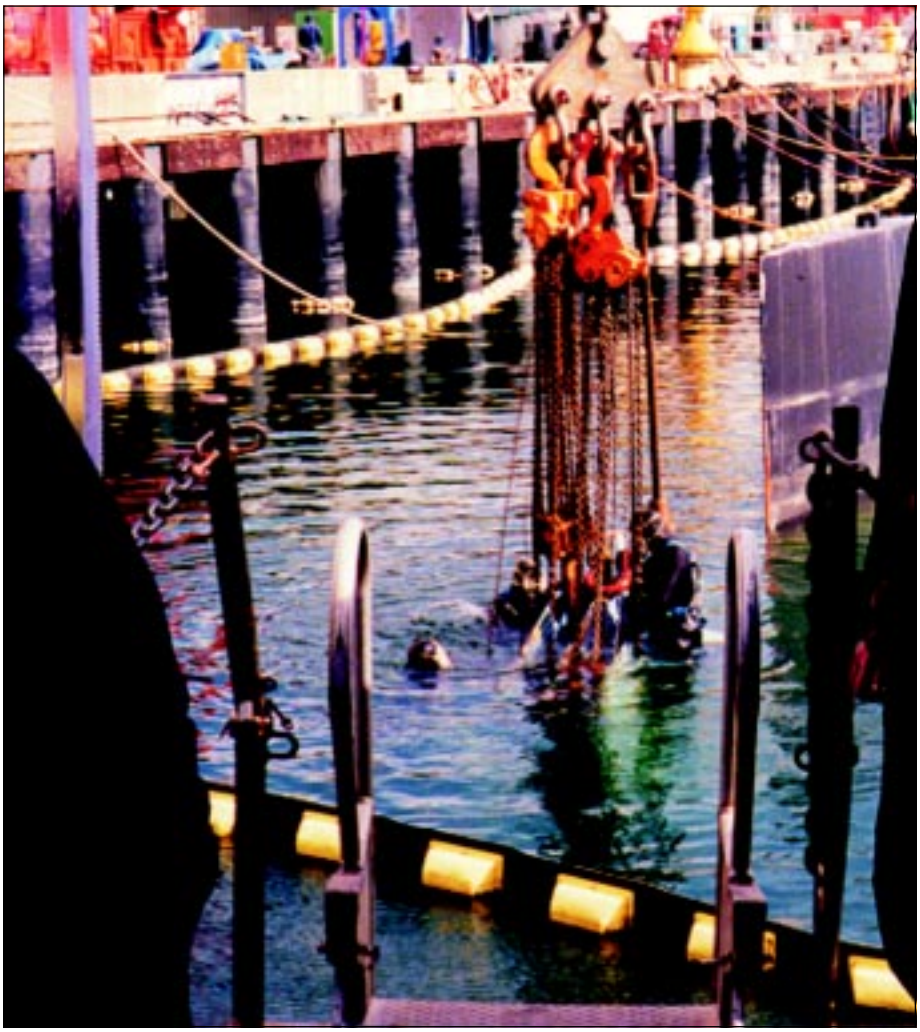
Change of Command at NEDU (see page 2)

FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy
Volume 3, No. 4 / November 1998

Pacific Northwest Regional Diving Locker



RDL prepares to lift the propeller from the USS NEVADA (SSBN-733). Pictured from left to right: (in the water) BM1 (DV) David Williams, HT2(DV) David Glidewell, MB2(DV Francis Yaden.

Read more about this issue's "Command in the Spotlight" on page 9.

In This Issue

SUPSALV Sends

This issue of FACEPLATE highlights our common history. In this issue, there is an article concerning the recovery of the propeller and shaft from USS MONITOR. Also, there is a brief excerpt from a book on the first USN Diving School. Navy Divers share a common history, and that history has a great effect on who we are and how we approach our profession. The history began in the days when MONITOR was afloat and continues today.

We stand on the shoulders of those who preceded us. From the curriculum taught at dive school, to the diving protocol developed at NEDU, to the equipment we use today, are all based on the efforts of those who preceded us. We owe them a great deal. The ability to accomplish our jobs is due in no small part to them.

Likewise, we owe a debt to those following in our footsteps. We owe them our dedicated efforts to improve our diving equipment and

(*continued on page 2*)

procedures. There are lessons to be learned and incorporated into our diving practices. This issue documents some of those lessons learned that you should take advantage of, e.g., the difficult lesson that we keep learning about docking plan inaccuracies and the potential loss to life and equipment damage that can result from these inaccuracies.

Once again, the US Navy was involved in the recovery of victims and wreckage after a major civilian air crash. The efforts of the USS GRAPPLE (ARS 53) and MDSU 2 after the crash of Swissair Flight 111 off Nova Scotia did not go unnoticed by the public, as can be seen from the LA Times editorial included in this issue. We will have more on this aircraft recovery in the next issue of FACEPLATE.

It is now fall, and by the time you read this issue of FACEPLATE, the cold winter weather will be settling in. Check out your winter gear and procedures. Don't wait until the last minute. You never know when you will be responding to an emergency.

Plan your dive and dive your plan. Dive Safe.

CAPT R. S. McCord
Director of Ocean Engineering
Supervisor of Salvage and Diving

INTERNET: MCCORD_RAYMOND_S@hq.navsea.navy.mil

FACEPLATE is published by the Supervisor of Salvage and Diving to bring the latest and most informative news available to the Navy diving and salvage community. Discussions or illustrations of commercial products do not imply endorsement by the Supervisor of Salvage and Diving or the U.S. Navy.

Articles, letters, queries and comments should be directed to the Commander, Naval Sea Systems Command, NAVSEA 00C, 2531 Jefferson Davis Highway, Arlington, VA 22242-5160. (Attn: FACEPLATE). Visit our website at **http://www.navsea.navy.mil/sea00c.**

Captain R. S. McCord, USN
Director of Ocean Engineering
Supervisor of Salvage and Diving
NAVSEA 00C

Jim Bladh
Head, Operations Branch, 00C22
Managing Editor
bladh_james_c@ hq.navsea.navy.mil

HTCM(MDV) Michael Washington, USN
Fleet Liaison Editor
washington_michael_j@
hq.navsea.navy.mil

Diane Dietrich
Production Editor
ddietrich@roh-inc.com

Change of Command at NEDU

Change of Command ceremony at NEDU, George F. Bond Ocean Simulation Facility. CDR Wilkins (left) and CDR Christensen (right). "Wet pot in the background."

