helmet or what the “lap-join” entailed. The figure shows two helmet designs with no explanation for this seeming mistake.

The lower chest piece, C, was to be connected to section A by pivot b. Similarly piece A was to be connected to the leg sections B and so on down to the feet. All these sections were to be formed so that they nested together by overlapping each other and made like a ball and socket joint with the “ball” section a metal outline of the ball (not shown in the figure). This design was to allow the diver to be able to bend at the waist, hips, and knees, but not the ankles. The overlap of the sections took up a great amount of surface area and there is no mention of any seals to prevent water leaking into the suit. The sleeves of the suit (J) were to be made up of spiral wires and ended in cuffs (L). There is no information as to how the sleeves were to be connected to the body of the armor. The cuffs were apparently to be made of some rubberized material. Air was supplied by hose L and exhausted by hose M. The entire assembly was to be covered by any flexible waterproof material. In order to enter the suit the bolts on flange “f” were removed, the helmet and upper chest piece was removed and the diver climbed into the suit after which the process of re-bolting the suit was to begin.

There is no record of either version of this diving armor actually being constructed or used.

The First U.S. Navy Diving and Salvage Ship
By James Vorosmarti, MD

On November 23, 1861, the U.S. Navy purchased the wooden two-masted schooner Blunt in New York City. Her origin is unknown. She was commissioned the USS G.W. Blunt on 4 December, 1861. The ship was 76 ft. 6 in. in length and displaced 121 tons. She was armed with one 12 pounder gun and a 12 pounder rifle, and assigned to the Blockading Squadron off Charleston, S.C. as a mail and dispatch boat. In August 1864 two 12 pounder howitzers were added to her armament. On 19 April 1862 she captured the schooner Wave, presumably a blockade runner, and assisted in the capture of several others.

She was decommissioned on 13 May, 1863 at Philadelphia for repairs. She was recommissioned on 2 June, 1863 and rejoined the Blockading Squadron and continued in those duties with the squadron until 25 August, 1864 when she was outfitted with equipment for diving and salvage. The equipment provided is not known but we can presume it was standard diving gear of the time. There is no evidence she ever carried a diving bell. Her service record shows that throughout September and October 1864 she was working on cleaning the bottoms of Patapsco, Nantucket, Nahant, and South Carolina. On 13 November she...
worked on the wreck of the *Constance* but recovered nothing of value. The 14th of November found her working on the wreck of the *U.S.S. Housatonic*, the first ship to be sunk by a submarine, the *C.S.S. Hunley*. On 16 November she recovered the Paymaster’s safe, a sword and cutlass. She was put to work on the 19th dragging the bottom around the wreck for the *Hunley* for a distance of 500 yards from the submarine. On the 24th a diver on the *Housatonic* wreck found one revolver and twelve silver quarters. At the end of the month she returned to other duties until 2 January, 1865, when she sailed for Savannah, GA to clear obstructions. There is no further history of any specific operations and on 20 October she was sold at Port Royal in a badly leaking condition for the sum of $2,200.

Some details of the operation on the Housatonic are contained in the following letter from her Commanding Officer, Acting Volunteer Lieutenant W. L. Churchill to Rear-Admiral J. A. Dahlgren commanding the South Atlantic Blockading Squadron.

U.S. Schooner G.W. Blunt
Port Royal Harbor, S.C.
November 27 1864

SIR: After a careful examination of the wrecks of the sunken blockade runners and the *Housatonic*, I have the honor to make the following report.

I find that the wrecks of the blockade runners are so badly broken up as to be worthless. The *Housatonic* is very much worm-eaten as I find from pieces which have been brought up. She is an upright position, has settled in the sand about 5 feet, forming a bank of mud and sand around her bed, the mud has collected in her in small quantities. The cabin is completely demolished, as are all the bulkheads abaft the mainmast, the coal is scattered about her lower decks in heaps, as well as muskets, small arms, and quantities of rubbish.

I tried to find the magazine, but the weather has been unfavorable and the swell so great that it was not safe to keep a diver in the wreck. I took advantage of all the good weather that I had and examined the wreck as much as possible.

The propeller is in an upright position, the shaft appears to be broken. The rudderpost and rudder have been partially blown off, the upper parts of both are in their proper places, while the lower parts have been forced aft. The stern frame rests on the rudderpost and propeller, any part of which can be easily slung with chain slings, and a powerful steamer can detach each part.

