

FACEPLATE

DEEP SEA DIVING SCHOOL EXPERIMENTAL DIVING UNIT

WASHINGTON D. C. 20390

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Novanipar 1985

SALVAGE TOOLS AND MACHINERY

BY W. F. SEASLE, JR.,

SUPERVISOR OF SALVAGE

A considerable amount of effort is currently being devoted to the improvement of the tools and portable machinery used in the salvage business. The following will give you a brief outline of what we are doing.

SALVACE WINCHS, PUMPS, COMPRESSORS AND GENERATORS:

The Supervisor of Salvage's Office is at this time well along with a program to procure new, diesel driven portable ship salvage nachinery. This includes all salvage pumps (3", 5", 10" and jetting), generators (AC, DC, and welders), salvage compressors (110 CFM, 220 CFM and 35 PSI blowers) and the beach gear winch. We hope to phase out all gasoline driven salvage machinery over the next four to five years.

A survey of all diesel engine manufacturers was made in order to determine whether or not we could use one family of engines to drive all of the above equipment. This would require a family of engines from 9.1 HP (3" pumps) to 150 HP (jetting pump). This was not possible. However, it was found that if we used one engine for the very low horsepower units (3" pump and 5 KW lighting generators), a single engine family would handle all the others.

The OSAM diesel engine model DJ-60 is being procured and will power the 5 KW AC generator and the 5" pumps. All other portable salvage machinery will be powered by the new General Motors Series 53 engine. We will use GM 2-53 for 125 CPM compressors, eight ton beach gear winch and 6" pump; GH 3-53 for welding generator and 10" pump; GM 4-53 for 210 CFM compressor and 600 CFM/35 RSI blower; and the GM 6V-53 for jetting pump. The exact KW rating for AC and DC generators is not yet decided and so we have not yet locked in on the specific number of cylinders needed in the GM 53 series engine.

It is hoped that all the pumps will be of the same manufacture; also that all compressors will be of the same manufacture. The pumps will be essentially the same as those you now have but the compressors will probably · rotor wane type rather than the current reciprocating - - NPR -

DIVING COMPRESSORS:

The shallow water diving compressors (15, 22, and 55

CFM) and the SCUBA compressors are not at this time included in the above disselization program since they are not considered pertable salvage machinery. However, it is planned that the small units (15 and 22 CFM and SCUDA) will eventually be powered by the CNAN DJ-60. We plan no action on the 55 CFM compressor since authority has been granted for ATF's to replace it, when no longer repairable, with a 110-125 CFM compressor.

SUBMERSIBLE FUMPS:

Only the 6" submersible pump is considered as solvage machinery. The 25" pump is basically damage control equip-ment (as is the P-250.P-500/P-50 type). However, when the ANS/ATY allowance for these 21" submersible pumps was increased two years ago, the Bureau of Shipe advised that the total (new) allowance was to be considered dual purpose; D. C. and Salvace.

A program is currently underway to return all the older " submersible pumps to the manufacturer (Byron Jackson Co.) for complete rework and replacement of cables. This program is well underway. As rehabilitated pumps become available they will be furnished to ARS and the ship will in turn send their old pumps to INDMAN ELEVEN (Long Beach). Current ARS allowance of these pumps is 3 in SERVPAC: 2 in SERVIANT.

In addition, a new model submersible pump of enother manufacturer is now being evaluated at the Diving School and onboard USS GEAR (ANS-34). This pump has a 4"-discharge but can use existing 6" hoses, has a capacity almost equal to the old 6" unit, and does not require the hydraulic seal as on the old pump. Pending satisfactory evaluation, it is hoped that this pump will replace the old unit in the ARS allowance, and that all the old 5" pumps can be placed in the ESSM Pools.

BEACH GEAR ANCHORS:

Several 6,000 pound especially modified LMT anchore are now being evaluated by forces afloat. These are expected to replace the older 8,000 pound Eells anchors on ATF. They will also replace two, and perhaps four, of the Eells anchors on ARS. Similar 10,000 pound LWTs have been provided the ASSD as heavy holding anchors.

FELOCITY POMERED TOOLS:

The Deep Sem Diving School, in connection with NOL, White Dak, Maryland, has made good progress on a complete redesign of the older (NW II) heavy velocity powered tool. LT Descon DOWNEY is Project Officer on this job at DEDE; CDR Bob AGNESS is pushing it at NOL,

(Cent'd Page 7)

FACE PLATE

November 1965

10

FACEPLATE

Published quarterly as an unofficial publication. This periodical is compiled and edited at the U.S. Naval Diving Center, Washington Navy Yard, Washington, D.C. The opinions expressed in this publication are those of the writers and do not necessarily reflect the official policy of the U.S. Navy. The purpose of the FACEPLATE will be an exchange of information between all men who work under the sea.

CDR C.H.	HEDGEPETH, USN	OFFICER IN CHARGE
LT J.L.	PUTMAN, USN	EDITOR
LT E.V.	DOWNEY, USN	ASS'T EDITOR, DSDS
LCDR J. HA	ARTER, USN	ASS'T EDITOR, EDU
LCDR R.C.	BORNMANN, MC, USN	ASS'T EDITOR, MEDICAL
M. L. PULLEY,	YN2, USN	TYPIST
H. BALK, YN2,	USN	TYPIST & DISTRIBUTION
T. PARKINSON,	PH1(DV), USN	PHOTOGRAPHER

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EDITORS COMMENTS

With this issue of FACEPLATE we welcome aboard LCDR J. M. TOMSKY who has relieved as Assistant Officer in Charge at the school and LCDR W. R. LEIBOLD who has assumed the duties as the Assistant Officer in Charge on the Unit side. In addition we extend our heartest congratulations on their being selected to the rank of Commander.

Many thanks to the ships and units who have responded to our requests for comments and recommendations to the revision of the Diving Manual, and the articles for FACEPLATE. We can use as many more for the next issue so break out the pad and pencil and let's hear from all of you.

The revision of the Salvage Officers Notes is moving right along with almost 100% of the Salvage Navy responding with recommendations and suggestions for the revised manual. This should hit the street in the near future so if you have a recommendation get it in the mail as soon as you are able

The requests for FACEPLATE are still rolling in with our publication count up around six hundred issues per quarter. All we need is your mailing address, if you are retired, and we can get your copy off to you. I believe we are approximately 100% in unit and ships copies, if not give us a note and we will be glad to add your ship or unit to the mailing list.

The requests for emergency assistance are still many and varied here at the school and Chief LIDDLE's article on the trip down to Baton Rouge after Betsey's run through that part of the county will probably bring back many memories to all of you divers who made the same run down there in the early sixties. How about a few reports for FACEPLATE from the ARS's, ARSD's and ATF's which I know are really putting out the work down around New Orleans. I know the Diving Navy would appreciate them.

Change one (1) to the Diving Manual (NAVSHIPS 250-538) with a Transmittal date of 1 August 1965 and which contains revisions pertinent to maintenance and use of diving equipment, description and care of helium-oxygen equipment, background and use of the CO2 absorbent barium lime compound (Granular Baralyme), along with instructions for divers working on the bottom, tending the diver, shallow water diving and additional safety precautions concerning procedures, equipment, etc., on helium-oxygen diving procedures. This change should be onboard all ships and units by this time. If yours hasn't been received yet, I recommend you check the mail.

THOUGHTS AND COMMENTS OF THE OINC

COMMANDER C. H. HEDGEPETH, USN

It behooves all of us in the diving profession to tighten our harness and look toward the bright and challenging future that is ours.

We here at the Diving Center are gratified at the reception that you have given to your news media the "FACE-PLATE" and we are looking forward to future improvements with your help.

Never before have our professional challenges been greater or the road to deeper diving been so clearly marked. The next few years will bring to light great changes and with the changes great personal satisfactions to us all. As these changes take place keeping our peers informed will lend greatly to our program.

ROYAL NAVY SALVAGE SCHOOL

BY LT D. G. DISNEY, USN

On 20 September 1965, I departed DSDS and proceeded to Rosyth, Scotland to attend the Royal Navy Salvage School and observe the Royal Navy Diving School.

The Royal Navy Salvage Officer School is located on the Firth of Forth at HMS Safeguard, Royal Navy Dockyard, Rosyth; Scotland. The Boom Defense School, Enlisted Shipboard Diving School and the Admiralty Civilian Dockyard Diving School is also located here.

