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ROYAL NAVAL DIVING magazine

Buccaneer Salvage, 1966 (*see page 39*)

Vol. 13 No. 2

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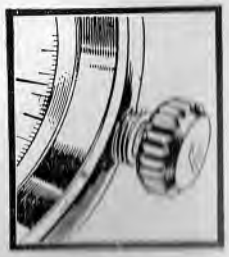

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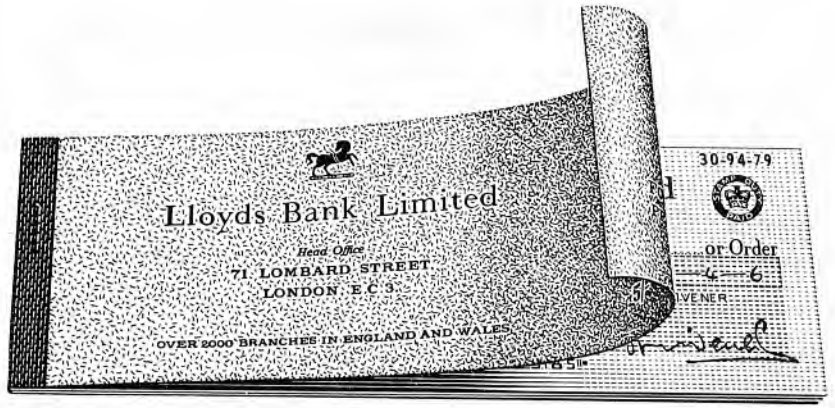

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FOR GOOD AND HELPFUL SERVICE

Contents

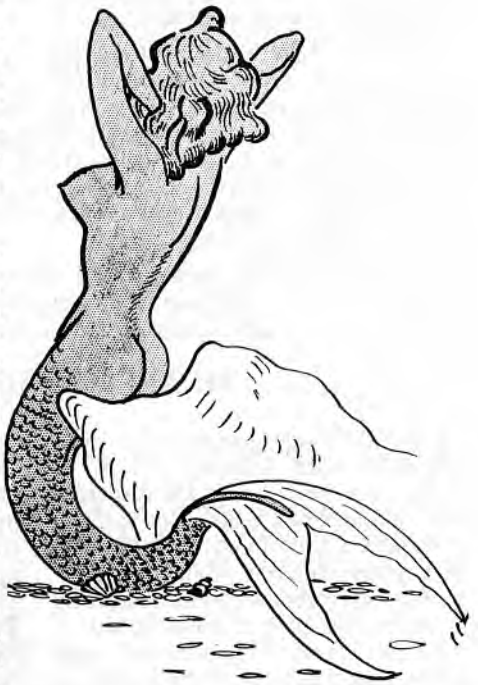
R.N. Diving Magazine

Vol. 13 Summer 1966 No. 2

EDITOR'S NOTES

THE wind of change has again whistled through the Magazine office, unseating both Sub.-Lt. Thompson and P.O. Neave, to whom we extend our thanks and good wishes in their new employment, and welcome Lt. Baker both as Money Man and D.O.

I would like to thank all our contributors for their efforts, and perhaps remind those who are too busy to write or think that their possible news would be too tame or boring, that we welcome all your articles with open arms, and if some authors do not get printed it is only because of a possible classification problem, or perhaps the letter did not arrive in time for publication. The 'Letters to the Editor' page is a chance for all to air their views, or to take a dig at something without actually setting out in formal script. Having heard some of the conversations of late, I think your views would make good reading. Therefore may I offer an open invitation, and I look forward to a flood of mail, tape recordings or something! As always, sketches or photographs are also needed to present you with a publication, which is, as it were, for us and by us; in



fact, I consider that everyone is on the Editor's staff. If nothing else, suggestions or even criticism would be invaluable.

ROYAL NAVAL DIVING CREST

A number of designs have been submitted for the competition announced in last winter's issue (Volume 12/3). The prize of £5 will be awarded prior to publication of the winter 1966 edition, so there is still time for you to create what might be the new R.N. Diving Crest. Rough sketches will suffice if you are not good with a pencil, aided by a description regarding colours, etc. Our illustrator may be able to produce an entry for you.

VERNON SPORTS

Sports Day 1966 appeared to be poorly supported by *Deepwater* this year, both competitors and supporters being sadly lacking. The biggest shock was the Divers being beaten to second place in the Tug-of-war by the portly members of Boyd Division.

On the field, excitement ran high in both the 220 yards and 100 yards, when Basnet and Ashton were just pipped at the tape after a very good effort in their respective races. The 4 by 110 yards relay was also a close finish, with Pound Division just managing to break the tape. Despite a valiant attempt to develop wings, Baker was placed fourth in the long jump with little more than fractions of inches separating the contestants. Ashton and Mucklestone had a private duel with a discus to be placed second and third in a close contest.

Perhaps it goes to prove that good vocal support makes all the difference, and we hope that next year our revenge will be sweet.

HEARING AIDS NEXT ?

ANYONE who has swam or dived underwater knows how it is impossible to sense the direction of a sound when below the surface. Normally a sound arrives at the ears at slightly different times and, although this interval may be extremely small — less than a milli-second — the brain is able to make use of it and define the direction of the source of the sound. In water the speed of sound is over four times faster than in air, and thus the time differences are smaller in proportion, and the directional problem that much harder. Also, in water the diver hears as much by bone induction as through the ear, and this further complicates the problem.

Two American electronic engineers have looked into this problem and have devised a system which will overcome it. The system consists of two very small microphones which act as ears, a pair of head-phones and an electronic link between them. The microphones pick up the sound waves as the ears would in the air, establish the time and intensity differences and convert them through the link to directional information, which is passed to the head-phones worn by the diver.

In the trials to date using four divers, an accuracy of direction within 26° has been obtained, but it is hoped to improve on this. G.A.F.

MAGSERVE

WITH a view to providing a further service to our readers, the issue now has a For Sale, Wanted, or Exchange column. Additionally, questions relating to private problems will be answered, if possible, either by letter or in print.

This facility is, naturally, free, and a small ticket is incorporated on page 3 which should be detached and included with any query or advertisement. A stamped, addressed envelope would also help to speed your requirement on its way.

Please do not send any of the For Sale items to the magazine, as the Editorial office is already overflowing with 'bumph' and dog-ends!

Remember, you might have for disposal the very item some other reader is seeking. Also, as a large number of publications, advertisements, and other information passes through this office, including things such as the Portsmouth Resettlement notices, and local evening papers, offering all types of employment, we think you might wish to avail yourselves of this information, or possibly pass to us some useful 'Gen' of your own.

FOR SALE

Aqua-lung:

Bottles—
Twin 'Slimline' 1,100 Sea Lion

Harness—
Modified with Q.R.M.

Demand Valve—
S.G. Merlin

Bottles in date with certificate

Accessories—
Weight Belt, Cressi Fins 8—10 and Mask

Price £30 (quote M.S. 10)

* * *

Minolta 16EE. Camera

16mm. Miniature; Fully Automatic, with Flash Attachment. Mint Condition.

12 Spare Cassettes, plus 50ft. F.P.3 Film. Price £27 10s. 0d. o.n.o. (quote M.S. 11)

Morris Mini Minor:

1959 — December. Blue in good condition for year, used as second car. Price £200 o.n.o. (quote M.S. 16)

WANTED

SEATTA, Cressi Mignon, or similar Spear Gun in usuable condition. Not Compressed air type. Up to £5 (quote M.S. 12).

* * *

Two-Berth Inboard/Outboard Cabin Cruiser:

One needing refit or repairs considered. Must be in home waters. (quote M.S. 13).

"Porpoise" Diving Trials

THE depths to which a porpoise or whale can dive, and the duration of their dives have been of interest to marine biologists for some time, but little work has been undertaken.

Recently a research group in America conducted a series of trials using a trained porpoise as their subject. The beast, christened *Pono*, was an adult rough tooth porpoise (Steno Brednesin for the experts) about six feet in length. He was captured off Hawaii and then transferred to an aquarium pool where he was kept under training for a period of 4½ months.

During this time he was taught to return to a boat when an underwater buzzer was sounded, press a lever suspended from a cable from the boat to enable his depth to be recorded, wear a harness to which instruments could be attached, and, lastly, to swim onto a stretcher to enable recovery from the water. When competent in these activities he was taken to an open-water bay and released, and immediately swam away from the boat as if glad to be free again. However, when the recall buzzer was sounded he returned and awaited his next command; so the diving trials were commenced. The routine was to tap *Pono* on his nose. He would then dive down to the lever, operate it by depressing it with his nose and return to the surface.

His training was proven, for although there were a number of other craft in the area, at no time did he attempt to roam. He also appeared to enjoy his work and the fish tit-bits he received after each successful dive, and a record of the depth, time submerged and the time of surfacing to first breath was noted. Good progress was made but then at 125 feet *Pono* started to behave a little erractically and did not respond so willingly to the signals. Subsequently he refused to dive and just swam round the boat in an agitated manner, slapping the water with his fluke and flippers. Something was obviously disturbing him and it was then noticed that three small sharks were circling the lever cable some 40 feet below the surface, so it was decided to recover *Pono*. The stretcher was lowered but he refused to swim on to it, and suddenly swam away from the boat at speed, dived and disappeared from view. The boat set off in pursuit and it was then noticed that a twelve foot shark was swimming in the waters where the boat had been.

There is little doubt that the buzzer had attracted the sharks, and that their presence had upset *Pono* in spite of a long and diligent search using the recall buzzer *Pono* was not found, although the following day a local fisherman sighted him in the area where the trials had taken place. A further search was made but he was never seen again.

Although the trials were not completed, several interesting features were noted in the work that had been done. Firstly, when given his command to dive *Pono* would take two or three breaths then a characteristic short one immediately before descent. Both his descent and ascent were undertaken in an almost vertical position and he only levelled off to depress the lever. The speed with which he accomplished this operation can be judged from his time, viz. 16 to 18 seconds when the lever was at a depth of 75 feet. On reaching the surface *Pono* did not always 'blow' immediately, but would often swim around just below the surface for a few seconds, indicating that he was never really extended in the trials and could have accomplished both deeper and longer duration dives.

From information available it is known that porpoises can descend to 300 feet and more. This is confirmed from an examination of their stomach contents which contained animal and vegetable growth found only at these depths. The bottle-nose whale, carrying a manometer, has recorded dives to 1,164 feet and remained submerged for more than one hour. But the record is held by the sperm whale which became entangled with a submarine cable at a depth of 3,720 feet. G.A.F.

H.M.S. *Verulam*

WE hear of many tales of diving expeditions carried out in exotic waters by divers from other H.M. ships, but for those in Home Seas Service, life is not so sweet. Nevertheless, the divers of H.M.S. *Verulam* have become experienced in the art of keeping warm and enjoying themselves too!