I have also caused the bottom to be dragged for an area of 500 yards around the wreck, finding nothing of the torpedo boat. On the 24th the drag ropes caught up something heavy (as I reported). On sending a diver down to examine it, proved to be a quantity of rubbish. The examination being completed I could accomplish nothing further unless it is the intention to raise the wreck or propeller, in which case it will be necessary to have more machinery.

Very respectfully, you obedient servant,

The above is from copies of the original reports of “The Sinking of the USS Housatonic by the Submarine CSS Hunley, off Charleston, SC, 17 February, 1864,” Navy History and Heritage Command.

I was surprised to find that the U.S. Navy had a ship specifically for diving and salvage during the Civil War as the navy had no divers at that time, but relied on commercial divers and wrecking companies for that support. One must presume that the divers aboard Blunt were hired civilian divers, but there is no information available about them. In my opinion, the *G.W. Blunt* has the honor of being the US Navy’s first diving and salvage vessel. The other information above comes from “Official records of the Union and Confederate Navies in the War of the Rebellion” and the Service Record of the ship.

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Peter Hughes

One of the early Caribbean dive instructors, Peter Hughes has helped transform the world of scuba diving as we know it today. Peter championed the idea that scuba diving should be inclusive to all who have an interest in diving, not just the professionals. He found his passion for diving early in life, learning the ins and outs of diving as a boy. By 1969, at the age of just 21, Peter became a certified scuba instructor, and a couple of years later would take a leap of faith that would change his life and the world of recreational diving for ever. Peter seized an opportunity to take over a failing dive operation on the island of Roatan, Honduras, turning it into the first modern, attractive, dedicated dive resort, - Anthony’s Key Resort.

By 1977, Peter was ready for an even bigger challenge and converted another dive resort into Dive Bonaire NV. Under Peter’s leadership, Dive Bonaire ushered in a customer-centered philosophy that has now become the hallmark of the modern dive resort, and expanded participation by women, older divers, those with physical challenges, and others once excluded by old school views. Dive Bonaire threw out the notion that, “If you can’t carry your tank you can’t dive,” and replaced it with “Let us do it for you.” Peter implemented new ideas like fill stations on the dock and boats, benches designated solely for divers, benches with cylinder racks, ladders divers can climb, and other innovations we all take for granted today. In 1985, he became Vice President of Divi Resorts, developing dedicated dive resorts throughout the Caribbean. In 1986, Peter introduced Sea Dancer, radically reshaping dive liveaboards by replacing the rustic and spartan with comfort. In 1992, as President of Peter Hughes Diving & the Dancer Fleet, Peter upped the ante with the Wave Dancer luxury liveboard, attracting female and upscale divers. Wave Dancer replaced bunks with suites, paper plates with china, and “nickel-and-dime” costs with all-inclusive pricing.

Peter’s operations have also remained closely involved with environmental preservation. He was among the first to install dive site moorings to reduce anchor damage to the reefs. Dedicated to mentorship, Peter trains rising dive travel leaders at all his destinations. He has spoken before the government about the economic benefits and importance of diver tourism, and received the 2011 DEMA Reaching Out Award for his services to the industry.

Dr. Albert José Jones

One of the earliest pioneers of modern diving and instruction, Dr. Jones has dedicated much of his life to drawing interest to scuba and the marine and environmental sciences. He began diving while in the Army in the 1950s, quickly becoming involved with the dive community in the Washington, DC area. While still in college in 1959, he founded Underwater Adventure Seekers (UAS), which exists to this day as one of diving’s most successful clubs. UAS was a member club of the Atlantic Skin Diving Council, and Dr. Jones began teaching as an ASDC instructor in 1962 before the universal acceptance of national certifications. In 1970, he became a PADI Instructor.

In 1991, with the UAS as its core, Dr. Jones and Ric Powell founded the National Association of Black Scuba Divers (NABS) to address the unique concerns of African-American divers. In less than five years, NABS had united more than 50 clubs, providing a network for divers to become involved in diving locally and abroad, underwater research, and other activities. Today, NABS continues to fulfill its charter, giving its members opportunities to meet and dive together.

With more than 50 years of experience and 6,000 dives logged, Dr. Jones has been instrumental in introducing thousands of enthusiasts to diving. Dr. Jones is a marine biologist who holds a PhD from Georgetown University and was a Fulbright Scholar. Today he continues to share his passion by speaking to students about career opportunities in diving, marine science, and environmental science. He has been honored with multiple diver of the year awards and is also a Purple Heart Medal Recipient.