The Salvage course is 10 days and is in reality a salvage indoctrination course whereby Royal Navy Officers attending gain an appreciation of salvage and a basic understanding of salvage unit, salvage equipment and the various salvage techniques employed by the Admiralty. All instructors were civilian salvors who possessed a wealth of experience gained primarily during WW II and the Suez Canal crisis. It was noted that the Royal Navy does not train or produce salvage officer or salvage divers. All Salvors and Salvage Divers are civilians.

The enlisted diving course is for a period of 4 weeks whereby graduate students are designated shipboard divers and are qualified in the use of SABA (swimmers air breathing apparatus, which is simular to USN SCUEA) and SDDE (Surface demand diving equipment simular to USN Light Weight equipment) to a depth of 120 feet. All Royal Navy ships have a diving team of 4 - 6 shipboard divers assigned.

The Admiralty 8 week civilian diving course is for the specific purpose of training dockyard divers. All students are trained in the use of the standard deep sea air rig and are qualified to be a depth of 180 feet.

After a rewarding fortnight in Bonny Scotland in which a creditable amount of Scotch, Tea, Haggis, black pudding and fish/chips were consumed, I returned to DSDS to resume my duties as First Lieutenant with an eye to relieving LT "Deacon" DOWNEY shortly as DSDS Salvage Officer.

She was a gorgeous creature. He was a doting male. He admired her figure in English, and wanted to prove it in Braille.

A marriage license is like a hunting license -- it entitles you to one dear and no more. FACE PLATE

BY LCDR John V. HARTER, USN

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Page 3

An investigation is underway by NAVXDIVINGU personnel to determine the best equipment to use in chambers to prevent fires in the future. The application of most of the equipment and materials studied to date applies primarily to use in research chambers where higher pressures, and in some cases higher percentages of oxygen, would be used as compared to the standard treatment chamber where 75pp.s.i. is the highest pressure required. With the expectancy of increased depth capability in the fleet using the Submersible Decompression Chamber (SDC) and Lock-on Deck Chamber, the fire safety problem becomes more applicable to future fleet requirements, and the need for a thorough study becomes more apparent. Using the SDC system, a diver can expect to enter the decompression chamber at depths equal to the bottom depth (600 to 1000 feet?) and remain under pressure for extended periods. The risk of fire at greater depths is caused by an increased combustion rate of burning materials with increased air pressures. Also, Helium-oxygen mixtures with high oxygen percentages may be required as a chamber atmosphere at shallower depths. This high oxygen percentage under pressure also increases the combustion rate and fire risk. The approach that is being taken at NAVXDIVINGU is as follows:

a. Eliminate all possible sources of ignition.

b. Eliminate all combustible material.

c. Maintain chamber atmosphere at a low 02 per-. . . centage where a mixed-gas atmosphere is provided.

d. Provide an improved means of combating a fire in a chamber.

The four actions listed constitute an ideal situation, and attainment of these four goals is near impossible. An approach to these goals however, improves fire safety at each step.

Sources of ignition are heat sources in origin and may be classified as electrical resistance generated, electric spark generated (including static electricity) and chemically generated such as a burning match or combination of oxygen under pressure with grease. An attempt is therefore being made to reduce interior wiring in chambers to an absolute minimum by eliminating power receptacles, electric switches, electric motors, and, if possible, electric light fixtures. The chamber used by the Royal Navy on their 600 foot traals had no electrical equipment inside and the lights were mounted outside the chamber in front of ports. Where a chamber is already in existence, it is impracticable to cut holes in the pressure hull to provide proper lighting. The chambers at NAV-XDIVINGU will be equipped with lights designed as navigation lights for the deep diving submarines and are considered satisfactory for chamber use at depths expected. The air conditioning system in our chamber which was damaged by fire, is being replaced with one having water turbine motors in place of the original circulation fan motors. The water turbine will operate off the chilled water line utilized to provide cold water to the coils. Removal of motors was considered necessary because, although the motors were rated as explosion proof, they had not been tested under high pressure/high oxygen atmospheres. In addition, an electric motor, even if explosion proof, may overheat if there is an interior failure. We are also investigating the use of an interesting device called a Vortex Tube. The Vortex Tube provides cold air at temperatures down to -20°F with compressed air being the only power source. This device separates compressed air into hot and cold components, and exhausts cold air from one end and hot air from the other. No moving parts are involved. We presently are using this device to cool #5

chamber during decompressions. There is one drawback in

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the use of this equipment. 100 CFM of air are used for each 100 PSI of air supplied and the supply pressure is normally kept 150 PSI above chamber pressure. Its use is intermittent, however, and where large air banks and compressors are available, this equipment will be applicable. Also, smaller chambers do not require the cooling effect needed in our large treatment chambers.

The electrical system for our chambers is being redesigned by the Portsmouth Naval Shipyard and will incorporate the most advanced design possible. It will include separate circuitry for instrument leads, hermetically sealed pin connector penetrations, a gentral circuit switchboard at the chamber operators station with a remote power cut-out to de-energize all power circuits, and a fuze panel with fuze blown indicators.

Elimination of combustible material is also a difficult problem. The chamber paint must be fire retardant. All clothing worn by the diver should be treated to reduce combustibility. Hooker chemical cor-poration "ROXEL" is presently being investigated. It is widely accepted in hospitals for use around oxygen, however, we have found that proper material texture is also necessary to provide ample reduction in combustion rates. Where electric wiring is necessary, the insulation should be made fire resistant by providing a suitable metal sheathing or by using "Mineralite" conduit. A flame proof mattress cover, submarine type, (Stock Number 9D7210-375-6930), must be used over the mattress, and foam rubber mattresses with a fire preventative should be used (Stock Number 7210-290-8279). We are presently having a mattress made from a glass matting in an attempt to find an even safer mattress than the navy foam mattress.

Standard pillows should not be used in the chamber. Again a glass filled pillow is being made for use at NAVXDIVINGU. The canvas bunk bottom in our chamber bunks have been replaced with wire springs.

Maintaining the chamber atmosphere at low oxygen percentages is dependent upon the decompression requirements, and is a factor being used at NAVXDIVINGU for projected dives.

At present, bucket of water and a bucket of sand are the required fire fighting apparatus for a chamber. A carbon dioxide extinguisher is excluded by the diving manual due to the change of diver suffocation. We are discussing the merits of a carbon dioxide extinguisher and may have another change of the diving manual in this item. It is generally accepted here that a Co2 extinguisher provides better fire fighting capability than a bucket of water or sand, and that the diver could place a respirator over his face while using it (provided breathing gas other; than oxygen was available at the manifold). Even in the event of suffocation the chamber could be entered using a breathing device and the diver brought into the outer lock for resuscitation if the fire is out. Other means of fire extinguishing are also being researched and discussed.

The above discussion does not cover all the areas in need of investigation but outlines in general with some examples the approach that is being taken to improve fire safety. As items become available for use, we will pass the information along through official means. At this time, however, every diving station should be sure to adhere to safety precautions and not get negligent in this respect. Each precaution is there for a purpose. If you are presently using mattress and/or mattress covers other than those listed above, you should change over immediately.

The progress that takes place in these various investigations of these materials, will be reported periodically in the FACEPLATE.

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BUSHIPS 636

BY LT T. E. KELLY

NONMAGNETIC SCUBA: Recently, all EOD, UDT some ASRS, and other diving activities received new nonmagnetic demand SCUBA. This equipment replaced all demand apparatus for EOD/UDT, and filled allowances for other activities. This equipment was built in accordance with MIL-M-19595A specification, which is the nonmagnetic specification for equipment used in the vicinity of influence ordnance.

The EOD and UDT organizations have an operational requirement to maintain nonmagnetic diving equipment. Other diving activities do not have this requirement, but are required to use only approved diving equipment as stated in BUSHIPS Instruction 9940.11.

Adequate supply and support of spare parts will be maintained by Ships Parts Control Center, Mechanicsburg, Pennsylvania (SPCC), onboard spare parts for this equipment has been available since approximately 1 August 1965.

Bureau of Ships letter Serial 636-11 of 17 February 1965 requires that all spare parts for SCUBA be procured from authorized sources (Supply only). This is to insure that this equipment is maintained in a nonmagnetic condition. The letter further required EOD/UDT organizations to turn in all their demand SCUBA apparatus and spare parts to completely purge their systems of magnetically contaminated equipment. This should be carried out without fail to prevent contamination of these nonmagnetic rigs. Other diving activities were not required to purge their systems. because they presently do not have an operational requirement to be nonmagnetic. Therefore, it was thought that this equipment should be used until it is eventually surveyed and replaced with the new nonmagnetic SCUBA. All demand SCUBA issued to all activities in the future will be of the nonmagnetic type and will be maintained only with spare parts procured from the supply system.

