



WINTER ISSUE

1979

FACEPLATE

THE SALVOR'S VIGIL

LCDR Steve Delaplane, USNR
CO, HCU-TWO

The Navy's Junkmen or so we're called a hearty lot are we
perversity, skill, and resourcefulness, our allies
... they number three.

Who are these hearty sailors, these junkmen of the fleet?
Who are those men and women with flippers on their feet?

Shoot the guns? ... No, nay not we nor make the missiles roar.
That glory, fame and glamour are not our daily score.

What do you do they often ask, you junkmen of the fleet?
How can anchors and wire and diving suits spell the enemies' defeat?

But on a cold and stormy night
while the Captain's vigil he doth keep,
embracing a cup of coffee
stamping warm his ice cold feet.

Calamity doth befall his ship as oft happens in the fleet
and a mighty greyhound of the sea runs smack upon a reef.

Who do we call, the cry goes out.
How can we save our queen?
And through the dark and spray of night, the navy junkmen can be seen.

Their captains know their business
and their crews so much the same
as they rig those wires and anchors
and prepare for this deadly game.

The days are long, the nights are tough . . .
and people and equipment just don't seem enough.

Old Murphy has his way sometimes and mother nature vexes pain.
But they snatched the ship off that deadly rock to go and fight again!!!

So worry not ye warriors, ye trojans of the blue, the salty salvors of the fleet,
Will be there to see you through.

And rest assured me hearty lads and brethren of the sea . . .
That when the fleet is sinking or the ships have run aground . . .
THE NAVY SALVAGE FORCES . . .
Will be THERE to heave around!



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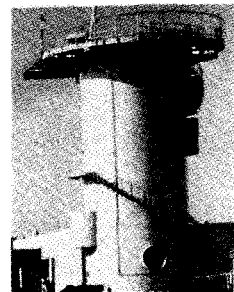
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FACEPLATE

... the official magazine for the divers of the United States Navy

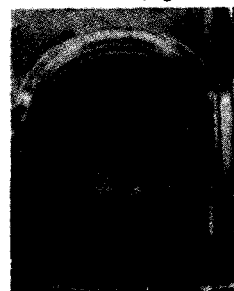
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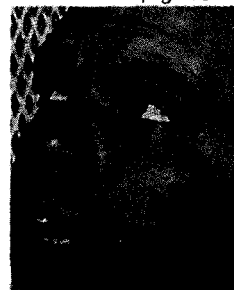
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COVER: DEEP DIVE '79 DIVE TEAM — The Navy Experimental Diving Unit dive team on the surface after their record-setting dive. Bottom row (l-r) Lieutenant Claude Piantadosi, EM1(DV) Tommy Ostertag, MHCS(DV) Tom Holmes, Top Row (l-r) BM1(DV) John Paul Johnson, BT1(DV) Larry Siemiet, HMCM(DV) "Bo" Burwell.

BACK COVER: NDSTC FACILITY UNDER CONSTRUCTION — View of facility from NCSC pier area looking across Alligator Bayou.

SOUNDINGS

AWARD OF NEW FACEPLATE CONTRACT

Potomac Research, Incorporated of Alexandria, Virginia has been awarded the 1980 contract for preparation of FACEPLATE. The previous Managing Editor, Mr. Steve Person, has accepted employment in Saudi Arabia. The new Managing Editor is Mr. Bruce Miller, located in the Panama City, Florida, office of PRI.

NSDS MOVES TO PANAMA CITY, FLORIDA

The Naval School, Diving and Salvage, located in the Washington Navy Yard since 1928, will disestablish on June 1, 1980 and relocate to its new facilities in Panama City, Florida, from June 1 to October 1, 1980. The last enlisted class graduated on April 11, 1980 and the last officer class will graduate on May 2, 1980. NSDS plans to commence transferring personnel and material resources to its new site on May 1, 1980. The school is scheduled to occupy its new facilities on June 1, 1980 and begin diver training in Panama City, Florida at the Naval Diving and Salvage Training Center (NDSTC) on October 6, 1980. The relocation project officer at NSDS is Lieutenant (JG) W. Wilson; LT Wilson can be reached at Autovon 288-3006. (see NSDS Notice 5450 of November 26, 1979)

FACEPLATE SUBSCRIPTION CHARGES

Since the spring of 1970 FACEPLATE has been published by the Navy Supervisor of Diving as the official magazine for U.S. Navy

divers. Over the past ten years the subscribers' list has grown to encompass a world-wide readership in excess of 5000; likewise, the cost has grown significantly. In order to avoid the possibilities of reducing the quality of the magazine or discontinuing publication, budgetary constraints have made it necessary to begin charging a nominal subscription fee to subscribers. In order to continue receiving FACEPLATE beyond the Spring-80 issue, all civilian, ex-military, and commercial firms must complete the form provided in this issue and return it to the Superintendent of Documents at the address indicated by August 1, 1980. These categories include all subscribers with subscription numbers beginning with 5, 8, or 9. Commencing with the Summer-80 issue the following subscription rates will be in effect for these subscribers.

Subscriptions sent to U.S.

Addresses — \$6.50 per year
or \$2.00 per copy

Subscriptions sent to Addresses
Outside the U.S. — \$8.15 per year
or \$2.50 per copy

Subscribers in all other categories will continue to receive FACEPLATE from the Supervisor of Diving at no charge.

The necessity to begin charging for FACEPLATE is unfortunate, but with the continued support of our many loyal subscribers, it is anticipated that the publication of FACEPLATE will continue for many years to come.

CORRECTION

The Fall-79 FACEPLATE article describing an underwater trenching vehicle under development at the Civil Engineering Laboratory, Port

Hueneme, California, contained several errors. Specifically, the article indicated that CEL would have a prototype of the vehicle ready for testing in 18 months. This is incorrect. CEL expects to have only a prototype of the cavitating waterjet system ready for testing in 18 months, not the entire trenching vehicle. In addition, CEL has advised that there is currently no timetable for development of a prototype of the entire trenching vehicle; this must be determined through efforts yet to be accomplished.

WORKING DIVER SYMPOSIUM CANCELLED

The Working Diver Symposium and Diving Officer/Master Diver Conference tentatively scheduled for March 12-14, 1980 at Battelle Columbus Laboratories, Columbus, Ohio was cancelled. Regrettably, this occurred because of stringent U.S. Navy budget constraints for FY-80. The symposium sponsors extend their appreciation to those individuals who have supported the planning efforts for the 1980 conference. Such wide support has historically proven invaluable and will be vital to future symposiums.

MK 12 SSDS TRAINING STARTS

A one-week course to train U.S. Navy divers (surface supplied qualified, second class and above) to use the MK 12 SSDS has started in various locations.

The training courses began in February 1980 and will continue through September 1982. Locations where the courses will be given are

NAVSUBTRACENPAC, Pearl Harbor, Hawaii
NAVPHIBSCOL, Coronado, California
HCU-TWO, Little Creek, Virginia

The first class began on February 21, 1980 and was taught at the Naval School, Diving and Salvage, Washington, D.C.; the last class there is scheduled to convene March 24, prior to the move to Panama City, Florida, this summer.

Maximum class size is limited to 20 students, and PNC Gary Whitehead at CNMPC (Code 401D) Washington, D.C., will coordinate all quota requests with respective schools. For additional information see CNTT message 121502Z DEC 79 or call Chief Personnelman Whitehead, Autovon 291-5771, or commercial (301) 427-5771.

MERITORIOUS UNIT COMMENDATION PRESENTED

The Honorable Edward Hidalgo, Secretary of the Navy, presented a Meritorious Unit Commendation to the Naval Coastal Systems Center for outstanding efforts on the Underwater Vehicle Project.

The citation states that it was being awarded "for meritorious service in support of Commander, Naval Sea Systems Command in the successful functional transfer and subsequent conduct of operations to develop, manufacture, perform configuration control, and support Underwater Vehicles for the Fleet from 1 July 1976 to 1 June 1979. While operating under severe pressures and arduous work schedules, this group of highly specialized and selected Navy Department personnel demonstrated exceptional expertise in achieving Commander, Naval Sea

Systems Command's goals for improved capabilities for the Fleet. Through astute planning, thorough coordination, and hard work, the personnel succeeded in meeting the original schedule within the assigned cost constraints. In addition, they assisted in uncovering and resolving major problem areas in logistics and transportability that resulted in new, improved capabilities for the Fleet. By their continuous display of professionalism, determination, self-discipline, and steadfast devotion to duty, the officers, enlisted personnel, and civilian employees of the Naval Coastal Systems Center reflected credit upon themselves and upheld the highest traditions of the United States Naval Service."

The project is headed by Mr. Rolf R. Mossbacher and 292 civilian employees and 34 military personnel at NCSC were named to receive the award.

USN DIVING COMMUNITY VISITS UNITED KINGDOM

Representatives of NAVSEA OOC, NMRI, NCSC, NEDU, and HCU-ONE recently attended the following meetings in Portsmouth, England: The Royal Navy Annual Mine Warfare and Clearance Diving Conference, the Information Exchange Project (IEP B-12) Annual Meeting, and the US/UK Memorandum of Understanding for a Cooperative Program on Diving Research.

Discussions were held on unmanned and manned diving test procedures, thermal protection, underwater communications, hyperbaric chamber design, one-atmosphere diving suits, physiological studies, and other mutual interest projects.

Visits to the M/V Seaforth Clansman (the Royal Navy civilian-

chartered deep diving ship) reunited some USN members with CPO(D) Chris Ballinger, RN, who returned from exchange duty with HCU-TWO last spring to become Chief Diver on board this new and unique saturation diving vessel.

A practical diving workshop held in the 60-foot mining tank at HMS Vernon (location for conference activities) had the following equipment in the water at the same time:

WASP, SAM, JIM (one atmosphere diving suits)

AGA ACSC (a Swedish-built closed/semi-closed, demand breathing rig for EOD operations)

Mk 12 SSDS

ENC(DV) Bob Tardy, USN, worked long hours putting a variety of personnel through an acquaint dive in the Mk 12. These included: Royal Navy Divers, British Army Divers, Ministry of Defense Civilian Divers from the Director of Marine Services, Ministry of Defense Civilian Scientific Divers, USN Divers from teams and detachments in the UK, as well as Captain Colin Jones, USN, Director of Ocean Engineering and Supervisor of Salvage.

ENC(DV) ROBERT E. TARDY retired after 20 years of Navy service on January 11, 1980 at the Navy Experimental Diving Unit in Panama City, Florida. Commander Chuck Bartholomew, Commanding Officer of NEDU, cited Chief Tardy for his contribution to the development of the Mk 12 SSDS while serving as that program's assistant project manager.