H.M.S. *Verulam* visited the Mediterranean in January and February of this year, when the opportunity was taken to complete a routine planned maintenance inspection in clear waters; what a bore! Better things were to come — the First Lieutenant allowed the ship's divers to take recreational dives during working hours. (The captain is a diver too).

An exploration of Kalafrana Harbour, Malta was undertaken and proved very interesting as regards sea life. There were no fish or crabs but some old ammunition was found.

With our diving team sadly depleted as a result of ratings going on draft — Able Seaman Smith to a C.D. course — we left Devonport in April for Northern regions. We, too, had a field day in Lerwick as did H.M.S. *Palliser*. Our 'treasure' was a set of false teeth lost by one of the local fishing boat skippers. On a cold Sunday morning the divers entered the water near a shot laid by the fishermen. Within a few minutes the 'gnashers' had been recovered a few feet from the shot, having been found grinning up at the amazed diver. Lerwick Harbour proved a pleasant diving centre, even if a little cold, with innumerable objects, from hammers to bicycle lamps, strewn on the sea-bed.

Owing to our trials' ship status, difficulties were encountered when endeavouring to train a ships diving team. However, H.M.S. *Verulam* was able to provide a very good team for the ship's Shake Down at Portland.

The divers on board were:—

Lt.Cdr. D. F. Watts, S.D.O.
Mid. G. Lamb-Hughes, S.D.O.
L.M.E. Barnes, S.D.
M.E.1. Shanayan, S.D.
A.B. Smith, S.D.
A.B. Astle, S.D.
A.B. Price, S.D.
O.S. Stevenson, S.D.
O.S. Catterall, S.D.

Diving ? ?

THE following transcript of remarks by Cdr. Scott Carpenter at the National Press Club Luncheon on 16th November 1965, are of extreme interest to all divers.

There is no doubt that all divers are jealous of the vast amount of money and effort which is spent on outer space research with little taxable return.

I think that Commander Scott Carpenter has said very nicely:— "For goodness sake pull your fingers out and pay some attention to the unexplored and unexploited potential of the sea". Just a minute portion of the money spent on space would produce tremendous action if it was used to exploit the undersea world.

Britain in particular, who is so proud of her sea-faring reputation, is behaving like an ostrich. We should be leading the world in the undersea race. J.W.

REMARKS by Cdr. Scott Carpenter at National Press Club Luncheon — 16th November 1965

There is a small but expanding group which believes that it is imperative for the U.S. Navy to develop a broad capability for exploiting the ocean floor.

There is a larger group which believes it is mandatory for this nation to explore the outer reaches of space. I belong to both, and my experience with the two assault groups dedicated to these credos allows me to make some comparisons and draw some conclusions which are pertinent to the safe, expedient and successful conduct of our Man-in-the-Sea Programme. The comparisons reveal, among other things, some similarities in the two endeavors and there are more of these than the casual observer might realise.

For example, we face many of the same problems in:

(1) The design and fabrication of the machines and particularly the environmental control systems.

(2) The selection and training of the crews.

(3) The suit design, manufacture and fitting.

(4) The physiological and psychological studies conducted before, during and after the experiments.

These are becoming more and more important as we approach prolonged mission times.

Both must design and test hardware, select, train and test men specifically for use in a foreign environment. We share a common need to search for new materials and new techniques.

We both need a vast array of talent and equipment not only to do the job but to carry on the research which is prerequisite.

Both pit man against danger, confront him with unknowns, and both say 'no' to the physical barriers that we face. Both will ultimately enrich our life on this planet.

After the first Mercury flights the recurring question was, 'What was it really like ?' And we answered a thousand times, 'It was great, beautiful, exhilarating, a hell of a thrill'. The truthful answer is that we got up in the morning and went to work. Now after the Sealab Operation the question most frequently asked of me

is, 'Which is more exciting, more hazardous — better ?'
Check one. A comparison is possible, a choice is not. There is no need to pit man in space against man in the sea. One is a superbly sophisticated, glamorous effort, and its impact has set this country on its next hundred years course. It ranks currently between God and mother-hood. The other is a newly legitimate child represented by a necleus of 50 dedicated men working with mail order equipment, in marginal conditions using outmoded techniques.

Now, when I tell you we got up in the morning in Sealab and went to work, you'd better believe it. I have never worked as hard or as long but, on the other hand, never has there been for me as much personal satisfaction as there was during the entire Sealab Operation. We knew we were doing a good job and there was a mood of cheerfulness and willingness to work that made everyone give his best. A lot of this has to do with the fact that divers are a very special breed. The profession calls for more guts and motivation than any other I know. I wanted to say to them 'you're magnificent, I respect and admire you, I'm proud to be one of you' — but I figured only Gregory Peck would do that!

Let me tell you what one day in an aquanaut's life is like. First, more preparation is required than a last minute recap of the dive plan. It is necessary to do this because as soon as a diver and his buddy, both intelligent, co-operating, communicative human beings, step through that hatch and enter the water world they become mute and essentially deaf. Their vocabularies are reduced to less than a dozen words, spoken only with raised fingers or the rap of a knife hilt against a gas bottle. A diver's most urgent cry — Mayday — can be uttered only with four fingers or four raps and the raps don't carry very far.

We desperately need a research programme dedicated to the redevelopment of a reliable diver to diver communication system that does not encumber him with wires and does not compromise the performance of his breathing apparatus.

The divers will spend their first 10—15 minutes in the water working against the clock on a delicate assembly tasks and intricate two-hand co-ordination tests. These, as well as measures of whole body strength, are done pre and post dive, in the water, in an attempt to measure the degradation of man's performance during long exposure to cold water.

Once these tests have been accomplished they can get on with their work. This can consist of any number of tasks related to the ocean sciences, salvage, rescue, marine biology, geology, sound and light propagation, installation of marine weather instrumentation, logistics and maintenance of underwater equipment. By and large this work is done with ordinary tools that can be found in any mechanics tool box and with equipment that works well on dry land but invariably develops some ailment after immersion in salt water. We need to devote more human engineering talent to the development of special equipment and tools for use in this dim, weightless, corrosive world.

If the diver's work carries him into water much deeper than his habitat, his suit is compressed by the increased pressure until it becomes paper thin and loses nearly all its thermal insulation properties, and

he gets cold faster. I have seen men shudder with an amplitude of four inches from the cold. We need to develop a suit that does not tear easily, as it does now, but still provides a good thermal barrier regardless of depth. We need to develop a reliable thermostatically, controlled electrically heated suit and, ultimately, we need to develop and adapt the liquid-cooled Apollo suit to our use. The liquid flowing through the garment could be heated with a small radio-isotope package that will replace one weight on a diver's belt. The astronauts' EVA chest pack and the divers' breathing apparatus are a study in contrasts. Monitoring the satisfactory performance of the lung currently in use, is purely subjective, is done mainly by the diver's companion, and is limited to watching whether bubbles are coming from the right place or the wrong place. It is both difficult and time consuming to set up the control element properly. It gets out of calibration easily, and is not as reliable as it can be made. It has many design defects and reflects very little of the tremendous advances recently made in the field of human engineering that are so evident in aircraft, spacecraft and space age personal equipment.

The astronaut in flight faces a splendid panel of instruments which provides immediate and continuous evaluation of all the components and systems upon which his security depends. In addition he has three shifts of eyes and ears around the world helping him through telemetry, to check his equipment. The diver in contrast, has little or no instrumentation in or out of his habitat. And when he is in the water he is alone. He and his companion are completely beyond the help of any man.

We do have some safe-guards. For instance, a man can help his buddy get back home with an extra mouthpiece on his own equipment, but the need to give the diver better equipment, more instrumentation and longer and deeper excursion times still exists.

Our most imaginative thought must focus on the design of the habitat and the whole concept of undersea living. Man must be able to sever his psychological as well as his physical ties to the surface. Adaptation of nuclear power would give us a completely autonomous, self propelled research vehicle. It would avoid the many problems we face when we try to handle a subsurface object with a surface vessel and it would open up unprecedented depth and endurance capabilities.

The Sealab II habitat was luxurious in many respects with larger portholes and wall to wall carpeting, but we are not served well by a cylindrical design. We need more room in the diving station. This was our worst bottle-neck. We need telescoping legs to help us level it on uneven terrain, and we also need to separate laboratory areas away from traffic and cryogenic oxygen storage.

Meanwhile — back with the aquanaut. He re-enters his top side world not in a 15 minute blaze, but by purging his body slowly, and sometimes painfully, in a decompression chamber. A man remaining at 650 feet must await six days to step outside the chamber.

In Houston we have the free world's largest altitude chamber, capable of accepting the entire lunar excursion module, command module and service module at one time.

For undersea work we have a scattering of small pressure chambers

around the country. One goes to 800 feet. We need a 2,000 feet capability now with a large water filled compartment which will allow us to evaluate the immersible equipment. It must be capable of being pressurised with helium, argon or other rare gases as the need arises, and in it we need to study the effects on man of very high pressures. Does he slow down, become sluggish ? What cellular changes occur ? How are his organic functions altered ? A marriage of cellular chemistry and definitive physiological and psychological studies, which is so badly needed, could centre around a deep submergence centre with a high pressure facility such as this. Accurate measures of calorie intake and metabolic rates could be made and valuable information can be gained by men interested in hyperbaric medicine. Perhaps the chamber's most important use would be in the study of inert gas uptake and elimination by the human body. We must have a better understanding of this before we really begin to understand the decompression and narcosis problems you've heard so much about.

I'm convinced the press and T.V. sold the space programme to the world. One of my chief regrets is that we could not bring back better photographic documentation for you but the light level and visibility around Sealab just didn't permit it. These pictures would have been of great value in attracting young, intelligent, hard driving men into our group of fifty.

The disparity between the equipment used by aviators and divers is incredible, but pilots are a very powerful group, irritatingly so at times. Nevertheless, they have complained and fought for the innovations and safety precautions that this programme needs now it if is to move out of the 'Gee Whiz, we did it' stage.

I know the talent is out there. I know there are men looking for a field to which they can commit their lives.

I thought a great deal about talking to you. I respect your knowledge of the ideas and policies of this country. I can understand your frequent dissatisfaction with things as they are, and I admire your talent for putting it into words. I wanted very much for you to have something more to remember after you'd had lunch and listened to our presentation in addition to our concrete list of needs — something intangible.

I think it narrows down to a basic feeling among the participants in these modern sustained experiments that we should be more than just remaining alive. We cry to industry 'make it better, make it last longer, make it easier to operate'. After the feeble beginnings of pushing body and mind — figuring out a way to beat the odds—we *always* want more. It is not an uncommon trait among men.