Bill High

It would take several volumes to cover Bill High’s accomplishments and diving career, spanning the 1950s to today. Bill began early on in the dive industry, before it was an industry. He has served as President of the Washington State Council of Divers, Vice President of the Underwater Society of America, President of the Pacific Rim Underwater Federation, and...
that he could always find the prime Coral Sea atoll, Marion season for the next decade. Wally’s entire prime season and filled the October-December Coralita chartering divers during seasons when the long crossings out to sea were impossible to say how many divers Bill has spared from injury. It is thousands of potentially unsafe cylinders out of circulation. It is impossible to say how many divers Bill has spared from injury. Bill has been recognized by the diving industry many times over the years, including awards from both NAUI and PADI, and is one of a very select few who have been honored with multiple NOGI Awards in their careers.

**Captain Wally Muller**

Captain Wally Muller single-handedly established and developed the live-aboard industry in Australia’s outer Great Barrier Reef and Coral Sea. As a long-time fisherman, he explored reefs in the Great Barrier Reef’s Swain sector and the distant oceanic Coral Sea atolls, which other captains avoided. Many of these areas were uncharted and considered too dangerous to enter. Muller fished commercially, then later took out fishing parties aboard his first boat, *Riversong*.

In 1969, Wally and a partner built the 79-foot Coralita as a twelve-person live-aboard fishing and diving charter vessel. Divers’ early interest to reach the remote atolls out in the Coral Sea led Wally to reduce his fishing exposure and concentrate on ocean floor. Captain Muller’s skills were such that he could always find the prime Coral Sea atoll, Marion Reef, which lay some 300 miles off Yeppoon on the Queensland Coast, simply by calculating the tides and heading out by dead reckoning. Two overnight crossings later divers arrived at what was in those days pristine diving in some of the clearest water in the diving world. Visiting Saumarez Reef several times, Wally discovered a magnificent bombora in 100 feet of water that rose to 30 feet under the surface. Modestly named “Wal’s Bommie”, it was for a short time one of the best scuba dive locations known. Although Wally Muller chartered and named many reefs in The Swain Reefs, only one retains one of his original names today: “Riversong Cay”.

**Dimitri Rebikoff**

Dimitri Rebikoff was born in Paris, France in 1921 to Russian parents. He began working with cameras at the age of 11 and started his own camera repair business. He spoke Russian, English, German and French, and enrolled at the Sorbonne to study engineering and physics before being appointed chief engineer of Radio Control in Lyon. In 1943, he was taken prisoner by the Germans and drafted into the Occupied French Army. There, Rebikoff was assigned to a Munich Radio-Klinik, where, when he wasn’t repairing Nazi radios, he spent a good deal of his time fixing shortwave sets for customers to listen to the BBC.

As the war was ending, Rebikoff stole a camera and made his way back to newly liberated Paris, where he began picking up work as a photographer for tabloids, specializing in color. He designed and patented the first electronic flash tube and the widely known Rebikoff Colorimeter in Europe.

With his wife, Ada Niggeler, he joined the world’s first aqualung scuba diving club in Cannes, France in the late 1940s. He soon started developing underwater cameras, lighting units and diver vehicles. During this period he developed the first underwater electronic flash unit for which he received Swiss and French patents. In 1950, he made some of the earliest color undersea films shot by a sports diver with his continuous light source movie torpedo, and followed this early success with several more underwater color movies. His in-color documentary film *Coral Palace* was selected for the Scientific Film Award at the International Film Festival in Cannes in 1952.

Rebikoff developed and manufactured the Pegasus underwater scooter, a towing device and flying platform from which to shoot underwater movies. The Pegasus drew the attention of the U.S. Navy, who ordered several of them. To make deep-water exploration possible, Rebikoff then devised the remote-controlled Pegasus. It was quickly taken up by scientists, who sent it under glaciers to explore fossil life, and by oil drillers, who sent it to the ocean floor.

Rebikoff held more than 60 patents, and worked on corrective lenses for underwater photography. He developed a reputation for detailed work and his cameras became highly sought after by early underwater filmmakers and photographers. He and Ada moved to Florida in 1960, where he worked on secret projects for the U.S. Navy. He died in Florida in 1997. Dimitri Rebikoff’s achievements in underwater technology are kept alive through the Rebikoff-Niggeler Foundation.
HELMET AUCTIONS

By Leslie Leaney

A review of recent internet auction results. While every effort is made to accurately describe the lots, vendors’ opinions of what the items are, and what their condition is, are not consistent. These results are published in good faith for the interest of members, and the HDS and JoDH are not responsible for any errors in descriptions, listings, or realized prices.