DEPTH GAGES - WRIST DEPTH GAGES MK I MOD O: We have received some complaints stating that these gages are inaccurate, etc. To date we have recalled and tested 61 of these gages, which have been in use for 4 to 5 years. The original specification requirement calls for an accuracy of ± 1 foot in 0-50 feet and ± 3 feet in 51-200 feet. Of these, 12 were found defective for various causes. Thirty-nine gages were accurate to within 1 foot of specification requirement. These were considered acceptable for use. The remaining 10 required repair to place them in a usable condition. The problem most frequently encountered in the depth gages checked, was corrosion between the back and the side. The gage was designed to allow pressure to leak into the gage at this point, thereby working on the diaphragm and moving the pointer. The instructions furnished with each gage emphasize that this area should be flushed with fresh water after use. The following procedure is required to check these gages for accuracy:

a. A pressure facility such as a recompression chamber with a recently calibrated gage.

b. Place depth gage in a breaker of water positioned so it can be read through port, or by man if some one rides the chamber.

c. Take to selected depth and stop when wrist gage pointer is dead center on mark.

d. Read chamber gage.

 $\frac{10}{\text{during}} \frac{\text{NOT}}{\text{test.}}$ attempt to interpolate readings on wrist depth gage during test. It is not possible to interpolate with specification accuracy, particularly in the 0-50 foot range.

Depth gages are licenced by AEC with control directly under SPCC. All pertinent instruction concerning broken, lost or stolen gages, as well as instruction for wipe test should be complied with.

Remember this wrist depth gage is a general diving wrist depth gage and was not designed for beach reconnaissance because it can not be read accurately enough. The ability to read this gage in less than 5 feet increments is marginal.

<u>COST OF SPARE PARTS</u>: The cost of spare parts for some diving apparatus sometimes seem unreasonable, and we have a tendency to compare these prices with things that seem no more complicated to manufacture, yet are much less expensive. This sometimes will create a false impression. Let's use the Mark VI SCUBA for an example: - 297 Units were manufactured and there is no civilian demand. The materials used in manufacture are special nonmagnetic materials. The small quantity is the deciding factor in price, much more so than the nonmagnetic material. The high cost of spares will be with us for some time to come in this very limited field of diving equipment. It is something that all activities will have to live with if operational requirements are to be met.

LIFE PRESERVER - YOKE TYPE, MARK 3: This preserver was designed for use with the MK VI and 02 rigs and will lift 19 pounds of negative buoyancy from 200 feet. Production problems have caused quite a bit of delay in delivery of this item. It is hoped that it will solve the mixed gas and 02 life jacket problem. It is also planned to adapt this preserver to demand SCUBA as well, thereby making it a standard life preserver for all SCUBA apparatus (it will not replace the UDT preserver for surface swims).

7-MAN RUBBER LIFE RAFT: The 7-Man rubber life raft should be available in the supply system at press time. The raft is now an APA item along with life preservers.

<u>NEW EQUIPMENT</u>: When new diving equipment is received it should be inspected for damage in shipment. It should then be given a thorough bench check to see if all parts are operating as required. Following the inspection and bench check, all discrepancies should be listed, and if they are other than a minor nature a report should be submitted to the Bureau of Ships. Also, during the operational use of the equipment, maintenance problems should be reported to the Bureau and recommendations for corrections if warranted.

ARRIVALS AND DEPARTURES AT DSDS

BY H. S. LIDDLE, JR., DCC(DV), CMAA

Harry JONES JR., EMC(DV) was piped over the side 16 August 1965, after completing 22 years of naval service. He has accepted employment in the diving field with Deep Sea Divers Inc., in Belle Chase, La.

Paul BABCOCK, BM1(DV) received the same ceremony 4 August 1965 after 22 years of naval service, and has accepted employment with the same company as Chief JONES, looks as though Louisiana is becoming the Salvage Harbor for retired Navy Divers.

Since the last issue of FACEPLATE, we have a new Assistant Officer in Charge of DSDS. LCDR soon to be CDR J. M. TOMSKY, arrived September 1965 from a long tour of duty as CO, USS CHANTICLEER (ASR-7). We welcome him aboard, and offer our congradulations to him on his selection for CDR.

MARSHALL, MLl and McNEW, HM2 reported in September 1965 and are already in the swing of things.

Our instructor billets are slowly filling up and by the end of the year we should be in fine shape. Due to report in the near future are: LUCALL, MIC, JAN 66; RIZER, SF1, JAN 66; KAVANAUGH, EM1, OCT 65; and IRELAND, HM1, OCT 65. We are awaiting the arrival of our new instructors and congradulate them on their choice of duty. -----

Page 5

BUPERS C 145

FACEPLATE

BY LCDR ALLAN H. CARRY

For the information of all the "Old" Divers, an annual physical waiver is required for continuance in diving duty beyond 40 years of age. BUMED is presently considering raising the age limit.

Candidates continue to report to our diver training activities without proper screening or physical qualifications including pressure tests, 02, tolerance tests and test dives. Surprisingly enough a significant number come from our diving ships and stations. A little attention in this area would be appreciated by the schools.

5341, 5342, 5343 and 5345 are special series NECs which means that they are carried as a secondary NEC. They are treated, however, as NECs having source ratings and appear on billets as a primary NEC. For this reason, initial diver training is now restricted to authorized source ratings listed in NAVPERS 91769-F. It is not planned to remove diver NECs from personnel in other ratings except for those divers who have not remained active in the field for a period of years.

Recently 19 Master Diver Billets were written for pay grade E8/E9. They include one for each ASR, two at DSDS, two at NOTS, China Lake, one at NUOTS, Newport, one at NTS, Keyport, one at EDU, and one each at the escape training tanks.

A current inventory shows that we have 49 Master Divers for 95 billets with 5 candidates in the present class. The following Chief Petty Officers have been designated as Master Divers by the Chief of Naval Personnel thus far this year:

> Chief Shipfitter Lomaye HURLEY Chief Shipfitter Nicholas J. WATERS Chief Boatswain's Mate Elbert H. WORTHY Chief Shipfitter Frank E. JOSENHANS

As a former PENGUIN, I was particularly pleased to draft the letter on Chief JOSENHANS.

I would like to inject a few words on waivers. Waviers of ARI/MECH test scores for diver training are considered on an individual basis after a review of the man's record. Disciplinary record and past performance are considered. A number of physical waiver requests are being received with insufficient lead time to process them prior to class convening dates. Forward the SF88s (no forwarding letter required) to BUMED indicating "waiver requested" in large letters in the upper right hand corner. Allow a minimum of three weeks for processing of the request. BUMED will in turn forward the SF88 with a recommendation to BUPERS for approval.

Most requests for diver training at BUPERS Schools are handled by Pers B213. Requests for quotas in the Master Diver Qualification Course, the 17 week diver first class course, and the SCUBA Diver Course (5345) at UMSS are handled by Pers Cl4.

Waivers of the one year service requirement as a Second Class Diver for enrollment in the 17 week diver First Class Course will be considered.

Seems as if an old salvage man who had just reported at a new base was walking along the main drag in camp and passed an officer without saluting. Sez this yere officer: "Do you know who I am?" "Ya got me brother"., sez the Diver, "jus' got ahere myself". "I am the commanding officer, sez this officer. "Swell, bud", sez pressurehappy, That's a heckava good job. Don't louse it up!"

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GREENLET WORKS IN SALVAGE

BY LT. R.F. JAMES, Diving Officer

GREENLET's 15th West Pac deployment has been quite eventful to date, along with the heat, over 20 typhoons, unexpected extension and pay raise.

The cruise was progressing quite normally when early July brought forth a message indicating a possible submarine propeller change for our divers. Other messages followed inquiring whether we'd like some technical assistance from divers experienced at screw changing. Well, this went over like that thing in church. "What do we need assistance for in changing a screw??" (your writer screaming the loudest). Then a very strange message arrived, listing the equipment necessary to handle said propeller, no less than 25 pieces including numerous wrenches, peculiar compounds, sleeves, pumps and an enormous hydraulic jack. Well, our enthusiastic reaction to this was "somebody has got to be kidding"

The ship moored in Naha, Okinawa, the new screw arrived ---Boy!! did it arrive, all 21,250 pounds of it!! In a couple of days the strange equipment arrived. What an assortment of unfamiliar looking junk!!