An airplane that bears this nation's emblem, a spacecraft that carries the colours of our country around the globe and a United States research vessel embarking on a mission in the depths of the world's oceans, must be stamped superb. The resources to make them so are here in this country. I don't want anything but the best.

Beyond Divers' Depth

THE name *Palomares* will provide a permanent reminder of the day a nuclear weapon got away! This was a device that packed a 20 megaton wallop, and which had fallen into the sea, off the Spanish coast, following the collision of two U.S. military aircraft. No doubt the discussions and arguments on the best approach to a salvage task of this nature, will continue for years, but the advanced technology and equipment used by the U.S. Navy enabled them to recover the device after an 80 day search.

In the early hours of April 7th, 1966, the U.S.S. *Petrel*, a submarine rescue vessel, winched in the last few feet of the wire attached to *Curv*, the Cable Operated Unmanned Recovery Vehicle, which broke surface tangled in a parachute, and clutching the object of this unprecedented operation. The lost H.-bomb had been recovered.

The *Curv* was not the only underwater vehicle which had been employed in the search, as the Alvin, the Reynolds Aluminaut, the Navy Deep Jeep, and the Perry Cubmarine had been fully extended combing the seabed, 2,500 feet below the 'at sea Headquarters' ship.

Alvin was responsible for the initial visual contact, and moved in to connect with the weapon, but became entangled with the parachute and had to tear loose to prevent an emergency. Several more attempts were made to affect a connection, but the bomb broke loose and slid further down into a ravine.

Subsequent dives, 145 in all, were concerned with attempts to atatch wires to the bomb, as Aluminaut, Deep Jeep and Cubmarine were unable to retrieve the device.

Curv was flown in from the States with its crew of technicians from the Naval Ordnance Test Station at Pasadena, Cal., where it had been designed to recover test and practice torpedos that had sunk in depths of up to 2,000 feet. A greater depth was considered to be within its capabilities, and additional cable was spliced in to achieve the required 2,532 feet sounding.

After considerable effort, using sonar, lights and its television cameras to full advantage, *Curv*, was finally manoevred into position and the hydraulically operated claw attached to the bomb, which has the form of a 13 feet cylinder, 24 inches in diameter. Normally at this stage the claw would have been jettisoned and hoisted separately, but on this occasion the machine was totally entangled in the parachute so everything had to be hoisted together.

Curv consists of an aluminium tubular framework, 6 feet high, 5 feet wide, and 13 feet long, to which are attached four cylindrical ballast tanks, three propulsion motors, (Port Starboard and vertical). Also the hydraulic system and claw, acoustic detector equipment, transistorized T.V. camera, two mercury vapor lights, a 35mm. still camera with a strobe light and a recovery buoy. Extensive use of light weight materials keeps the vehicle down to an 'all up' weight of 1 ton in air.

T.G.G.

EVER BEEN HAD

Report in an evening paper:— Giving evidence the accused stated that, whilst inside a hotel paying a man for 72,000 stolen cigarettes, the van in which they were being transported was stolen from the car park!

Bear Facts

H.M.S. *Ursa* (Latin for bear) returned on station for her long leg of a West Indies G.S.C. at the beginning of February. Our motto 'Ursum Sursum' or 'Bear Up' has been particularly apt for the ships' company in their efforts to keep the old lady up to scratch last year. This was, however, translated by one West Indian newspaper as 'Beer Up', after one particularly hairy run. This might be considered even more apt.

Our short Home Leg flashed by, and by the time we had docked, been given leave, been used for a trial, taken part in a major Home Fleet exercise, visited Portugal and given more leave, we were flogging our way back across the Atlantic.

The trial was a short one and involved divers working on one of our hull outfits, at intervals during the trial. The results of the trial never came to us but it provided valuable experience for our diving team. The rest of our diving during the Home Leg included several practice ship bottom searches, crab hunting in Plymouth Sound, and wreck hunting off Setubal, Portugal. In the latter operation in muddy waters a diver leapt over the side of the diving boat and, to the great hilarity of everyone else, stood up with the water lapping round his waist. A rather too obvious point but always check the depth. The story might not have been quite so funny.

So the time came to head back for those islands in the sun, coral reefs, clear blue waters, and Spanish gold.

However, just to make sure we would not forget Home waters' weather too quickly, we were lashed by gales force 9 to 11 the whole way across. For twelve days the wind speed never dropped below 35 knots. As we were always heading into the storms our speed of advance was greatly reduced and we arrived in Bermuda two days late. Nobody had been allowed on the upper deck during the crossing, and it was a very sorry looking ship we saw in Bermuda. Great areas of paint had been stripped from the side and the superstructure; upper deck ladders were buckled and distorted, covers ripped to shreds, some missing altogether; the Fx breakwater was buckled and the capstan engine cover was buckled beyond repair; there were several splits in the upper deck and for the last two days we had all the pumps going flat out to hold water flooding in two places in the hull. A further search by the diving team revealed areas of paint stripped underwater, and the keel 'window' of the Sonar to be buckled, exposing the transducer to the open sea.

The diving team were able to assist in plugging the leaks. This problem was solved by taking down a suitable size of rubber sheeting caked on one side with bostic. This enabled a diver to hold it in position with comparative ease, thus holding out the water for 20 minutes to allow quick drying cement to set above. D.U.C.S. proved invaluable, of course, in directing the diver to the correct place. One leak, a sprung rivet, was particularly difficult to find from underneath. The O.C.R.M. also went through his repertoire of bawdy songs during the boring periods of holding the rubber sheet in position, causing the remainder to think that perhaps his light-headeness was a symptom of one of these strange underwater diseases.

Foremost in our minds now was

the fact that in 19 days time we would be escorting the Queen on her Caribbean tour. Four days in Bermuda, sorting, destoring, making good repairs and we were away again. This time to take over as guardship on Bahamas patrol. Despite rescuing Cuban refugees, sorting out fishing disputes and steaming at high speed to land casualties, we achieved the impossible, painted ship overall and arrived to take over as Royal Escort with a compliment on our appearance from F.O.R.Y. Whilst on Royal Escort the diving team was split in two, with one half always at one hour's notice. Despite the extra duties it was an enjoyable experience and Her Majesty's very enthusiastic wave when we cheered ship at the end, and her signal, 'Splice the Mainbrace', were very much appreciated.

Before joining up as escort, in Bahamian waters, one of the ships' company caught a 12 foot long 300lb. hammerhead shark from the quarterdeck. After being pumped with bullets by one of our 'trained killers' (bootneck) it was hoisted on deck. The diving team examined it with a certain amount of apprehension. However the beauty and fascination of the coral reefs and the perfectly clear waters out here are a far stronger call than the deterrent factor of the shark. Nevertheless we maintain a healthy respect for him.

Also during Bahamas patrol we had two fuelling stops at Key West. Here we once again met up with the United States Navy Scuba Diving School. They are very keen to see any R.N. ships and close liaison has grown up with ships calling. Last year we got them interested in rugger. They are now quite fanatical and to our great humiliation this year they beat us.

The Americans are very keen to have dives with an exchange of equipment. They are greatly impressed with our S.A.B.A. and find it much easier to use than their own set. Their safety rules differ and they swim completely free, but wear a self-inflating life jacket rather like our aircrews use. We expressed horror at using this and coming up underneath a surface object. However, this did not seem to worry them. They were amused at our fins, and, after using their long slim supple design, we agreed ours were pretty basic. How about it *Vernon* ? Why not get the diver on the cover of this magazine to return his two right fins and issue him and the fleet with an up-to-date design ? The fins must be the only equipment that has not changed since the first R.N. frogman took to the water. Perhaps you are leaving scope for a Herbert Lott enthusiast. No wonder C.D's never get into the Miss World competition. As well as requiring over-developed muscles, they must be inducive to cramp.

During self maintenance in Bermuda after the Royal Escort duties, the diving team worked hard for three days replacing the Sonar frame and window on the keel, but again we enjoyed the experience. The wooden dowels or wedges covering the 36 alan screws that hold it in position all had to be drilled out by hand. This emphasized the importance of not underestimating a diving job. It took us twice as long as estimated.

We are now back on Bahamas patrol and shortly commence some visits around the Caribbean. Hopes are still high for that Spanish Gold but in the meantime our latest craze is searching the sea-bed alongside where the big cruise liners berth. It is surprising what people drop overboard, and is almost as lucrative as a treasure wreck.

Despite a strong Royal Marine influence, *Ursa* boasts the following team:

Lt. M. H. Rhodes
Lt. A. G. H. Mackie (R.M.)
Cpl. Jackman
Mn. Clifton
Mn. Wilkinson
M.(E) Barnes
M.(E) Burnside
R.O. Snape
Stwd. Fanthorpe
Ck. Nelson.

All ships divers.

Many stories are told of fishing exploits, both rod and line and underwater captures. Possibly some are exaggerated, and some forgotten, only to be dredged up again when the subject is raised. Unfortunately little is known of the Hunter and Hunted depicted in this photograph, but it certainly could not be entitled 'The one that got away'.

There must be a host of yarns about fishing experiences, and the bagging of ocean-going crusty pies, which might prove to be interesting reading. For example what about the huge lobster caught at Gibraltar in 1956, or was it 1957, when the H.S.C.D.T. was based at 'Rook' for a while ? What was the largest catch you ever made, and how about telling us about it ? S.B.

(Ed. I think we should discount whales!)

M.D. Section, Horsea Island

THE section at Horsea Island for ships' divers to exercise and keep themselves in-date, has now been in operation since September 1965, under the watchful eye of C.P.O. Burgess.

The purpose of the section is to give all divers from the fleet whose ships are in dock, and those from outlaying shore establishments a chance to get their minutes in to qualify for their S.S.P.(D) as laid down in D.C.I. 604/64.

Since starting at Horsea Island the statistics of the divers that have been through are as follows:—

From 6th September 1965 to 12th April 1966—

Total No. of Divers ..	1,013
Total No. of Minutes	47,109
No. of Officers ..	122
No. of Ratings ..	736
No. of Ships and Establishments	62
No. of Aptitudes of Officers and Ratings	130
No. Passed	105
No. of Aptitudes of Junior Ratings ..	44
No. Passed	32

The days when one had to try and get minutes in on a Saturday morning in *Vernon* Creek, have now passed.

The section at Horsea Island is in operation five days a week from Monday to Friday, with staff and equipment to take 10 divers a day. The bookings for this are done through C.P.O. Howe in the Planning office at H.M.S. *Vernon*, as laid down in P.S.O. 1532. Get your bookings in as early as possible, so as not to 'dip out'. The beginning and early part of the periods are the best times to 'dip in'. J.C.B.