On 11 August 1998, CDR James R. Wilkins was relieved as Commanding Officer, Navy Experimental Diving Unit (NEDU), by CDR Erik N. Christensen. CDR Christensen came to NEDU from SUPSHIP Portsmouth, VA. A 1979 graduate of the Naval Academy, his first tour of duty was at NEDU. CDR Wilkins, who was recently selected for promotion to Captain, will be attending the Industrial College of the Armed Forces, Ft. McNair, VA. The Change of Command was attended by VADM George P. Nanos, Jr., Commander, Naval Sea Systems Command; Captain Raymond S. "Chip" McCord, Supervisor of Salvage and Diving, NAVSEA; other diving notables; and friends and families.

MDSU TWO Recovers Propeller and Shaft from the USS MONITOR

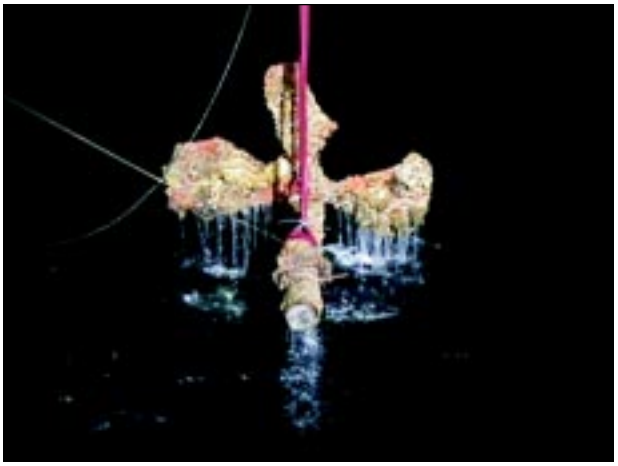
By BMC (SW/DV) Ruben P. Finger

Mobile Diving and Salvage Unit Two (MDSU TWO) was requested by the National Oceanographic Atmospheric Administration (NOAA) to survey the wreck of the USS MONITOR. The MONITOR sank 136 years ago, sixteen nautical miles south–southeast off Cape Hatteras, NC, in 230 feet of saltwater while under tow to Charleston, SC. The MONITOR is best known for its round turret, iron sides and the first naval engagement between ironclads with the Confederate States Ship CSS VIRGINIA (formally MERRIMAC).

NOAA's John Broadwater, Director of the Monitor Marine Sanctuary, and Commander Christopher Murray, Commanding Officer of Mobile Diving and Salvage Unit Two, worked together to set up the Monitor Expedition. Both saw the expedition as a win—win proposition. The Marine Sanctuary and NOAA would get the in-depth survey they needed to complete planning for future efforts to stabilize or recover the MONITOR. MDSU TWO and the Navy would get the first operational test of their newly certified FMGS and capitalize on extremely valuable experience and training under a varity of environmental conditions (current and sea state). At the deck plate level, MDSU TWO DET Bravo accomplished the initial leg work and setup on the KELLIE CHOUEST, led by CWO3 Hulziser, BMCS(SW/MDV) Dennis, BMC (SW/DV) Leet, MMC (SW/DV) Reindeau, and EM1 (DV) Rusin.

MDSU divers used the MK 21 MOD 1 Underwater Breathing Apparatus with a breathing mixture of 14% oxygen and 86% helium, from the Navy's new Fly Away Mixed Gas Diving System (FMGS). For a dive platform, the expedition used the Deep Submergence Elevator Support Ship (DSESS) KELLIE CHOUEST. The KELLIE CHOUEST is a civilian owned and operated vessel that is leased by the Navy. She proved to be an excellent platform. She had all the necessary requirements for the expedition, capable of deep ocean four point moors, an extremely large open deck area, and adequate berthing for forty passengers. The large deck area allowed MDSU TWO room for two recompression chambers (FADS II and TRCS), ample amounts of mixed-gas storage, four portable air winches, one hydraulic winch, rigging box and tool shelter, hydraulic power unit, LP air com-

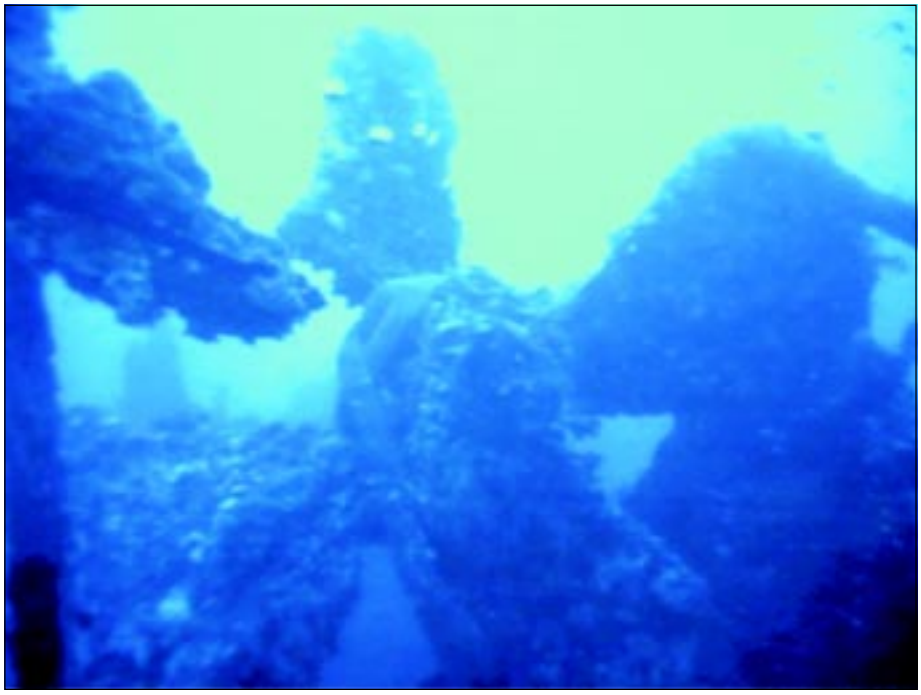
(continued on page 4)



The MONITOR's propeller and shaft surfacing from the murky depths after 136 years on the bottom. Slings, lifting straps, and tending lines were used to bring this historic relic onboard.