Decorations and awards exemplifying his distinguished 20-year naval career include:

Four Good Conduct Medals
Meritorious Unit Commendation

National Defense Service Medal
Armed Forces Expeditionary
Medal (CUBA)

Vietnam Service Medal
Vietnam Campaign Medal

Air Force Unit Commendation
Chief Tardy, his wife Karen and
their two children, Kyle and Nicole,
plan to remain in the Panama City
area.



ENC(DV) Robert E. Tardy accepts congratulations from Commander Chuck Bartholomew.

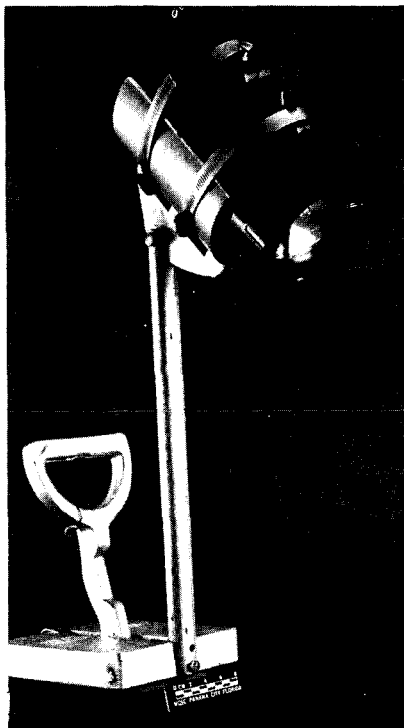
A NEW TOOL FOR DIVERS

EN1(DV) Ronald Nolan, Naval Coastal Systems Center Diving Locker, Panama City, Florida, has developed a magnetic device that will allow a diver to attach a light to a ship's hull so he can use both hands to do his work; the device also eliminates the need for a second diver to hold a light.

EN1(DV) Nolan took a commercial "off-the-shelf" underwater light, designed a magnetic attachment and built and tested the prototype. Named the "Bear Paw" light, it is designed so several types of commercial lights can be used and the attachment allows for quick replacement of the light.

The device has proven effective for ship husbandry divers during underwater repair and inspection tasks. According to Mr. John Quirk, head of NCSC's Diving Tools group, diving activities in San Diego, California, and Charleston, South Carolina, have shown considerable interest in the new device and materials are readily

available at most Fleet diving activities for constructing the new diver's aid. Mr. Quirk stated that the idea of using a split pipe section to hold a commercially available underwater light was developed for the "Bear Paw" light, but has already been adapted for use on hull scrubbing brushes currently under development at NCSC.



The "Bear Paw" Light — A hands-off aid for divers.

LCDR DELAPLANE BECOMES HCU-TWO C.O.

Lieutenant Commander Stephen W. Delaplane relieved Lieutenant Commander Robert R. Wells as Commanding Officer, Harbor Clearance Unit TWO in ceremonies held at the Naval Amphibious Base, Little Creek, Virginia, on October 16, 1979. LCDR Delaplane attended Purdue University, earning a degree in Engineering, and Old Dominion University, receiving an Industrial Management degree, and was commissioned through the Regular NROTC program. LCDR Delaplane reported to HCU-TWO in August 1978 after attending seven weeks of training in helium/oxygen diving and advanced diving medicine. He became HCU-

TWO's Executive Officer in September 1979.

LCDR Wells was commissioned in April 1969 through the Regular NROTC program at Miami University and has a degree in Zoology. He assumed command of HCU-TWO in May 1978 after serving as Weapons Officer on the USS TURNER JOY (DD 951), and is now Commanding Officer, USS BEAUFORT (ATS 2).

DIVING MILESTONE

A significant milestone was achieved in Navy diving during 1979. According to information provided to the Naval Safety Center on OPNAV form 9940/1 (s), 75,074 dives were completed without a fatality. This milestone of professionalism was last achieved in 1971 when there were 42,047 dives completed without a fatality. The Commander, Naval Safety Center and the Navy Supervisor of Diving send a "WELL DONE" to all diving commands throughout the Fleet and shore establishments.

SEASHELL COLLECTION AT SUPSALV

As Supervisor of Salvage, Captain Colin M. Jones has placed on display at SEA OOC an attractive collection of seashells "salvaged" from the



Pacific waters around Hawaii. In order to establish a permanent display of seashells at the entrance to the office of the Supervisor of Salvage, fleet divers are invited to send specimens to SUPSALV with details of where the shells were found, and names of the donators. Credit will be given to those assisting in this effort. Although SUPSALV has a sense of humor, please thoroughly clean the shells first.



CHILLING EXPERIENCE — GMG2 (DV) Terry W. Hegwood froze this movement in time during first-class diver training at Dahlgren, Virginia. Future students can look forward to more comfortable diving conditions when the new Diving and Salvage Training Center opens in Panama City, Florida, next June.

NEIU Reports

Navy Experimental Diving Unit Report No. 1-79. *Thermal Measurements on Divers in Hyperbaric Helium-Oxygen Environments.* L.A. Kuehn and LCDR J. Zumrick, MC, USN.

Abstract: During a series of three saturation dives to simulated depths of 1,000, 1,200, and 1,400 fsw at the Ocean Simulation Facility, measurements were made to establish the rate of heat loss of unclad divers in helium-oxygen gaseous environments. These measurements were part of a program to determine the dangers of cold stress and the temperature/time relationship tolerated by divers in cold diving bells or in hyperbaric chambers in which environmental conditions are uncontrolled. Three specific gaseous temperatures of 15, 20, and 25°C were considered. In each experiment, as many as four subjects were monitored for body core and mean skin temperature over a 2-h testing period. One or two of the subjects were also monitored for mean body convective heat loss to determine physiological (shell) thermal insulation. Results of these experiments are expressed in depth-time-temperature three-dimensional graphs in which the temperature variable is one of the following: mean skin temperature change, mean body temperature change, or mean rectal (core) temperature change, each suitable for defining diver thermal limitations. It was also possible to rank body areas of the subjects in relation to heat loss and temperature decrease during exposure to the cold environment.

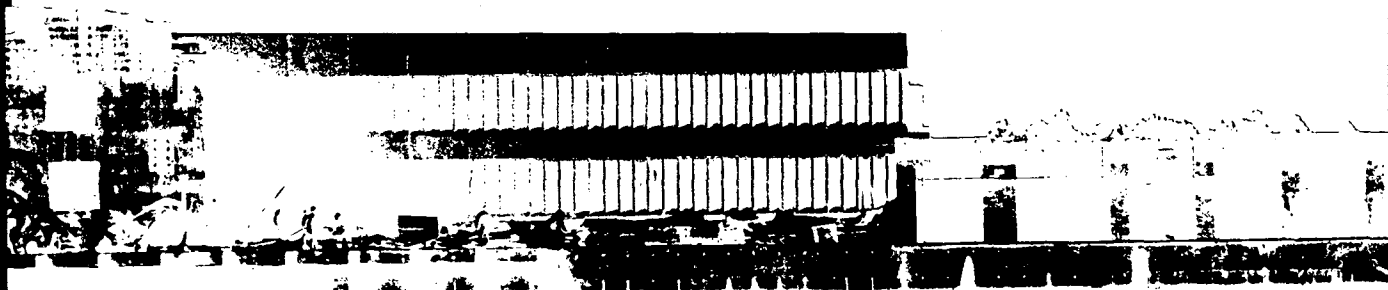
Navy Experimental Diving Unit Report No. 6-79. *Technical Evaluation of the Full Face Mask.* LT P.T. Smith, USN.

Abstract: Technical Evaluation (TECHEVAL) of the Full Face Mask (FFM) was conducted to determine whether the mask functions in a technically acceptable manner and meets design and performance requirements of the Swimmer Life Support System (SLSS). The scope of the evaluation ranged from research and developmental testing through manned testing in the open sea using combat swimmers to evaluate the operability and maintainability of the mask. The FFM was designed and developed to interface with the Mk 15 Mod 0 Underwater Breathing Apparatus (UBA) and test criteria were established which agree with the criteria for the Mk 15 Mod 0 UBA. The mask successfully completed 618.5 hours of testing with no mission aborts attributed to the FFM. The mask meets the mission characteristics as specified in SOR 38-02 and NDCP 5-0417-SW. The FFM is recommended for Operational Evaluation (OP-EVAL).

HOW TO ORDER:

These research reports have been issued by the Navy Experimental Diving Unit, Panama City, FL. Non-DOD facilities desiring copies of reports should address their request to National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22151. DOD facilities can obtain copies from the Defense Documentation Center (DDC), Attn: DDC-TSR-i, Cameron Station, Alexandria, VA 22314. Prices vary according to the individual report.

PROGRESS IN PANAMA CITY



FACEPLATE recently reviewed the progress of the new Naval Diving and Salvage Training Center under construction in Panama City, Florida, with Lieutenant Commander Lee Wolford, OIC, NDSTC Detachment.

According to LCDR Wolford, construction is on schedule and the new facility will be ready when the school relocates to Panama City, Florida, this summer.

