THE FACEPLATE

JUNE 1961

EXPERIMENTAL DIVING UNIT
and DEEP SEA DIVING SCHOOL
WASHINGTON, D.C.

U. S. NAVY EXPERIMENTAL DIVING UNIT
AND
U. S. NAVY SCHOOL, DEEP SEA DIVERS
U. S. NAVAL WEAPONS PLANT
WASHINGTON 25, D.C.

COMMANDER N. E. NICKERSON, USN, OFFICER IN CHARGE

THE FACEPLATE - JULY 1961

From the Officer in Charge:

SUBMARINE ESCAPE & DEEP AIR DIVING

A major breakthrough in submarine escape and deep air diving occurred on 28 April 1961 at the U. S. Navy Experimental Diving Unit, Washington, D.C..

LT H. E. STEINKE, USN; Director of the Submarine Escape Training Tank, Submarine Base, New London, Connecticut; inventor of the Steinke Hood, made an individual escape breathing air from a record depth of 450 feet. A half hour later an identical escape was made by E. H. SHIPP, ENC, USN. He demonstrated that deep escapes using the Steinke Hood and breathing continuously were entirely practical as he had relatively little experience in the Hood. LT STEINKE had been deeper than 100 feet on only one occasion when preliminary runs from 250 feet were conducted at EDU, just two days prior to the deep ascent.

These practical demonstrations were of far more importance than just the breaking of an existing record. The most important and immediate result is of course that of providing the submarine force with a simple, lifesaving tool that more than doubles the practical depth from which successful escapes can be made. Storage requirements are not increased, maintenance is minimal, and training time may be reduced.

Another significant dive during this period was that made at EDU by Mr. Hannes Keller. This dive is reported in this issue under Medical Department news.

It was gratifying to receive at least one article from the field, this time from COUCAL, which is printed in its entirety. Keep them coming; as I've stated before, this is your paper. Let us hear from you if you'd like the sheet continued.

DEEP SEA DIVING SCHOOL - LCDR G. E. ENRIGHT, USN, ASST. OFFICER IN CHARGE

Well, summer has arrived in Washington, and those long, long afternoons with the sun beating down as though it will never let us cool off again, make us wonder if this has anything to do with the lower rate of failures in SCUBA as compared to last winter.

It's a little late for "spring" housecleaning, but from where we sit writing this we can see the YDT-5 getting her yard period. Maybe she won't really be new, but she'll look like it anyway. Maybe we shouldn't relate such an embarrassing incident, but when she was being headed into the marine railway, she lost her screw.....and it hasn't been found yet! Oh well, lots of good training anyway. (PENGUIN all over again.)

The instructors come and go just like the students, even if not so fast. LEONARD, GM1 and GUSH, SF1 have just reported, and we just got word that BENT, QM1 from the SKYLARK will be coming. KENNEDY, SFCS has left for school in San Diego and then to the HOIST. KILLE, SFC and MATTOX, SF1 have "put in their papers" and will be going to wherever it is old divers go. ANDERSON, DC also goes out on 20 and will be a civilian by the time you read this.

The last class of the Master Diver Qualification Course will also have graduated by the time this goes to press. This course, plus normal applications will have given us a total of 17 new Master Divers since the 1st of January. No word at present on whether further classes will be scheduled or not.

We still get letters requesting quotas for requalification. The answer to all is "you don't need a quota" for normal requalification of a Diver First Class. Just send them on TAD to report to the Naval Station, Washington any Friday by 0800. We'll get them on their way back by about 1300 the next Friday. But please send along health records and make sure an annual physical has been done first.

We still get service-wide examinations too. As we mentioned before, they should go to the Naval Station, where the records are, not here to the school. The last two we got arrived here too late and the men concerned didn't get their examinations as no spares were available for their rates. These exams would have been on hand on exam day if they'd gone to the right place, so we don't blame these two men for being bitter at their old "shipmates."

The new pay bill is scheduled to hit the Senate on 19 June, after having passed the House in fine style. The Secretary of the Navy already has an Instruction drafted and readyto go into effect when (and if) it passes, so we hope it won't be long now.