Deck area amidships of the M/V DSESS KELLIE CHOUEST. Two rectangular conex boxes (on left) stored our recompression chambers. Flyaway Mixed Gas System and its five racks are shown at the top. Divers' umbilicals are shown in the middle.

Photo by MDSU2.



View of the MONITOR's prop looking forward. The upper blade has a large section missing, possibly related to the night the vessel sank.

(*continued from page 3*)

pressor, HP air compressors, salvage basket, and other gear. The mooring system allowed the ship to lay a four point moor in less than five hours from setup to tightening up in the moor. The large berthing area allowed for maximum participation. Onboard were MDSU divers, NOAA personnel, and a television crew from NOVA that filmed a documentary on the expedition and Navy Divers that will be aired in the late spring of 1999.

We learned from previous expeditions that the biggest challenge to the divers was the unpredictable waters surrounding Cape Hatteras. "They don't call it the graveyard of the Atlantic for nothing," said Jeff Johnston, historian with the Monitor National Marine Sanctuary. After observing the current the first couple of days, it was evident that a pattern of semi-constant, relatively light current in the early morning and then increasing currents in the early afternoon would prevail. MDSU TWO divers adjusted their workdays to take full advantage of this cycle by starting their day at 0300. These conditions held relatively true for about the first week. Mother Nature gave us reasonably favorable conditions 14 of the 16 days on station. Dive operations were secured early on just two days as the current reached speeds in excess of 5 knots. The KELLIE provided a sturdy platform that allowed diving in seas up to 5–7 feet with occasional 8 footers. Visibility varied from 3 to 120 feet with bottom temperatures varying from 62 to 76 degrees F. Any or all of these variables could change in just a dive or two since the MONITOR is located on the edge of the Gulf Stream.

The initial task was to video the inverted MONITOR's gun turret, armor belt, engine room, and propeller and shaft using the Divers Underwater Color Television System (DUCTS). This live footage became an invaluable tool to the archaeologist topside, as they were able to guide the divers throughout the wreckage. In addition to videotaping, the divers also took measurements, bottom sediment samples, core samples of the armor belt, and excavated in and around the turret. Every dive was also fed to the ships Site TV system for the entire crew to observe. This proved to be a tremendous morale booster. After several productive days of diving, John Broadwater, head of the Monitor National Marine Sanctuary, stated, "I am pleasantly surprised at the dive team's progress. . . ." The bulk of the tasks assigned were completed within the first five days.

By then our thoughts were shifting to the recovery of the corroding propeller before it further deteriorated or possibly destabilized the rest of the MONITOR. MDSU TWO had planned ahead and was more then ready for this opportunity. As salvage divers, we wanted to recover parts of the MONITOR, not just film them. The mission objective was defined:. Clear the

(*continued on page 5*)

Photo by D.J. Roller

Conditions off of Cape Hatteras seem to change daily. Here, a US Navy Diver from MDSU2 climbs up and over the MONITOR's armor belt, encountering poor visibility and swift currents.

(continued from page 4)

damaged strut that was an obstruction and then recover the propeller and 11 feet of the shaft from the ironclad ship at 230 feet of seawater. Keeping the divers safety first and foremost, a salvage plan was developed. Lead by Master Diver Dennis and BMC (SW/DV) Mark Leet, a rigging, cutting, and lifting plan was established and approved by the MDSU CO, OIC, and John Broadwater. Keeping the archaeological goal in mind, not to damage the propeller or shaft, the green light was given to MDSU TWO divers to proceed.

We determined prior to bringing up the 4-blade, 9-foot wide propeller and shaft that we needed a place to cradle this historical artifact. A framed structure was designed by CWO3 Hulsizer and manufactured on station by BM1 (DV) Chris Erbe, HT2 (DV) John Coffelt, and HT3 (DV) Andrew Cowan.

The diving continued as it took several attempts to clear the strut, optimizing bottom time as unfavorable bottom and surface conditions arose. Finally, the strut was cleared and we were ready to proceed as planned.

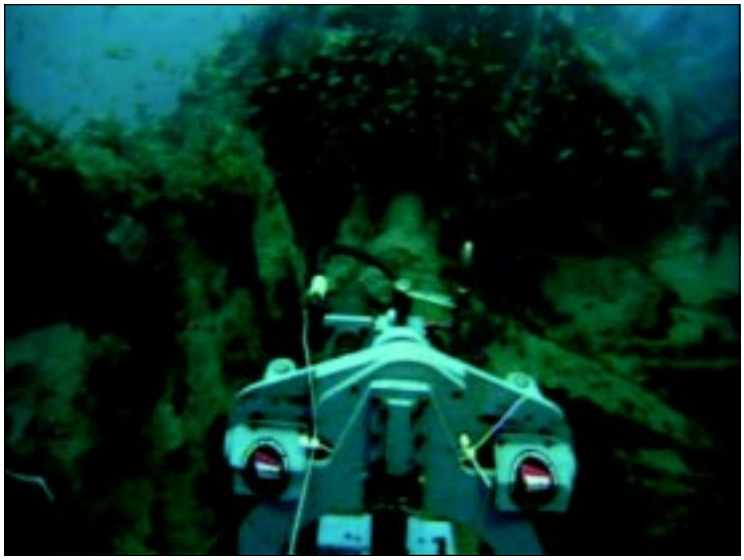
The cutting technique selected was a commercial, hydraulic-powered, WACH'S guillotine saw, which is designed to cut up to 10 inches of solid round stock. Secured to the shaft by a chain, the 125 lb. saw was powered by the Navy's Hydraulic Power Unit Mod 2, delivering 10 gpm of hydraulic fluid at 2000 psi, which moved the 2-inch carbine tip hacksaw blade back and forth.

On 5 June 1998, the skies were clear, seas flat, with no apparent current on the surface or the bottom, and it was obvious to us our day as Salvors was upon us. The first dive of the day left surface at 0455, attaching the lifting sling and hydraulic hoses. The next set of divers assisted in repositioning the KELLIE CHOUEST directly over the propeller. This was critical to prevent lines from fouling in the event of an increase in current. This set of divers also verified the Kevlar slings were properly rigged, as a light strain was placed on the 5/8-inch lifting wire that traveled directly to the surface. The 3rd dive of the day was conducted by HT2 Coffelt and HT3 Cowan, who connected the 400 feet of 1-inch hydraulic hose to the guillotine saw and started the first cut on the shaft. Several dives passed as the ironclad fought to relinquish its propulsion drive. Not until the eighth mixed-gas dive of the day, a slight strain was taken on the lifting wire, and, at 1935, the divers, MDSU CO, and QM3 (DV) Jon Dyer reported, "It's free. It's free and clear of the MONITOR." A roar of cheers came from all of us topside as we had control of the propeller and shaft.