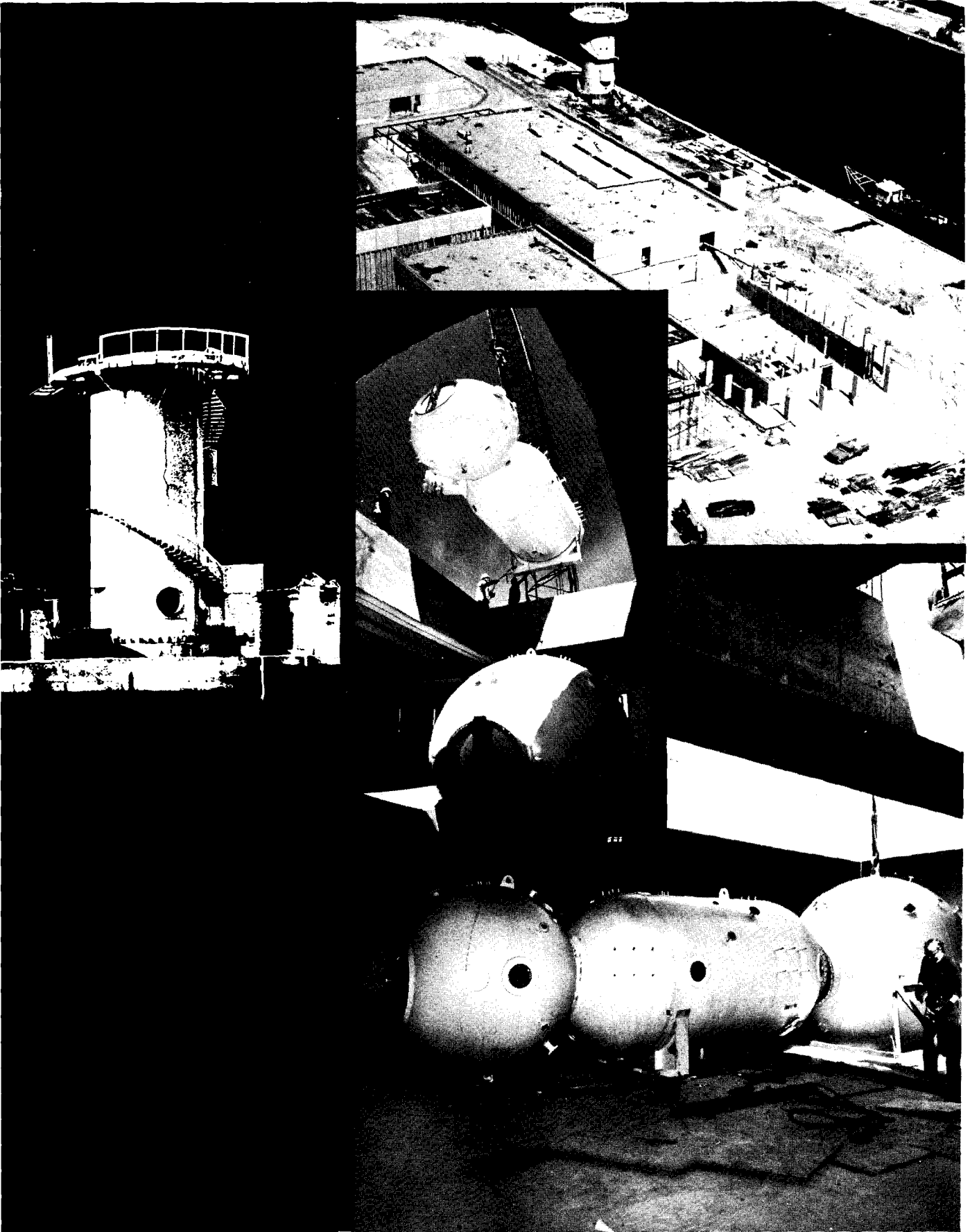
The Pressure Vessel Assemblies have been installed and piping tasks are underway. The PVAs consist of four interconnecting chambers, hatches, viewports, attachments, and internal furnishings. They are designed to operate at 0 — 600 fsw

and can be operated independently.

The NDSTC detachment members are HTC(MDV) John Schlegel, HTC(MDV) William Curtis, and BMC(DV) O.C. Ray. The detachment arrived at NDSTC to aid the transition of the school. They will be working with the Chesapeake Division, Naval Facilities Engineering Command during functional and certification testing of the facility, and the knowledge they gain from this will provide the other members of the school with a group having working experience in the new facility.

The first of three NDSTC service craft (YSD-39) is being overhauled in Charleston, South Caro-

lina, and will arrive at the new facility this spring. Concerning the Panama City area, LCDR Wolford stated, "You have to have lived in Washington, D.C., to appreciate traffic conditions in this city where it's easy to reach any point in only a few minutes." He was impressed also with the good weather conditions for diving activities and the friendliness of people in Panama City.



A VIEW FROM THE TOP

Comments from the Director of Ocean Engineering, Supervisor of Salvage — Captain Colin M. Jones, USN

It is with a great sense of pride that I assume the mantle of leadership as the Supervisor of Salvage, United States Navy. I view this position as one of the best and most challenging in the Navy. Certainly, should it prove to be the cap on my career, I will have no regrets.

Our salvage posture has decreased markedly in the past ten years, and I see it as one of my major tasks to reverse this trend. We have made great progress in many areas, including development of the Mk 12 Diving System, which is now finding its way into the fleet after some contractual difficulties in the last several years. We are well on the road to completing the development of the Mk 14 Push/Pull System and we have made a great deal of progress in the diving research and deep diving areas. We have continued to develop tools for use underwater and we've made significant progress in other areas. However we haven't made enough progress. We aren't training enough salvage officers, and we aren't getting

enough experience; we don't have enough salvage stations manned; and frankly, in my opinion we aren't prepared right now for the very real possibility of a major maritime disaster on one of our shores.

You must all recognize that many aspects of the salvage business are changing radically throughout the world. This is due in no small measure to the significantly increased attention being paid by many agencies both in this country and abroad to the general subject of pollution abatement.

I wouldn't want anyone to think that oil pollution control has not been with us for a long time nor would I want anyone to think that we as salvors have not been concerned with this problem. Today, however, we are not alone in this concern; some of the concern, and particularly the way it is exercised, makes the business of the salvor more difficult. But, rather than a source of discouragement, this should be accepted as a challenge to the skill of the salvor.

The salvage business has many problems which must be faced squarely and resolved. Some of these problems you must face on the local level; many of them I must face

in the Washington arena. I cannot pretend that I will solve the training problems in the Fleet, nor the day to day problems associated with operating schedules. These things you must do; I will help where I can. The task that I see before me at this time is first, to assess where we presently are in the salvage and diving business; second, to get the support of our superiors in correcting our shortfalls. A part of that is the necessary development of both short- and long-range goals. I intend to be intensely pragmatic in the development of these goals. That goes for the design of equipment, for research, and for everything else in our business. I earnestly solicit your input, your ideas at this time on things which you believe are important to the Salvage, Diving, and Ocean Engineering Community in order that you in the Fleet may influence the formulation and expansion of these goals.

An area of concern to all of us is our professional reputations. I expect each of you to be just as concerned as I am about our reputation as salvors, divers, and ocean engineers. It is absolutely mandatory for us to have the continued reputation of being a bunch of can-do, will-do sailors. We must continually prove to the rest of the Navy and everyone else who's watching us, that we are just that — "professionals" — worth more than we are paid. We must build on our established reputation that regardless of the difficulty of a task, the Navy diver is up to the challenge, and when ingenuity and



Captain Colin M. Jones, Director of Ocean Engineering, Supervisor of Salvage, during his tenure as the Pearl Harbor Naval Shipyard Repair Officer.

hard work are required the Navy diver responds admirably.

As money continues to get tighter and tighter within the Defense Department, the necessity of completing tasks in the water is going to increase. We can't afford to drydock a ship to do something that we can do waterborne. Each of us has got to be as innovative as possible. When tasks come up, we've got to find solutions. When you in the field need help, we will provide it from my office wherever and whenever needed. On the other hand, when a job comes up you've got to accept that job and go do it. We've got to keep our divers employed, working in the water, if we want to continue to find our diving programs supported. We must use the tools we have now if we expect to get the funds to develop new tools. We've got to use the equipment we have now if we expect to get the funds to purchase new equipment. Those of you who are supervisors must recognize that retention of good people is your responsibility just as it is mine. The way to retain good people is to keep them busy working in the water. If they want to be divers then we've got to give them enough diving work to keep them busy, and that's the responsibility of all of us.

Each of us needs to be constantly on the lookout for new recruits for the diving programs. However, we all must understand that an ideal recruit is not just "somebody that can complete diving school." It's somebody who can work in the water when we

need him, once we have trained him to be a diver. I have said, and many of you have heard me say it before, that we can teach monkeys to dive, we can teach mice to dive, but we can't teach them to weld underwater. We can't teach them the mechanical skills that a good diver needs to have to work effectively in the water. Therefore, when you are looking around for recruits, look for people who know how to weld; look for people who are good mechanics, because that talent is not something we can teach in a short period of time in diving school. Such skills should be prerequisites to diver training.

A few words about our training program. As I hope you all know, the Diving and Salvage School will be moving into a new home in Panama City, Florida, in the near future. This will give us a much, much better facility in which to train Navy divers. However, the training program that we have run at the Washington Navy Yard for the past many years has been one of the best in the world and it's turned out a lot of good divers. We don't develop a competent diver, a mechanic who can work in the water, overnight or in six months or a year. We develop this kind of diver

through years of hard work accomplished on many salvage jobs, by doing underwater repair work and ship husbandry on a daily basis, by doing it in cold water or warm water, clear visibility or darkness, as the case may dictate. We've got to keep our people working, we must get them in the water more often, if we expect to develop the kind of divers necessary for rapid mobilization.

A few thoughts in closing. Let me once again solicit your help, your suggestions, and comments and let me put here for everyone my general orders: General Order No. 1: "Don't be stupid;" and General Order No. 2: "Don't let the boss be stupid." These both are quotations from Admiral Westfall, and are worth your serious consideration. If we can communicate with one another on as informal a basis as possible and develop the proper understanding of each other's problems, we can solve many of the problems that confront us today and continue to move forward in the salvage and diving business. We can ensure that we are the leaders in the world in the areas of Salvage, Diving and Ocean Engineering. We have the technology; we have the facilities; and we have the people.



EXPERIMENTAL DIVING FACILITY—
Location of Administrative offices, technical library, and soon to be completed hyperbaric chambers.

The Navy Experimental Diving Unit recently completed a record dive at the NEDU-operated Ocean Simulation Facility in Panama City, Florida.

Six NEDU divers established a record during Deep Dive '79 when they lived and worked for five days at the equivalent depth of 1,800 fsw. The unique aspect of Deep Dive '79 was that, when at 1,800 fsw, it marked the first time that divers actually entered the water and performed meaningful work for an extended period when under such great pressure. A comparison of dives beyond 1,500 fsw (see chart) illustrates further this significant achievement. Deep Dive '79 also marks the deepest depth ever attained by U.S. Navy divers.

The Dive Team consisted of BM1 (DV) John Paul Johnston, BT1(DV) Larry Siemiet, HMCM(DV) "Bo" Burwell, EM1(DV) Tommy Ostertag, HMCS(DV) Tom Holmes (Dive Team Leader), and Lieutenant Claude Piantadosi, MC, (Dive Team Physician). The Dive Team began their historic dive when they entered the OSF on November 6. They arrived

"on the bottom" at 1,800 fsw on November 17 and spent five days at maximum depth and 37 days total in the world's largest and most sophisticated man-rated hyperbaric chamber complex. The dive surfaced on December 13 without incident.

The divers arrived at 1,800 fsw on the twelfth dive day. The slow compression rate was used to diminish the adverse effects of great depth.