Inspection of Submarine Cable from an Under-water Vehicle

ABOUT 14 years ago an electric power cable, the largest in the world at the time, was laid across the Rosario Strait, Washington, U.S.A. Although the cable had given no trouble and was in no way defective, it was decided to inspect it in situ in order to find out whether the cable had moved, whether it was buried and to check the amount of growth on it. The strait is 4½ miles across, the maximum depth being 300 feet, and over two thirds of the cable lies below 150 feet in almost total darkness.

Tides in the area are large and the resultant streams are strong, frequently exceeding 3 knots. The water is turbid and the sea is littered with rocks and debris. Thus the operation was going to be a difficult one. Divers could not be used and the towing of a T.V. camera was out of the question. Thus it was decided to attempt the task from a manned submersible. Accordingly the American commercial vessel *Submaray* was chartered. This vessel is a two-man craft, 14 feet long, tested to 480 feet, speed about 3 knots and an underwater endurance of 5 hours.

With the adverse conditions prevailing, very careful planning was needed, and the most favourable time for the operation was calculated. This was a slack water period when surface conditions were likely to be calm, and given clear, sunny skies, there would be as much underwater visibility as possible.

Accurate positioning by the surface tender was also a requirement to enable quick location of the cable, and for this purpose a temporary navigational aid chain was set up on shore. On the appointed day the surface tender, with the submersible in company, accurately fixed her position in the vicinity of the cable lay.

A directional gyro was set up in the submersible and she dived stemming the tide. On reaching the bottom she set off on the set gryo course until the cable was visibly located. The use of high powered lights gave an underwater visibility of at least 6 feet, and, once over the cable, the observer looking through the port-holes in the lower hull could contact the operator.

A small 'pinger' was fitted in the sub. to assist in the relocation of the cable if it was lost, and if this failed the sub. could be homed into position by a directional transducer in the surface craft.

Throughout each dive a tape recorder was run continuously and the depth, visibility, type of bottom, speed, condition of cable, etc. were noted. In addition, the observer rendered a verbal report after each dive.

The inspection was successfully completed in four days, the rate of progress being severely restricted by lack of visibility. However, it proved that such an operation is a practical undertaking, and the results justified the effort and expense. It also brought to light the fact that the

danger of fouling is much greater than that of pressure leaks when operating at these depths in waters frequented by shipping. The extraneous litter on the sea-bed, e.g. cable, wire, bits of debris and wrecks, provide a real entanglement hazard, and the fouling of the external fittings of the submersible was a positive danger.

G.A.F.

Sub-Aqua Open Day

ON Sunday 22nd May, HORSEA ISLAND was thrown open to a visit from members of the Sub-Aqua sporting public.

The gale force wind and threatening dark clouds did not affect the support of some 500 members of the British Sub-Aqua and other Diving Clubs. The total attendance was reported to be 880 which included wives and children, the latter being looked after by four dutiful Wrens having volunteered their services for the day.

One of the main attractions was supervised by P.O. "Bill" Jones, who submerged enthusiastic club members in Standard dress. Unfortunately the occasional few, dressed in their town clothes under the canvas suits found out that 'dry suits' are not always dry. This was no deterrent as one of the visiting divers was heard to say 'I'll dry out in the wind', and another, a young lady (who will be nameless, but has certain connections with a competing magazine) spent the rest of the afternoon walking around in a rather large pair of sailors trousers.

Simulated dives in the recompression chamber were found to be well attended with 160 amateur divers descending at 10 a time, to a depth of 80 feet.

An Army team lead by Captain 'Davy' Jones gave an interesting demonstration of their 'STALWART' amphibious vehicle. This machine weighs 8 tons, and being as much at home in the water as on land, is capable of climbing quite steep slopes, with its six wheel drive and Alvis engine.

Other water bound displays included a demonstration of underwater vehicles, featuring Lt.-Cdr. Meservy's 'Pegasus' and L.S. 'Andy' Clyde piloting a 'Tuft'.

Static displays of Bomb and Mine Disposal, Mine Identification, Deep Diving, underwater cutting and welding tools proved of great interest.

In the cinema a continuous film on Emergency resuscitation was screened, together with practical tuition of the mouth to mouth method, using a working model.

The general feeling of both visitors and Naval divers was that it was a successful day, and should be repeated in the future. The main criticism was of the insufficient refreshment facilities, and the limited opportunity of public participation in diving activities. These points are being investigated with a view to improving Sub-Aqua Open Day 1967.

V.G.

So this is 'GUZZ'

SEVERAL times a week anthrapoid figures, clad in black, can be seen emerging tentatively from H.M.S. *Drake*. This mysterious gathering can usually be observed leaping off the jetty, or plunging from the bows of some conveniently parked M.F.V. into the repulsive, speckled liquid of a quiet backwater. Starting off in a tightly packed group, but gradually spreading into a sprawling, straggling convoy, the amphibians slowly fin their way across a quarter of a mile of creek.

On arrival at the far side these aliens splash about in shallow water whilst they appear to remove their long supple fins. After much splashing, thrashing and usage of fine, fluent vocabularly, individual morons climb, dive and slide onto the mud.

This is where the fun starts. It would seem apparent that the performing animals endeavour to stagger along the water's edge to a distant pier, returning by the same route. Evidently the mud they cross is a medium of insufficient density to support the weight of the aquanauts. Consequently, they penetrate its surface until knee or thigh deep. They slip, slide and occasionally dive head first into the mud. This, it would seem is to remove the pale blotches showing above their shoulders. Invariably after plunging into the pungent semi-liquid of slimy quagmire, the only non-comforming colour to be seen on these mud-loving amphibians, is the brilliant contrast of the whites of their eyes and the frequent flash of teeth as a curse passes between their lips. If one desires to learn a vocabulary which, if used fluently, would cause consternation at even a pub brawl, one has merely to tune in to the beings struggling in the mud. Also the technique of spitting both fluids and solids over great distances can be learned by watching closely the vibrating larynxes of our mud-larking friends.

After covering a distance of perhaps three hundred yards, most of these swamp crawling nomads attempt to crawl, or even roll, as an alternative means of travelling. Can it be that they are lazy, or do they perhaps just revel in breaking a greater surface area of the 'gunge', thereby allowing more of the delicate aroma to mix with the air, adding a manly fragrance, comparable only to the smell of bracken and woodland, and to enrich the atmosphere ?

Eventually, singly or in pairs, they arrive at an ancient pier, supported mainly by sea-weed and lesser crustacean. Here they pause to survey the area they have crossed. Crying with what we assume to be delight at the sight of the vast expanse of mud, the once smooth surface of which is now devasted and pitted, the victors, if we can refer to them as such, gaily leap back into the ooze for the equally delightful return journey. I shall not go into the details of the morons returns a it is similar in its pleasures to the outward journey, with the exception that one occasionally hears the chant of 'Four bob a day, four bob a day,' which seems to inspire the mud loving creatures. Invariably on completing the adventure the sailors of fortune are seen to laugh, yell and even sing, apparently in sheer elation at achieving something, though exactly what one fails to see.

O./S. J. P. STEVENSON.

Dolphin Skin Suits

MANY of us have at one time or another sat up in the bows of a ship watching the apparent effortless antics of the dolphins as they dive, criss-crossing just ahead of the bows. No matter what speed the ship may steam, the dolphins appear to have no difficulty in keeping station.

A scientist has been studying this phenomena and believes that the curious structure of the dolphin's skin is responsible for their speed. Their skin is constructed such that the outer layer acts as a pressure sensitive diaphram reacting to the water turbulance and transmitting the disturbances to the inner layer. This layer is composed of ducts filled with fluid and a spongy solid which absorbs these disturbances. Thus, with the damping out of the surface turbulence there is a smooth and laminar flow along the dolphins outer skins greatly reducing body drag through the water. If this skin construction could be applied to the hull of a ship, it is to be hoped that some speed benefit would result. A U.S. Navy research team are investigating this possibility. But what if swim suits could be manufactured in a similar way ? Would the underwater swimmers then emulate the performances of their fellow mammals ? With the speeds at present attained by the underwater swimmer, one knot 'flat out', it is unlikely that any significant improvement in his performance would result, however it is fun to think about. Imagine carrying out a night attack at 20 knots, or a search at a steady 12, or better still having a quick 'flip' across the Channel for a 'run ashore' in Alderney. G.A.F.

Shark News

A meeting was recently held in the Bahamas to exchange and discuss information on sharks. The meeting was attended by scientists, doctors, marine biologists and research workers from all over the world, and their work was in some way connected with sharks.

The work ranged from the measurement of the sharks biting force, to the possible use of shark blood serum as an immunizing agent for certain human diseases.

The discussions thus covered a very wide range of subjects, and of particular interest was the increasing use of the shark in the medical research field.

For the diver there are two items worthy of note. The first is that the pressure exerted by a shark's jaws is really tremendous and is expressed in metric tons per square inch. So when diving in shark infested waters, the dress of the day should be cast iron suits, and not neoprene. Secondly, it has been discovered that sharks cannot see certain shades of red, a significant factor in the protection against sharks and one which is under investigation in Australia.

The beaches of the Natal coast in South Africa are popular holiday resorts, but of late there has been a decrease in the number of visitors,

and the hoteliers have been losing trade. The reason for this is that shark attacks have scared the visitors away. If it is not safe to swim there is no point in going to the coast. So an anti-shark programme has been instituted, and for the short term, anti-shark fences have been laid off most beaches. These fences are not a continuous barrier but are laid in short sections spaced about their own length apart. The theory is that sharks sense a trap when they meet these obstructions and they will not venture between them. But, whatever the reason, the fences have proved successful and the holiday makers are once again swimming happily with apparent safety inside the fences, ignorant of the fact that there are large gaps in them.

Gurkha Underwater

ON joining in December 1964 I found my predecessor Alan Baxter underwater. Reluctantly he answered four pulls and began to turn over to me.

Although he painted a rosy picture of diving in the Gulf, with descriptions of interesting and profitable wreck excursions, we had to wait a year before we too could explore those waters.

Meanwhile we made do with the Forth, and although many aspirants quickly changed their minds about diving when they touched those waters in January, we soon had a full and well balanced team.

We had some good days in the Forth 'inspecting the Forth outer defences', but we found the side benefits of Diving few and far between.

Much diving at Portland followed, a familiar subject on which I shall not elaborate. Diving at Torquay was inspiring however, and 'Brums' eyes still light up at the memory of those crabs.

Gibraltar we found interesting, the sea-bed being paved with soup bowls, cups, etc., the sort of sea-bed every diver loves. Aden was a bit spooky, our first so called shark waters, but more crabs were found and fears forgotten.