One piece of vital equipment would not perform its designed function and necessitated 12 hours of machine work to correct, but even counting this period the old screw was off and the new screw installed in a total of 46 hours, working from our miserable plastic hawser handling boat and utilizing a 100 ton Army floating crane.

Technical advice!! We could have handled the job quite adequately without USS NEREUS (AS-17) Master Diver R. J. SCHNEPF, GMC -- Yes, in about <u>30 days</u>!! Thanks again, SCHNEPF!! All GREENLET divers got into the act under the supervision of our master, C.F. BUHL, DCCS(DM).

The next day we had Change of Command with LCDR Lynn R. CLARK, who recently completed a tour in BUPERS, relieving LCDR William R. LEIBOLD, who is somewhere there in Washington (Experimental Diving Unit).

After change of command, we got underway for Kure, Japan to conduct HeO2 diving in company with 10 Japanese Maritime Self Defense Force divers from the ASR CHIHAYA.

A funny thing happened on our way to Kure. Approximately one hour out of Kure, we were ordered to proceed, at best speed, to Pratas Reef. O.K., Great, Lets Go! But where the $H_- - is$ Pratas Reef? Not one single soul in GREENLET had ever heard of this place, but we assure you, we became extremely aware of, intimate, and completely ramiliar with this speck in the South China Sea - 180 miles Southeast of Hong Kong - 230 miles Southwest of Taiwan.

The purpose motivating our departure from Nippon, was "Ole Devil Pratas" had a firm, persistent grasp on one, USS FRANK KNOX (DDR-742).

Patching, pumping, laying beach gear, towing, blowing up coral, unloading excess weight, etc., although a difinite necessity, proved unsuccessful. Some rips and holes were so large or so located as to make them impossible to plug; naturally the pumps were practically pumping from sea to sea.

GREENLET divers were fortunate in being assigned the task of filling all flooded compartments with a foam material similar to styrofoam.

Mr. Alex Rynecki of Murphy - Pacific Marine Salvage Company arrived to direct the foaming. After 391 dives and 2,727 man hours, encompassing 31 days, all damaged compartments were full of foam, the tide was high, optimism reigned -- and by golly, KNOX was refloated. (Cont'd Page 11)



The plaque at the U.S. Navy Diving Center listing the divers who have earned the Medal of Honor.

OUR DIVING HERITAGE

By LT E.V. DOWNEY & DIXON, R.K., HM1 (DV)

Modesty, Humility and Determination are qualities possessed by many men in many fields. Sometimes these qualities hide a trait or even a pattern of the way men in certain fields lead their lives.

The divers in the past have exemplified so many qualities that we tend to forget that theirs was the time of the pioneer, that they displayed courage and fortitude, that has lead us to fruitful rewards in many fields.

To us who follow in their footsteps, these men have left a light, a legend and a heritage for us who are today working beneath the sea to continue and expand upon.

During the interim periods from 1866 to 1940 there were approximately 177 MOH awarded, the specific period 1920-40 there were 15 MOH awards 7 of which belong to the U.S. Navy Divers. The MOH awards were given to our



Chief Bill BADDER with his Medal of Honor for SQUALUS rescue and salvage.

divers for acts of gallantry above and beyond the call of duty. It is with the deepest pride that I have the honor of presenting to you the individual acts of heroism of our honored shipmates and fellow divers.

EADIE, Thomas, Chief Gunner's Mate - 7 January 1928

For Display of extraordinary heroism in the line of his profession above and beyond the call of duty on 18 December 1927, during the diving operations in connection with the sinking of the USS S-4 with all onboard, as a result of a collision off Province towm, Mass. On this occasion when MICHELS, Chief Torpedoman, United States Navy, while attempting to connect an air line to the submarine at a depth of 102 feet became seriously fouled, EADIE under the most adverse diving conditions, deliberately, knowingling and willingly took his own life into his hand by promptly decending to the rescue in response to the desperate need of his companion diver. After two hours of extremely dangerous and heartbreaking work, by his cool, calculating and skillful labors he succeeded in his mission and brought MICHELS safely to the surface.

Other Awards: Navy Cross

FACEPLATE

CRILLEY, Frank William , Chief Gunner's Mate - 19 November'28

For display of extraordinary heroism in the line of his profession above and beyond the call of duty during the diving operations in connection with the sinking in a depth of water 304 feet, of the USS F-4 with all on board, as a result of loss of depth control which occurred off Honolulu T.H. on 25 March 1915. On 17 April 1915, William F. LOUGH-MAN, Chief Gunner's Mate, United States Navy, who had descended to the wreck and had examined one of the wire hawser attached to it, upon starting his ascent, and when at a depth of 250 feet beneath the surface of the water, had his life line and air hose so badly fouled by this hawser that he was unable to free himself; he could neither ascend nor descend. On account of the length of time that LOUGHMAN had already been subjected to the great pressure due to the depth of water, and of the uncertainty of the additional tim he would have to be subjected to this pressure before he could be brought to the surface, it was imperative that steps be taken at once to clear him. Instantly realizing the des-perate case of his comrade CRILLEY volunteered to go to his aid, immediately donned a diving suit and descended. After a lapse of time of 2 hours and 11 minutes CRILLEY was brought to the surface, having by a superb exhibition of skill, coolness, endurance and fortitude untangled the snarl of lines and cleared his imperiled comrade, so that he was brought, still alive, to the surface. (Cont'd on Page 7)



Secretary of Navy Charles EDISON presenting Medal of Honor to Bill BADDER as MIHALOWSKI, CRANDALL and Mac DONALD wait for their awards.

FACEPLATE

Page 7

CRANDALL, Orson L., Chief Boatswain's Mate - 23 May 1939

For extraordinary heroism in the line of his profession as a Master Diver throughout the rescue and salvage operations following the sinking of the USS SQUALUS on 13 May 1939. His leadership and devotion to duty in directing diving operations and in making important and difficult dives under the most hazardous conditions characterize conduct far above and beyond the ordinary call of duty.

BADDERS, William, Chief Machinist's Mate - 23 May 1939

For extraordinary heroism in the line of his profession during the rescue and salvage operations following the sinking of the USS SQUALUS on 13 May 1939. During the rescue operations, BADDERS as senior member of the rescue chamber crew, made the last extremely hazardous trip of the rescue chamber to attempt to rescue any possible survivors in the flooded after portion of the SQUALUS. He was fully aware of the great danger involved in that if he and his assistant became incapacitated, there was no way in which either could be rescued. During the salvage operations, BADDERS made important and difficult dives under the most hazardous conditions. His outstanding performance of duty contributed much to the success of the operations and characterizes conduct far above and beyond the ordinary call of duty.

McDONALD, James H., Chief Metalsmith - 23 May 1939

For extraordinary heroism in the line of his profession as a Master Diver throughout the rescue and salvage operations following the sinking of the USS SQUALUS on 23 May 1939. His leadership, masterly skill, general efficiency and untiring devotion to duty in directing diving operations, and in making important and difficult dives under the most hazardous conditions, characterize conduct far above and beyond the ordinary call of duty.

MIHALOWSKI, John, Torpedoman First Class - 23 May 1939

For extraordinary heroism in the line of his profession during the rescue and salvage operations following the sinking of the USS SQUALUS on 23 May 1939. MIHALOWSKI, as a member of the rescue chamber crew, made the last extremely hazardous trip of the rescue chamber to attempt the rescue of any possible survivors in the flooded after portion of the SQUALUS. He was fully aware of the great danger involved, in that, if he and the other member of the crew became incapacitated, there was no way in which either could be rescued. During the salvage operations MIHALOW-SKI made important and difficult dives under the most hazardous conditions. His outstanding performance of duty contributed much to the success of the operations and characterizes conduct far above and beyond the ordinary call of duty.

HAMMERBERG, Owen, Boatswain's Mate Second Class - 17 Feb 1945

For conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty as a Diver engaged in rescue operations at West Loch, Pearl Harbor, 17 February 1945. Aware of the danger when two fellow divers were hopelessly trapped in a cave_in of steel wreckage while tunneling with jet nozzles under an LST sunk in 40 feet of water and 20 feet of mud. HAMMERBERG unhesitatingly went overboard in a valiant attempt to effect their rescue despite the certain hazard of additional cave-ins and the risk of fouling his life line on jagged pieces of steel imbedded in the shifting mud. Washing a passage through the original excavation, he reached the first of the trapped men, freed him from the wreckage and working desperately in pitch-black darkness, finally effected his release from fouled lines, thereby enabling him to reach the surface. Wearied but undaunted after several hours of arduous labor, HAMMERBERG resolved to continue his struggle to wash through the oozing submarine terranean mud in a determined effort to save the second diver.