DESCO US Navy Mark V helmet serial number 2224, dated 2-2-45. Appeared to be in good condition and showed a good patina. The seller noted that, “This helmet is complete except there is no communication transceiver. It has seen service in its lifetime and shows normal denting on top of the bonnet with a few creases, one about 3-1/2 inches, and a couple of smaller ones (see pictures) but nothing that would prevent you from diving the helmet.” It was well photographed and stated as being matched. 12 bids took it to $5,650.

A.J. Morse & Son Inc. converted 5 bolt Continental helmet.
An A. J. Morse & Son Inc. that generated a lot of emails in the collecting circles, and which was listed by the seller as: “A.J. Morse & Son Inc. converted 5 bolt Continental helmet. Serial #3180. This helmet retains most of original tin and it has all matching serial numbers. This was a conversion from interrupted thread to Morse 5 bolt neck ring. Morse records are missing some pages in this era. The last previous helmet showing is Serial #3010 from May 1920. The next posting is Serial #3348 on January 28, 1932. I would take an educated guess of 1922 as the D.O.M. I am selling this for a friend. Pick up only or you pay shipping.”

The consensus of knowledgeable HDS members is that this helmet was originally an A.J. Morse & Son Inc., three light Continental serial number 3180, with the standard interrupted thread neck ring. Within approximately the last five years the interrupted thread neck ring was removed and replaced with a recently manufactured 5-bolt neck ring, which was stamped 3180 in attempt to make the helmet appear to be a matched 5 bolt from the original period of manufacture. The reference to missing records at Morse seems an attempt to divert attention from the numerous errors in the style of the neck ring, the discoloration of metals from recent soldering work, and incorrectly placed serial number stampings in the neck ring. The 5 bolt neck ring appears to be one of a run of them constructed to produce a series of brand-new 5 bolt helmets based on the authentic 5 bolt models, but displaying several differences so as to be easily identified by knowledgeable collectors or historians. This helmet was previously listed as the opening lot in a Boston, Mass. region auction in November 2014 with a price guide of $20,000 - $30,000, and had failed to sell. It would seem that the Internet auction market also recognized it for what it is, and it failed to get the requested opening bid of $10,500.
John Date, Montreal, Canada, 3 light helmet, stamped c37 in the breastplate and on the top of the front port frame. This was an early Date model with a non-recessed neck ring and a very heavy patina as seen. It was missing its brails, all its wing nuts, front port grill and the pin for the hinged face plate. There were two large circular repair patches on the bonnet. The seller provided reasonable photos and had the Buy It Now price at $13,200. It failed to get a required opening bid of $10,000, and the listing ended as “the item is no longer available,” indicating a possible sale outside of the auction listing. A scarce helmet that will probably be a restoration project for someone.

Morse Diving Equipment Co. In., U.S.N. Mark V diving helmet. The helmet had seen a lot of use and appeared to have been painted yellow at one time. The paint was flaking off and the helmet showed a heavy patina. The seller did not note the serial number but one of the straps looked like it was stamped 4514. The stampings on the manufacturer’s plaque for the date seemed to be 10-12-42 (October 12, 1942) with the serial number 941. At a certain point in WWII the Morse breastplate plaques had a different number (in this case 941) than the company production serial number which was stamped into the four straps and both neck rings (in this case probably 4514). These numbers in the plaque may be the serial numbers of a specific military contract, but I do not know that for certain. Given that the helmet was painted and showed significant wear, it is speculated that it may have been part of the inventory of a commercial or military diving school. It sold for $6,350 on 25 bids.
SCUBA AUCTIONS

By Ed LaRochelle

REGULATORS

Cressi Sub rebreather circa 1950’s. This unit was introduced after WWII for the sport diver or light commercial diver market. The rebreather is a complete original except for the mouthpiece. The catalog photo is from Cressi 1957. Sold for $499.

Sportways Waterlung “Dual-Air” two hose regulator, circa 1961 and 1962. Looked to be in rough condition but sticker label was all there and they had often fallen off and become lost. Serial number is D-10383 placing it near end of 1962 production. Sold for $265.

US Divers DW Stream Air “Mistral,” circa 1958 to 1962. The Stream Air was introduced in 1956, but then in 1958, with a slightly updated mechanism and a MISTRAL decal placed over the DW Stream Air label, US Divers ran the model for another five years. This Mistral serial number was 7620 and the regulator was in very nice condition, with a clean label and sticker, and all original condition. Sold for $280.