Bahrein makes for splendid diving. Suits are never really necessary, and since we use the same jetty as the Merchant ships, the sea-bed near the ship is positively exciting. The wreck beyond Sitra jetty provided bottles of the right shape, but something odd had happened to the contents! Unluckily underwater fishing is poor, and there is a complete lack of crayfish.

We've been quite busy as well because barnacles grow fast on Gulf ships. The L.C.T. *Arezzo* had problems with her screws, and we made friends with the embryo Para. Diving team. Our success at finding lost objects brought us many and varied commissions.

In September we disperse and I hope the team find their future diving as pleasant as that in Gurkha.

The Team:

Lt. C. A. Freemantle
Lt.-Cdr. W. L. J. Warren
L.S. V. J. S. Stokes
Cpl. F. D. Lacey, R.M.
A.B. M. Haywood
A.B. P. Brown
A.B. M. Vine
M.E. A. L. Crane
M.E. S. A. Jackson
P.O.M.E. Bulford
Cpl. Bonham, R.M.

Plymouth Diving School

GREETINGS from the Cornish Riviera. Here are a few words of enlightenment from the Plymouth Diving School to remind you all of our continued existence.

The grind of instruction still goes on and we are churning out Ship's Divers at a rate of 30 per month.

Once a month the Diving School is graced by a party of Reserve Wrens who get the opportunity of a

The standard is still being kept high, and the failure rate this year is approximately 45%.

The second week classes, during their sea-bed searches in the Sound, frequently surface with denizens of the deep.

This Angler was caught by a Ship's Diver qualifying, A.B. Lock of H.M.S. *Nubian* and, being 59½ lbs., was only 4½ lbs. outside the U.K. South Coast record. This is apart from eatable quantities of plaice, sole, skates, crabs and scallops plus the occasional lobster, turbot and conger, which classes manage to find when swimming on snagline searches.

dip in the tank. It is very noticeable that there is no lack of volunteers to dress and undress them!

There has also been a party of nurses from R.N.H., as was seen in the National Press, training as R.C.C. attendants in case we have a female diver with the 'Bends' one day or should we say the 'curves'!

The trickle of monthly dippers is slowly increasing to a flood now that

we are approaching the end of the pay period.

Lt.-Cmdr. Caisley has now left us to take command of H.M.S. *Plover* and has been relieved by Lt.-Cmdr. Brookhouse, who has just finished a commission at sea in the *Albion*. He is often seen heading down stream towards the fishing grounds, spear in hand, on a Friday afternoon.

The Diving Training Officer is Lt. Otley who is ably assisted by the R.C.D. Bill Morris, and not forgetting our office pin-up, Susan, Wren Writer.

Instructional Staff to Date:

C.P.O. Soper, P.O. Rogers, P.O. Rees, P.O. Charlwood, P.O. Moss, C.P.O. Larnder, P.O. Futcher, P.O. Walker, P.O. Clark, P.O. Crane.

Keep It

JIM Wardle, of the Aldershot 'Dolphins' Underwater Club recently published the following suggestions on preserving objects found on the sea-bed. We thank both Mr. Wardle, and the Editor of *News Letter* for their assistance.

Preservation of Wood

Wood that has been submerged in water for long periods must be dehydrated before it can be preserved. This is accomplished by putting it in three successive baths of alcohol, each of the baths to last one week. The alcohol, being hygroscopic, will remove the water. When this has been completed, the wood should be placed in two successive baths of Xylene, the first bath requiring one week.

When the wood is in the second bath of Xylene, paraffin wax chips should be added until a saturated solution of paraffin is obtained. This will become evident when paraffin becomes recrystallized around the edges of the solution. The wood should remain in the saturated solution of paraffin for approximately two weeks. At the end of this period the wood may be removed from the solution and the Xylene in the wood allowed to evaporate.

A coat of small crystals of paraffin wax will be seen on the wood as a result of the process. The excess paraffin wax on the surface may be removed with gentle brushing. The specimen then should be perfectly preserved. This treatment replaces the moisture in the wood with paraffin and permits the wood to retain its original shape.

* * *

Preservation of Metal Objects

The first step in preserving metal objects (iron that is) such as guns, tubes, solid shot, and wrought iron fittings, etc. recovered from sea water, is to prepare a bath of 5%—10% sodium hydroxide. The object should then be cleaned of the calcareous coating of coral, sand and other deposits by gentle tapping with a hammer. After the crust is removed the object should be immediately placed in the bath and allowed to soak for a period lasting 4—6 weeks. At the end of this period, the bath should be renewed and 'mossy' zinc metal should be placed around and on top of the object, so that the entire surface is in contact with the zinc. After a day or two the solution will begin to bubble; this indicates that the reaction is going forward.

In a few weeks a white deposit will form on the object and the bubbling will stop. This means that the oxygen which was in the surface of the corroded object has left it and has combined with the zinc metal forming the white zinc oxide. The object should be left in the bath for 3—4 weeks after the above conditions are observed. At the end of this time it should be removed and the white coating dissolved with a mild solution of sulphuric acid. After the object has dried it should be coated with clear synthetic lacquer or plastic solution to prevent further corrosion.

Small objects may be coated satisfactorily by dipping them in a solution of hot paraffin wax. The reaction should be carried out in a heavy iron trough. Any attempt to shorten this routine will probably result in the loss of the object through disintegration.

Objects waiting for the preservation process should be kept under water until they can be put into the chemical bath, an object should never be allowed to dry out even before the crust is removed.

* * *

Cleaning Silver Coins Removed from the Sea — A Two Bath Process

The problem is to dissolve the incrustation without the resulting free sulphur attacking the silver. The first solution is made by disolving 5 grammes of Sodium Sulphite in 75cc. of water and adding 25cc. of concentrated hydrochloric acid. After the coral (calciumcarbonate) incrustation has been dissolved, the coins are left with a thin but harmless film of Silver Sulphide, which is removed by a brightener solution made by dissolving 50 grammes of Thioarea in 500ccs. water, adding 15ccs. of concentrated Hydrochloric acid and bring the volume up to 1,000 ccs. with water.

M.I.D. Musings

AS the old section has recently been taken over by new management this would seem to be an appropriate moment to put ourselves back on the magazine map.

In the recent past M.I.D. has tended to stagnate to an extent and to lose the importance and impact evident in the halcyon days of such stalwarts as Mister Mac., Jackie Rea and Stuart Honor. This decline has not been due to lack of interest or enthusiasm, but rather to lack of continuity of direction and personnel. Indeed Alf Slingsby and his offsiders have done very well to maintain the standards that they have. It is the intention of the present board of directors not only to re-ascend the heights of achievement of the past, but to create new pinnacles on which to set their sights for the classes of the future.

Laudable ambitions, you may say. How to realise them is another matter. Two great attributes are necessary. First, a high writers cramp tolerance, and second, patience. The former to allow the creation of the inevitable reams of 'Please can we have' letters and the latter to keep down the frustration build-up whilst awaiting replies. Already some efforts have borne fruit. We have the necessary staff; working examples of mines are promised; the ironmongery in the

lake has been weeded out and relaid; publications are being rationalised and we are receiving the co-operation of the Director of Studies and his staff. There are strong hopes that by the end of the year, when we shall have had every type of class through our domain, the new look will be on the way to accomplishment. There is even a rumour around the bazaars that we are to be re-christened. Did somebody say Eeee Oh Deee ?

At the recent Sub-Aqua Open Day at Horsea it was suggested by our civilian friends that some information on dangerous objects still to be found on our beaches would be a good thing. This is difficult due to the wide variety of such objects, the fact that damage and deterioration may have changed original shapes and recognition features considerably and that it would be foolish and inappropriate to attempt a useful coverage of the subject within the pages of this magazine. However, there is a piece of advice worth offering. Should you find an object which could be by any stretch of the imagination, unexploded ordnance, DO NOT kick it, shake it, bounce it or otherwise antagonise it. Report it to the Police. They will take the correct and necessary steps, not, we hope, long ones into the middle distance! Incidentally, the point was excellently illustrated at the Open Day by an erudite gentleman who depressed the switch horn of a mine, which actuated the mechanism and fired a thunderflash that just happened to be there, leaving the said gentleman somewhat surprised and embarrassed to say the least.

On which note we shall take our leave for the present and hope that there will be great things to report in the next edition.

M.I.D. Staff:

Lt. (S.D.) (C.D.) A. Wright, M.B.E.
C.P.O. Brooke-Foster
P.O. Bob Atkinson
P.O. Doc Campion
L.S. Roy Coulson

Assorted and temporary slaves and peasants.

A.W.

DEEP DIVERS

DOCTOR P. B. Bennett of R.N.P.L. has received a letter from Joseph B. MacInnis, M.D., the Medical Director of Diving Research, Ocean Systems, Inc. of New York, saying that he is trying to compile a world-wide list of individuals who have made chamber, or open sea dives to a depth of 600 feet or more. He plans to draw up an International Register, and form an association of 'NEPTUNE'S ABYSMAL DENIZENS'. Anybody who is qualified, and who wishes to join, is invited to forward their names and addresses, together with the location and depth of the dive, or dives, to the Editor, who will forward them to Doctor MacInnis.

If required, confirmation of details for R.N. personnel can be obtained. from the Deputy S. of D. at H.M.S. *Vernon*.

H.M.S. "DINGLEY" — TEAM TIES

H.S.C.D.T. Ties are now available to past and present members of the Diving Team.

Of blue terylene with a silver motif of alternate swimmer and map of U.K., they are priced at £1. Entitled divers who require a tie are invited to contact the C.O., H.S.C.D.T. at H.M.S. *Vernon*.

Diving Doctors Promoted

Surgeon Rear-Admiral Stanley Miles

Our heartiest congratulations to Surgeon Rear-Admiral Stanley Miles on his recent promotion, and we wish to express our thanks to him for all his consideration and kindness whilst achieving such fine results on behalf of the Diving fraternity.

Stanley Miles was born, educated and qualified in Sheffield. He joined the Naval Medical Service in 1936.

After preliminary training in Portsmouth, which included a standard diver's course at Whale Island, he had his first commission in a Yangtse Gunboat and was caught up in the Sino-Japanese war, where he had his first experience of treating wartime casualties.

On his return to U.K. in 1939 he was appointed to the Rosyth Escort Force, serving in H.M.S. *Whitehall*, *Valorous* and *Bittern*. The last ship was sunk at Namsos. This was followed by adventurous appointments during the rest of the war in West Africa, Australia and with the Pacific Fleet.

After a restful commission in the Stoker's Training Establishment at Torpoint, he went to sea again as P.M.O. of H.M.S. *Liverpool*, C.-in-C's Flag Ship in the Mediterranean. It was during this period that the Medical Department discovered that Stanley Miles had joined the Navy with an M.Sc. degree in Physiology and consequently earmarked him to become a boffin by sending him to the Chemical Defence Experimental Establishment at Porton of three years. Here he did research work on acclimatisation for which he obtained an M.D. degree. He joined the Royal Naval Physiological Laboratory in 1955 where he became intimately involved with underwater medicine, a speciality which has maintained his interest ever since.