The propeller was placed ever so delicately in the custom-made cradle, handcrafted by MDSU-2 divers. Even after 19 hours, everyone was too excited at this point to feel the day's work take its toll.

Now it was time for the riggers to go to work. The propeller and shaft were lifted to just below the water level in order to attach several tag lines and transfer the load to the ship's crane. With these in place, the propeller and shaft were safely

(continued on page 6)



MONITOR's shaft looking forward with the Wach's guillotine saw in place around the shaft, ready for the divers to begin the cut.

One last photo before turning in for the night. Pictured from left to right, ***kneeling****: HT2 (DV) Adams, LT Scott (MC/UMO), EM1 (SW/DV) Howsman, MMC (SW/DV) Riendeau, TM2 (DV) Ogburn, HT2 (DV) Cowan, LT Santos (OPSO), BMC (SW/DV) Mariano, MMC (DV) Cassels;* ***standing****: EMC (SW/DV) St. Peter, BMC (DV) Robinson, CDR Murray (CO), EM1 (DV) Rusin, GMG3 (DV) Honsberger, HTCS (SW/MDV) Heineman, EN2 (DV) Golden, BMC (SW/DV) Leet, MMC (SW/SS/DV) Gest, QM3 (DV) Dyer, BMCS (SW/MDV) Dennis, HT2 (DV) Coffelt, BMC (SW/DV) Finger, LT Lindsay (MC/UMO).*

(*continued from page 5*)

lifted out of the water at 2223 under the expert supervision of Master Diver Dennis. It was then cradled onboard in its custom-made steel frame. This was the first time in over 136 years that this large historical artifact had been recovered from "... the great-great-grandmother of every warship in America."

Other important items, besides the propeller and shaft, recovered from the depths of this national marine sanctuary include: steel framing, propeller well deck plate (10' ´ 3' ´ ¾") and numerous pieces of coal from her bunkers. These items will be preserved and displayed at their new home at the Mariners' Museum in Newport News, VA. Also recovered from the site for further studies were: wooden core sample from the armored belt, a 5-gallon bucket of sand, and 3-foot deep bottom sediment samples, to assist scientist in preservation and recovery efforts in the future.

At the completion of the expedition, Mobile Diving and Salvage Unit Two had completed:

Dive sets:
55 (2 Divers per set – 110 total dives)
Total Bottom Time:
55 Hours 10 minutes
Total Time of Dives:
379 Hours 35 minutes
Total Time of Dives:
500 + Hours (including recompression chamber inside tender)

For additional information and pictures, visit Mobile Diving and Salvage Unit Two's web site at: www.cnsl.spear.navy.mil/mdsu2.

A special thanks goes to Jeff Johnston, historian for the Monitor National Marine Sanctuary.

The author, BMC(SW/DV) Finger, completed Second Class Dive School in 1986 and First Class Dive School in 1988. He has served at a variety of diving commands including, USS RECLAIMER (ARS 42), SUB BASE PEARL HARBOR, SUBRON ONE PEARL HARBOR, and USS BRUNSWICK (ATS 2). Currently, BMC Finger is LCPO of MDSU-2 Detachment Bravo at NAB Little Creek, VA. Additionally, Chief Finger is the only person ever to re-enlist onboard the USS MONITOR, even 136 years after she sank in 230 fsw.

Anchors & Sonar Domes Don't Mix

Some assembly required . . .

By Jeff Peters

Engineers are meticulous planners, and we engineers in the underwater ship husbandry division are more obsessive than most. Much to a diver's lament, it is our goal to plan every aspect and every step of an underwater repair operation and are, shall we say, disappointed when our procedures are not followed to the letter. One thing we do not put much time into planning, however, is personal leave. Years of experience and observation have been distilled down to a simple principle (which can be derived from Murphy's Law) which states that the amount of effort put into planning personal leave is directly proportional to the probability that a random deploying ship will attempt to destroy itself just to ruin your plans. So, I can only assume that as soon as USS JARRETT was notified that I was planning to leave town for the weekend, someone ran to the anchor windlass room and pulled a pin that allowed the anchor to deploy while the ship was underway. The resulting impact ruptured the dome and my vacation plans in the same instant.

So, I can't say that I was surprised when SURFPAC called requesting immediate mobilization of sonar dome repair equipment to support the largest waterborne sonar dome rupture repair yet attempted. Thirty-six hours later, the equipment arrived on the pier, led by a base police escort complete with flashing lights.

Houston, we have lift-off . . .

The truck was quickly unloaded, and, using an electric impact wrench and a small crane, the cofferdam was assembled on the pier within three hours. The cofferdam was then rigged under the ship and was on the dome within an hour after liftoff. Once in place, the inflatable seal was pressurized, hot water was hooked up, and the habitat was flooded with 90-degree water. The warm water environment allows epoxy application onto a clean dome surface and creates a higher strength chemical bond in a shorter time. The dome remained in this environment for the next 60 hours.

We began preparing the dome for epoxy application using a hydraulic grinder and a plastic dipped wire brush. The entire repair area was scrubbed clean and all exposed broken wire plies were clipped and removed. The anchor impact had also pushed part of the dome inward so that the dome surface was offset from each other. An elegant and high-tech solution was required for this problem: A crowbar was sent to the diver and he had it aligned within 5 minutes.

Afterwards, we began mixing the epoxy, a specialized two part synthetic rubber adhesive called HP-2 Elastolock. Mixing HP-2 is an art form in itself, as it is part laboratory procedure (epoxy components are weighed out on a digital scale) and part taffy pull (the viscosity of the

(continued on page 8)

(*continued from page 7*)

epoxy does not allow mechanical mixing; it has to be folded and pulled by hand). We started the assembly line process of sending patches to the repair, marking the dome, retrieving the patch, wire brushing the patch surfaces, mixing HP-2, applying HP-2 to the dome, applying HP-2 to the patch, and bolting the patch into place. This was done five times over 17 hours, and after five patches, seven gallons of HP-2, and over 400 lag bolts, JARRETT's sonar dome was patched. We started the epoxy curing clock at 2300 Sunday night; we would conduct the pressure test at 1200 Tuesday.

