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ROYAL NAVAL DIVING magazine



Supersession of the Instructional Diving Officer (see page 5)



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R.N. Diving Magazine

Vol. 14

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No. 1

EDITORIAL STAFF

<i>Editor</i>	P.O. J. HARRISON
<i>Treasurer</i>	LT. J. E. T. BAKER

EDITOR'S NOTES

THIS is the first issue of the new year and the editorial staff hope for all our subscribers, it will be a prosperous one.

For once the staff have managed to keep their seats safe from the drafting wind.

The response to our request for articles from ships has been disappointing. As has been said before, many times, how are we to transmit information to the Fleet if we are not told it in the first place, other than those titbits of knowledge which spring from *Vernon* itself. The magazine is always on the lookout for material and good photographs to go with it.

The Editorial office holds stocks of R.N. Diving Association Badges at 30/- each; ties in maroon and blue at 15/-. All qualified R.N. Divers may purchase these. They will be sent post free to addresses in the U.K. and Commonwealth, on receipt of the money. Please make cheques and money orders payable to the Diving Magazine Fund.

The financial squeeze is affecting us just as anyone else so may we ask subscribers who owe money to settle up reasonably quickly and also that ships square off their accounts as soon as possible after receiving their magazines.

ED.



Horsea Island Sub-Aqua Open Day

May 21st, 1967

As many of our sub-aqua readers will already know, the Royal Navy has formerly made certain facilities available to clubs for weekend diving. This has now ceased for a variety of reasons.

However, in 1966 we had and now, once more, in 1967, we are having, an Open Day where sub-aquarists may meet the Navy divers, see their equipment and if they want, to have a dive.

The venue for the occasion will once more be Horsea Island. It is situated at the northern end of Portsmouth Harbour, access to which is from Northern Parade to the rear of H.M.S. *Phoenix*. Admission to the island is by ticket only, obtainable from the Hon. Secretary of

Southsea B.S.A.C., 38 Cumberland Road, Southsea, Hants.

Visitors are asked to be at the foot-bridge to the island by 1245 on Sunday 21st May. There will be many items of interest to the sub-aquarist and if there are any questions you wish to ask please do so of the uniformed personnel in charge of the stands.

A map of the island is printed in the centre pages of the Magazine to enable you to find your way around the island. A programme of events is also included in the centre pages.

There will be adequate catering, supplied by a civilian firm, operating from a marquee in the immediate vicinity of the static displays. J.H.

SPACE CABIN UNDER WATER

by DR. ANTHONY MICHAELIS

A novel way of solving the difficult problem of working while weightless in space is to put the astronaut into a 200,000 gallon tank of water. This research project, now being carried out at Valley Forge Space Technology Centre, may help American astronauts on their Apollo/moon mission.

The Space Centre, which I recently visited, belongs to the General Electric Company of the United States.

This is the largest privately-owned research centre of its kind. To reproduce true weightlessness on earth is exceedingly difficult and can best be simulated in an aircraft flying in a so-called Keplerian trajectory.

To conduct experiments without this time limit a full-scale space cabin has been built on the floor of the glass-walled aquarium at Valley Forge. The underwater researchers are provided with handholds and footholds so that they can move and work exactly as if they were in space.

Furthermore, each 'aquanaut', as they are already called, has small measured weights sewn into the arms and legs of his special diving suit. These balance each part of his body so that he neither sinks nor floats, and creates a condition of neutral buoyancy.

Supersession of the Instructional Diving Officer

Lt.-CDR. David B. Burstall has recently taken over as head of the Diving Section in H.M.S. *Vernon*. He relieved Lt.-Cdr. 'Mike' Gillam, who did much for the branch during his term of office, in January, and has been refitting the 'Hot Seat of Diving', to fit himself.

David Burstall joined the Royal Navy as a cadet and started his training in Britannia Royal Naval College, Dartmouth. He went from there to H.M.S. *Jamaica* and served in H.M. Ships *Redpole* and *Battleaxe* (where he was made Lieutenant), before being appointed to H.M.S. *Vernon* for a C.D.O's course in 1955.

On completion of C.D.O's course, he was appointed to H.M.S. *Annet*, which many older divers will remember as an infuriatingly slow, coal burning trawler, that used to plod up and down the Solent and Southampton Water doing Diving Bottom Surveys. This 'Gay Life', lasted until 1958 when he was once more plunged into the hurly burly of General Service on board H.M.S. *Scarborough*.