<u>Andrea Andrea</u>

Venturing still further under the buried hulk, he held tenaciously to his purpose, reaching a place immediately above. the other man just as another cave-in occurred and a heavy piece of steel pinned him cross wise over his shipmate in a position which protected the man beneath from further injury while placing the full brunt of terrific pressure on himself. Although he succumbed in agony 18 hours after he had gone to the aid of his fellow-divers. HAMMERBERG, by his cool judgment, unfaltering professional skill and consistent disregard of all personal danger in the face of tremendous odds had contributed effectively to the saving of his two comrades. His heroic spirt of self-sacrifice throughout enhanced and sustained the highest traditions of the United States Naval Service. He gallantly gave his life in the service of his country.

These seven Medal of Honors do not fully reflect the record of the divers who have preceeded us in the field. The overall record of the U.S. Navy Diver is too long and too impressive to put into this small publication. The most impressive of the divers record is the individual acts done day by day, the method in which he trains himself so that someday, if the emergency presents itself he may be ready to allow others in distress to survive. This is why we do what we do.

SALVAGE TOOLS (Con't)

The gun has been fully tested to 200 feet. All bugs are worked out. It is quite safe if used properly, i.e., don't put your hand over the muzzle and fire. Kick from the guns is almost zero. A trigger has been added. SEALAB II divers tested the "new" gun, firing studs to make a patch on an HY-80 plate. Results were excellent. The gun will take several different types of studs, including a hollow one. This hollow stud, for placing air into a flooded compartment, is not, however, designed for HY-80.

An underwater cable-cutting tool has also been tested satisfactorily. This is a companion, but not an attachment, to the above gun.

We expect to re-install the heavy gun and cable cutter in the on-board allowance of all ARSs and ASRs and other selected ship types, depending on type commander desires. Each ship will have one heavy gun with a varied mix of studs; and a cable cutter for both 2" and 1 5/8" wire rope.

The above is in addition to the smaller underwater velocity powered gun (Mine Safety Appliance Company, Model NUD-38) which is carried by all ARS/ARSD..

SEALDBIN SALVAGE PONTOONS:

Another salvage tool tested at SEALAB II was the SEA-LDBIN Pontoon. LT Herman KUNZ, now at SUBGROUP SFRAN, is Project Officer. This pontoon is an adaptation of the commercial shipping container manufactured by the U. S. Rubber Company. It is rated at 8.6 tons lift in sea water. The advantage of this type collapsible pontoon over the older parachute type is that its far more compact and all shrouding is inside. It may be used inside a wreck (using its powm relief valves) or outside a wreck (leaving an air spill plate off the pontoon's bottom).

These new pontoons have been used by COMSERVLANT's salvage forces on several jobs with great success. We plan to add a few to the allowance of each ARS and to stock a significant number in the various ESSM Pools and Bases.

FOAN IN SALVAGE:

The Bureau of Ships has been working for the past twelve months to develop a technique to use polyurethane foam in salvage. We call this FOAM-IN-SALVAGE, or FIS.. The idea is to use polyurethane foam, similar to that used in packaging transistor radios, etc., underwater. The diver is supplied (Cont'd Page 10)



INTRODUCING CDR KENNETH PLOOF

Enlisted 23 March 1936.

First duty was aboard the heavy cruiser PENSACOLA where I was indoctrinated in "hard hat" (MK III pump) and the Miller-Dunn shallow-water rig. Entered DSDS in July 1941 as GM2. After graduation in December, proceeded to Pearl Harbor (USS ORTOLAN, (ASR-5). Plenty of diving and salvage work there. Returned to DSDS as instructor in fall of 1942. Made chief September 1942, and Master Diver in spring of 1943. Promoted to ENS 16 August 1943 and assigned to USS LIPAN, (ATF-85). SOWESTFAC. Finished out WWII in this ship. Quite a bit of salvage and some diving including recovery of numerous items of ordnance around the Solomons Is. and patching victims of Kami Kaze attacks at Okinawa. Promoted to LIJG and XO onboard USS LIPAN.

Made Chief Gunner's Mate (again) in July 1946. Requalified and redesignated Master Diver and assigned to USS TRINGA (ASR-16), then in construction at Savannah, Ga. After a short tour in TRINGA, was assigned to EDU as leading CPO and Master Diver. This was a nice long tour which included many fine projects - HeO2 diving to 561 feet, development work in various types of SCUEA equipment, some interesting work with collapsible pontoons, among others. Recommissioned LTJG in December 1951 and ordered to USS GREENLET (ASR-10). Held a few jobs including communications, navigator, operations, and finally XO. Made LT somewhere during this period.

Returned to EDU as Assistant Officer in Charge in August 1954. Again many interesting projects and some fine outside jobs including a diving operation in a copper mine in Calumet, Mich., where we took a helium rack and associated equipment some 3000 feet below ground and commenced diving operations from there. The water depth was 240 ft. The project was opening a 12" valve that had been closed for twenty years. An interesting feature here was the fact that the divers were lowered to the working level in a skip-box operated by a man located 3/4 of a mile from the scene. The project was unsuccessful - but a real thriller.

Next assignment was USS FLORIKAN (ASR-9). Reported aboard as XO and after about 1 year, relieved the CO. Spent another $2\frac{1}{2}$ years aboard in this capacity and was promoted to LCDR. Generally a quiet tour with a fine ship and many competent divers and crewmen. I consider this tour as the most pleasant and rewarding one I've ever had. In April 1960, I reported to Underwater Swimmers School as CO. This was an extremely pleasant tour, and I had an opportunity to see the school grow considerably - taking on SCUBA training for all east coast UDT replacements, Army Special Forces, Air Force Paramedics and Marine Force Recom personnel, as well as our own Navy EOD men and straight SCUBA divers. I left Key West and all the fine Florida lobsters, grouper and jew fish with considerable regret. However, since I had made the list for CDR, I could tolerate the pain.

11

In January 1963, I reported onboard USS ELDORADO (AGC-11). Only one comment on the Amphib Navy: It's different.

Presently assigned as CO of EODS. This is an excellent billet and promises to become even better, with about 1.3 million dollars worth of construction programmed for the next couple of years.

I've made many fine friends in the various areas of the diving field and would be happy to see any of you who happen through the area.

DIVERS COMMENDED

BY H.S. LIDDLE, DCC(DV) CMAA

Master Diver Robert M. McKENZIE, SFC, USN, and Richard J. SMELLER, BMC(DV), USN, each received a commendation in September from Rear Admiral Joseph W. WILLIAMS, Jr., COM-MANDER, TASK FORCE SEVENTY-THREE, for their work on the salvage of the Philippine Navy destroyer RAJAH SOLIMAN. The APD had completely capsized during a storm last December and sunk off Bataan.

The job of righting and raising her was a feat for the Salvage Forces of the Seventh Fleet. Chief McKENZIE, at that time Master Diver of USS GRASP (ARS-24), was commended for the technical knowledge and leadership which combined with a lot of hard work made him an important contributor to the success of the project. Chief SMELLER, who volunteered his diving services for this job, was commended for his work throughout the operation and also for several difficult tasks accomplished during the righting which required working near or crossing over heavily strained purchases.

Both divers are now attached to the Ship Repair Facility, Subic Bay. Chief McKENZIE recently reported there from USS GRASP and Chief SMELLER was previously an instructor at the Deep Sea Diving School. The FACEPLATE adds our sincere congratulations to both men for a most difficult job "WELL DONE".



THE OLD TIMERS

FACEPLATE

BY LT E. V. DOWNEY

"What ever happened to Bill Badders, George Crocker and Walt Domagala?" Thru this column we hope to let all know where all the "OLD TIMERS" are.

In this edition of "FACEPLATE" we have an article about our diving heritage. The gents whose stories appear in this column have all been a part of that heritage to a greater or lesser degree.

If you know the whereabouts of an "OLD TIMER" tell him we here at the FACEPLATE will put him on our mailing list if he will just drop us a line.

We would like the following information: A short summary of his career with emphasis on the diving portion, especially important jobs he has been on and any odd or funny things that might have happened to him. Where and when he attended diving school and what he is doing now is the info needed.