US Divers “Royal Mistral,” circa 1965 to 1967. The Royal Mistral is a beautiful looking regulator, and with only a small three-year production run, they are now very collectable. This particular one was serial number RM-1709 and showed light use and was all original. Sold for $590.

Another DW Stream Air “Mistral” all original with serial number 64972 having some damage to label and sticker. Sold for $224.50

Voit VCR-2 “50 Fathom” blue painted circa 1959 and 1960. This would be Voit’s first regulator with internal mechanism designed and manufactured in house. All models before then were US Divers regulators with custom front cover and label made for Voit. This regulator had small amount of chipping on paint, with clean label, reproduction hoses, and incorrect hose clamps, which should be chrome tinnerman clamps. Voit did not serialize this model. Sold for $265.

Voit VCR-2 “50 Fathom” chrome circa 1961, one year only. Same as the previous year VCR-2 except with chrome finish front cover and brushed nickle chrome main case body. The hose clamps are now plastic with Voit name, as Voit would no longer use tinnerman clamps. This Voit 50 Fathom was in very nice condition with only light scratches on chrome, clean label, and all original. Voit did not serialize this model. Sold for $335. Note: the original Voit 1961 tank pictured was sold separately and went for $196.50
Voit VCR-5 “Blue 50 Fathom” circa 1961, with rare decal, and only in production for three months before being replaced with the more common recognized Voit Blue 50 Fathom. The reason was Voit forgot to add AMF (the new owners of Voit) to the decal. The regulator sold at auction was all original with the expected fading and wear on decal. Sold for $600.

Voit V66 “Navy” circa 1962 with rare label marked “Made in USA.” Because the Voit Navy regulator was actually the US Divers model 1010 Aqua Master regulator with custom cover and label, US Divers demanded Voit change the label to read Made in France. Colors on the decal also was changed from Blue and Gold to Black and Gold. The Voit Navy regulator would have a three year run from 1962 to 1964. This Voit was serial number 0463 (only some 750 were produced with the Blue and Gold “Made in USA” label) Sold for $268.50.

US Divers “Favre Leuba Deep Blue,” circa 1973 and 1974 only. The model Professional Deep Blue came in choice of color for dial, orange or blue. This watch came in original box and was lightly used. Another highly sought after watch by US Divers fans and watch collectors. Sold for $3,089.

Elgin “canteen watch,” circa 1942 to 1951. Used by the EOD (Explosive Ordinance Disposal) units and the UDT (Underwater Demolition Teams) during the WWII and later in the Korean war. Watch showed only light wear but the chain was seperated from case, (an easy fix). An highly collectable early version divers watch. Sold for $1,850.

WATCHES

US Divers “Fifty Fathom” 500 feet, circa 1957 to 1959. This is the earliest of custom watches for US Divers, by Blancpain with Rayville movement. Later Blancpain would custom their Fifty Fathom 1000, for US Divers and call it the Aqua Lung 1000. These watches are highly collectable for both the watch collector and US Divers fans. The watch shows lots of patina on dial, but overall in great condition. Sold for $1,136.

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KNIVES

Sea Dive knife model B-32 by Sea Net manufacturing company, circa 1948 to 1954. The knife has a cork handle wrapped with cord for better grip on a rust-proof stainless blade, and sheathed in a hand-made wood and riveted sheath. You don’t find or see these very often. A great example of an early pioneering skin diver tool. Sold for $150.
CAMERA AUCTIONS

By Sid Macken

Aqua-Cam amphibious camera with flash. Sold $431.

Aqua-Cam amphibious camera with flash. Sold $431.

Aqua-Cam amphibious camera with flash. Sold $750.

Plexiglass housing built by Mako (Jordan Klein), includes shutter, film advance, aperture controls, and contacts for BC flash. Sold $155.
CAMERA AUCTIONS

Plexiglass housing with Mercury II 35mm camera. Housing is probably homemade but shows construction similar to French Visiola housings. Sold $371.

Sea & Sea housing for Olympus OM series 35mm single lens reflex cameras. Sold $499.

Dacor plexiglass housing with Kodak Instamatic camera. Sold $130.
Pleasant Surprises at First Quarter Shows.