Sea-time was not as long as usual, and

he only had time to get his sea-legs when foreign parts called. Iran, and teaching Persians to be C.D's was the job. Location — Bandah Pahlavi. During this period he managed to dive, as it were, in the Caspian Sea for caviare and in the Persian Gulf for oil.

1961 saw him in England once more and in command of a C.M.S., H.M.S. *Soberton*. The ships main duty was Fishery Protection in the North Sea. The odd diving job for local fishermen in the area helped to relieve the tedium of patrol.

After this, the appointing staff sent him to a hot seat as Officer-in-Charge of the Far East Fleet Clearance Diving Team. What with 'confrontation', Bomb Disposal and the salvage of an oil rig, there was hardly enough time left over to complete the usual 'run of the mill' diving jobs that occur every day.

Following on this period of hectic activity, a ship was once more in the cards. He went as 1st Lt. of H.M.S. *Delight* during 1965-66. After which he once more came into H.M.S. *Vernon*, and home, to where he started from, 12 years previously.

DIVER'S DINNER 1967

THE Divers Reunion Dinner will be held in the Rock Gardens Pavilion on Thursday 19th October at 8 p.m. this year.

The cost will once more be 30/- per head. Seats cannot be booked without names and money. Please clearly print the names and addresses on the applications. Tickets will be issued and will constitute a receipt. No money can be refunded after the 1st October for seats not taken up.

It would be greatly appreciated if applications could be received as early as possible. Due to the change in venue confirmation of numbers must be given by the first week in October.

Please note that the Rock Gardens Pavilion provide car parking facilities in their immediate vicinity.

Make cheques and postal orders payable to the Divers' Dinner Fund. Hope to see you there.

J. E. T. BAKER, *Treasurer*.

News from First M.C.M. C.D. Team *Iveston*

AS all our fellow C.D.'s and divers all over the world will probably know by now, we were called away on a SUB-SUNK operation.

You will all, we expect, have read an account of the operation in the daily newspapers. Well, for the DIVING MAGAZINE, we have produced this edited account of the part played and the drama of the *Iveston* clearance divers.

On Thursday 15th September, the ship received a signal concerning the German Submarine HAI, S.170. We were, at the time, preparing to leave Rosyth Dockyard after a maintenance period. No one at the time seemed to be very sure as to exactly what had happened, but, as we moved into the lock to leave the yard, we embarked some SUB-Miss gear from H.M.S. *Safeguard*. Underwater telephones, etc., and some extra diving gear.

By now, some sort of concrete story was taking shape. The B.B.C. 1230 news announced that the German Submarine HAI had been lost at sea, after being in collision with another ship, and had sank off the Dogger Bank in the North Sea, in 150 feet of water.

At 1245, we left the lock and proceeded to sea on SUB-SUNK operation in company with the Frigate *Blackwood*, E.T.A. 0630 16th September.

We arrived in the Dogger Bank area at 1100 16th September after encountering heavy weather; on arrival we were called to the Federal German Ship *Werra* to investigate a Sonar contact she had. We closed up our Sonar operators and began a Sonar search at random around the *Werra*. Two smoke candles were later sighted but they were put down to have been dropped by search aircraft in the area.

At about 1920 we had a very good Sonar contact, and a feeling of expectation ran through the ship. The Diving team stood to, the R.C.C.'s were made ready and we prepared to dive in C.D.B.A. 324/674.

At 2000 it was decided to stand down as there was considerable doubt as to it being a contact or *Werra's* anchor cable. We continued searching until 2315 and then anchored for the night.

0615—Saturday 17th September, weighed and continued Sonar searching. At 1645 U.S.S. *Kittywake*, Submarine Salvage Vessel, arrived on the scene, continued Sonar search. It is now believed eight bodies have been recovered, one alive, the rest dead, but this cannot be confirmed. There is no hope now for any more survivors.

We changed the Proto in the sets and began the age-old game of waiting. At 2200 we obtained provisions from *Blackwood* and continued searching, about 2300 we were called to one of the many German ships now in the area to investigate a contact. Upon arrival, we had a very good contact, but as there was now not the slightest chance of there being any survivors, it was decided to wait until the following morning before diving.