In this edition we have the stories of three more "OLD TIMERS"; John Gilbert, Walt Domagala and Jim Mc Eneaney. The writer of this column having served with all three of these gents, knows that their story in the diving navy could fill a book but due to space restriction only these few very modest lines are published here.

Walter J. DOMAGALA, CWO-4, USN (RET)

Enlisted 18 October 1933 as an Apprentice Seaman, trained at Norfolk Training Station, Hampton Roads, Va. Then commissioned the USS NEW ORLEANS (CA-32).

While serving in the USS NEW ORLEANS, I received diving training and gualified as 2nd class diver in 1935. We used the Mark III hand pump and MILLER-DUNN shallow water diving rig. Then followed service in the USS LOUIS-VILLE as Coxswain and 2nd Class Diver.

In January 1940 I was transferred to the Deep Sea Diving School for a course of instruction as 1st class diver. Upon graduation I was assigned to the USS MALLARD (ASR-4) at COCO SOLO, Canal Zone. While serving in the USS MALLARD I attained the rating of CBM and participated as a diver in the attempted rescue of crew members trapped in the USS SS-26 sunk in 288 ft of water off PERLAS ISLANDS R. de PANAMA; I worked as a diver in the salvage of cargo and demolition of the bulk of SS LENA MATKOVIC sunk in a minefield of CRISTOBAL, C.Z.; I participated in the salvage, pontooning and raising of USS MENEWA.

In May 1943 reported to the Deep Sea Diving School for duty as instructor. Participated in all phases of diver training. Was appointed a Master Diver. The most interesting phase of this duty was during the period I served as instructor and diving officer onboard the USS YDD-5 while operating off the Atlantic Coast, we located sunken vessels and conducted advanced diver training on these torpedoed hulks.

Appointed CH BOS'N W-2 on 1 June 1945:

Next followed a three year tour in the USS COUCAL (ASR-3) as the ships diving officer. Reported aboard the COUCAL in January 1946 and participated in the BIKINI "A" Bomb tests and salvage operations from June 1946 to September 1946. Returned to Bikini again in the summer of 1947 and conducted' extensive diving operations for resurvey purposes. Then in 1948, COUCAL was assigned duty in Turkey. Upon our return to Pearl Harbor, T.H. in January 1949 we had completed a 10 month around-the-world cruise. I.believe the COUCAL was the only ASR to complete a around-the-world cruise. I was detached from the USS COUCAL in February 1949 and reported aboard the USS CHANTICLEER (ASR-7) at Key West, Florida. While serving in the CHANTICLEER as Diving and Salvage Officer, I participated in the operation of refloating the Battleship "USS MISSOURI" which went aground in Hampton Roads, Va.

After 1 year tour of duty in CHANTICLEER I was assigned duty at the Deep Sea Diving School in March 1950 as Senior Instructor.

In February 1952 I was assigned duty in connection with the reactivation of the USS PENGUIN, I served in her as 1st Lieutenant, Diving and Salvage Officer until December 1953. We were home ported at Key West, Florida.

In January 1954 I was assigned duty onboard the Repair Ship USS DIONYSUS (AR-21) at Newport, R.I. I served in the capacity of Diving and Salvage Officer and Ships Bos'n. On 1 July 1955 USS DIONYSUS (AR-21) was deactivated at Orange, Texas and placed in the Reserve Fleet. At this time I was ordered to duty at the Deep Sea Diving School.

During the period 10 August 1955 to 25 June 1958, I performed duties as instructor and Officer in Charge of YDT-5 then as Training Officer of the Deep Sea Diving School.

On 18 July 1958 I reported aboard the USS PETREL (ASR-14) at Key West, Florida for duty as Diving Officer and Deck Officer. I participated in various Diving Projects. The most notable one being in recovering an entire Malfunctioned POLARIS MISSILE in over 200 feet of water.

I completed my last tour of Sea Duty while serving in the USS PETREL with two trips to Scotland; a tour of duty in the Med., and the Salvage of a KLM DC-8 Jet Airliner off the coast of Porthgal, which crashed at sea with 61 persons aboard in the summer of 1961.

I was detached from the USS PETREL at Charleston, S.C. on 20 September 1961 and reported onboard U.S. Naval Weapons Plant, Washington, D.C. for duty as Assistant Waterfront and Yardcraft Officer.

On 1 April 1964 I was transferred to the U.S. Navy Retired 1ist as CH BOS'N, W-4 after completing $30\frac{1}{2}$ years active duty. My address now is 4639 Lewis Ave., Suitland, Maryland, 20023.

Jim McENEANEY, MMC(DV) (RET)

FACEPLATE received a letter in September from Jim MCENEANEY, Retired Chief Machinist's Mate and Master Diver. Jim was trained as a diver here at DSDS in 1941 and then went to USS CHEWINK (ASR-3). He subsequently served aboard every ASR in the Pacific Fleet plus USS SUNBIRD in New London, was an instructor at DSDS from 1945 to 1948 and worked at the Morris Dam Naval Test Range. He retired in 1957 and is now working for the Post Office in Monterey Park. His address is 1038 East Charlinda, West Covina, California.

John GILBERT, CWO - GUNNER

Enlisted in the Navy, November 1927 at Los Angeles, California. First duty was aboard the USS MISSISSIPPI as a Torpedoman striker and while aboard I qualified as a Second Class Diver. I was transferred to the USS ARIZONA a short while later and during this tour I requested and was accepted for Submarine School at the Submarine Base New London, Conn. Upon completion of the course I reported aboard the USS WIDGEON as a second class diver. While aboard the WIDGEON I received a commendation for participating in salvage exercises working on the S-4 off Honolulu.

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NEW ORLEANS SEARCH

BY H. S. LIDDLE, JR., DCC(DV), CMAA

The news meda informed the world that in the wake of Hurricance "Betsy", a chlorine barge loaded with 600 tons of deadly chlorine gas was lost and possibly sunk; that if this barge was damaged it could hazard the lives of 40 to 50 thousand people living in the area.

The army issued gas masks and at the same time the Diving Center was requested to furnish divers to help in locating the barge for the Corps of Engineers.

At 0930 Sunday 12 September 1965, the following personnel left Andrews Air Force Base, Washington, D.C. with a full load of SCUBA equipment:

LT A. P. FESTAG - In Charge of the Team. LIDDLE, H.S., DCC, Master Diver JENKINS, T.A., GMG1(DV)

MCNEW, C.R. HM2(DV) from the Deep Sea Divers School and the following personnel from the Experimental Diving Unit.

TAYLOR, J.R., EM1(DV) WYATT, F.M., EM1(DV) MULALLY, R.L., DC1(DV) MUNDY, J.G., DC2(DV) HENDRY, T.E., HM2(DV) BRUNEAU, R.W., TM1(DV)

We stopped at Charleston, S.C. to pick up LCDR MOODY and his team of 12 EODU-2 divers. After loading all of their equipment plus our own into a second airplane we proceeded to Baton Rouge, La., to locate and identify the chlorine barge that had been missing since Hurricane Betsy.

After spending an enjoyable evening at the Armory "Hilton" dining on C-Rations we proceeded to the area next morning to commence diving operations. After four days of hard diving, and I am talking of 25 hour days, we investigated a contact the Army Engineers had made. JENKINS, GM1, made the dive to identify the object, which proved to be the barge we were looking for. McDUFFIE, EM1, EODU-2, made the next dive. TAYLOR, EM1, EDU, made the third and final dive, He located the seals on the filling trunks, and brought them to the surface. This was Thursday evening 16 September 1965. After 25 hard dives by our group and many by EODU-2 our job was completed. We were ready to pack our equipment and head North, we dropped off EODU-2 in Charleston on the way and arrived in Washington on Saturday.

Again the Diving Navy proved we "CAN DO".

THE "DOC" WILL BE COMMISSIONED

The Diving Navy loses another good Deep Sea Diving Technician in the near future. Ray CURRAN, HMC(DV), has been selected for ENSIGN, MSC, and expects to be commissioned sometimes this year or early next year. We are looking for a relief for him and scuttlebutt has it that LANGKORTHY, HMC(DV) might return for another tour of duty at DSDS.