Pat-on-the-back department - To LTJG O'MALLEY who will receive the Navy Commendation Medal for his work when he went back to SUNBIRD to help out on the Texas Tower job. To the crew of the YSD-39 for working around the clock for days on end helping to salvage a crashed A3J aircraft at Patuxent River and to MOHNEY, WITTMAN and J.C. BROWN who got a nice letter of thanks for unplugging an intake and preventing a shutdown of the Pentagon's power plant. Also to several others too numerous to mention for odd and assorted diving jobs around this area which have been coming in hot and heavy lately. Congratulations are in order to Doctor J. A. LOGAN, MC, USN who was promoted to LCDR on 1 July 1961. And finally to our Training Officer,

[illegible] CUT PART.

Still not seeing much from the rest of the Diving Navy as far as articles for FACEPLATE. This isn't intended to be just a propaganda sheet from DSDS and EDU, but is your newspaper. There must be a lot of things happening we'd all like to hear about (for instance, SUNBIRD could probably submit a whale of a story about the Texas Tower job) and somebody to write them up once every three months. A professional writing job isn't required or expected - just give us the facts, and we'll take care of polishing it up for publication. If you're looking for things to write about, just look back through this article and see how much of the same type of events have happened at your command. We'll print anything you send (as long as it isn't obscene or libelous). Let's make the next issue an inch and a half thick!

REQUAL COURSE TO BE SHORTENED - With travel funds becoming increasingly hard to come by, it was felt that a worthwhile saving could be made by decreasing the length of time required for this course. A study was made, and improved methods set up for making the required dives. A request has now been submitted to BUPERS to reduce the course to one week instead of two, as now set up. A review of Standard Air Decompression Procedures and Helium-Oxygen Decompression Procedures will also be included in the course.

CHANGES IN STAFF PERSONNEL - LTJG T. E. O'MALLEY has reported from USS SUNBIRD to assume the duties of Senior Diving Instructor and Assistant Training Officer. He was on the brink of reporting once before, but was given message orders by BUPERS to report back to the SUNBIRD to work on the Texas Tower job. It looks like they picked the right man, as he was recommended for the Navy Commendation Medal for his work. R. T. MURRAY, MCC(DV) has reported for duty as an instructor. Three of our Chiefs have added the star of an E-8 above their rating badge - they are AANERUD, HMCS, EISSING, SFCS, and PARKS, BMCS. J. C. BROWN, BM1 has just been notified that he will be advance to BMCA this year.

ORDERS TO DIVING BILLETS - Several divers have stopped at Diving School while on leave to see if anyone could "do something" about their being assigned to non-diving billets. This was a waste of their time and ours, as the Diving School is a training activity only, and does not write any orders. Likewise, the Bureau of Naval Personnel does not make direct assignments, but acts as a "wholesaler" by giving men to EPDOLANT, EPDOPAC or EPDOCONUS, which then make the actual assignment to a ship or station. The proper EPDO them, is the place to make any inquiries.

U.S.S. COUCAL (ASR-8) FIRST QUARTER 1961 - By GMC O. S. PAYNE, (DV5341)

During the past quarter the "Baka Hachi Maru" had occasion to change her screw (8,500 lbs). To go into dry dock would have used up our interim docking period (which was unthinkable). It was decided that the ships divers would change the screw (on a weekend, of course). The fist afternoon was spent rounding up the gear, 4 or 5 ton chain falls, wire straps, eye bolts, blueprints, tools, float and removing the rope guard (wish they would stop welding these rope guards on). The second day the old screw was removed and the new one installed. The morning of the third day was spent installing the rope guard (man, can they warp!), and the holes in the fair water were cemented over to hold nuts and to reduce water turbulance. We believe this is excellent speed and it is surprising how easily the job was completed, in 13 hours no less. Good divers is of course the answer.

COUCAL has just completed her Admin Inspection with an EXCELLENT in all Departments. Our next "hump" to get over is ORI in a couple of months.