Commander Chuck Bartholomew, NEDU's Commanding Officer, said, "The purpose of going to 1,800 fsw was to enable NEDU to more fully define life supporting requirements for future Navy underwater breathing apparatuses and to evaluate the adequacy of a new generation Navy diver communications system throughout its full depth range. NEDU also collected large amounts of invaluable data pertaining to underwater breathing apparatus carbon dioxide absorbent canister performance, diver work tolerance, the effects of respiratory heat loss, and the phenomenon of weight loss at great depth. The results



OCEAN SIMULATION FACILITY — Location of world's largest hyperbaric chamber complex, where Deep Dive '79 occurred.

realized from 'Deep Dive '79' will contribute immeasurably to the enhancement of the U.S. Navy's ability to safely and efficiently conduct deep operational saturation diving and will inevitably influence the development of new and better hardware to meet future Fleet diving mission requirements well into the 1990s."

At depths greater than about 1,400 fsw, all divers are affected significantly by the poorly understood phenomenon referred to as High Pressure Nervous Syndrome or HPNS. During the compression phase to 1,800 fsw, symptoms of HPNS experienced by the Dive Team included mild nervous tremors made worse by exercise. Vertigo, heightened by rapid head movement, and nausea were also apparent in varying degrees in each diver. These symptoms were subjectively more troublesome than the tremors, but gradually improved over the first 48 hours on the bottom. Tremors were milder than reported on other deep dives, possibly because of the slower com-

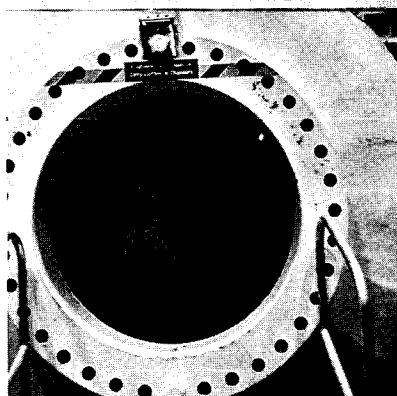
pression rate. Individual symptoms spanned a wide range of severity. One diver was totally unable to exercise at 1,800 fsw because of the prevailing dizziness and nausea.

The most significant effects at 1,800 fsw included loss of appetite, quick fatigue, decreased attention span, nightmares, and gastrointestinal cramps accompanied by diarrhea. These physical impairments did not appear to lessen significantly with time on the bottom, and did not disappear until well into the long decompression phase. Obligate mouth breathing appeared in all subjects by 1,300 fsw during compression, and shortness of breath — brought on merely by chewing, speaking, and minimal exertion — was apparent by 1,600 fsw. At 1,800 fsw, the maximum diver workload possible was about 100 watts, less than 40 percent of a diver's maximum workload on the surface. Work was generally terminated by severe shortness of breath, although gas density in itself did not appear to be the sole cause of this problem. Exercise tolerance improved during decompression and was substantially improved upon reaching 700 fsw.



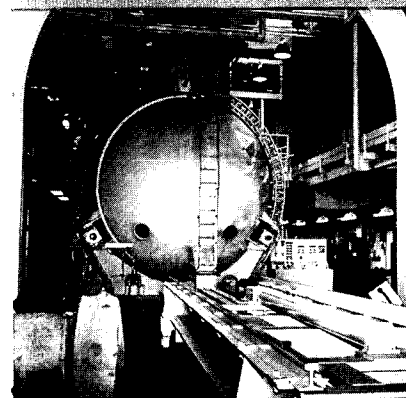
DEEP DIVE '79 DIVE TEAM — The Navy Experimental Diving Unit dive team on the surface after their record-setting dive. Bottom row (l-r) Lieutenant Claude Piantadosi, EM1(DV) Tommy Ostertag, HMCS(DV) Tom Holmes, Top Row (l-r) BM1(DV) John Paul Johnson, BT1(DV) Larry Siemiet, HMCM (DV) "BO" Burwell.

Mean diver weight loss was significant, amounting to nearly 10 percent of body weight by the time the dive left the bottom. Decompression from 1,800 fsw required 20 days using the rates of the standard Navy Saturation Decompression Schedule. The 8-hour rest stops were typically taken from 0000 to 0600 and 1400 to 1600 except during the 6 days of exercise studies. During these days, decompression continued while the divers slept and the rest stop was taken as one 8-hour depth hold from 0800 to 1600 during which exercise experiments were performed. Oxygen partial pressure was maintained between 0.40 and 0.45 ATA for the entire decompression. Decompression was uneventful except for one incident at 1,536 fsw where one diver developed vertigo, nausea, and vomiting. This occurred at 0700 as soon as the diver had awakened following continuous decompression at 6 ft/hr from 1600 the previous day. He was recompressed to 1,566 fsw and fully recovered after 2 hours of breathing 1.4 ATA oxygen from the BIBs. The cause of this event remains uncertain. Dilation of the stomach by gas is possible since the diver claims to have experienced some relief by belching before recompression. Post-dive recovery was slow in all divers, requiring 3 to 4 weeks for resolution of fatiguing easily.



DRY CHAMBER — One of the chambers used during Deep Dive '79.

CDR Bartholomew summarized the 37-day dive as another milestone achieved in the 53-year history of diving at NEDU that will contribute significantly toward the development of new and better diving equipment and techniques not only for the U.S. Navy, but the the world diving community at large. He concluded, "The successful completion



WET CHAMBER — Chamber where Deep Dive '79 team worked underwater at 1,800 fsw.



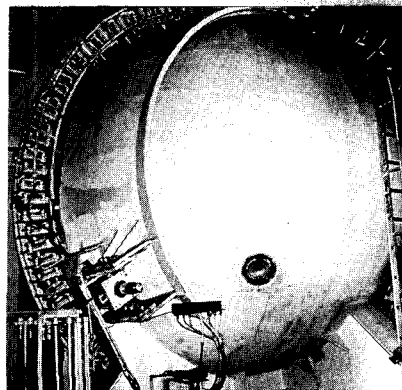
WITNESSING ARRIVAL AT 1800 FSW — (l-r) LCDR (Select) P. T. Smith, CDR Bartholomew, and HTC(DV) Dave Smith sign the Deep Dive '79 log.



MONITORING DEEP DIVE '79 – View of area located on top of dry chamber complex.



BRIEFING SEGNAV – (l-r) CDR Bartholomew explains the Deep Dive '79 Dive Profile to The Honorable Edward Hidalgo, Secretary of the Navy.



CLOSE UP – View of wet chamber.

of this highly complex diving mission relied heavily on the remarkable spirit and motivation of the Dive Team, their stamina, arduous pre-dive physical and equipment training, and equally, on the highly professional, round-the-clock watch standing and supervisory expertise of the NEDU support personnel, both military and civilian."

DEEP DIVE '79 OBJECTIVES

- Evaluate Tethered Diver Communication System (TDCS)
- Study Diver Work Tolerance Using Low Resistance Breathing System (LRBS)
- Study Effects of Diver Respiration Heat Loss
- Study Phenomenon of Diver Weight Loss
- Evaluate Deep Saturation Diving Techniques for Greater Efficiency and Safety

A RECORD REENLISTMENT

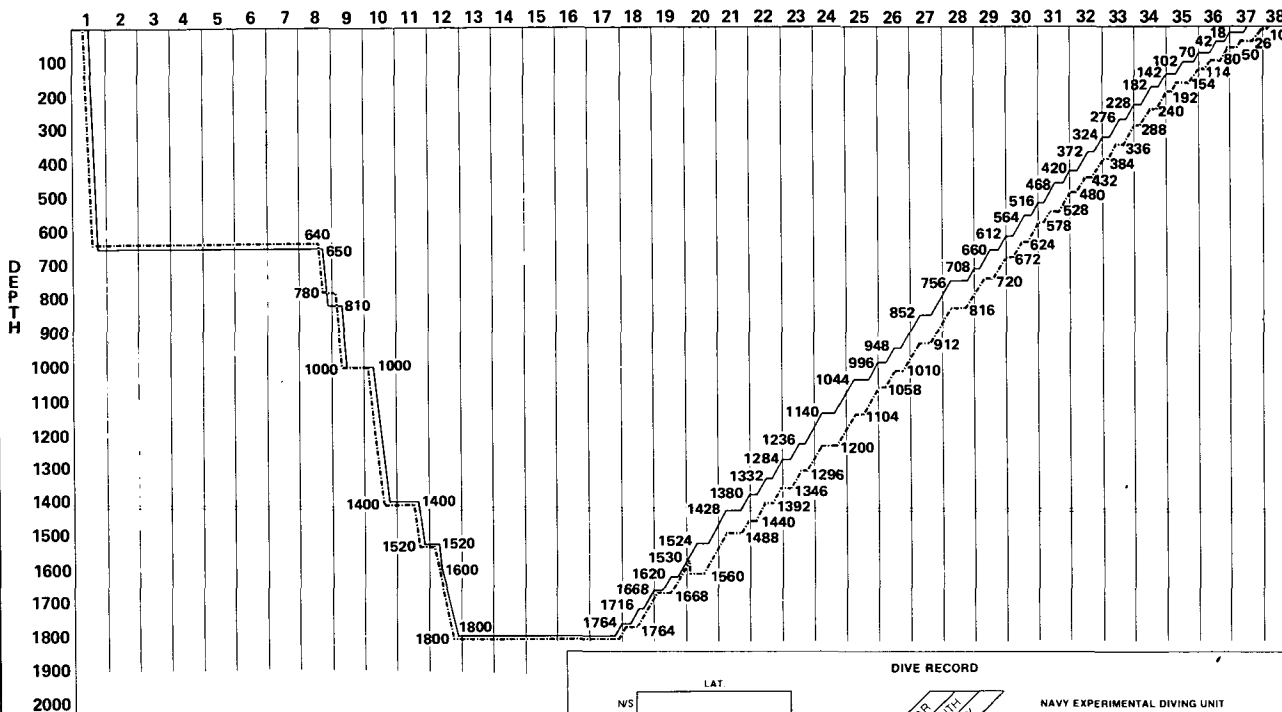
HMCS(DV) Tom Holmes set an individual record during Deep Dive '79.

He became the first man to reenlist at 1,800 feet. The traditional "re-up" ceremony was held November 21 with the reenlistment oath administered by his diver teammate LTPiantadosi. A helium speech unscrambler allowed the divers and witnesses to follow the time-honored reenlistment procedure.