THE OLD-MASTERS-QUIZ

- What is the age limit for divers air hose on an ASR or other HeO2 diving activity?
- What is the age limit for divers air hose other than ASR's or HeO2 diving activities?
- 3. What is the hydrostatic test and the elongation load for diving hose over 3 years old?
- How often should the hydrostatic and the elongation test be conducted on diving hose.
- 5. How often should all high pressure gages be tested and calibrated?
- 6. How often should all low pressure gages be tested and calibrated?
- 7. How much weight is recommended as a good test load for a diver's jock strap?
- 8. What is the safe working and the maximum depth for SCUBA Diving?
- 9. How often should U.S. Navy approved SCUBA steel bottles be cleaned and tested?
- How often should U.S. Navy approved aluminum SCUBA bottles be cleaned and tested?
- 11. What is the working pressure of the U.S. Navy approved steel and aluminum SCUBA bottles?
- 12. What is the only piece of SCUBA gear not rigged for quick release?
- 13. What will happen if SCUBA bottles are charged with the air reserve valve in the up position?
- 14. What is the safe working and the maximum depth for light weight diving?
- 15. What is the internal diameter of the hose used in making up light weight diving rigs?
- 16. What is the internal and external test pressure for the Submarine Rescue Chamber supply and exhaust hose?
- 17. How often should the air motor of the Submarine Rescue Chamber be disassembled cleaned and overhauled?
- 18. What is the minimum length of a shortened down haul cable on the Submarine Rescue Chamber?
- The friction clutch of the Submarine Rescue Chamber is set to slip with at full reel of wire at _____.
- 20. What is the size and length of the seal gasket for the Submarine Rescue Chamber?
- 21. What is the working R.P.M.'s of the air motor of the Submarine Rescue Chamber?
- 22. What is the primary purpose of the spill and vent manifold?

SALVAGE TOOLS (Con't)

with a "gun" about the size of a shot gun. Three hoses from topside deliver chemicals to the gun. The diver places the muzzle in a flooded space, pulls the trigger, solid foam is generated, and water is displaced.

The chemistry of generating foam underwater and in a very cold condition is very complicated and is anything but easy. We have had fairly good success in shallow water. In fact, foam sufficient to make approximately 1,000 tons of buoyancy was used -- with considerable success -- on the USS FRANK KNOX operation.

The problems of generating foam at increasing depth are quite difficult. To this must be added the problem of keeping the little foam bubbles from bursting as the ship, plane, or submarine which "has been foamed" rises to the surface. LT KUNZ and his orew have done considerable testing in deep water with good success. During SEALAB II Chief Bob SHEATS and his crew of Aquanaut/Salvors foamed an aircraft hulk at 190 feet. Considering the laboratory nature of our work to this point, the SEALAB experiment is considered a definite success, but be advised that this technique is as yet far from perfected. Beyond this, it is very expensive to use. The foam part of the FRANK KNOX job alone came to about a quarter---million dollars.

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FACEPLATE

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November 1965

11

GREENLET (Con't)

this was the first use of foaming in actual salvage of a Navy Ship. (The process has been under evaluation for over two years)

Foam is going to revolutionize salvage procedures. It practically eliminates the necessity for patches, as the foam replaces the water and seals the hole, but there are some undesirable side effects.

The diver applies the foam through a nozzle, fitted to three hoses, containing a resin substance, acetone and freen. The blending process produces an intense heat, subjecting the diver to severe burns.

Toward the end of the project, all "foamers" experienced congested lungs, headaches and severe bronchial spasms, in the form of violent coughing. Approximately 48 hours of rest and isolation from foam, cleared up most cases and there are no apparent after effects.

BARALYME GRANULES INSIDE THE HEO2 HAT

BY F.R. COLLINS, SFC(DV)

It has been a minor problem (since shifting to baralyme) of the diver getting granules of baralyme spraying into the HeO2 hat, when gas is turned on or when the diver bends over to do a job.

The baralyme bounces around the hat and collects on the face plate and also down inside the bib.

This can result in the diver getting a burn from baralyme in the eyes or any part of his body where the aralyme granules are sticking if the diver is sweating.

We believe the baralyme granules are coming back up through the venturi tub, when the jet of gas hits the baralyme. Also when the diver bends over the baralyme spills back into the venturi tube and gas pressure causes the baralyme granules to travel back through the tube and into the hat.

By sweating a #20 mesh screen inside of the HEO2 cannister at the goose neck entrance (where the operator assymble is) we have had good results in keeping baralyme granules out of the HEO2 hat.

SCUBA SPARES

In order to assist personnel in the field in the ordering of the SCUBA spares the following list of Federal Stock Numbers (FSNs) are for the support of demand SCUBA equipment, FSN S4220-541-7397. In order to procure cylinder assy and regulator assy separately the following FSNs should be used:

a.	Cylinder assy	FSN 54220-541-7394
b.	Regulator assy	FSN H4220-912-4237

ITEM	FSN	MANUFACTURER's	NOMENCLATURE
1.	1H4240-776-7019	1045-05	Box Clip Brass
2.	1H4240-776-7040	1010-13	Protec. Cap.
3.	1H5340-901-8233	1000-22	Circlip
4.	1H4240-776-7023	1045-39	Filter
5.	1H4240-776-1631	1045-10	Spring HP
6.	1H4240-776-7041	1045-13	Seat Assy
·.	1H4240-776-7015	8210-03	Gasket
8.	1H4240-776-7014	1045-03	Pin Support

ITEM	FSN	MANUFACTURER's NUMBER	NOMENCLATURE
9.	1H5315-776-7013	1000-25	Pin
10.	1H4240-779-3398	1045-04	Spring
11.	1H4240-776-7020	8210-01	Gasket
12.	1H4240-776-7016	1000-29	Diaphragm HP
13.	1H5330-880-1262	1000-34	Gasket
14.	1H4240-776-7022	1045-19	Diaphragm LP (Neoprene)
15.	1H5310-776-7038	1004-09	Nut Hex
16.	1H5310_776_1655	8450-15	Washer
17.	1H5340-776-7036	1045-26	Horseshoe
18.	1H4240-776-7034	8340-03	Screw
19.	1H5310-776-7033	1045-24	Lock Supp. Left
20.	1H5310-776-7032	1045-23	Lock Supp. Right
21.	1H4240-776-7035	1045-25-	Seat Holder
22.	1H4240-776-1627	1045-29	Spring LP
23.	1H4240-776-7037	1045-31	Seat Holder
24.	1H4240-776-7021	1010-18	Valve Exhaust
25.	1H5310-776-1654	0528-06	Washer
26.	1H5330-776-1668	0502-08	Washer
27.	1H4240-776-7043	0528-17	Disc & Ret Assy
28.	1H5310-776-1658	0517-06	Washer
29.	1H4240-776-1640	0528-09	Spring
30.	1H4240-776-7044	0528-10	Plug
31.	1H5330-776-1667	0518-06	Washer
32.	1H5340_880_3235	0528-32	Plug, Safety
33.	1H4240-776-7028	0502-50	Disc
34	1H4240-776-7045	0528-40	Stem
35.	1H4240-776-7027	0528-42	Disc. Assy
36.	1H4240-776-7031	8202-14	O Ring
37.	1H4220-910-6029	1045-22	Top Box Assy
38.	1H4220-910-6028	1045-18	Ring
39.	1H4220-910-6031	1045-35	Yoke Screw
40	1H4220-910-6034	1045-02	Yoke
41.	1H4220_910_6050	1045-07	Spring Block
42.	1H4220-910-6051	1045-14	HP Nozzle
43.	1H4220-910-6053	1045-17	Screw
44.	1H4220-910-6052	1045-16	Retainer
45.	1H4220-910-6030	1045-15	Pad
46.	1H4220-910-6033	1045-27	Body
47.	1H4220-910-6032	1045-32	Box Bottom
48.	1H4220-910-6035	1045-06	HP Valve Assy
			(Complete)
49.	1H4220-910-6036	0528-05	Nut
50.	1H4220-911-1444	0528-22	Spring
51.	1H4220-910-6038	0528-21	Slide Lever
52.	1H4220-910-6039	0528-16	Bonet
53.	1H4220_910_6040	0528-43	Stem
54.	1H4220-910-6044	0528-45	Plunger & Pin Assy
55.	1H4420-911-1442	0528-19	Spring
56.	1H4220-910-6046	0528-02	Elbow Assy
57.	1H4220-910-6047	0528-28	Cap Assy
58.	To be Assigned	8210-11	Washer
59.	1H4220-910-6049	0528-01	Res. Elbow Assy
60.	1H4220-714-3526	0502-12	Safety Disc
61.	1H4220-910-6048	0528-03	Conn. Tee Assy
62.	1H4220-910-6043	0528-46	Nut
63.	1H4220-910-6041	0528-11	Handle
64.	1H4220-910-6042	0528-14	Bonnet
65.	1H4240-776-7026	8201-12	O Ring
66.	1H4730-776-7024	1128-14	Clamp 1 1/4
67.	1H4730-776-7025	1128-15	Clamp 1 3/4
68.	1H4240-776-7039	1108-02	Disc. Valve
69.	1H4240-776-7046	1110	Guide
70.	1H4240-779-3395	1111	Pliers
71.	1H5120-776-1619	1112	Wrench
72.	1H4240-779-3396	1113	Wrench
73.	1H4720-779-3397	1128-08	Hose
74.	184220-906-9948	0812-50	Harness Assv

"Was she pleased when you gave her that charming undie for her birthday?" "Yes, but she cried a little". "She did?" "Yes. She said it was her first slip".