After a well-deserved day off, the CDU dive team arrived on the pier at 0700 Tuesday, and we entered the water to inspect the patch installation. Inspection showed that the epoxy had cured properly and that the repair was ready for pressurization. The dome was held at 15 psi for 10 minutes with no leaks, and then raised to 20 psi. The dome was patched and holding pressure.

USS JARRETT departed the next morning for speed trials to see if she could shake the repair loose. She was met afterwards at the fueling pier and underwent a final inspection. Ship personnel stated that the dome had held pressure and that the sonar was fully functional with no noise spikes. After a satisfactory final inspection, USS JARRETT began taking on fuel for WESTPAC. Repair personnel went to McDini's for the final operational debriefing.

USS JARRETT's sonar dome had been ruptured and then restored to fully operational status within seven days. This sonar dome repair, the largest yet completed waterborne, saved USS JARRETT's deployment and allowed her to continue on WESTPAC and catch up with the CVBG within a few days. Congratulations to Consolidated Divers Unit Sierra Team for a job well done. Semper Gumby!

Jeff Peters is the Underwater Ship Husbandry Division Program Manager for submarines, sonar systems, and composite structures.

Chemistry 101

Patch preparation.

CDU CO:
CDR Debra Bodenstedt

CDU Sierra Team:
ENCS (SW/MDV) Rood
BMCS (SW/DV) James
BM1 (DV) Slade
EM1 (SW/DV) Kriese
EN1 Hill
PR2 (AW/DV) Frantz
MM2 (DV) Wadsworth
HT2 (DV) Laws
RM2 (DV) Gove
BM2 (DV) Risco
EN3 (DV) Willis
SMSA (DV) Aviogne

COMMAND IN THE SPOTLIGHT

Pacific Northwest Regional Diving Locker

by CWO4 Don Rogers

The morning dawns over the great Pacific Northwest, and, in the distance, one can hear birds chirping, deer frolicking, and Navy divers of the Pacific Northwest Regional Diving Locker (RDL) getting down to business. In March 1994, the first Process Action Team was established to investigate forming a regional diving activity from the various area military diving lockers. From this beginning, the Pacific Northwest Regional Diving Locker was formed in October 1996 and began combined operations in October 1997.

The Pacific Northwest Regional Diving Locker is hosted by Puget Sound Naval Shipyard (PSNS). The RDL actually consists of four diving lockers located at Everett, Bremerton, Bangor, and Keyport, WA. All four sites are under the operational control of the RDL Diving Officer, LCDR Fred Bahrke, and the RDL Assistant Diving Officer, CWO4 Don Rogers. The personnel administration functions of each site remain with the parent command.

It must be said up front that without the resounding positive support of Captain Dale Baugh (Commander, Puget Sound Naval Shipyard), Captain Larry Carter (Commander, Naval Undersea Warfare Center, Division Keyport, WA), Commander Benjamin Goslin (Commanding Officer, Ships Intermediate Maintenance Activity, Everett), and Captain James Willy (Commanding Officer, Trident Refit Facility, Bangor, WA), the outstanding successes of the RDL to date would have been impossible.

U.S.S. RANGER rudder removal.

"When the individual capabilities of each site are combined, it quickly becomes apparent that the RDL's work capacity is tremendous."

RDL site Bangor is managed by BMCM(MDV) Ray Augustin and has billets for 13 military divers. The main focus of site Bangor is submarine repair and Underwater Ships Husbandry. Capabilities include both SCUBA and surface supplied diving operations.

Site Keyport is managed by ENCM(MDV) Dan Briggs and has billets for 14 military divers. Site Keyport's work consists of underwater weapons research and development support, as well as maintenance and repair of Keyport's assigned vessels. Capabilities encompass both SCUBA and surface supplied diving operations. In addition, site Keyport maintains the area recompression chamber. RDL divers supported four emergency recompression treatments and six hyperbaric oxygen therapies at the Keyport location in FY 97.

Site Everett is managed by BMCS(MDV) Shawn Fanning and has billets for 11 military divers. Surface ship repair and underwater ships husbandry is the main job at Site Everett. Diving capabilities include SCUBA and surface supplied diving equipment.

Site Bremerton is managed by General Foreman Rick Jackson, who manages 20 Navy trained civilian divers. The work at site Bremerton includes diving repairs

(*continued on page 10*)

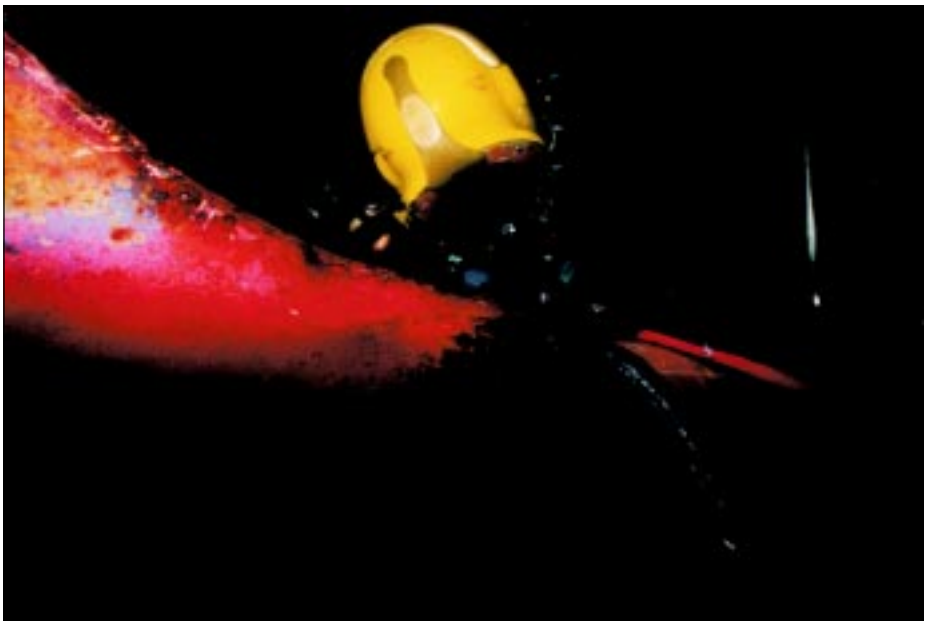
(continued from page 9)

on both surface ships and submarines, as well as preparation and support of all ships for dry docking. Capabilities of site Bremerton include SCUBA and surface-supplied diving as well as underwater welding.