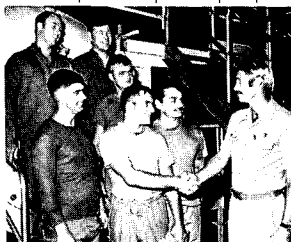
NEDU DEEP DIVE 1979

DIVE DAY



— PLANNED EVENTS
- - - ACTUAL DIVE EVENTS

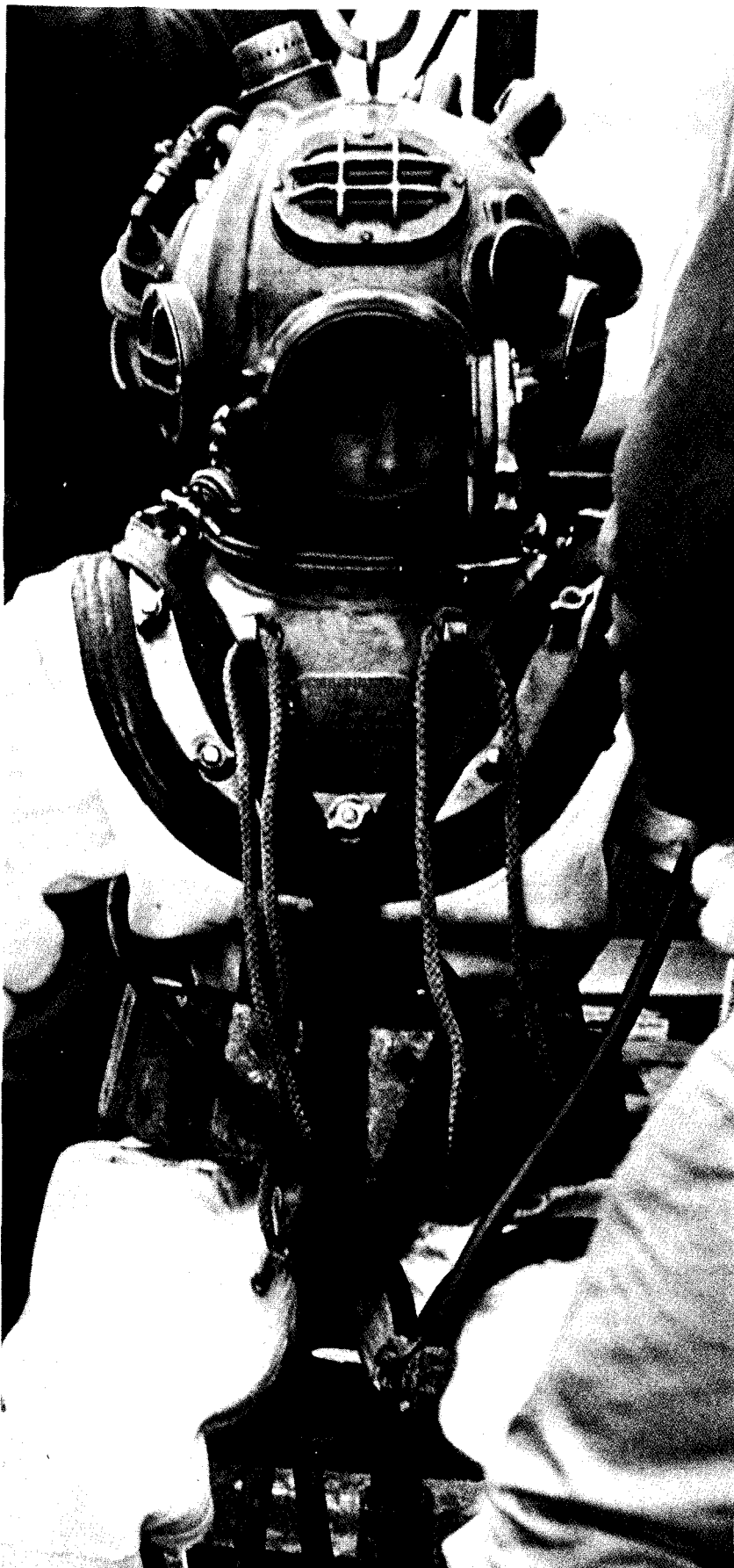
LAT		LONG		YEAR MONTH DAY		NAVY EXPERIMENTAL DIVING UNIT	
N/S		E/W		79 11 17		AT: Panama City, Florida	
DIVE DAY		BREATHER MEDIA		CLOCK TIME		DATE: 17 November 1979	
Type		Dive Day #12		SATURDAY		RECORD OF ALL EVENTS OF THE DAY	
2669	22 05	2730S	1900	A MAJOR MILESTONE IN U.S. NAVY DIVING HISTORY WAS ACHIEVED ON THIS DATE AND TIME AS BOARD THE NAVY EXPERIMENTAL DIVING UNIT, PANAMA CITY, FLORIDA. THE OCEAN SIMULATION FACILITY HYPERBOLIC COMPLEX MANAGED BY THE SIX DIVE SUBJECTS WHOSE SIGNATURES APPEAR BELOW HAS REACHED A DEPTH OF 1800 FSW/901 PSIG. THIS ACCOMPLISHMENT REPRESENTS THE GREATEST DEPTH TO DATE EVER REACHED BY U.S. NAVY DIVERS AND PROMPTLY DEMONSTRATES THE CONTINUING ABILITY OF DEDICATED MEN TO CROSS NEW THRESHOLDS IN DIVING TECHNOLOGY.			
				James A. Holmes			
				Charles A. Piantadosi			
				Lawrence E. Benwell			
				John P. Johnston			
				Thomas A. O'Leary			
				Larry P. Danner			
				DIVE WATCH OFFICER: Paul T. Smith			
				DIVE WATCH SUPERVISOR: [Signature]			
				COMPLAINING OFFICER: Bartholomew			



CDR Bartholomew, CO, NEDU, wishing Deep Dive '79 Team well prior to their entering OSF to commence compression to 1800 FSW. (Left to Right)
Back: BM1(DV) Johnston, BT1(DV) Siemiet
Middle: HMCM(DV) Burwell, EM1(DV) Ostertag
Front: HMCS(DV) Holmes (Team Leader), LT Piantadosi, MC (Team Physician).

COMPARISON OF WORLD'S DEEPEST DIVES BEYOND 1,500 FSW

	DATE	MAXIMUM DEPTH (FSW)	TOTAL BOTTOM TIME	NUMBER OF DIVERS	DIVING SITUATION
Royal Navy Physiological Laboratory (UK)	MAR 1970	1,500	10 hours	2	dry hyperbaric chamber complex
Physalie 5/COMEX (FR)	NOV 1970	1,706	1 hour 17 min	2	dry hyperbaric chamber complex
Saturation 3/SEMA (FR)	NOV 1971	1,640	18 hours	2	dry hyperbaric chamber complex
Saggitare 2/COMEX (FR)	FEB-MAR 1972	1,640	100 hours	2	dry hyperbaric chamber complex
Physalie 6/COMEX (FR)	MAY-JUN 1972	2,001	1 hour 20 min	2	dry hyperbaric chamber complex
Deep Dive/Navy Experimental Diving Unit/ USN at Taylor Diving & Salvage Co. (US)	APR-MAY 1973	1,600	7 days	6	wet and dry hyperbaric chamber complex
Saggitare 4/COMEX	JUN-JUL 1974	2,001	50 hours	2	dry hyperbaric chamber complex
Royal Navy Physiological Laboratory & Duke U. Dive/Oceaneering International (US-UK)	JUN 1975	1,521	momentary	2	dry hyperbaric chamber complex
Predictive Studies 4/Univ. of Penna. (US)	AUG 1975	1,600	55 minutes	4	wet and dry hyperbaric chamber complex
Janus 4/COMEX-GISMER (FR)	DEC 1976	1,575	1 hour	8	wet and dry hyperbaric chamber complex
Phase 2					
Janus 4/COMEX-GISMER (FR)	OCT 1977	1,644	10 minutes	2	wet, open sea excursion dives from sat system
		1,509	2+ hours	6	aboard Dive Ship M/V PETREL
Phase 3					
Deep Dive 77/Navy Experimental Diving Unit (US)	NOV 1977	1,500	3 days	6	wet and dry hyperbaric chamber complex
Atlantis I/Duke University (US)	APR 1979	1,509	4 days	3	dry hyperbaric chamber complex
Royal Navy Physiological Laboratory (UK)	MAY 1979	1,772	3 days	2	dry hyperbaric chamber complex
Deep Dive 79/Navy Experimental Diving Unit (US)	NOV-DEC 1979	1,800	5 days	6	wet and dry hyperbaric chamber complex
Duke University Medical Center (US)	MAR-APR 1980	2,132	10 days	3	dry hyperbaric chamber complex



KEEP ON TRUKKEN

On January 18, graduation ceremonies at the Naval School, Diving and Salvage featured a unique event with the graduation of Deep Sea (HeO₂) Diving Officer, Ensign Susan Trukken, USNR — the first woman to achieve this distinction.

Ensign Trukken's serious interest in diving started when she was in junior high school through publicity surrounding the SEALAB III program. Although she went on to receive a Bachelor of Arts degree from the University of California at Santa Barbara (she has a music teaching credential for grades Kindergarten through 12), she was determined to become a Navy diver. FACEPLATE interviewed Ensign Trukken and here are some of her thoughts about her experience at NSDS.



FACEPLATE: Did you feel you were treated the same as your fellow students?

Ensign Trukken: Yes, I felt I was one of the class after the first week or so. There were times when I had to remind chivalrous (classmates) that I wouldn't learn how to do things if I didn't do them myself, but, all in all, I was one among many trying to fulfill the requirements.

FACEPLATE: What was the worst part of your training?

Ensign Trukken: I guess the worst part was convincing the staff that I was capable of doing what was necessary during Mk V (training). The challenge was climbing up a ladder (and) out of the (wet) pots - not easy, but not impossible. I was laboring under the impression that it was supposed to be difficult for me because of my size as well as my sex, and I found support for that fear



until the "Last Chance" time came. Then I decided - to hay with all this difficulty stuff, it is well within my abilities and I will do it - and I did! I guess when it really comes down to it, the worst part of the training was overcoming the idea that women couldn't handle the rig and the P.T., and overcoming other women's failures. That was the most difficult part of this training - the mental discipline (required). **EDITOR'S NOTE:** Ensign Trukken is 5'2" tall and weighs 120 pounds.

FACEPLATE: What did you like most about this experience?

Ensign Trukken: Diving school... developed a real sense of camaraderie. The P.T., SCUBA, and Mk V (air and helium rigs) were all class as well as individual efforts. So, more than the freedom of SCUBA, Mk 1, and Jack Browne, the security of the Mk V, and the refreshing newness and emancipation of the Mk 12, the people were what make this diving training really worthwhile. The instructors and staff also become a part of this camaraderie, or rather maybe, we a part of theirs. I felt the instructors....were supportive as well as demanding...They are excellent people who work hard - who will give their all to help when they see you give your all to get there.