He has been Director of Medical Research since 1959 and Medical Officer - in - Charge of the R.N. Medical School since 1961. He is a consultant in Physiology and is the author of the textbook 'Underwater Medicine' (the only one of its kind) which has recently gone into its second edition, and has represented the Naval Medical Service at many Underwater Conferences.

One of his recent successes was the production of the film 'Emergency Resuscitation', which has received world acclaim obtaining the top award at the International Film Competition of the World Medical Association in Finland and the B.M.A's Gold Award.

He gets a great deal of pleasure out of lecturing and after dinner speeches for which he is in fairly constant demand.

When asked about his achievements he insists that they were a result of the loyal support and encouragement of his colleagues.

* * *

Surgeon Lt.-Cdr. P. Barnard

Another respected member of the Medical field to whom we all owe a great deal is Doctor Peter Barnard, we take great pleasure in offering him our sincere good wishes on his selection for promotion to Surgeon Commander.

HEARD AT HORSEA ISLAND

Sir, You are trying to qualify as a diver not a flaming Helicopter Pilot. Get those Bl - - - y fins underwater!

Portsmouth Command Bomb and Mine Disposal

'DO you really do what it says ?' 'No' was the answer, 'We're in a carnival'. This question was quite seriously asked by a woman who pointed at the inscription on the side of the B. and M.D. Landrover whilst recently in Cambridge.

Naturally, the correct answer is 'Of course', yet we have had a varied number of jobs over the last three months.

It was decided that a portable static diving display should be constructed, which could back up any live diving display staged from time to time. Chippy Sinclair, the *Vernon* illustrators and the team built it in between operational calls. Over the last month or so it has been used regularly at schools, public displays and Dr. Barnado Homes. Requests come from the public for it to appear at local displays, etc., but we are not (yet) a mobile circus so we have to refuse. There is no entrance fee charged as it is a form of recruiting display. Unfortunately, we are unable to quote our recruiting rate, if indeed we have one !

In April, some wild devilish chemists solved a formula which they put into practice to produce Sodium Acetate Zylene in four 25lb. drums. However, having made up this mixture, the boffins in question decided it was too unstable and not really what they were trying to prove after all — but what to do with it was another matter. We relieved the firm of their unwanted drums and were told to expect a Black/Green flash, when we cut off the lids with cordtex. As one may expect, nothing happened, bar the bang of the cordtex and a sluggish sizzling!

All of you who have had a B. and M.D. job probably remember how agitated the odd member of the public becomes after reporting an unidentified object (which he or she has known about for years) yet suddenly reports. Once reported they expect action within the hour (quite naturally we are on the spot in next to no time), yet, sometimes, one is delayed on some different job and the telephone keeps ringing reporting the same object, which has been a part of the local landscape for some time. Fred tells Bert who informs Sydney and everyone is reporting it. We had such a call in the Isle of Wight on a Saturday evening in June.

The H.L.D. was quickly manned, and passage made to the Island where a Policewoman greeted us, and escorted the team to the scene of the incident in a Police car. She, having just come from duties on Motorway Patrol, provided a short but interesting journey to a private house. The house meanwhile had been evacuated, and the windows opened, so without further ado the digging commenced, carefully and slowly. Within a short while the first of the fittings was visible, a female connection with $1\frac{1}{2}$ inch Whit. thread. Further excavation exposed the object, which, after hurried reference to the books, was positively indentified as a Lavatory Cistern! So back to base.

One reads about these private/freelance bomb disposal experts in some of the smaller papers — (the ones with all the pictures and drama

captions). We had a call from Fareham after a man returned from a stroll over the mud flats where he had found a number of shells, so he picked them up and headed for home. He then decided to become a blacksmith for a few hours, but not before his wife intervened and let us know of her husbands intentions. The shells were lead covered and probably old solid shot and would apparently fetch quite a price from the local scrap dealer after melting down — ignorance is not always bliss. There was a similar case of the 'makie learnie' ships chandler, who we relieved of over one hundred shells which were in his boat as main ballast!

Many shells, the smaller breed of bombs, smoke candles, grenades, a depth charge and four 250lb. bombs have been disposed of in varying ways in the past few months, yet we have not been on the road as regularly as one might hope.

In fact life is normal and we have to take our laughs where we find 'em'.

The Team now is:—

Lt. C. L. Lawrence, M.B.E.
Lt. M. A. S. G. Stewart
P.O. D. Snell, C.D.1.
P.O. L. Smith, C.D.1.
L.S. R. North, C.D.2.
L.S. C. A. Peters, C.D.2.
L.S. W. Bauckham, C.D.2.
L.S. C. Massey, C.D.2.
L.S. W. Turton, C.D.2.
A.B. R. Altoft, C.D.2.
E.R.A. M. Millis, Art. Div.

M.S.

S.A.B.A.

A great many of the C.D's I have met have complained to me that the S.A.B.A. set is an unnecessary, heavy and complicated piece of equipment, and on first seeing and using it one is inclined to agree with them. Why then has the Admiralty seen fit to design and develop such an expensive set when there are quite a number on the market which would apparently do the same job just as well ?

I think the answer lies basically in the fact that they are looking at the problem from the point of view of the professional who feels quite at home in the water in any type of equipment, whereas the S.A.B.A. was designed for use by the amateurs, i.e. Ship's Divers who are strictly speaking, only part-timers.

The requirements are for a compressed air set, which is easy to breath from (high morale value, little diver fatigue) naturally buoyant, with an endurance which is adequate for ship's bottom searching, and of course the set must be safe and sailor proof when in use. These conditions are admirably filled by the S.A.B.A. The diver has practically nothing to do with regard to operating the set apart from equalising when he runs out of air, he can't make a mess of that as there is only one valve within reach, that one is already closed so that the only thing he can do is to open it.

Breathing is no problem at all as the diver is breathing away to exhaust from a very sensitive demand valve, via efficient non-return valves so that there is no chance of $C.O.^2$ poisoning. With the type of reducer at present in use there is little or no chance of air starvation except at exceptional depths from which the endurance limitations of the set would naturally exclude the average Ship's Diver.

EMPLOYMENT

NORTH SEA OFF-SHORE DRILLING

Cmdr. J. R. Carr, O.B.E., R.N. (RETD.), a previous Superintendent of Diving at H.M.S. *Vernon*, is looking for ex-Clearance Divers to work with him in the North Sea. The work is concerned with well-head fittings and routine underwater inspection and salvage.

Further details can be obtained through the Editor R.N. DIVING MAGAZINE, H.M.S. *Vernon*, Portsmouth.

CONGRATULATIONS

THE Birthday Honours list this year included P.O.C.D. 1 'Cris' Jones and P.O.C.D. 1 'Mona' Lott, in the British Empire Medal section. We would like to take the opportunity of offering heartiest congratulations and wish them the best of luck for the future.

Best wishes also go to 'Ginger' Bryant who has just added a 'bar' to his collection of achievements. The aforesaid bar is in fact in the hostelry known a 'The Willows' at Cressing, near Braintree, Essex, where his *Vernon* tankard is due to be christened in the near future.

PROMOTIONS AND ADVANCEMENTS

P.O. to A./Sub.-Lt. (C.D.):
A./Sub.-Lt. R. Wilson
A./Sub.-Lt. W. B. Norton

L.Sea. to P.O.:
A./P.O. G. France
A./P.O. B. Smith

To C.D. II:
S. T. Luter
L.A./L.S. S. Sissons
A./L.S. R. S. Gillies
A./L.S. A. N. Dalton
R.O. (2) K. Marston
N.A. K. Chamberlain

The S.A.P. Harness

OF interest to sport divers, this harness, at present on loan to us from Ken Watson, is a great improvement, comfortwise, on the band and strap method of carrying cylinders.

Constructed of moulded, woven fibre glass, it sits comfortably on the back, held in place by wide, fully adjustable nylon webbing with double 'D' fittings and incorporating a quick release belt. The rolled edge contoured back plate is adaptable for use with either single or twin bottles of all diameters by simply changing the band. These are attached to the back pad by small re-inforced stainless steel rods. This method of attachment places no strain on the fibre glass itself, thus preventing the possibility of the tearing or splitting.

Having a fixed centre line, this harness requires only a standard 7 inch manifold for use with $5\frac{1}{2}$ to 7 inch cylinders. A further fitting on the back pad is shortly to be introduced to enable a set to be rigged in the inverted position, making this the most versatile harness we have seen to date.

Using a 7 inch '60' bottle the set is easy and quick to don or ditch, and with further use and trial more comments should be forthcoming at a later date.

As supplied, with twin 7 inch nylon coated brass cylinders bands, the price is £9 11s. 6d. A De Luxe model using sliding roller adjusters is £2 extra. T.G.G.

Sports Diving Championships 1966

ALDERSHOT 'Dolphins' Sub-Aqua Club held the annual competition at Aldershot Lido on Saturday 18th June.

Set in the pleasant surroundings of the Park, the Lido was ringed by the tents of exhibitors and side-shows. A large marquee was used during the day by the bar and baby show, with Boy Scouts supervising such activities as 'Catch the Rat' and coin rolling. In the evening it provided shelter for the Prize-Giving Dance and jollifications.

Indeed, it was a splendid place to be on a sunny Saturday, meeting old friends and making new ones.

Sgt. Webb of the Surrey Constabulary had an impressive mobile rig complete with inflatable dinghy and some familiar looking floats, and even a Bren gun!

'Bob' Andrews, now with a large sports gear firm, arrived with a large selection of gear, including an Italian surface 'scooter' powered by a petrol engine, very sleek and very expensive.

Vernon's team were again well looked after by the 'Dolphins', who appreciated the efforts of the B. and M.D's static display and 'one-man' chamber, and who somewhat resembled a tribe of nomads with their grey P.V.C. 'Big Top'.

As to the competition itself, Bromley S.A.C. emerged the winners, having put in a really good effort and achieved a very creditable time over the course.

Sad to say that the R.N. entry was disqualified at an early stage, and, adding insult to injury, also lost in the 'Boat Race' with the 'Dolphins' in the evening.

However, it was a good day out, and it must be said that all the hard work done by the 'Dolphins' resulted in a highly successful event, only marred by the acts of vandals who inflicted considerable damage to tents and fittings during the night.