The HDS booth at Beneath the Sea, March 28 - 29, at Meadowlands, New Jersey, was busy again this year. Fortunately for us, we were located between two book-signing booths (Stan Waterman and Jean-Michel Cousteau) and the North East Diving Equipment Group (NEDEG), where they were dressing attendees into a Navy Mark V diving dress. The foot traffic between these booths had to go right past us. On Saturday, two re-enactors/volunteers, GM2 Max Kaiserman and SMG2 Todd Rambow, from Philadelphia’s Seaport Museum stopped by in full, WW I Navy uniforms and took over the dress-in procedure. The Navy diving equipment drew a large crowd to the NEDEG booth, but I must say that the two sailors in period-correct uniforms made the event even more of a standout. I would like to commend these two gentlemen for their knowledge of the Navy diving system (which I understand they learned by reading manuals and/or watching YouTube), as neither of them are divers. Their presence made the NEDEG event a bright spot on the convention hall floor.

We also had a surprise visit from Frank W. Crilley III, who stopped by and became one of our newest members. Frank’s name should be familiar to diving historians. His grandfather, Chief Gunners Mate Frank W. Crilley is known for receiving the Medal of Honor for dives made on the sunken USS F-4 (SS-23) in 1915, and the Navy Cross for dives during the recovery of the USS S-4 (SS-109) in 1928. The elder Crilley was also involved in the salvage of the USS Squalus (SS-192) in 1939. The HDS booth was staffed by Ed Uditis, Greg Platt, Greg Hunter, and Bob Rusnak, and on behalf of all HDS members I sincerely thank them.
At Seattle’s SCUBA and H2O Adventure Show on April 11-12, the HDS booth was staffed by members Joe Olsen and Ryan Spence. For me, a highlight of the show was a visit to the HDS booth by longtime Northwest dive personality Spence Campbell. I met Spence in 1965 and he provided me with my first diving certification in 1966. Spence is near legendary in the Pacific Northwest. This was the first time the HDS had been at a dive show in the Northwest for several years. Seattle has been the location for two very successful conferences, 2006 and 2010, and we are planning to return in 2016. The Northwest has been very good for the HDS, and the dive community there is very aware of its long history.

**Conference cancelled**

Most of you have heard by now that the conference scheduled for September in Panama City has been cancelled. Many factors contributed to this decision and it is only the second time in HDS history that we have had to take this step. It is preferable to not hold the conference than put on a poor show. That said, planning is well underway for the 2016 conference in Seattle. Our Tacoma based Director, Ryan Spence, is anticipating strong local support, a remarkable venue, and many outside activities to be available for our attendees.

Safe diving,

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Frank W. Crilley receiving the Congressional Medal of Honor from President Calvin Coolidge.

Volunteer Joe Olsen at the HDS booth in Seattle
Third Quarter 2015

USN Mark II

With the introduction of the famous MK V helmet, it became necessary for the Navy to add designations to the different styles of helmets previously used. Thus, in 1916, the Schrader five bolt helmet became the U.S. Navy MK II.

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HDS Helmets in History Challenge coins are the perfect gift for the diver in your life, or as presentation gifts for achievement, speakers, or notable visitors to your company or organization. Available as single coins or annual-release sets. Some coins are now in limited supply so contact products@hds.org for availability.

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Margaret Rule
1928-2015

Margaret Rule is best known for her association with the wreck of the Mary Rose, which began in 1965 when military historian and broadcaster Alexander McKee invited her to advise on his search for ancient wrecks in the Solent region off England’s southern coast. Although Margaret was a land archaeologist, the idea interested her, so she took time off and even learned to dive. Margaret Helen Martin was born in High Wycombe, in England, in September 1928, then brought up in London during World War II. Post war she obtained a place to read chemistry at London University, but was then denied it as places were being reserved for returning servicemen and women. This led to a period working for Beecham company as a chemist and studying at night school.

In 1949 came marriage to Arthur Rule, after which she moved on from her career as a chemist and took up archaeology, which had been a long time interest. Initially she helped excavate WWII bombsites in London that were about to be redeveloped, but then the family moved to Sussex. Here she became more involved in archaeology and served as director of excavations at Chichester Civic Society, from 1961 to 1979. In 1971 came her first report Chichester Excavations, with Alex Down.

It was during this period, together with Prof. Sir (Barry) Cunliffe, that she became involved in excavations at Fishbourne Roman Palace, beginning with her husband first visiting the site to check out a report of something interesting having been found. The project began in 1961, and by 1968 she had become the Palace’s first curator.

The Mary Rose project took off after timbers were exposed by storms in 1971. To protect the wreck site they leased it from the Crown at one pound a year and set about excavations, her main problem being how the standards maintained in land archaeology could be maintained underwater. What followed is recounted in a number of books, ending with the remains of the wreck being raised in 1982. During excavations almost 27,000 dives were made by a large of group of amateur divers. They worked in currents, low visibility and cold water, it being to their credit that the reports with drawings that they filed after every dive later allowed the objects excavated to be exhibited in the context of their original location in the new Mary Rose Museum at Portsmouth.