COUCAL Diving Locker has been cut in half, with the forward half to be used as "Crews Reading & Writing Room." Salvages loss and Crews gain.

MEDICAL DEPARTMENT - CAPT M. K. HOLLER, MC, USN, SENIOR MEDICAL OFFICER

NITROGEN NARCOSIS STUDY

Renewed interest in "Nitrogen" Narcosis at EDU was introduced by a study first reported in the 19 October 1959 issue of the "Faceplate." A test sensitive enough to measure performance impairment under conditions of narcosis at shallow depths was evaluated. Ten subjects demonstrated significant decreases in performances at 100 feet on three psychometric instruments i.e. a conceptual reasoning test, a mechanical dexterity test, and a choice reaction time test.

This study of narcosis has been extended to a depth of 450 feet. Dives were made in a stepwise fashion at 200, 300, 350, 400 and 450 feet guage pressure. The techniques were similar to the initial study with a reliance, primarily on conceptual reasoning, however, observations of manual dexterity were also made i.e. peg-board assembly, and a "valve turning" routine. In addition to the use of performance tests subjects were observed for personality and electrocardiographic changes.

In an effort to simulate rapid descent subjects made chamber descents breathing a HeO2 mixture via mask. Upon reaching depth the mask was abruptly removed and ambient chamber air became the breathing media.

Although there was variation between subjects in the degree of narcosis at each depth, results of this study showed all subjects to be markedly affected. Of particular interest is the finding that at 450 feet all subjects demonstrated severe impairment and after 3 minutes were unable to accomplish useful work.

In addition subjects showed personality changes similar to those seen under other conditions of stress. The electrocardiographic recordings showed only slight slowing of the heart rate with no abnormalities.

From the result of these dives three major implications can be drawn. There is an earlier onset and severe increase in degree of narcosis at greater depths. Second, even though the impairment is severe and of rapid onset, sufficient time and mental capability are present to allow submarine excape (see Submarine Escape & Deep Air Diving).

Thirdly, it was formerly believed that overwhelming shock to the lungs and cardiovascular system made sudden switch from HeO2 mixtures to air or N2O2 while at depth an extremely hazardous procedure. This concept appears to be incorrect. In the event of an HeO2 supply casualty it is still advisable to bring a diver up as soon as possible because ofnarcosis and oxygen toxicity problems. The actual switch to air appears to manifest no real danger to the cardiopulmonary system.

COUCAL has been very good duty since returning from WESTPAC last July 2nd. We have operated very sparingly, so the "married Johns" have no growls in that respect.

Divers transferred during past quarter include:

Kilbury	[illegible]	BMC - to Boston Navy Yard
Tierno	"Joe"	BMCA - To New Port Torpedo Sta.
Jackson		BM3 - To USS CHANTICLEER (ASR-7)
Wallis		BM1 - To Naval Torpedo Station, Keyport, Wash.
McMahon		BM3 - To Philadelphia Navy Yard
Ethridge		BM2 - To Tank, Pearl Harbor

Divers received or ordered aboard:

Buhl	SFCA - From Tank, Pearl Harbor
Hughes	GM1 - From USS GREENLET (ASR-10)
Kurtz	BM1 - From Diving School, Washington, D.C.

Trotter, (Jim) QM1 has been disqualified due to medical reasons. LT STEINKY, Officer in Charge of Tank, New London, is due to report at CO in July 1961. LT LEIBOLD, present C. is due for transfer in July to Technical (Diving) Dept at [illegible].

The followingququestions are submitted for clarification and comment:

Yes - See Page 85 Part II Diving Manual

1. Is there any law against diving half in dresses with cuffs and snappers?

NOTHING OUT - FEW, IF ANY, WILL MAKE IT.

2. Is there any alteration or plans that require the exhaust of the recompression chamber to be enlarged to permit chamber to vent at rate of 60 feet per minute? (our chamber will not vent at this speed between 50 feet and surface).

YES

3. Are First Class Divers that are presently qualified (DV 5342) required to maintain their SCUBA qualifications also?

The above questions are argumentative in this area.