RESULTS OF THE NATIONAL SPORTS DIVERS CHAMPIONSHIPS DRAW

ALDERSHOT POOL — 18th JUNE 1966

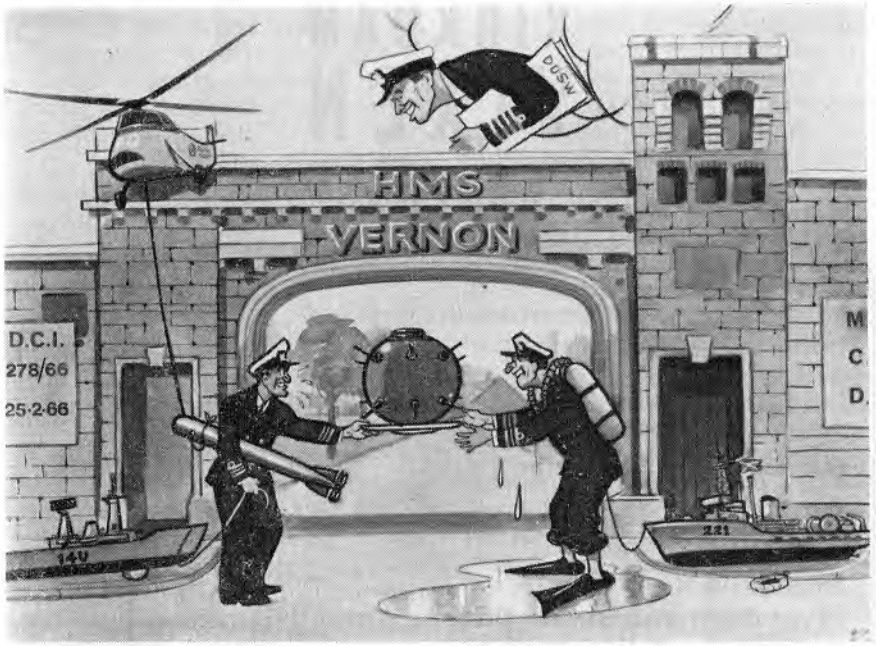
	Prize	*Ticket No.*	*Winner*
1st.	**Weekend for Two in Paris**	9493	Mr. F. Dodson, 4 Lawnsmead, Wonersh, Surrey.
2nd.	**Pair Binoculars and Case**	13131	Mr. T. C. Davidson, 119 Addiscombe Road, East Croydon, Surrey.
3rd.	**Philips Mini Turbo Heater**	1725	A. P. Brotherton, 72 Sermon Drive, Swanley, Kent.
4th.	**Morphy-Richards Toaster**	0557	Kathleen Pover, 48 Brookfield Street, Leigh, Lancs.
5th.	**Smiths 'Sectric' Clock**	5449	D. Reay, 117 Branksome Hill Road, College Town, Camberley, Surrey.
6th.	**Boot's £2 Gift Voucher**	1517	G. Davies, 27 St. Marys Road, Dodleston, Chester.

Divers Dinner, 1966

THE Divers' Dinner this year will be held at Kimbell's of Southsea on Thursday 25th October. Official invitations will soon be in the mail, but we cannot guarantee that you will receive one, as we only have last year's list to work from. If you have not received a letter by September 15th, please drop us a line at the Magazine address, as we expect to close the seating list on October 1st to facilitate administration.

During the past year alternative venues have been considered, and opinions sought regarding all aspects of the Annual Dinner. Booking dates, prices and standards have been investigated, and, following a change of management at Kimbell's, it was decided by the committee to let previous arrangements stand for the present. We would be very interested to hear any suggestions or comments on the subject. Meanwhile work up an appetite, and we hope to see you on the 20th. 'DINNER-FIXER'.

M.C.D.



THE illustration commemorates the acquisition by the Clearance Diving Branch of all aspects of mine warfare in the Royal Navy. Formally the responsibility of the Torpedo — and Anti-Submarine Department, it has now been transferred to the divers by Defence Council Instruction number 278 of 1966, dated 25th February 1966.

Naturally, the handover occurred at H.M.S. *Vernon*, in the school of Undersea warfare, and the picture shows the Director of Undersea Warfare smiling happily on an eager Minewarfare and Clearance Diving Officer — their new name, receiving a horned 'Plum Pudding' from an overworked Torpedo — and Anti-Submarine Specialist, thereby causing a more even balance of responsibilities in the world of undersea warfare.

In effect the change over means that the laying and sweeping of all types of mine becomes the task of the Clearance Diving Officer, and training in the necessary techniques is being incorporated in the current long course.

As for the C.D. Rating, no change in Operational employment is envisaged, although in the fullness of time it is assumed that C.D. Instructors will carry out Demolition training.

Buccaneer Salvage, 1966

A NEW DEPTH RECORD FOR SALVAGE BY DIVERS

SINCE the worst part of any operation or trial is having to write a report afterwards it was doubly hard to be asked to write for the Magazine as well.

On 9th June a Buccaneer 2 from H.M.S. *Victorious* crashed soon after take-off. Both crew members were safe, but the aircraft rested in a charted depth of about 45 fathoms come 10 miles south-east of the Lizard. It was soon found, no doubt to the Hydrographer's consternation, that the true depth was about 56 fathoms! This turned what had been almost a small extension of the Plymouth Team's 250 feet into very much a deep diving operation. However, A.E.D.U. pulled out all the stops and, on 20th June, H.M.S. *Reclaim* sailed from Portsmouth with everything in the way of equipment and divers that the present state of the art could provide.

After short work-ups at Spithead and Falmouth Bay, where 50 feet and 100 feet dives were carried out to drive home the drill, H.M.S. *Reclaim* joined the rest of the Salvage Team—H.M.S. *Nurton* and the Mooring Vessel *Pintail* — in the Task Area. Lt. Cmdr. Dale, who was a familiar figure in the T.A.S. Training Office and is TASO to the C.-in-C., Plymouth, was in charge of operations and he was advised by the Plymouth Command Salvage Officer, Mr. George Petts.

The equipment provided was basically that used for the Deep Diving Trials over the past three years and consisted of a Submersible Compression Chamber (S.C.C.) fitted with S.D.D.E. sets fed from a bank of oxy-helium bottles outside the chambers, underwater lights attached to the chamber, primary and secondary communications and closed circuit television. Complementary to this were the Transfer Under Pressure Chamber on board H.M.S. *Reclaim* and a large number of oxy-helium storage cylinders to provide the necessary gas for both chambers. There were two television cameras provided, one giving a view of the divers inside the chamber and the other an outside camera which could be positioned as necessary.

On the personnel side, as well as H.M.S. *Reclaim*'s divers we had Lt.-Cmdr. Grubb and the Plymouth C.D.T., Lt.-Cmdr. Rea and the Admiralty Experimental Diving Team, Surg. Lt.-Cmdr. Barnard from the Royal Naval Physiological Laboratory, Lt.-Cmdr. Southgate from the Aircraft Accident Investigation Unit and myself from the Sea Trials Department, H.M.S. *Vernon*.

It was decided that the actual diving would be done by Lt.-Cmdr. Grubb and six of his team backed up by three divers from the A.E.D.T. They were given an oxy-helium work-up by Lt.-Cmdr. Filer in the Deep Trials Unit before the ship left Portsmouth.

H.M.S. *Reclaim* arrived in the area at about 0700 on 22nd June and proceeded with the by no means easy job of securing to six anchors by 4in. wires. When she was secured, the S.C.C. was lowered to within 15 feet of the bottom for T.V. observation. Although the original concept of the camera was to provide a safety factor, by allowing the divers to be watched when outside the S.C.C., when it was secured to the bottom of the chamber it provided an effective, though unwieldly,

underwater T.V. set. Bad weather made it necessary to recover the chamber before anything more than a clear picture of the sea-bed had been seen, but next morning the chamber was put down again at 0600. It was a great thrill when the first wreckage was sighted at 0730 and at 1010 even the number of the aircraft had been seen and identified. The rest of the day was devoted to a T.V. survey of the area. Theoretically this may sound simple but, in practice, trying to handle heavy wires with unsuitable, and often recalcitrant, equipment made it a very laborious and imprecise procedure.

It may seem that we waited a long time before we did any diving but, in fact, we were very much governed by tide. There were two slack periods every 24 hours and two intermediate periods when the tide was negligible, but only experience showed this, and at first we plumped for the periods of completely slack tide. The first of these was at 1900 on 23rd and we carried out a 10 minute dive at this time to satisfy ourselves that the T.V. observations really did conform with the reality, and to give a final work-up with oxy-helium.

On the following day, 24th, there were faults on the T.V. camera but by the afternoon we were able to continue T.V. observations and on the evening slack tide the first long dive was carried out.

There are no working decompression schedules for the depth concerned — down to 342 feet — but we had a choice of two schedules which had been successfully used during trials. These were a short schedule originally tested for 400 feet and a longer 450 feet one. The first gave 10 minutes bottom time and the second 56.

The chamber left the surface at 1922 festooned with every conceivable kind of sling, shackle and strop and with a 2½ inch messenger wire attached. The divers — Lt.-Cmdr. Grubb and P.O. Lott — found they could reach the main fuselage and decided to secure the main lifting bolts. They attached three of these but distortion made it impossible to fit the fourth. They then shackled on the 2½ inch wire and prepared to return to the surface. From then on there were some anxious moments both for the divers and those watching the T.V. screen up top. The divers had been working very hard for some 20 minutes and returned to the S.C.C. in a very exhausted condition. They had great difficulty in cutting the stops of the 2½ inch wire due to the violent up-and-down movement of the chamber. They then found that both airpipes were foul but they both eventually got back in the chamber, though they were at their first stop before the air pipes were cleared. It is felt that only experience and determination avoided what could have been a disastrous outcome.

As a result of this sharp lesson, on what was probably the first occasion of really hard work using this system, various extra safety factors were brought in. These included only allowing one diver out at a time, except in emergency, and a halving of the bottom time. This, when tide and the decompression times were considered, left us with some 20 man-minutes working time in 24 hours or, alternatively, three 10 minute dives a day, and this had to be accepted in the interest of safety.

From the decompression aspect the Grubb/Lott dive was completely successful and the two divers left the

chamber right on schedule at 1309 on Saturday. It takes a lot to damp the enthusiasm of divers on a job and the next pair — Leading Seamen Dockerty and Lewis — started their dive with high hopes during the evening slack period. They shackled a 4 inch wire to one of the two lifting slings, but P.O. Lott had screwed up his shackles so well that they could not be removed to make room for the other sling. However, next day *Pintail* was able to hoist the wreckage, handling both wires together until it was within 60 feet of the surface. At this stage, when it was planned to use divers to secure more wires, *Pintail* was hit by a sudden swell and the resultant snatch caused the bolts of the slings to pull out. The aircraft, which we think at this time was almost complete, fell to the bottom and we were back to where we had started. At this stage the Salvage Team returned to Plymouth to fuel and replenish and plan the next move.