Margaret Rule during the campaign to raise the Mary Rose.
IN MEMORIAM

Margaret Rule continued to work for the Mary Rose Trust as research director until 1994, while getting involved in other underwater archaeological projects, including the 3rd century AD Gallo-Roman wreck located in the St. Peter's Port harbor, at Guernsey in the Channel Islands. Rumor has it that the shallow water excavations had to stop to allow the ferry to enter port, as it passed only a meter or so above the wreck at some states of the tide. She was also involved with Dr. Robert Ballard in investigating a wreck in the Great Lakes, along with chairing the committee supervising the investigation of the wreck of HMS Victory, the forerunner of Nelson's flagship now preserved at Portsmouth, after it was located in 2008.

Holding an honorary doctorate from Liverpool University and honorary fellowship from the University of Portsmouth, Margaret Rule was appointed a CBE in 1983, while receiving the Mitchell Medal for Engineering the same year.

Margaret Rule’s husband died last year and she leaves one son.

Memories of Margaret from Reg Vallintine

I was privileged to get to know Margaret Rule during the early years when she directed the excavation of the Mary Rose. She had spoken about the project at the ‘World Congress of Underwater Activities’ that we had organized at the Grosvenor House Hotel in London in 1973.

I first dived the wreck with her and Alexander McKee in June 1974 from a small catamaran, the Roger Grenville. It was cold, windy and overcast and we gratefully consumed her supplies of coffee and cheese sandwiches on the return on board.

In 1976 I was a member of the Mary Rose Fund Raising Committee and, during numerous meetings, watched Margaret and the Lord Mayor of Portsmouth overcoming all bureaucratic obstacles to the progress of the project.

In 1980 I became a volunteer diver on the excavation and Margaret invited me to her beautiful fifteenth century house at Westbourne where she cooked dinner and introduced me to her husband, Arthur and son Nic, then studying at Cambridge.

In 1981 Margaret helped me to get my pupil, and ‘Blue Peter’ presenter, Sarah Greene down on the wreck where she was televised in spite of opposition from the resident BBC diving team.

Margaret was always friendly and approachable but dedicated to her work and dogged in overcoming all obstacles. She will be long remembered.

Peter Dick remembers Margaret Rule

I was abroad during the work on the Mary Rose, but I later came to know Margaret Rule from her talks at the annual marine archaeological weekends organized by Alan Bax at Fort Bovisand in the late 1970s. I remember a pleasant cheery unassuming lady, who not only gave captivating talks about her work but asked the opinion of everyone she came across. However, she never really fully departed from land archaeology, as on one occasion when there was a gap in the program, she filled it by telling the audience about the archaeology of her back garden.

This obituary was originally published in Historical Diving Times and is re-published here by the kind permission of Peter Dick, Editor.
HARD HAT DIVERS WEAR DRESSES
BY BOB KIRBY
The legendary Bob Kirby’s autobiography covers his development of Kirby Morgan dive equipment and his work in commercial, military and Hollywood diving. Contains numerous unique photos from Kirby’s career including some of his helmets. As the story of one of diving’s few living legends, it will stand as a personal record of one man’s unique journey through an industry at its prime. Self published by Kirby, with warts and all. Limited to only 1,000 copies. Perfect bound volume, 262 pages, b&w photos, $40.00, plus $12.50 domestic p&p.

DEEP DIVING AND SUBMARINE OPERATIONS
BY SIR ROBERT H. DAVIS
Referred to during last century as “The Bible of Diving,” the first edition of this book appeared in 1909, as was gradually revised and expanded through the 20th century. This ninth edition celebrates the 175th Anniversary of Siebe Gorman. Part One is essentially a diving manual and covers all aspects of diving technology, physics, physiology. Part Two contains accounts of notable diving operations and a history of all forms of diving apparatus. Two-volume set in a reflex blue presentation slip case. Probably the most famous diving book ever printed. “The best book on diving I have ever read,” says Bev Morgan. Reviewed in HDM #6. 712 pages, over 650 b&w photographs, line drawings and illustrations, index. $115 plus plus $18 domestic p&p ($60 international).