0630 Sunday 18th September. Team prepared to dive on Sonar contact, P.O. Jones, No. 1, L.S. Jordan, No. 2, L.S. Luter, No. 3. While lowering the Germini, a marker buoy was sighted about one hundred yards away from the contact. Bill Jones dived on it and found nothing, depth 156 feet. A conning run using two Diablo targets was then carried out on the Sonar contact. George Jordan then dived, and reported finding the Submarine lying on its side on the sea-bed, no sound being heard from within, and surfaced having

attached his lifeline and float to a cleat on the stern.

0730—L.S. James then dived to attach another marker buoy to the Submarine. On completion of his time on the bottom, the diver was called up. The diver reported leaving the bottom, but then his lifeline became taut. The diver was repeatedly checked, but no answer was received on the surface. The stand-by diver, L.S. Luter, donned his set and entered the water. He later reported finding L.S. James at about 70 feet tangled up in his lines, and cutting him free, brought him to the surface.

The U.S.S. *Kittywake* then took over the operation, and *Iveston* returned to port.

The team now consists of:—

- Sub.-Lt. Carr, C.D.O.
- P.O. B. Jones, C.D.1.
- L.S. G. Jordan, C.D.2.
- L.S. T. Luter, C.D.2.
- L.S. D. James, C.D.2.
- L.S. J. Daley, C.D.2.

Also, in our early months of the new commission, we have travelled to the far north of Scotland (Loch Errible) in company with the Scottish B.M.D. Team to attack part of the Home Fleet, and upon being interrogated none of gently, 'Batman and Robin' were found to be among our swimmers names.

Apart from salvaging a crashed *Wasp* Helicopter off Porland and spending three weeks looking for the sunk M.V. *Darwin* off Falmouth, where we investigated two hundred contacts at depths between 30 and 200 feet with the valuable assistance of the Plymouth Deep Diving Team, we have not done much to interest the local pipe-sitters in *Vernon*.

Our regards to all, and a special thanks to the GUZZ team.

'IVESTON' C.D.T.

It's the same the whole world over

IT appears that other nationalities have a similar problem as ourselves when it comes to compiling material for their magazine.

Here is a small quote recently seen in a magazine belonging to our American cousins.

"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. In the past many

a good idea has been lost to diving as a whole due to this failure to circulate knowledge."

"If you have any ideas for improving equipment, techniques, etc., send them to the (Break for Commercials), who will be only too pleased to comment on your ideas."

Perhaps now, somewhere, someone, will get a small twinge deep in the murky depths of their cranium — HINT.

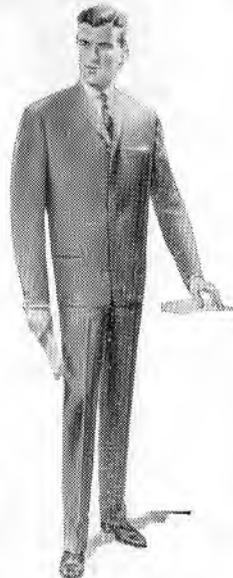
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Tell-tale Currents in a Jam Jar

by DR. ANTHONY MICHAELIS

FORESTS of giant artificial seaweed anchored to the sea-bed might be used to still the currents which relentlessly scour away the sand from around the legs of the North Sea drilling platforms. At a recent meeting at the Institute of Petroleum, Dr. J. N. Carruthers, formerly Assistant Director of the National Institute of Oceanography, suggested that this idea might be worthy of consideration by the exploration companies.

The seaweed would consist of long fronds of heavy polythene, held down by heavy weights.

The present approach by drillers is to send divers down with sand-bags which they bank around the legs. Dr. Tom Gaskell of British Petroleum told me he was most interested in the seaweed forest idea.

Quick Indication.

Some years ago Dr. Carruthers developed an amazingly simple idea which is making life a little less uncertain for the North Sea diving teams. It tells them what the currents are like near the sea-bed and gives a quick indication of whether they are too strong to work in.

In an age where scientific instruments are costly and complicated, it is delightful to find someone who has achieved success with the aid of a jam jar and a piece of string.

In his first experiments Dr. Carruthers half-filled a screwtopped jam jar with unset table jelly, prepared according to the instructions on the packet. He dropped a small magnet into the jelly, slung a weight below the jar and lowered it into the sea.