Signal's

A small class of Medical Department Officers was graduated from the Diving School on 10 September and have been recommended for designation as Deep Sea HeO2 Diving Officer. The class included CDR Leon J. GREENBAUM, MSC, USNR, of the Naval Medical Research Institute at Bethesda, LT Laurence RAYMOND, MC, USNR, also of NMRI, and ENS Thomas BERGHAGE, MSC, USN, of EDU. The Medical course is given twice yearly at the Diving School and is a necessary prerequisite for designation as a Diving Medical Officer. A fourth member of the class, LTJG Robert CUNNINGHAM, MSC, USN, of EDU entered the course late and was graduated shortly after. CDR GREENBAUM was a World War II combat Naval Aviator before becoming a physiologist. Shown above from left to right are ENS BERGHAGE, DR. RAYMOND, DR. GREENBAUM, DR. WORKMAN, Senior Medical Officer, and CDR HEDGEPETH, Officer in Charge

OLD TIMERS (Con't)

In July of 1937 I was accepted at the Deep Sea Diving School for the 1st Class Divers Course and when I completed this in December 1937, I was assigned to the Experimental Diving Unit. It was during this tour that the SQUALUS went down and along with other divers from the Unit I made the trip North to assist the divers aboard the FALCON.

As a result of my participation in the SQUALUS Salvage I was awarded the Navy Cross by Secretary of the Navy Charles EDISON.

Other duty stations thru my career includes tours aboard the following ships: Chewink YDT-5 at Newport, USS HECTOR (ARS-7), Service Force Salvage Unit, USS PRESERVER and in addition having duty in Deep Sea Diving School at the end of the war as an instructor and Diving Officer.

At the present time I am working at the David Taylor Model Basin (BUSHIPS) here in the Washington, D.C. area. I am still working in the diving field. So any of you younger fellows who are looking for a job in two years, my job will be available then as I will really retire at that time.

I see some of my ex-shipmates from time to time when they come to D.C. and really enjoy shooting the breeze and having a cool one.

Diver: "I like to take experienced girls home". Girl· "But I'm not experienced". Diver: "No, but you're not home yet either".

November 1965

ANSWERS TO THE "OLD MASTERS" QUIZ

1. 3 years.

FACEPLATE

- 2. 5 vears.
- 750 P.S.I. and 250 lbs. 3.
- When 3 years old and every 6 months thereafter, until 4. age limit expiration.
- 5. Every 1 year.
- 6. Every 6 months.
- 7. 160 lbs.
- 8. 130 and 200 feet.
- Every 5 years. 9.
- 10. Every 3 years (BUSHIPS).
- 11. 2,150 for steel and 3,000 P.S.I. for aluminum.
- 12. Life Jacket
- 13. Bottle with reserve will not be charged, as the valve in this position blocks it.
- 14. 60 and 130 feet.
- 15. 5/16's of an inch.
- 16. 600 P.S.I.
- 17. At least every 60 days.
- 18. 1200 feet.
- 19. 5,500 lbs.
- 20. 1 3/4" X 1 3/4" X 14' 4 7/8" 21. 90 R.P.M.

22. For angle seats.

CLEANING Hed 23 SYSTEMS

BY John M. CLEVENGER, BMCS(DV), DSDS

Recently the HeO2 system was rebuilt on the YDT-5. Upon completion of revamping it was necessary to clean the entire system & the following method was employed.

a. Flush piping for a 2 hour period using liquid freon.

b. Remove all freon and circulated system with 5 bottles of nitrogen.

c. Circulated system for 2 hours more using new liquid freon.

d. Removed all freon and circulated system again with 5 bottles of nitrogen followed by 4 bottles of oxygen.

Volume tanks were filled half way with liquid freon and rolled for two hours and flushed in the same manner as before.

Samples were taken of the freon after each flush and sent for lab tests. A final test was conducted on the entire system with a halide torch to detect any traces of freon. Lab tests and halide torch readings proved this to be an excellent method for cleaning of HeO2 and air systems. (Low spots and volume tanks should be equiped with some method for draining.

This method of cleaning was taken from the procedures used by Electric Boat Co. on Nucular Submarine Oxygen Systems and was brought to the attention of EDU/DSDS and approved by the Chief Bureau of Ships Code 648B. An approved procedure for use of freon PCA to clean oxygen systems will be published in the next revision of the Diving Manual.

Freon PCA is available from DUPONT Co. Wilmington, Del. Freon Division. 60 lb. containers - \$.62 per lb.

An optimist is an old maid who sleeps in a double bed.





LCDR JACKSON M. TOMSKY



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THE SECRETARY OF THE NAVY WASHINGTON

The Secretary of the Navy takes pleasure in presenting the NAVY COMMENDATION MEDAL to

LIEUTENANT COMMANDER JACKSON M. TOMSKY UNITED STATES NAVY

for service as set forth in the following CITATION:

For meritorious service during the winter and spring of 1964 while serving as Gommanding Officer, U.S.S. CHANTI-CLEER (ASR-7). Exercising outstanding leadership and professional competence, Lieutenant Gommander Tomsky contributed in large magure to the successful completion of a mission of great value to the Government of the United States. His sound judgment and skilled shiphandling in the face of the most delicate of international circumstances were in keeping with the highest traditions of the United States Naval Service.

Pault Vity a.

In July of this year onboard the USS CHANTICLEER (ASR-7) in San Diego harbor, Rear Admiral Lucien B. McDONALD, C Commander, Submarine Flotilla ONE, presented the Navy Commendation Medal to LCDR Jackson M. TOMSKY for meritorious service during the winter and spring of 1964 as Commanding Officer of the CHANTICLEER.

Selected for promotion to Commander, Mr. TOM5KY is now the Assistant Officer in Charge of the Diving School.

NAVXDIVINGUNIT ENGINEERING DEPT.

Since the last issue we have obtained the services of Mr. D.M. (Marty) HARRELL. Marty, Lieutenant, USNR, was on active duty between 1959 and 1962 during which he served onboard USS REGULUS (AF-57) and the USS PETREL (ASR-14).

He graduated from DSDS September of 1960 and was the Diving Officer aboard the USS PETREL from then until August 1962.

Marty joins us after a PG course at Georgia Tech. and a year at the NASA Manned Spacecraft Canter, Houston, Texas. Needless to say he is a welcome addition to the staff.





"I volunteer, who me" says wave Marilyn LARSEN as the $17\frac{1}{2}$ pound diving shoe is put on her foot by STRICKLAND, DC1(DV).



GETTING SUITED UP - 115 pound wave seaman Marilyn LARSEN of Naval Air Station Alameda tried on the 200 pound Deep Sea Diving gear aboard the repair ship USS MARKAB during a one day cruise for waves off San Francisco, Ships divers - STRICKLAND, and ROBERTS assist in dressing.

"I'LL VOLUNTEER"

The one hundred and thirty WAVES who made the one day crusie aboard the Pacific Fleet repair ship USS MARKAB returned with pleasant memories and a greater understanding of how a ship operates. They toured the ship and had each department explained to them and temporarily took over some of the sailor's jobs. One of the main attractions of the day was when 115 pound WAVE Seaman Marilyn LARSEN of Naval Air Station, Alameda volunteered to be dressed in deep sea diving gear. The ship divers include the following: R.H. GIEBNER,LTIG: J.M. STRICK-LAND, DC1: B.F. KILEURY, MM1, O.L. DUNFEE, SF2: B.E. ROBERTS, BM3; LiA. SCOTT, EM3: and B.C. PHINNEY, MR1.



ALL SUITED UP - But not very confortable, Miss LARSEN has lots of attention from the ship's divers. Question, "Where do I go from here".

November 1965

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