SEALAB: AMERICA’S FORGOTTEN QUEST TO LIVE AND WORK ON THE OCEAN FLOOR
BY BEN HELLWARTH
An extensive and detailed record of the triumphs and tragedies of the SEALAB program, based upon Hellwarth’s painstaking research. Hellwarth, a veteran journalist, interviewed many surviving participants from the SEALAB experiments and conducted extensive documentary research to write the first comprehensive account of one of the most important and least known experiments in US history. His compelling narrative covers the story from its scrappy origins in Dr. Bond’s Navy laboratory, through harrowing close calls, historic triumphs, and the mysterious tragedy that brought about the end of SEALAB. Hardbound in dust jacket, 2012, 388 pages b&w photos, index, 19 pages of reference notes. $26 plus $7.50 domestic p&p.

BETWEEN THE DEVIL AND THE DEEP
BY MURRAY BLACK
As one of the early pioneers of commercial oilfield diving, Murray Black was an industry leader with an abundance of natural bravery. After graduating from E.R. Cross’ Sparling School of Deep Sea Diving, Black progressed through the colorful ranks of the abalone diving and eventually founder DIVCON. History was made with DIVCON, with surface bounce dives past 500 feet as Black consistently pushed the envelope. The book also contains details of Blacks post diving career with friends like John Wayne and other characters. nd, 189 pages with b&w photos. $25, plus $5 domestic p&p.

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Waterman, one of America’s best known and most beloved underwater cinematographers, has spent
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THE WAR REEFS: In 1942, the small, South Pacific Island of Guadalcanal became the scene of a decisive, World War II, air-sea battle between the United States and Japan. It was a turning point in the war for the US and its allies, but a resounding defeat for the Japanese. The terrible cost of the battle can be found enumerated on the sea floor in what is now called Iron Bottom Sound for the scores of ships and aircraft that lie there. Stan and his companions visit the waters surrounding Guadalcanal, and as they explore Japan’s sunken fleet, they discover that the debris of war has, over time, been changed, softened by the sea, and is now the home of a fantastic array of marine animals.

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PETER AND THE SHARK: Stan, Peter Benchley, and crew travel to Australia to dive with Great White Sharks. Along the way, they encounter Manta Rays, sea turtles, Bronze Whalers, Tiger Sharks on the Great Barrier Reef, and then, at Dangerous Reef, the big guys showed up. Originally aired on the American Sportsmen Show.

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THE BEST OF CAYMANS: Stan visits the Cayman Islands aboard Wayne Hasson’s Aggressor Fleet liveaboard dive boats. Along on the trip are Stan’s good friend Peter Benchley and his family. They dive the wreck of the Ore Verde; visit Jew Fish, Barracuda, and Grouper; dive reefs, walls, and visit a shallow sand patch filled with sting rays.

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JACKI’S WORLD: The Island is Virgin Gorda, in the British Virgin Islands. The subject is jacki Kilbride. Her love of the sea and devotion to protecting and sharing it make Jacki’s World a very special place.

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A SIXTIETH AT EIGHT: Underwater photography is all the rage, and Stan takes us to class on the Bahama Island of San Salvador at the Paul Tzimoulis Underwater Photography College. Look for appearances by Paul, Geri Murphy, Peter Benchley and his family. Includes a dolphin sequence filmed by Jack McKenney.

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THE WAR REEFS: The best of the Red Sea, aboard the live aboard dive boat, SUN BOAT. Stan and mixed group of divers from the US visit reefs along the Sinai Peninsula, the Gulf of Elat, Ras Muhumad, and the Straits of Tehran. The beautiful colors of reef fish and corals endure in this film.

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BELIZE - A DIVING HOLIDAY: An Aggressor Fleet trip, this time to the reefs of Belize. Day or night, the reefs are ablaze with color and the photographers on board take full advantage of the scene.

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STELLA MARIS: In another American Sportsmen episode, Stan films author Peter Benchley and Dr. Sylvia Earle as they dive with sharks at Stella Maris in the Caribbean. First dives include encounters with a large Manta Ray, and individual sharks, then the large school arrive and the dives get interesting.
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SEALAB II First Team divers, Aquanaut Wilbur Eaton, left, shaking hands with Aquanaut Bob Barth, and Commander Scott Carpenter, leave to open the habitat on the seafloor off La Jolla, CA. Behind Carpenter with white hard hats are Captain George “Papa Topside” Bond and Walter F. Mazzone.

PHOTO COURTESY OF BERNIE CAMPOLI

SEALAB II returns to the surface off the Pacific Ocean in October 1965 after housing three crews for 45 days at 205-ft on the edge of a submarine canyon. Scripps Institution of Oceanography’s pier is clearly seen in the background.