On Thursday 30th H.M.S. *Reclaim* was back in the area on moorings repositioned by *Pintail*. During this work *Pintail* brought up part of the after section of the fuselage on a sinker so although it was not quite a part of our plans, at least there was something to show for our efforts. That night a T.V. look showed that the tail section of the aircraft had broken away from the fuselage. Next morning A.B. Davis shackled a wire to this in a remarkably short time and by 1400 it was safely on board *Pintail*. Many of us were surprised to see how large it was and wondered how on earth we were going to be able to get up

the main fuselage which now had no lifting bolts.

Two more short dives were carried out on Thursday to survey the wreckage but movement of the ship in her moorings limited their value. Friday started badly. The T.V. camera was giving trouble, due probably to damage to the cable caused by strong tides, and one of the divers from the day before was in the Main Chamber being treated on Table 5B. However, fate then seemed to turn in our favour. The weather was exceptionally good and even the swell was slight. Just before 1500 the gear was working well enough for P.O. Viney (with L.S. Dalton) to do the next dive. The result exceeded our wildest dreams and, to cut a long story short, by the evening *Pintail* was steaming slowly towards Falmouth with the main fuselage and the greater part of both wings secured firmly to her horns.

We were now left with only two more bits of wreckage that the A.I.U. required — the tail plane (which had broken off the tail) and the cockpit. Although two more very full days followed, and included such things as changing over the whole derrick rig because of a heel pin in a dangerous state, we only carried out two more dives. The first was abortive because our old enemy the tide — this time quite slack — had so moved the ship that L.S. Docherty, try as he would, could reach nothing at all to put a wire on. However, we were rewarded on the next dive by an almost copy-book operation when we were able to watch on T.V. while P.O. Maher secured a strop to the tail plane. By 2300 this was safely on board H.M.S. *Reclaim*.

Though we did not know it then, this was the last dive. The only contacts H.M.S. *Nurton* had were checked by T.V. but found to be unwanted, and at about 1600 on 4th, the Team started back for Plymouth. The only fly in the ointment was the absence of the elusive cockpit but, since it could not be picked up by H.M.S. *Nurton*, nothing could be achieved by random dives over a large area. It was time for the trawlers to take over now that the largest pieces were out of the way.

This salvage operation was the deepest that Naval divers had ever carried out and probably one of the deepest effective operations carried out by divers in any part of the world. The Team had assembled off the Lizard twelve days before with no certain hopes that anything at all would be achieved. The tides were strong, the area was exposed, the depths were far greater than any normally met and the equipment and decompression schedules were experimental. I am quite sure that it was only because each member of the team did his utmost that anything *was* achieved. Without H.M.S. *Nurton* and the *Pintail*, H.M.S. *Reclaim* could have done nothing; without T.V. and the A.I.U. Officer to interpret, the diving would have been immeasureably prolonged and without the unfailing support of the whole of H.M.S. *Reclaim*'s Company and her divers, the visiting divers would have got nowhere. And, even with all this, without the expertise of Messrs. Williams and Noad from the A.E.D.U. the end of the story would probably have been very different. 'On the strength of *each* link in the cable dependeth the might of the chain'.

SIEBE GORMAN PIPES

THE carved pipes, in the form of a Diver's Helmet are now available to anyone interested. In response to many requests these one-time Christmas gifts are priced at 43/9 each. from Siebe Gorman & Co. Ltd. David Rd., Chessington, Surrey.

New Ideas

AS a general rule Divers are a breed of men whose ability to improvise is second to none. Unfortunately they are also distinguished by their reluctance to put anything on paper. This has meant that in the past, many a good idea has been lost to divers as a whole, due to this failure to circulate knowledge. It has also meant that the individuals concerned have not been recognised for their efforts, and quite often an invention which could well qualify for a monetary reward from the Herbert Lott Trust Fund has not even been submitted.

If you have any ideas for improving equipment, techniques, etc., send them to the S. of D. at H.M.S. *Vernon*, who will be only too pleased to comment and advise on the correct procedure to follow, Don't worry about sending a polished document, just write your ideas on a piece of paper, knock up a rough sketch, if necessary, and send them off. We will always help you to tap the apparently full coffers of the Lott Trust, and at the same time you will be helping other Divers and the Navy.

J.W.

Miss Wendy Williams, number one model of the 'Aedu' Boutique, shows here the latest suggestion for day wear. The form fitting creation in monotone neoprene is designed for speed and comfort, and the three-piece garment would cause a stir in any Salon throughout the world. Shown against a working background the accessories are by 'Pusseur' and the photography by Studio Cook, *Vernon*.

Miss Williams, a member of the staff of A.E.D.U. Drawing office, joined from Bath as a relief for Miss Helen Unstead who is also a Sub-Aquarist. In a very short space of time Wendy has been 'X-Rayed', Medicaled and 'Blood Chitted' and pushed in the shallow end. She is now fairly competent at 40 feet and is hoping to go deeper in the near future.

BOOK REVIEW

'THE WRECK HUNTERS'

Roger Jefferies and
Kendal McDonald

This is a most interesting book, obviously produced after a vast amount of research, and containing some fascinating historical data linked with the exploits of several groups of British aqua-lung divers.

I am sure that the possibility of finding a treasure trove must have passed through the mind of every diver, and there is no doubt that 'The Wreck Hunters' should be on every diver's bookshelf.

Dozens of Shipwreck incidents are discussed, together with the stories of where, why and how they sank. The reader is then taken below the surface to see what the wreck looks like today, years, and in some cases centuries after arriving on the bottom.

Woven into the history is the story of the wreck hunters themselves, the men who have given many of their leisure hours to dive into the past.

Published by George G. Harrap & Co Ltd. at 30/-. J.W.

TREASURER'S REMARKS

Extracts from telephone conversations.

(1) '£1 each way on "Divers Chances", 10/- on the nose "Diving Suit".'

(2) 'What bookings can you offer, 1st class to Mexico ?'

(3) 'Yes, my dear fellow the de-luxe model.'

On a serious note, the outstanding subscriptions at the moment amount to above £90 and I would ask you sincerely to search your hearts and your pockets. Please would you send your subscriptions promptly, as this helps us to give you what you want from us. J.E.T.B.

Letters to the Editor

Dear Editor,

I must reply to the dreary self-praise of a certain DAB DAB which went under 'Letters to the Editor' in the last edition.

I would like to ask the author of this unreasonable drivel if DAB DAB is a self-inflicted nick name ?

The New English Dictionary states: 'DAB' — a light stroke or wipe with a soft substance; a lump; one who, or, that which 'DABS'; a Flat Fish.

I feel that it is more likely that he or she came by this title in his or her treatment of a man's job.

Why hide behind a 'pseudo' name? Let us know with what experience you make the irresponsible statements, which appeared in your letter.

I will not waste the time of the Editor and readers in discussing why we outgrew the use of Standard equipment if you are too blind to see, but I will say it had to happen, and it could not have happened to nicer chaps. V.G.

* * *

Sir,

It seems that the wooden spoon is again turning on the evergreen 'Standard' controversy.

I think the salient point is, as DAB DAB admits, that he is no longer serving and is therefore possibly a little out of touch.

The diving role of the 'Andrew' has changed in the past years, and best use must be made of equipment, which has developed with overall operational requirements in mind. One of the outstanding facets is mobility, both of the diver in the water, and of gear transportation to the job. For example, Surface Demand Diving equipment, which has become the replacement for Standard, can be wisked into an aircraft in a matter of minutes, weighs about one third the weight of 'Tin Hat' gear, and requires one third of the personnel. On arrival at the job, dressing and rigging of the equipment is accomplished in a matter of minutes, and the task can be changed from static u/w husbandry to a highly mobile sea-bed search in an instant.

Additionally, in tropical climates where a large percentage of diving is carried out in underwear for comfort and efficiency's sake, 'Standard' is crippling. If you remember, the 'Tin Hats' were often seen to be using that nonsense they called 'Gas mask', thereby, I think, unconsciously admitting the need for lighter and more mobile apparatus.

Finally, it must be obvious to the unprejudiced that if there was still a service requirement for Standard Diving it would remain a part of 'The Branch'. CORKERS.

(**Ed.** Has anyone any comments?')

* * *

In answer to DAB DAB ?

Dear Ed.,

Having read the hot air discharged by 'DAB DAB' in the last issue, I get the impression that the writer should do a little less spindling, open his spit cock and clean his front glass! Then he might see the changes that have taken place in this watery world where, until recently, a

friendly rivalry was upheld between the 'Tin Hats' and 'Cork Heads.'

I will be fair and agree that where a man is required to stomp around laying heavy U.W. constructions, the 'Hard Hat' does seem to hold a lead. Not only in endurance (comfortwise) but also economically. Many a ship in the past paid off having only required a few leather washers for spares during a whole commission.

On the other hand, this magazine could be filled with the work carried out by the self-contained diver in circumstances where time would have prohibited the use of Standard dress. I have personally wasted a forenoon rigging bottom lines on a carrier to enable the 'Hard Hat' to be employed fitting a blank on a discharge, when a swimmer could have done the job in 15 minutes and had a fag while the brasses were still in the bucket!

Just to poke another nail in the coffin, my divers have just finished rebuilding a carrier's rudder with pre-formed plates using Oxy/Hydrogen cutting and arc welding gear. Total time underwater was seven days 10 hours, without time wasted rigging Kon Tiki stages, just a painting stage for the welders who, by the way, were trained in welding using Standard in the one place where they agree, it is still handy . . . i.e. the tank.

Now I'm out of gas. SHINER.

* * *

Dear Sir,

We are pleased to advise you of the formation of the Underwater Technical Centre (Pty.) Ltd., here in Cape Town.

We would be pleased if any Royal Naval Divers leaving the service and coming to South Africa would get in touch with us, as we have many contacts within the diving world and very probably would be able to suggest employment to them, should they be intending to continue with their diving careers.

If any Royal Naval diver is coming to South Africa and requires any information regarding possibilities here, we will be delighted to be of assistance, if we can.

Yours faithfully,

A. BEVAN LEAN
(*Director*)

702 Trust House,
Thibault Square,
Foreshore,
Cape Town, S. Africa.

LIFE'S LAUGHS

Seen in a local paper:— 'The chairman said that the committee had taken professional advice, and had been advised that if the new project were to continue it would be necessary to increase the office staff by 1·8 people!

(Anybody want an extra ·2 hands ? ED.)

OVERHEARD AT PORTLAND

Refering to some gentlemen of the S.B.S.:—

"Why don't we dip them all in Epoxy Resin and fire them instead of Polaris Missiles ? They would be much more effective in disrupting the enemy."