The weight came to rest on the sea-bed and the current tilted the jam jar to one side — the greater the current, the more tilt.

After about ten minutes the jelly had set. The slope on the jelly gives the strength of the current and the position of the magnet, now set in the jelly, gives the direction.

It worked beautifully in the North Sea, but disappointment came when Dr. Carruthers tried it out in the Persian Gulf. The water was too warm for the jelly to set. Raspberry and lemon jellies set at 21° C.

Polythene jars have now replaced the glass ones and a chemical jelly which sets at 32° C has replaced the edible kind.

* * * *

Appreciation for these three articles is given to Dr. Anthony Michaelis of the *Daily Telegraph*. The original copies being printed in an edition of the *Daily Telegraph* on the 31st October 1966.

To whom it may concern . . .

RECENT experience has taught me that the generous hospitality of Mine Host, Taff Packer, at the Denmark, East Ham (opposite the East Ham Town Hall), is in the best

divers tradition. Taff is a recently retired Devonport D.1 and proved an extremely affable dispenser of desirable 'mixtures' requiring no major therapy. B.F.

H.M.S. Prince of Wales

NEARLY 25 years ago, on December 10th, 1941, H.M. Ships *Repulse* and *Prince of Wales* were sunk within an hour of each other by Japanese high level and torpedo bombers some 45 miles N.N.E. of the island of Pulau Tioman, off the East Coast of Malaya. *Repulse* was the first to sink at 1233 as a result of five torpedo and one bomb hits. The *Prince of Wales* followed at 1320 having sustained five or six torpedo hits (two port side aft, followed by three or four forward, midships and starboard side aft) and one bomb hit.

Both ships heeled over and capsized to port on sinking, with the *Repulse* proceeding at approximately 15 knots, but the *Prince of Wales* reduced to less than 8 knots. The ships have come to rest with the *Repulse* lying in a depth of 180 feet and the *Prince of Wales* 8 miles away to eastward in a depth of 216 feet.

In May 1965, the Far East Clearance Diving Team carried out a brief external survey of H.M.S. *Repulse* and an article on this diving operation was published in Volume 12, No. 3 of this Magazine.

This year we have done a similar survey of the *Prince of Wales*, and you might be interested to read this short account of the operation.

The *Prince of Wales* was located on Sonar and marked with two mooring buoys prior to the start of the operation.

The Far East Clearance Diving Team backed up by Clearance Divers from H.M.S. *Sheraton*, and the Royal Australian Navy's *C.D.T. 1*, carried out the survey, involving six days on task, between April 25th and May 6th 1966. Diving was initially carried out from H.M.S. *Sheraton*, but halfway through the operation, she had to be withdrawn for another task, and the team trans-

ferred to H.M.S. *Barfoil* for the remainder of the operation.

A total of 64 dives were carried out between 160 and 180 feet involving an overall underwater time of 33 hours. Most of the dives were carried out in S.D.D.E., but S.A.B.A. was used on a few occasions, particularly for the towed diver searches from the Gemini Dinghy. The weather was fine but the ocean current, although not strong, was unpredictable and at times hindered the operation by making the positioning of the diving support ship above the wreck difficult.

The *Prince of Wales* lies on a heading of 020° and bar about 50° or 20° is completely capsized. The shallowest part of the ship is in the vicinity of her starboard bilge keel at a depth of 150 feet. The large flat expanse of the ship's bottom is remarkably free of marine growth and apart from the occasional sea egg, weed or small clam, is only covered with a fine layer of silt. However, the vertical surfaces and those in the dark underhanging part of the ship are well covered with small clams, weed and similar encrustation.

Owing to the vast size of this ship and the problems concerned with mooring the diving support ship above her, it was only possible, in the limited time available, to dive on three separate zones of the *Prince of Wales*, namely, amidships in the vicinity of the engine room, right forward on the stem and the right aft in the vicinity of the propellers and rudders.

During the course of the survey the following evidence of war damage was seen:—

- (a) A large jagged hole about 20 feet in diameter in the forepeak

passing right through the ship and in one place fracturing the stem post.

- (b) The starboard outer shaft crosses over the starboard inner and its propeller is wedged between the inner shaft and the hull. There is a jagged hole some 6 feet in diameter slightly forward of where the two shafts cross over.
- (c) The port outer propeller is missing entirely and the bare shaft has pulled away from the ship snapping the A-bracket in the process. A few feet forward of the A-bracket stub is a large hole about 12 feet in diameter with the shipside plating jaggedly bent inwards.