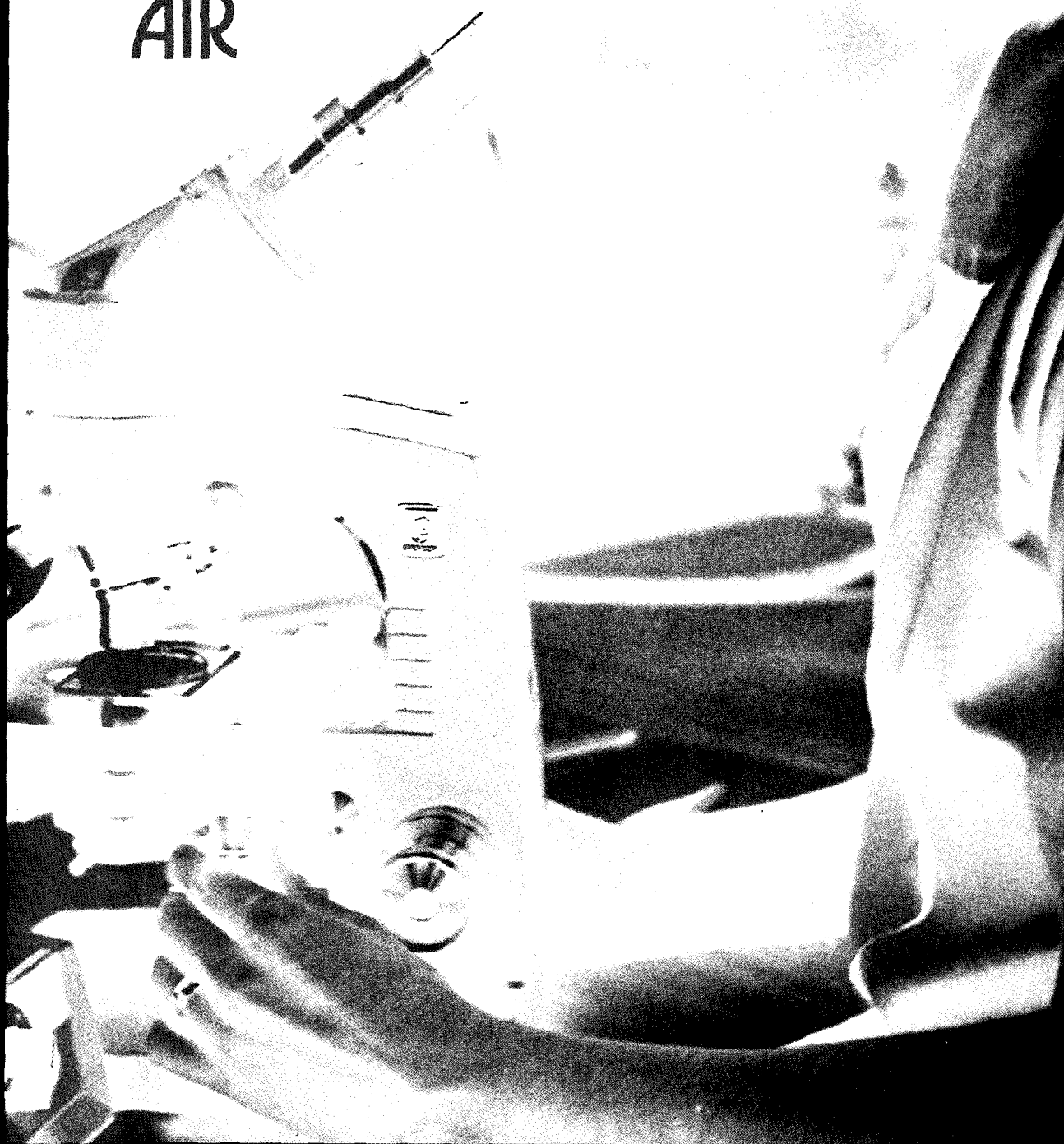


FACEPLATE: Were there any amusing incidents during the training?

Ensign Trukken: I guess the Mud Monster was the most amusing... We had some night searches to do and (the instructor) was trying to get us nervous, so he would kid us about the Mud Monster. We...wrote a note, stuffed it in a bottle, planted it (on the bottom) and one set of divers came up claiming someone had handed the bottle to them. The instructor was a little surprised, and since no one would claim responsibility, we carried that bottle with us all day, every day, for a week.

Upon graduation from NSDS Ensign Trukken attended five weeks of training in "Fundamentals of Munitions" at the Naval School of EOD, Indian Head, Maryland enroute to her first duty station, USS SIERRA (AD-18) temporarily homeported in Mobile, Alabama.

DIVERS CLEAN THE AIR

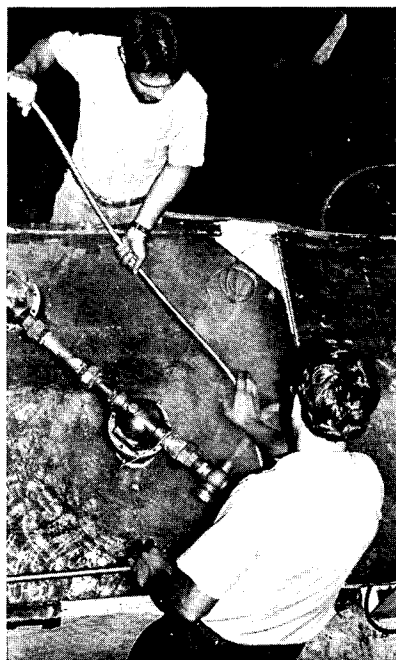


Navy divers recently added to the lengthy list of multi-faceted, unique accomplishments of the diving community when they cleaned the USS CONSERVER air system.

Divers aboard the USS CONSERVER, assisted by Harbor Clearance Unit ONE, COMSERVRON FIVE, USS PIGEON (ARS-21), and COMNAVSURFPAC, cleaned the entire divers' air supply piping system so that it meets the latest exacting standards for this type system. Coordinated by Lieutenant (jg) Turner of COMSERVRON FIVE, the job was accomplished by using



SN(DV) Niccolls (left) checks system contamination level (above) HT-FN(DV) M. Whitlow and ET-SN(DV) M. Shudinis inspect the final flushing of piping.



HT-FN(DV) M. Whitlow and ET-SN(DV) M. Shudinis check flushing equipment.

would be made along with system repairs. HCU-ONE's ENC(DV) Penn had to ensure that the clean room facilities were ready for the major undertaking and anticipate many other details associated with the project.

The USS CONSERVER divers, under supervision of ETC(DV) Vester, removed over 300 feet of piping, consisting of more than 150

separate components. HCU-ONE's BMC(DV) Currivan led one cleaning team. SN(DV) Niccolls was his assistant for quality control and was a lab technician also.

After the system was reinstalled, it was pressure tested, flushed, and air tested for less than 5 parts per million contaminants, which is many times cleaner than allowable contaminants in a hospital operating room. The final test resulted in a "no contaminants" report.

The project was completed one week ahead of schedule because of the talent, knowledge, and expertise of the diving activities, and their ability to work together.



ETC(DV) Vester and HT-1(DV) Ehly insure proper gage calibration.

HCU-ONE's clean room facilities, the manpower of the USS CONSERVER and HCU-ONE, the technical assistance of HTC(DV) Earnest of USS PIGEON, and the guidance of diving system expert MMCS(MDV) Bradbury of COMNAVSURFPAC. Difficult is the best word to describe the air cleaning project. After HTC(DV) Earnest reviewed all cleaning requirements and defined the scope of the job, he carefully inspected the system as installed, compiled additional specifications, and listed deficiencies that would require correction during system cleaning.

Simultaneously, USS CONSERVER divers were identifying material required for the five air system quality improvement alterations that

PROJECT PARTICIPANTS

Name	Unit
LT(jg) P. TURNER	COMSERVRON FIVE STAFF
MMCS(DV) S. BRADBURY	COMNAVSURFPAC STAFF
HTC(DV) B. EARNEST	USS PIGEON (ARS-21)
HTCS(DV) C. MOSER	HCU-ONE
ENC(DV) G. PENN	HCU-ONE
BMC(DV) P.B. CURRIVAN	HCU-ONE
SN(DV) T. NICCOLLS	HCU-ONE
ETC(DV) D.L. VESTER	USS CONSERVER (ARS-39)
HT3(DV) M. R. CAMPBELL	USS CONSERVER (ARS-39)
HT1(DV) A.W. EASTON	USS CONSERVER (ARS-39)
HT1(DV) N.L. EHLI	USS CONSERVER (ARS-39)
TMSN(DV) D.E. FOWLER	USS CONSERVER (ARS-39)
GMMSN(DV) D.E. FRYBERGER	USS CONSERVER (ARS-39)
ENFN W. J. SHERIDAN	USS CONSERVER (ARS-39)
ETSN(DV) M.J. SHUDINIS	USS CONSERVER (ARS-39)
HT3(DV) D.M. SIMS	USS CONSERVER (ARS-39)
HTFN(DV) M.E. WHITLOW	USS CONSERVER (ARS-39)

A New Direction A New Direction A New Direction In Diving Organizations

LCDR Gary Cassat, Officer-In-Charge
Consolidated Diving Unit, San Diego, California

Commander James Roper, Supervisor of Diving, discussed the diver consolidation program in the Fall 1979 issue of FACEPLATE. This program has become a reality on the West Coast and here is a report on how it was done and how it is working.

The West Coast divers have re-organized and borrowed a tradition from the SEABEES. "CDU....CAN DO" has become the watchword as the West Coast Consolidated Diving Unit carries out its mission of underwater ship husbandry for San Diego-based Fleet units.

Consolidation occurred November 1, 1979 with diving personnel from ADs, ARs, and PHIBCB-ONE pooling their talents and assets aboard the YFNX-24 diving barge (formerly assigned to the Second Class Diving School). After three months of opera-

tion, CDU's successes indicate that it is able to provide a level of support to the Fleet far beyond that formerly provided by individual shipboard diving lockers.

CDU has a simple formula: Success = (flexibility) + (cross-pollination of talent). Because of centralized work planning and scheduling control at CDU, all requests for diver services are well-coordinated

and assigned a priority that meets the needs of the requestor. This close coordination establishes good rapport between CDU and the requestor, and provides excellent exposure for the divers—a visibility for the diving community not available before. Additionally, CDU maintains an emergency response capability that has proven itself by being able to arrive on the site of the emergency for after-hours repair fully dressed and ready to dive anywhere in the San Diego harbor within one hour.

CDU works directly for the COM-NAVSURFPAC Maintenance Coordinating Center (MCC). This allows for real-time coordination of multi-shop IMA repairs (i.e., the valve shop aboard USS TENDER will pull and repair a valve and divers install and remove the cofferdam).