When the individual capabilities of each site are combined, it quickly becomes apparent that the RDL's work capacity is tremendous. With nine certified surface-supplied diving systems, the RDL can field five, fully equipped dive teams simultaneously. On any given day, RDL site managers can route divers from a not so busy site to a very busy site. The flexibility to shift divers from one location to another based on site work load cuts overtime, more fully utilizes personnel and resources, and is the real secret behind the success of the RDL to date. As a testament to the efficiency of this scheme, the FY97 predicted RDL work load was 52,080 man hours based on historical work accomplishment at each site, while the RDL actually accomplish 78,224 man-hours. This represents an increase of better than fifty percent over the predicted workload.

Future RDL goals include expanding the scope of work to include all military assets in the area including United States Coast Guard units and possible installation of a new state-of-the-art recompression chamber.

CWO4 Don Rogers has been a Diver for 26 of his 27 years in the Navy. He received SCUBA training at Naval Underwater Swimmers School, Key West, FL, in 1972; Second Class Diver Training at the same school in 1973; and First Class Diver Training at the Naval School of Diving and Salvage, Washington, DC, in 1975. His duty stations include U.S.S. PETREL, U.S.S. HUNLEY, U.S.S. HOLLAND, U.S.S. GILMORE, U. S. Naval Station Diego Garcia, and Naval Diving and Salvage Training Center, Panama City, FL. He currently is serving as the Pacific Northwest Regional Diving Locker, Assistant Diving Officer.



Welding rope guards on U.S.S. CALIFORNIA. Pictured RDL Site Bremerton Diver Dana Hershberger in MK-21 gear.

From Deep Sea to Deep Space

LCDR Heidemarie Stefanyshyn-Piper, USN

Heide Piper qualified as a Surface Warfare Officer onboard USS GRAPPLE (ARS 53). In September 1994, she reported to Naval Sea Systems Command as Underwater Ship Husbandry Operations Officer for the Supervisor of Salvage and Diving (NAVSEA 00C). In that capacity, she coordinated and planned NAVSEA 00C assistance to fleet diving activities to accomplish repairs to naval vessels while waterborne.

In April 1996, LCDR Piper was selected by NASA as an Astronaut Mission Specialist. Having completed two years of training and evaluation, she is qualified for flight assignment as a mission specialist. Currently, LCDR Piper is assigned to the Astronaut Office Flight Support Branch where she serves as a member of the Astronaut Support Personnel team at the Kennedy Space Center, supporting Space Shuttle launches and landings.

LCDR Piper is married to Glenn Piper, LCDR USN (ret), also a navy diver. They have one son, Michael, age 9. They currently reside in Houston, TX.

Transducer Blanking and Replacement

Check and *Confirm* Those Docking Plans

By BMC(SW/DV) Donald L. Grubbs

Recently, during what was considered a routine blanking job, the forward pumproom on a DDG 993 class ship was flooded to the overhead. The job called for diver assistance to install a hard blank over the AN/UQN-4A transducer for transducer replacement.

A work request was received by the PACNORWEST Regional Dive Locker (RDL). The work request narrative stated, "Diving support required to install cofferdam for AN/UQN-4A fathometer transducer replacement. Request divers to install cofferdam at frame 152 Stbd. Ship has cofferdam and required hardware."

A check of the docking drawing indicated that the AN/UQN-4 transducer was hull item #11 and located it 12 inches forward of frame 154 stbd. The ship provided a 16-bolt flange to be installed at item #11. Tags were hung and diving operations commenced. The divers noted that a second transducer was located less than 2 feet forward of item #11. This second transducer was identified as the AUTEX transducer, item #10 on the docking drawing located 16 inches aft of frame 150 stbd and required a 12-bolt flange for blanking. The docking plan indicated the 16-bolt flange provided by ships force for item #11 was the correct hull opening to blank.

With the blank installed, ships force commenced to verify that the cofferdam was in place and sealed. This was done by loosening the nuts on the studs and prying up the transducer head ¼ inch. It was reported that a small amount of water came through the flange, about the amount that could be absorbed with a sponge. This was expected, as the pressure between the blank and transducer would have been relieved. Ships force signed the work package verifying the blank was in place. The diving supervisor proceeded to return to the dive barge until the change out was completed.

Ships force then continued to remove the transducer using a chain fall and pry bar. All the nuts were removed from the studs. The transducer was loosened further with the aid of the pry bar when water began to enter the void from around the sealing surface of the transducer. The void was small enough that only one man could occupy the space at a time. When the water began to enter, the crew member quickly climbed out of the void. As he exited the void, the transducer broke free, flooding the void and the pump room above. The three personnel escaped with out injury and closed the hatch to the pumproom. The pumproom flooded to the overhead in about 30 seconds. A number of pump motors were wetted as well as the pump controllers.

The diving supervisor was still onboard and recalled the divers to install an additional blank and check the installed blank. A second flat patch blank provided by the dive locker was installed over item #10 opening. The blank instantly sucked up to the hull and was secured with a standoff and hogging line. The space was pumped down and the transducer swap out was completed with the flat patch blank in place.

The root cause of the problem was the error in the docking plan indicating the wrong hull opening for the AN/UQN-4A transducer. It is advised that all dive lockers involved with underwater ships husbandry take additional precautions and checks if requested to install ship-provided cofferdams for the replacement of either UQN or AUTEC transducers. In addition, the shipboard stowage locations for the 12-bolt and 16-bolt cofferdams are labeled incorrectly. The incorrect labeling also directs maintenance personnel to install the wrong blank on the wrong hole. A request to NAVSEA and the ships planning yard has been made to correct the docking drawing and the labels on the stowage locations. Until these changes can be made, this advisory is advance notification of possible other drawing errors in dealing with transducer blanking and replacement. In this case, following all technical documentation allowed maintenance personnel to believe the correct hull opening was blanked, when, in actuality, the transducer was installed in a hull opening other than that indicated by the docking drawing.

A second cause of the flooding was the removal of all nuts from the transducer studs. The attempted verification of the transducer seal was not sufficient to break the actual seal between the transducer flange and the hull. Good shop practice would not allow all nuts to be removed from the studs until the flange was fully broken from the hull. Divers should take additional initiative to ensure ship force mechanics understand this principle.