Diving conditions were generally good, with at best a maximum hori-

zontal visibility of 40 feet on the wreck, but this would reduce to some 15 feet when the ocean currents stirred up the silt. The wreck abounds with marine life and one was constantly accompanied by shoals of fish of all varieties. Apart from one very large and lethargic whale shark, no other kinds of shark were seen, but large shoals of barracuda were frequently in attendance and on a few occasions, large grouper or jew fish were sighted.

As one ascends away from the wreck and out of the then milky blanket that enshrouds this great ship in her rest, one comes into crystal clear water with visibility in excess of 120 feet. As you look down on this awesome sight, the full effect of the tragic saga becomes very near to one in the quiet of the underwater world. D.P.R.L.

AWARD OF THE ROYAL HUMANE SOCIETY'S BRONZE MEDAL

MANY readers will remember, only too well, the sad accident in the North Sea, some time ago, when the Federal German Naval Submarine *Hai*, sank.

The citation says that on September 18th last, H.M.S. *Iveston* was searching for a sunken German Submarine in the North Sea, some 200 miles East of the Northumberland Coast.

In the third dive, the frogman failed to answer his signals, and attempts to haul him to the surface were unsuccessful.

Leading Seaman Luter donned his equipment and dived to help. In his haste he broke a securing strap, allowing the oxygen bottles to break free.

In this condition, and being unable to control his gas supply, he pressed on and found the frogman unconscious,

without his mask, and trapped under an elbow of float mooring wires.

Leading Seaman Luter freed the trapped frogman and brought him to the surface, where he helped to get him into the diving dinghy.

CLUB DEL MARE

THE Club del Mare has recently been formed in Torino, Italy. The club is a society of students interested in all aspects of the sea.

Subjects of interest are both technical and sportive and courses both practical and theoretical will be instituted with guest speakers.

One aim is the spread of information via members to and from other clubs and associations.

The clubs address is Corso Casale 5, Torino, Italy. Ed.

K. D. Musings

SINCE I left the security of the Diving Instructors room in *Vernon* fourteen months ago, I have been earning my pittance seconded to the Royal Malayan Navy based in Singapore Naval Base about five miles from H.M.S. *Terror*. The K.D. in the address stands for Kapal Di-Raja which in turn means 'Ship of the King'.

Diving-wise the R.M.N. is limited to compressed air, the sets used being French 'Spirotechnique' single cylinder and Siebe-Heinke twin cylinders. These sets are adequate for the type of work we are normally called upon to do, but they limit us for depth. We hope to be able to start an operational C.D. team using R.N. equipment sometime next year, but, at the moment, three Ats. Absolute is our limit.

We have twenty-seven Ship's Divers in the R.M.N., all qualified in H.M.S. *Terror*, and at the time of writing, four C.D.'s who qualified in Australia. Three of the C.D.'s are working with the Diving Team in *Terror*, the other one being in K.D. Hang Tuah (ex-H.M.S. *Loch Insh.*) getting his sea-time in. The ship's Divers are spread around the fleet, four being on the Hang Tuah, and I have a team ashore which varies in numbers from week to week. We also have two C.D.O's who qualified in Australia, one of whom will soon be i.-c. of the Shore team.

At the moment the Staff T.A.S.O. Lt. ('I'm not a diver') Copas is the Diving Officer who, aided and abetted by your correspondent, is responsible for all underwater work in the R.M.N., the selection of candidates for courses, and the continuation training of the qualified divers.

Our bread and butter diving consist of the usual harbour work, foul screw,



inlets, etc., on top of which we have a monthly routine inspection of all R.M.N. ships.

The routine is occasionally broken by more interesting work, such as the search for a body at a timber works on the River Jurong in Singapore and the search in the River Trengganu for a couple of mortars, three rifles and packs lost when an Army assault craft turned over.

The body job consisted of searching an area of about 40 yards by 80 yards of water covered by logs some of which measured 10 feet by 4 feet. We had no success in the search so it was assumed that the tide had swept the body out to sea. One thing, I personally discovered, was that doing a lumber jack on a spinning log is not quite as easy as it looks.