The CDU diver pool works like this: as tenders/repair ships return to homeport after deployment, diving personnel report to COMNAV-SURFPAC CDU on Temporary Additional Orders, thereby maintaining their constructive sea time. The divers remain with CDU until their parent ship deploys. This provides a relatively long period of personnel stabilization for CDU and allows for an extensive exchange of ideas and experiences. This "cross-pollination" has proven time and again that there is a diver somewhere in the CDU organization who knows how to accomplish that "unusual" job and a "school of the ship" is conducted so the entire staff benefits from this knowledge.

In addition to a large number of underwater husbandry operations, CDU has been performing a complete overhaul of the YFNX-24 diving barge and shore facilities to increase efficiency and capabilities. Besides the AD/AR dive boats, CDU has acquired a new LCM-hull 50-foot workboat that will be converted into a surface-supplied diving/light salvage platform capable of sustained SCUBA and Mk 1 diving operations (130 feet/60 minutes). CDU is the projected home for the Fly Away Dive System (FADS) and diving personnel marked for the San Diego-based T-ATFs.

CDU takes great pride in its accomplishments and is looking forward to eventually become a detachment of HCU-ONE. CDU extends a cordial invitation to diving and salvage personnel throughout the Fleet to stop aboard, see our operation, and share your ideas.

CDU performed the following repair and assistance tasks in its first three months of operation:

Task	Number Performed
LST Bow Thruster Repairs	2
Fin Stabilizer Cofferdams (FFG-1 Class)	1
Propeller Removals from Major Combatants	2
Propeller Replacement	2
Pre-Hull Cleaning (SCAMP) Inspections	22
Post Hull Cleaning (SCAMP) QA Inspections	21
Underwater PMS/Pre-deployment Inspections	10
Damage Inspections, Including Unfouling of Sea Chest, Screws, and Fittings	35
UDATS Televised Damage Inspections	4
Major Cofferdams, Patches and Plugs	54
Shaft Wraps (Includes 963 Class)	10
Propeller Cleaning (Includes 1 CV)	3
Sonardome Grooming	3
Inspecting Main Circulator, Scoop and Overboard Valves	12
Search and Recovery Operations	6

(Plus numerous varied jobs including: keel anchor rigging, pit sword replacement on a CG, retainer ring removals, fairwater bolt replacement, UT test support, small craft bottom cleaning, and indoctrination dives for prospective divers.)

CDU KEY INDIVIDUALS

LCDR Gary Cassat	OIC. Served in salvage and diving forces and Surface Warfare Units. Converted to 1140 Special Operations Officer designator from 1110 Surface Warfare in 1978.
LT (jg) Kemp Skudin (D)	Assistant OIC. Also an 1140 Officer. Will be relieved by LT (jg) Bowles.
LT (jg) John Bowles (R)	
MMCM (MDV) Bud Kilbury	MCPOC and "top kick" of CDU.
ENCS (MDV) Bill Romaine	Senior Master Diver and diving operations technical advisor.

The Master Diver Selection Process

LCDR J. E. Malloch
Executive Officer
Naval School, Diving and Salvage

The purpose of this article is to dispel the questions, rumors and mystique that have arisen throughout the diving community concerning the method by which the Navy's Master Divers (MDVs) are selected and to detail the step-by-step process by which the selection process is performed.

The MDV selection process has evolved over the years into a precise and careful method where a selection board, consisting of NSDS staff members and other invited MDVs, votes on whether a candidate should be recommended for MDV after an extensive evaluation period.

After completing a fleet screening process, MDV candidates are issued orders to Master Diver (Qualification) course (A-433-0019) at NSDS, Washington, D.C. MDV candidates undergo this five-week evaluation course after an orientation briefing upon reporting (the Friday before the course starting date) to NSDS.

The course MDV candidates take consists of five intense weeks of closely observed performance in a variety of situations:

First Three Weeks: During this phase, candidates receive classroom refresher training starting with physics and medicine, continuing with helium/oxygen diving procedures review, and instruction in advanced diving medicine during the last week.

Fourth Week: This week is dedicated to open sea diving procedures onboard the school's diving service craft. MDV candidates supervise dives during this segment of the selection process and use NSDS students undergoing training as the diving team. Candidates are not graded during this week, but are given the opportunity to "run the side", react to imposed casualties, diagnose and treat diving casualties, and ask in-



The Way It Works

MASTER DIVER SELECTEES — NSDS Class 79-09-M Graduates (June 29, 1979) (l-r) BMCS(MDV) Sam Sangrey, BMC(MDV) Darrell D. Williams, and EOC(MDV) Joseph M. Scalpi.

structors any questions while receiving feedback on mistakes and the correct procedures to follow (in accordance with the Diving Manual). The fourth week is structured usually to include operation of the following equipment: Mk V - Air (Monday); Mk V Modified - HeO₂ (Tuesday, Wednesday, and Thursday); and Mk 12 - Air (Friday). The Mk 12 has just recently been introduced into all diving curriculums.

This first week at sea serves as a "shakedown" period so MDV candidates can ask questions, receive feedback, become familiar with the diving systems, and get acquainted with the personnel before the final and most important evaluation week.

Fifth Week: This final rigorous week in the evaluation course is graded by the selection board. Each candidate is given the same diving scenario that includes a planned casualty or problem to which the candidate must react. Candidates are not aware of the nature of the emergency until it occurs (see Fall 1979 issue of *Faceplate* for a description of this selection process segment).

The manner in which the candidate leads and runs his station, controls the casualty, and diagnoses the medical problem associated with the diver(s) involved constitutes the basis for individual evaluation. Each of the candidates is given a critique and constructive feedback from the observers after the drill has ended and each is graded on his performance on each of the four days by the various observers onboard that day. The normal sequence for this last week is: Monday - Mk 1 Band Mask (Air); Tuesday and Wednesday - Mk V Modified (HeO₂); and Thursday - Mk V (Air). (The Mk 12 has not been included in the evaluation week be-

cause it has only recently become an additional diving system for some diving activities.)

The MDV Selection Board meets the following Friday at NSDS after completion of the four days at sea drills. The board consists of the NSDS Commanding Officer (Chairman), Executive Officer (Board Coordinator and Recorder), Project MDV, observing MDVs (four to eight people), four evaluating Diving Officers, and the Medical Diving Officer (normally a total of 14 voting board members). The Commanding Officer votes only when there is a tied vote.

When the board begins evaluating candidates, each candidate is boarded alphabetically and individually. *The candidates are judged by an established standard, not compared to each other.*

The XO briefs the board on evaluation rules, then the observing master for each day reads the drill imposed on the candidates, starting with the first candidate, and concludes with his observation/evaluation of the candidate. Evaluation can range from outstanding to unsatisfactory. Each observer who performed evaluation on a specific day presents his observations on the candidate. After all observers have reported to the board, the board votes on whether to recommend a candidate for MDV status. Ballots are signed and the CO/XO review them. *To ensure that the selection process is fair and impartial, an evaluator can abstain from voting with the board's permission if he feels he cannot be objective.*

Votes are counted verbally by the XO. If the candidate receives a majority of "recommended" votes, he is authorized to be designated by the Commander, Naval Military Personnel Command (NMPC) as a Master Diver, NEC 5341, and is thereafter assigned as such. The board recesses

after evaluating each candidate and then reconvenes to evaluate the next candidate.

It takes about one hour for each individual evaluation. When all candidates have been boarded, each is called into the board room where the CO apprises him of the board's decision.

If a candidate has been selected as an MDV, he is awarded his MDV breast insignia and certificate of qualification. Non-selectees meet in closed session with the XO and the Command Master Chief (MDV) to discuss areas where improvement is needed. Before adjourning, the board votes and establishes a consensus of when non-selectees should return for reevaluation. The command, at a later date, makes an administrative remarks (Page 13) entry, which goes to the individual's command, the diving detailer, and the school records. This ensures that everyone has an equal opportunity to compete for existing quotas for future evaluation classes.

The MDV Selection Process is a fair and equitable process for selecting the best qualified individuals from the Fleet to perform the time-honored responsibilities expected of an MDV — the Navy's subject matter expert in the performance of diving.

From October 1978 to October 1979, 26 First Class Divers were evaluated for MDV. Eleven of the 26 (42%) were selected. The next MDV course will be held early in 1981 in Panama City, Florida. Contact the Naval School, Diving and Salvage for answers to any questions concerning the MDV Selection Process (NSDS will relocate to Panama City June 1, 1980 and will be redesignated as the Naval Diving and Salvage Training Center).

The Navy's Master Divers

The Navy Master Diver (MDV) is the recognized expert of his profession. To achieve this status, an individual must first meet the following qualifications: be a diver first class for a minimum of two years, serve onboard an ARS or ASR, be an E-7 or above, be recommended by his commanding officer, and survive a rigorous Fleet screening process. In the past MDV candidates enrolled in the Master Diver Course at NSDS, Washington, D.C. The last course convened on Monday, March 24, 1980, with candidates arriving on the preceding Friday. Future classes will be held at the Naval Diving and Salvage Training Center, Panama City, Florida, beginning in early 1981. A detailed description of the course and ensuing MDV selection process, as written by LCDR Jim Malloch, USN, XO of NSDS, precedes this article. Since the listing of Navy Master Divers which appeared in the Spring '79 issue of FACEPLATE, several new MDVs have been selected, others have retired from active service, one has returned to active duty from retirement, while many have been promoted or transferred to new duty stations. The listing below provides the names and duty stations of active duty MDVs as of March 1, 1980.

HTCM(MDV) ERNEST ALEXANDER
USS BRYCE CANYON (AD 36)
FPO SAN FRANCISCO 96601

MMCM(MDV) MIKE ANDERSON
HTCM(MDV) JOHN ORTIZ
NAVAL SUBMARINE TRAINING
CENTER PACIFIC
PEARL HARBOR, HI 96860

BMCM(MDV) DICK ARLINGTON
USS HOLLAND (AS 32)
FPO NEW YORK 09501

BMCS(MDV) BILL AUSTIN
BMC(MDV) DARRELL D. WILLIAMS
USS SIMON LAKE (AS 33)
FPO NEW YORK 09501

BMCM(MDV) PAT BEHLING
HTCM(MDV) DAVID DEBOLT
SMCM(MDV) JACK DELAUTER
BMCM(MDV) EDWARD WOODY
NAVY EXPERIMENTAL DIVING UNIT
PANAMA CITY, FL 32407

HTCM(MDV) EARL BENNETT
NAVAL SPECIAL WARFARE GROUP 2
NAVAL AMPHIBIOUS BASE
LITTLE CREEK
NORFOLK, VA 23521

MMCS(MDV) DONALD F. BRADBURY
COMMANDER NAVAL SURFACE
FORCE PACIFIC
NAVAL AMPHIBIOUS BASE
CORONADO
SAN DIEGO, CA 92155

HTCS(MDV) FRANK BUSKI
SUPERVISOR OF SHIPBUILDING,
CONVERSION AND REPAIR, USN
SAN FRANCISCO, CA 94135

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On February 20, 1976, the derrick barges ELMAR I and ELMAR II were rammed in the stern by the M/V ARALAR while under tow near the east bank of the Mississippi River, west of New Orleans, Louisiana. Both barges sank at Kenner bend in the area designated as Mile 113. The barges separated and sank 2,600 feet apart.