Don Grubbs is currently assigned to the Regional Dive Locker, Detachment, Everett, WA, as a Diving Supervisor. He attended First Class Dive School in 1990 at Panama City, FL. He was then assigned to the USS BRUNSWICK (ATS 3) and served there until his current assignment in October 1995.

Mobile Diving and Salvage Unit Two Detachment

Roosevelt Roads Puerto Rico Supports DD21 Live Fire Test and Evaluation (LFT&E) Weapons Effects Test

By Harold E. Ketcham

Personnel: HT1 (SW/DV) Roland Green (left), EN1 (SW/DV) Robert McCaulley (center), HT2 (DV) Ryan Wuethrich (right).

On 8 July 1998, the Naval Surface Warfare Center Carderock Division (NSWCCD) Code 67 and the Naval Air Warfare Center Aircraft Division (NAWCAD) Marine Operations and Targets Branch conducted a weapons effect test against the EX-RICHMOND K. TURNER CG-20 on the southern Puerto Rico Operating Area of the Atlantic Fleet Weapons Training Facility, Naval Station Roosevelt Roads. The tests were conducted in support of the PMS500 DD21 LFT&E program. Event number 1 resulted in more damage to the ship than predicted. The EX-TURNER was towed back to NSRR and berthed at Pier 3. A 35- by 20-foot piece of the port forward sideshell had been blow out and had folded down beneath the third platform of the vessel below the waterline. It had acted as a large submerged fin on the return tow to NSRR. In order to proceed with scheduled follow-on tests, the piece would have to be removed.

MDSU Two Det NSRR was called in on 10 July 1998 and began operations at 1100 hours. Divers proceeded to cut the damaged sideshell from the vessel. A deadline of 2000 hours had been mandated by COMSOLANT due to Unitas ship movements and limited pier space. The dive team worked nonstop until 1930 hours, when YD251 harbor crane was signaled to lift the approximately 16,000-pound piece of sideshell aboard its deck. By 2000 hours, YD251 was being assisted back to its berthing by harbor tugs. By 2030 hours, EX-R.K. TURNER was assisted to its assigned berthing space on Pier 1 with no interference to Unitas ship movements.

Well done, Mobile Diving and Salvage Unit Two Det! Roosevelt Roads, Puerto Rico.

Harold E. Ketcham
NAWCAD Patuxent River MD
DD21 LFT&E Test Conductor

(*continued on page 13*)

(*continued from page 12*)

HT2 (DV) Ryan Wuethrich

Port forward section of bow of EX-CG-20.

Personnel from left to right: HT1 (SW/DV) Roland Green, HT2 (DV) Ryan Wuethrich (seated), HTC (SW/DV) George Wilken, BM2 (DV) Tim Moles (seated).

Heroes in a Dark Realm

They are most often referred to simply as Navy divers, as in "the Navy divers continued the painstaking search for bodies amid the sunken wreckage." Their collective anonymity is an element in the news again, this time in connection with the crash of Swissair Flight 111, which went down off the Canadian coast last week, killing all 229 aboard.

During a major recovery effort, there will be stories on the victims and their families and on every detail of the plane that went down. You'll hear plausible and even wildly speculative explanations for the tragedy, over and over again. The faces and voices of the federal investigators will become familiar. But you'll probably never know the names of the men and women who must take on the gruesome underwater task.

The divers are rigorously trained at the Navy Diving and Salvage Training Center in Panama City, Fla. More than half are based on the ship Grapple. The rest come from Mobile Diving and Salvage Unit Two, Detachment Charlie. Their classroom training includes physics lessons. They must be able to swim 500 yards in 14 minutes or less. Their usual duty is military aircraft salvage, and they stand ready to clear harbors and choke points of sunken debris in times of war.

But there is nothing comparable to the search for hundreds of bodies from a huge civilian airliner, not when visibility is low and the rough water so deep that divers must spend more than an hour in a decompression chamber after every dive. "It's by far the hardest work we do," said one diver who went down four times in the search for bodies from TWA Flight 800, which blew apart over the Atlantic in 1996.

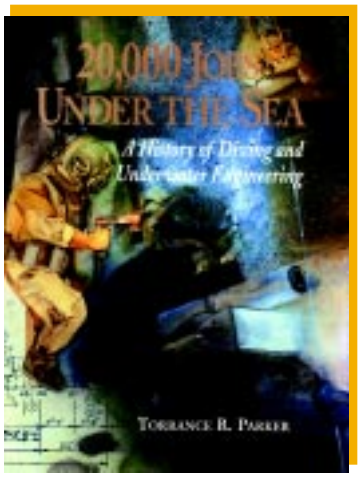
At the end of all of it, it's the divers whom the families of crash victims want and sometimes need to meet, to show pictures and share stories about their lost loved ones. That need to meet is usually shared by the divers as well. These men and women deserve great praise. Who among us could do such work, so well, so modestly?

Book Review

20,000 Jobs Under the Sea

A History of Diving and Underwater Engineering

By Torrance R. Parker



Editor's Note:

A historical record of U.S. Navy and commercial diving. The early years of Navy Salvage Diving and the U.S. Navy's close association with Merritt-Chapman and Scott for salvage support and the origin of their "Black Horse Flag." An excellent reference, well illustrated and indexed. There is a wealth of information for you divers who are considering the private sector.

—Jim Bladh

Ordering Information

20,000 Jobs Under the Sea is available from:

Sub-Sea Archives
PO Box 2471
Rancho Palos Verdes, CA
90275-6298

Tel: 1-800-383-2334
Fax: (310) 377-0704
e-mail: subseaarch@aol.com

This book can also be ordered from Amazon.com.

Historical Notes

This new section of Faceplate will feature topics of historical interest to divers and salvors. In the next issue: "The Second Navy Diving School."

The following excerpt is from Chapter 15 of 20,000 Jobs Under the Sea, *by Torrance R. Parker. See review (left) for more information.*

"The First Navy Diving School

Since each torpedo cost about $2,000, it was important that all of them be recovered and the causes for failure be determined. In order for the Navy to have sufficient trained divers for this work a diving school was planned for Newport. So, in 1882, the Navy started it first training program for divers. The Navy's first diving instructor was Jake Anderson,* a civilian employee. Anderson had previously retired from the Navy as a chief gunner's mate, and then had become a civilian commercial diver. Now, as a civilian, he was back with the Navy as their diving instructor.