The search for the mortars, etc.: was notable only by the lack of visibility and the fact that the marker put down was 600 yards from the spot where the objects were recovered. All divers will of course find nothing unusual in this.

The latest effort of the team is the removal of the rudders, propellers and shafts of an I.M.S. up for scrap. Giving a quick flip to the front I

persuaded them that we could do it with no trouble. The rudders presented no problem, being removed in one hour's diving but the propellers were a very different matter. The cone and boss nut came off quicker than that, but we found it impossible to move the props using the extractors. After trying various ideas from 14lbs. mauls to screw jacks, we finally received permission to use Cordtex, and two turns on each shaft proved sufficient to enable the divers to push the propellers off by hand. The shafts were then removed by taking them onboard, the divers having only to drive home a wooden plug into the gland. This was an interesting job and invaluable in that it gave the R.M.N. Ships' Divers experience that they would not normally get.

Two divers I would like to thank for their help in the last 14 months are O.A. Bob Beaman and P.O. Brian Shepherd. The former is an Aussie type C.A.B.A. diver and the latter a U.W.I. Ships' Diver.

Bob returned to the outback recently and I believe he will actually be going to sea again shortly. Wherever he is — thanks Bob! His relief is Dusty Miller, another O.A. C.A.B.A. Diver from Aussie and, if I can brain-wash him enough, the Anglo-Aussie relation should stay as good as ever.

Brian Shepherd has run out of time

COPY OF A REPORT FROM K.D., MALAYA

Sir,

I have the honour to report on the conduct of a recent diving operation. At 1430 on Tuesday 17th August, 1965 I received a request from the Singapore Police to assist them in the recovery of a body from a deep well, located in the Serangoon district. Police transport was provided and the diving team proceeded to the area with all despatch. On arrival at the well, it was found that

in the R.N. and has returned to U.K. to work for a living. I hear he is joining a diving firm in Singapore so I may have him around my neck again shortly.

The liaison with the F.E.C.D.T. is very good and if I need anything, I nip down to the school and if they have got it, it is mine. If they need anything, I am the last person they will con out of it. I do not really get anything for nothing as every time I am in the school I dish out the fags, the excuse given being that Malaysian 'Gold Leaf' are superior to R.N.

In the hope that the Magazine finds its way to Norway and Portugal I would like to remind Andy Anderson in Norway and Costa, Irai, Santos and brother in Portugal that they owe me letters.

Please print my address Ed., as apart from those mentioned, someone may remember that I owe them money.

Selaemat Hari Raya to all Divers.

LES SHARP.

(P.O. L. Sharp, D./J. 918849, Ch. and P.O's Mess, K.D. Malaya, Singapore, 27).

P.S. — Ed., can you confirm the buzz that there are now more C.D.I's in the F.E., than are drinking coffee in the Diving School ?

the local undertaker, with the assistance of equipment from the fire station, had removed the body. Until now Burke and Hare tactics had been omitted from the diving syllabus.

I have the honour, to be,

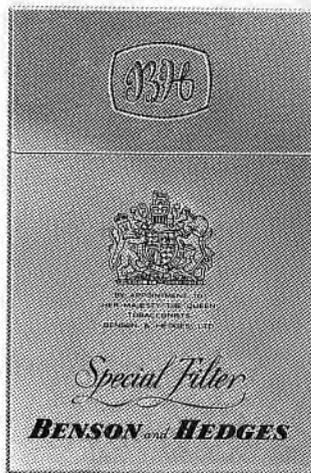
Sir,

Your obedient servant.

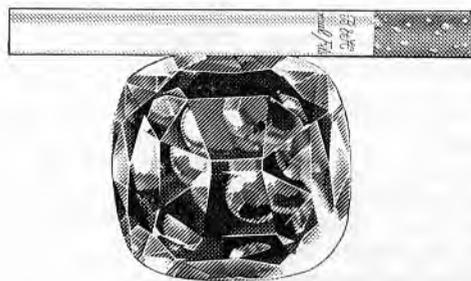
A. T. COPAS,
Lieutenant (S.D.) (T.A.S.),
Royal Navy.

BENSON and HEDGES

Could anything
be more luxurious
than this
superb gold box?



Yes. The cigarettes inside



THE BOX IS GOLD — THE PLEASURE PRICELESS
Imported from England

If the Cap Fits

by LT.-CDR. J. WARNER, R.N.