When the barges' owner abandoned them, the U.S. Army Corps of Engineers requested the U.S. Navy Supervisor of Salvage to survey the wrecks in preparation for their removal. After the survey SUPSALV tasked HCU-TWO to remove the wrecks, which had become hazards to navigation.

The salvage operation took five months and combined the adverse natural elements of zero visibility, strong currents, and storms, with the difficult task of removing gravel ballast and mud from one wreck before salvaging it, dredging around the other wreck to attempt parbuckling it into a hole, and recovery of a sunken tug adjacent to the ELMAR II.

A partial list of equipment used and a diving summary best illustrate the complexity of this salvage task:

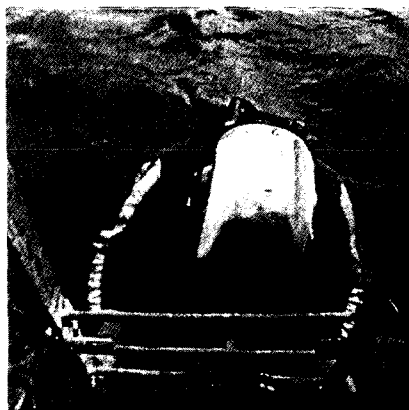
Slurry consistency of the payload brought up by the modified 10-inch air lift.

HCU-TWO TACKLES OLD MAN RIVER

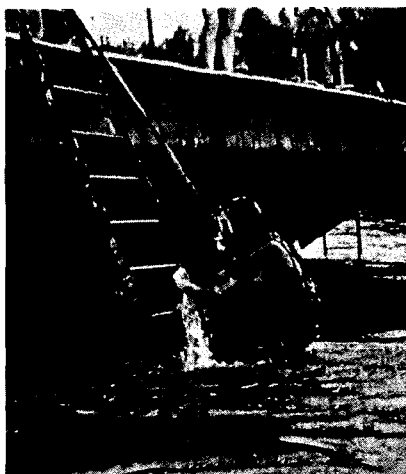
PARTIAL EQUIPMENT LIST

ESSM POOL

Two diesel 125 CFM air compressors
One diesel 30 KW AC generator



One diesel light tower
Two four-inch submersible pumps
Two ten-inch diesel pumps
Two ten-inch pump manifolds
Two sloan hydraulic pumps
Two diesel welding generators
Two diesel clyde winches
One diesel 5 KW generator
One diesel jetting pump
Twenty 1t wt six-inch suction/
discharge hoses
Twenty 1t wt three-inch suction/
discharge hoses



USN MK-1 band mask diver.

Six foot valves for six-inch 1t wt hose
Two foot valves for three-inch 1t wt
hose

One coil four-inch nylon line
Two diesel three-inch pumps
One welding kit
One oxyacetylene cutting kit

NAVSEA (OOC) OR CONTRACTOR

Command Trailer
Rental barge (130 ft x 50 ft x 9 ft
deep)
Manitowac 3900 crawler crane
Recompression chamber
Ten-inch airlifts
Comaco 600 CBM air compressor
Jetting pump (rental)
Lift Derricks:
D/B CAPPY BISSO (650 Ton)
D/B AJAX (250 Ton)
D/B SOUTHERN 6 (300 Ton)
D/B CAIRO (360 Ton)

HCU-TWO

Flyaway Compressors and console
Conex boxes
Air Lifts (6- and 10-inch)

Briefly, the ELMAR II sank in 70 feet of water. There were approximately 16 feet of mud and ballast each in holds 1, 2, and 3 to be pumped out before lifting operations could be performed, which required



View of upperdeck of the tug, after breaking the surface.

jetting trenches under the barge for placement of lifting slings. Before ELMAR II could be raised, a sunken tugboat, located two feet off the ELMAR II starboard quarter had to be removed to prevent hindrance with salvage of ELMAR II.

Lifting ELMAR II required extensive preparations, including removal of hatch covers and strongbacks, modifying equipment to eliminate such problems as hoses rupturing from chafing on hatch combings,

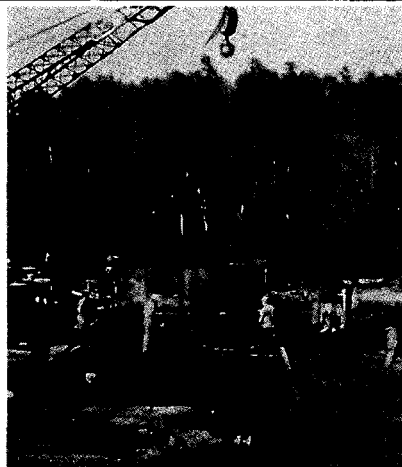
DIVING SUMMARY

Diving Rig	No. of Dives	Bottom Time	Maximum Depth
SCUBA	48	14 hr 2 min	110 ft
Diver's Mask, USN Mk 1	571	471 hr 54 min	68 ft
Mk 12 SSDS	306	227 hr 31 min	120 ft
Mk V	13	11 hr 32 min	72 ft
Total	938	724 hr 59 min	

cutting a 14-foot long hole in hold 3, overcoming explosions on consecutive days that injured two divers, divers having to use a cold chisel to cut each nut and bolt on strongbacks before they could be removed, and using explosive shaped charges for removal of welded hatch plates. In addition, demudding operations, trenching, and dredging were performed in zero visibility, making these tasks extremely difficult. Divers also had to remove debris in the holds that included glass, scrap metal, welding rods, wire, rope, a life boat, sheet metal, and angle iron.

Positioning lifting equipment under the ELMAR II was not accomplished easily when that phase started. For example, an approximately 20-foot long section of the port bilge keel had to be cut out by divers to prevent interference with a messenger wire, and pulling, re-rigging, and reinstalling a bow lifting pad when the pad shifted as tension was applied.

After four months of salvage operations, all lifting equipment was in place and the ELMAR II lift started. This was done by using four lift derricks. The D/B AJAX (wire



bundle sling under stern of wreck), D/B CAPPY BISSO (stern lifting pad forward of wire bundle), D/B CAIRO (bow port slide lifting pad), and D/B SOUTHERN 6 (bow starboard side lifting pad) began the closely coordinated action of lifting ELMAR II (A-36 structural steel plate, 3/4-inch thick was used for the lifting pads).

The lift began at 0840 and bottom suction was broken at 1128. The top of the clamshell on ELMAR II's bow surfaced at 1130.30, followed by the bow at 1134. The dynamic loads during the lift were: D/B CAPPY BISSO at 500 tons, D/Bs CAIRO and SOUTHERN 6 each at 300 tons, and D/B AJAX held 200 tons.

Dewatering of holds was performed while D/B CAPPY BISSO supported the ELMAR II's stern which had reached the surface where damage to the stern from the collision could be seen. A cofferdam was constructed in hold 3 and other repairs were made so ELMAR II could be towed to a shipyard.

The decision to pull or parbuckle the ELMAR I into a hole after

dredging under and next to the wreck was made because a hydrographic survey indicated the wreck was lying in depths ranging from 80 to over 100 feet. Other factors involved in making this decision were the short time remaining before bad weather and winter fog would set in, removal of the wreck as a navigational hazard by shifting it into deeper water, and the cost of raising the wreck compared to the cost of shifting it into deep water.

Jetting operations were started and divers cut the deckhouse free, raising it to the surface. Surveys taken since the first one two months earlier showed the wreck was shifting toward deeper water steadily as a result of the jetting and strong currents swirling around the wreck, acting as "natural erosion jetting."

The ELMAR I operation was secured without further work because of economic factors and excessive precipitation occurring throughout the northern Mississippi River system, which would cause increased current flow and continue shifting the wreck into deeper water.

END OF ONE ERA-
BEGINNING OF ANOTHER

Everything has a beginning and ending and people often expound on their meanings. There will be a special significance to the ending of an institution that has existed for over 50 years when the last diver will graduate from the Naval School, Diving and Salvage, Washington Navy Yard, Washington, D.C., on May 2, 1980 at approximately 0930.

It's hard to comprehend all the men and women, military and civilian, who shared in its life, left a part of themselves there and departed from NSDS with great pride in themselves. There isn't a diver in the Navy who hasn't been touched in some form by NSDS. It is, and was, a great institution—and divers made it that way. We may have hated the P.T., or the classes, or the inspections, but I doubt anyone ever denied he was a Navy diver or graduate of NSDS. If only this old NSDS building and its pressure pots, chambers, and open pots could talk. How much laughter would there be? How many smiles and tears, and how much straining, groaning, and pain could it tell us about?

This was the place where nicknames were earned and friendships developed that lasted a lifetime; a place where jokes were played and told and retold around the Fleet. It was where the Green Derby, Anchor, Sunset, Village Barn, and Quonset got your money and, sometimes, gave you a headache. I would say that this was the center of a diver's universe (SCUBA school, Diver-Second Class, Diver-First Class, Master Diver eventually). As you advanced in diving, you came here and paid your respects to the gods that lived in the pots, tanks, river, and the Mud Monster.

Classes at the new school in Panama City, Florida, will begin in October and with it will come new legends, new stories, new jokes, and new sailors. (Or will they be new sailors?

THE OLD MASTER



I hope not.) I hope there will still be the same old sailors dedicated as only they are to Navy diving. I wish the new school good luck and, deep down, I know that the old one has really outlived its usefulness; that training and the end product will be better at Panama City.

Navy diving for most of us was brought to life here at NSDS and it will be hard to "mothball" our old school. I wonder who will be the last person in the Navy to stand up and say, "I went through diving school in D.C.?" I wish it could be me.

Plan to attend the last formal day of training at NSDS if you can.

QMCS (MDV) Gerald Draper
Naval School, Diving and Salvage
Washington, D.C.

EDITOR'S NOTE: Active duty master divers throughout the Fleet are invited to submit articles for publication in The Old Master column of FACEPLATE. Mail articles to FACEPLATE, Supervisor of Diving, Naval Sea Systems Command, Washington, D.C. 20362.



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