The divers' training took place at the Newport Torpedo Station. To qualify, applicants needed four years previous service in the Navy, and to hold the rank of seaman gunner. Students trained for two weeks (later increased to six months), and their qualifying dive called for a one hour bottom time at 60 feet before graduating. Remarkably, it was 23 years later, in 1905, that the Navy published its first *Manual for Divers.*

With America's entry into World War I, the U.S. civilian salvage contractors T. A. Scott, Yankee Salvage, and Merritt-Chapman Derrick and Wrecking Company went overseas to help our allies in salvage operations along the French Coast. Divers and staff from the Newport Torpedo Station joined the salvage forces, and this ended diver training at the station after about 35 years service to the fleet."

* This may be the origin of the name "Jake," used for the diving dress and MK V helmet that adorns most Navy Diving lockers.

PMS Corner

"Service to the Fleet"

1. **MIP 5921/033 Flex hoses.** The subsequent hydrostatic test is no longer required. The only hydro required is prior to initial installation. The R-4 is for installed shipboard systems only.

2. **MIP 5921/177 TRCS.** MRC 24M-1 (58 9FRY Y). Review MRC and ensure that torque is 10-ft lbs. vice 90-ft lbs.

3. **SPECWAR and all users of SECUMAR Life vest:** Major revision completed and will be included in upcoming SFR.

4. **MIP 5921/034 Relief valves.** An A-1R has been added requiring the maintenance person to lift either manually or with system pressure. This change will be reflected in upcoming SFR.

Point of Contact:
BMCM (MDV) McMurtrie NAVSEA OOC36
Comm: 703-607-2766
BMCS (SW/DV) Duffy NEDU O3F1
Comm: 850-230-3100

The Old Master

HTCM (SS/MDV) King

by HTCM (SS/MDV) Jeffrey "Lamont" King

This article is dedicated to HTCM MDV/SS Sam Huss U.S.N. RET., my mentor and sea dad.

The number of U.S. Navy Diving billets is steadily decreasing. Junkboats and tenders are becoming a thing of the past. There is a decreasing number of commands for divers to earn their Warfare Specialty Insignias. Diver advancement results from recent exam cycles show that advancements are slow in coming. Just when we thought the storm was at its peak, we are told that there is a manning shortage for second class divers, while cuts in proficiency pay are expected. For Master Divers, listening to the concerns of our divers and planning for day-to-day diving operations is just a normal part of the work day.

Even with all of the issue's facing today's U.S. Navy Diver, we still maintain that "can do" attitude. There is no better feeling than watching television or reading the newspaper and seeing U.S. Navy Divers on the scene, conducting diving operations in a salvage/rescue mission. If that doesn't give you a sense of pride, then maybe you are in the wrong business. It's about being in a profession that only a fraction of the world's population will ever get to experience. It's about being a part of a team overcoming the challenges we divers face on the bottom.

As U.S. Navy Divers, we always have planned, improvised, and overcome any and all obstacles placed before us. The Navy of the '90s offers many challenges for the diving community, and every diver must make a personal commitment to ensure that the Navy diving community remains strong.

How do we do this? First, we must all adopt the motto, "Each one. Teach one." Find that young sailor who says, "I want to be a deep-sea diver" and spend the time not only telling him your sea stories, but also about how to enter the Navy Diving Program. Then, make the commitment to follow up with him, assuring him that you will assist in his efforts to get to dive school. (Remember, someone assisted you when you were a "wannabe.") If each diver did this, we could fill up our diving ranks and end our manning shortages.

We all know that advancement is becoming harder to achieve, but it is not impossible. First and foremost, each individual is responsible for his or her advancement. The key is to study, not one month prior to the exam, but consistently, and to prepare yourself for the next goal. If only 12 billets are available for advancement, only worry about the other 11 people. Plan on making one of those advancement billets yours. If you are a young diver, find a senior diver that you feel has the right stuff to make him your role model. Never be too proud to ask for advice. If you are a senior diver, find that young sailor and be a mentor to him. We all have a responsibility to train our reliefs. Let's get away from our little "rice bowls" and share the wealth of information we all have. Each diver's goal should be to make a difference in our community. No diver is so important that when he leaves a command, it will cease to exist. So, pass on that knowledge and give up that rice bowl.

Today's Navy Diver must be versatile, skilled, and highly trained to meet future naval needs. Throughout our careers, we must choose assignments that we may not like, or that don't allow us maximum liberty—or the time to attend night college courses. But, the fact of the matter is that those billets allow us to develop professionally and give us versatility. This is a requirement to advance. We can complain about it, or we can do what we must to meet this prerequisite: plan, improvise, and overcome. That always has been the Navy Diver's code and we must continue to live up to it.

U.S. Navy Divers have a rich and colorful history in naval service to our country. It is up to each and every one of us to carry on this proud tradition, our dedication to duty, and the ability to meet the challenges of the next millennium. Just as the Navy Divers of the past laid the groundwork for the present, we have a responsibility to ensure the future of tomorrow's U.S. Navy Deep Sea Diver.

HTCM (SS/MDV) Jeffrey "Lamont" King is Master Diver, Seal Delivery Vehicle Team One.

CWO Bob Barth, 1970

Bob Barth writes:

The Navy Experimental Diving Unit (NEDU) has been looking for diving artifacts for some time now. We hope to acquire a few that have been an important part of diving history and put them on display in our "front yard." Recently, a Personnel Transfer Capsule (PTC), originally installed aboard USS Ortalon (ASR-22) was received on a long-term loan from the Man in The Sea Museum here in Panama City. The PTC has been installed in a prominent location in front of the George F. Bond Ocean Simulation Facility. We are still on the lookout for artifacts that might join this PTC. If you can assist with the quest for display items, please contact me at NEDU, 321 Bullfinch Rd., Panama City, FL, 32407, or call (850) 230-3100 or DSN 436-4351. Your assistance is requested and and certainly will be appreciated.

Personnel Transfer Capsule from the USS ORTALON, now on display in front of the George F. Bond Ocean Simulation Facility.

DEPARTMENT OF THE NAVY
SEA 00C
NAVAL SEA SYSTEMS COMMAND
2531 JEFFERSON DAVIS HIGHWAY
ARLINGTON VA 22242-5160

Official Business