DURING the last two or three years, the R.N. have been employed, somewhere throughout the world, almost continually on treatment, or advice on treatment, of professional, semi-professional, and amateur divers who have become involved in diving operations which have led to the need for therapeutic treatment of decompression sickness. A majority of the cases have been treated successfully, and some tragedies, such as fatal consequences and permanent paralysis have been avoided.

It would appear that divers, in general, are progressing deeper and are intentionally or unintentionally entering the depth/time brackets where correct stoppages are essential for the safe conduct of the dive. Unfortunately, many divers are failing to carry out the necessary safe stoppages for the dive that they have undertaken.

The reason that the necessary stoppages are not carried out, would appear to come under three headings:—

- (a) Ignorance;
- (b) Carelessness;
- (c) Greed for Gold.

Ignorance.

In the amateur diver, this can be understood, and possibly forgiven, for the first occasion that it leads an individual into decompression problems, although, there is really little excuse for these people, involved in diving to less than 180 feet, because there is plenty of guidance in such books as the B.S.-A.C. Manual.

There are, however, a few amateur divers who refuse to accept advice and

prefer to live in ignorance. Unfortunately, it is not uncommon to hear the statement 'I have got away with it before' from a diver suffering from a bend.

It is, of course, true that one can ignore and 'bend' (excuse the pun) the stoppage tables and get away with it some of the time. I personally do not approve of Russian Roulette.

Ignorance in a professional diver should be unacceptable, but, judging from the number of Bends incidents and the reason for them, one has to accept that ignorance exists. I personally have come to the conclusion that with a few notable exceptions the standard of diving supervision in the professional field, in this country and in the North Sea in particular, is deplorably low.

I know of cases where Bends have been contracted simply because the repetitive dive schedules have been intentionally ignored. There are also cases on record where a Bend has been treated by recompression, but all the depth and time requirements in the therapeutic schedule have been reduced to save time.

Carelessness.

This is a recognised human failing, but good planning and sensible supervision can go a long way toward avoiding accidents.

'Greed for Gold.'

This is undoubtedly a factor in certain groups of divers, who collect the various harvests from the sea with the express aim of making huge profits (which I am not against). I am not sure whether these particular groups come

legally under the heading of 'amateur' or 'professional' but I do know that stoppages are being almost completely ignored, because the projects become less remunerative, when time is spent on stops. Some of these divers are getting decompression sickness, and I think that it is very fortunate that, to date, there have been no fatalities.

Almost invariably, the R.N. is involved in the treatment of the amateur casualty and frequently with the professional. This involves efforts in time and tax-payers money. An effort, which I am sure is well spent, even if it is somewhat frustrating when you know that with certain individuals the lesson has not, and will not, be learnt.

The responsible supervisor and the sensible diver will only permit diving in accordance with certain accepted stoppage tables. Intentional disregard of

the need for stoppages within these schedules, can, and will, only lead to trouble.

To summarise my own particular feelings on this subject I would say that anybody who dives himself or permits another person to dive within the depth/time bracket which involves the need for stoppages, and ignores the need for stoppages, is negligent to the point of total irresponsibility.

The problem of repetitive dives often presents difficulties in evolving the necessary 'stops'. Extensive trials have shown that, with the state of the art at the moment, the only safe method is to do stops for a maximum and total time.

In spite of what I have just said, I can assure you that the R.N. will always, and at all times, do their absolute utmost to assist in the treatment of all cases of decompression sickness.

Cachalot Diving System

WHEN reading an American magazine recently, I was interested to see an advertisement for a gas compressor with reference to the Westinghouse Cachalot Diving System. This, I thought, was something new so I looked further.

The Cachalot System is basically Transfer Under Pressure as developed by A.E.D.U. for deep diving trials some years ago, and, with improvements, used in the more recent trials. The divers are lifted to and from the diving site in a submersible recompression chamber, and when operating at depth use a 'Hookah' system fed from cylinders mounted on the chamber. On completion of their tasks the divers are brought to the surface and transferred to a recompression chamber to carry out their stops in relative comfort.