All divers are highly interested in the new Divers Pay Bill. This is, beyond doubt, the best kept secret of the day. All kinds of tales are floating around. We are interested in proposed rates of pay for each class diver, also, as to the stage of legislation, should it pass, etc.. We are more than happy to get rid of the excess paper work that is now required.

HANNES KELLER DEEP DIVE

On 10 May 1961, Mr. Hannes Keller, a Swiss mathematician-diver, successfully completed a 700 foot working dive with 10 minutes on the bottom at the U. S. Naval Experimental Diving Unit. Mr. Keller and his associates who included Dr. Albert Buhlman, a noted Swiss physiologist, were invited to this country to demonstrate the deep diving technique which the group had perfected in Europe.

Mr. Keller began his diving experiments two years ago and has gone as deep at 1,000 feet. He has used an IBM computer to develop his decompression formula which uses a continuous rate of ascent versus the standard 10 foot stop method of decompression.

The gas or gases used in the dive were not revealed. The diver appeared to change his gas mixture at least four times on both the descent and the ascent. He received his instructions on when to change breathing mixtures by pre-recorded tape.

The dive was well organized and demonstrated the group's confidence in the Keller method. No difficulties were met and the diver appeared well and showed no ill effects when examined by LT W. B. WOOD, MC, USN who is attached to the Unit.

Closed circuit television wasused to monitor the dive. A total of seven monitors were used both for assistance in conducting the dive and to give all of the visiting experts in the field of diving a good picture of the operation.

Two interesting aspects of the Keller method were pre-dive oxygenation and controlled breathing. Mr. Keller breathed oxygen at altitudes up to 40,000 feet in the Unit's combination decompression-altitude chamber for three and one half hours before the dive. This placed the dive within our own calculated total dive time. Dr. Buhlman believes that carbon dioxide retention is the cause of nitrogen narcosis and therefore uses controlled breathing to reduce carbon dioxide accumulation.

This demonstration indicated that we can break through and beyond present diving limitations. In fact, Dr. Workman at the Naval Medical Research Laboratory has already submitted to EDU calculation and data for conducting HeO2 dives to 700 feet for 10 to 20 minute bottom time. EDU is happy to hear of field interest in deep diving and especially of CDR Workman's demonstrated ability to calculate the requirement of such a dive. And incidentally, CDR Workman's dive require less decompression time than that which was performed by Mr. Keller. We feel confident that if EDU's efforts were directed towards deep helium diving that we could perform Dr. Workman's dive, under simulated wet-pot conditions, without significant difficulties.

EXPERIMENTAL DIVING UNIT - LCDR EMMETT W. CARPENTER, USN, ASST OFFICER IN CHARGE

PERSONNEL

Our personnel situation seems to remain on a definite level, with most changes to occur in thenear future.

CWO SMITH, (MSC), USN departed on 24 June 1961 to report to the U. S. Naval Mission to Haiti.

LT P. G. LINAWEAVER, (MC), USN was detached on 16 January 1961 to the U. S. Naval Hopsital, Bethesda, Maryland.

Our Senior Master Diver, POWELL, TMC(DV), has decided to remain on active duty for another year. Scheduled to "go out" in October of this year, he agreed to extend his enlistment for an additional year to remain here at the Diving Unit, but he is still looking forward to going to Panama come 1962.

Congratulations to John C. NAQUIN, SF1(DV) who is due for transfer in August to Newport, R.I. for OCS.

Also in the month of August we lose C.R. MAILDER, SF1(DV) to Cross Training next door at the Diving School, and then onto Indianhead, for Refresher and EOD Retraining.

Seems there's always that 1% who don't get the word. R. C. [illegible], SFC(DV) enlisted his son in the Navy, and as usual, failed to apply for the five days leave allowed on the "Individual Recruiting" program. He's now singing the blues for missing out on that free leave.

C. W. (Pop) STEVENS, BMC(DV) will depart EDU on 3 July for transfer to the Fleet Reserve. This will terminate 21 years of active duty, fifteen of which "Pop" has been a diver. We're sorry to see him leave, and hope that his life in "retirement" is as successful as his navy career has been.