In the Cachalot System there are some differences. The surface chamber is fitted out as living quarters and has heated bunks, T.V., radio and other mod cons. The divers may spend as much as 14 days under pressure using

the surface chamber for their off duty periods. The breathing apparatus is also different for it is a modified self-contained breathing apparatus, which acts as a semi-closed circuit mixture set. The set has a two compartment lung with a CO₂ absorbent unit mounted between compartments. The breathing gas, normally a mixture of Helium, Oxygen and Nitrogen, is fed into the inhale compartment and so to the mouthpiece. When the breath is exhaled 80% of the gas returns to the exhale compartment of the lung and 10% is vented into the water. On the next inhalation the gas is drawn through the CO₂ into the inhale compartment.

The gas is not supplied as a standard mixture but is regulated by an oxygen partial pressure sensor.

The system has been successfully used in the replacement of the trash gates of a power dam in the Appalachian Mountains in Virginia, U.S.A., thereby eliminating the necessity for draining the dam.

G.A.F.

I'm all right Jack!

I deal with

JACK BLAIR LTD.

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Naval and Civilian Tailor and Outfiter

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NECKTIE FOR FIXED WING EJECTION SEAT TRIALS AND ESCAPES

A tie is going to be produced for personel who have been involved in the trials of underwater escape from fixed wing aircraft using the ejection seat.

The tie will have a blue background and the motif will consist of a frogman in gold and the red triangle painted on the aircraft in the vicinity of the ejection seat. Cost of the ties will be 17/6, the magazine office will do the work of ordering and sending them off. Postage will be needed for outside the

U.K. Please send the money with the order. There will be some delay as we cannot order the ties in bulk until we have sufficient orders in from personel who qualify for the tie.

Ed.

TONE POEM FROM THE WEST

Who stole de Bang Bang
Who tucked it away
Mine in de Marshes
It's gone astray.

Taffy's dashing Round and Around
Ginger's sniffing here and there
Mine in de marshes
Where, Oh Where, Oh Where ?

Guzz.

Devonport Divers

versus

Crayfish Divers

SOME of you will have seen us West Country beings featuring in the news again, when yet another of our Cornish Crayfish Divers came to us to be cured of a Bend.

This all began on 1st January (our New Year Present) when the victim was brought by ambulance from Hayle in Cornwall to H.M.S. *Drake*. On arrival he had ever increasing symptoms of chokes and a bad tingling in his legs and thighs. He had dived three times (inside 2 hours) to 120 feet, duration of each dive was 20 minutes and only a slow ascent (about 5 minutes) was done as decompression. On the dive he caught 14 crayfish (all over 3lb.) which at this time of year fetch £1 per 1lb.

He was put in the Compression Chamber and it was decided to give Table D treatment as only after two hours at 165 feet was there any real relief of his symptoms. Some 37 hours later he left the chamber only to find he was unable to walk at all.

He was now taken to R.N.H. *Stonehouse* for observation but as his condition got worse during the day (Tuesday 3rd January) it was decided to telephone R.N.P.L., Surgeon Lieutenant Commander Young dictated a table to us and we started all over again. During this second treatment, two increases of depth were necessary due to recurrence of symptoms, but eventually we removed our patient from the chamber at 1500 on Thursday 5th January. A total of 86 hours treatment altogether! He now seems to have completely recovered except for a very slight loss of feeling in his feet.

This is the fourth 'crayfish' diver we have treated with a grand total of 195

hours in the chamber between them. We know that one of the previous cases is diving again on exactly the same routine as this diver. So he hasn't learnt his lesson at all, even though he has no feeling in his feet at all.

These divers simply refuse to obey the decompression rules because they would lose sea-bottom time and thus earn less money.

What can be done about these foolish individuals?

- (1) Cost the treatment and make a charge — by the terms of D.C.I. 1521/66, this is not allowed as this treatment comes under the National Health Service.
- (2) Fine them — we can't — only the Home Office could try this under the Factory Acts which may be proved not to apply in the open sea. We intend to give M.O.D. (Navy) the details and try this idea.
- (3) Refuse treatment — not a very good idea.
- (4) Educate these divers — they won't listen.
- (5) Licence these civilian divers. A very difficult problem but maybe this is the only answer.

Anyone else got any other ideas? Below we reprint an article from the *Western Evening Herald* written by Alan Endean. And finally an anonymous letter we received. Although this contains an idea we have heard has been tried but the suggestion that the cost is small is ridiculous. The details of this anonymous suggestion is reproduced in the drawing by our local Research and Development Cartoonist. N.R.B.

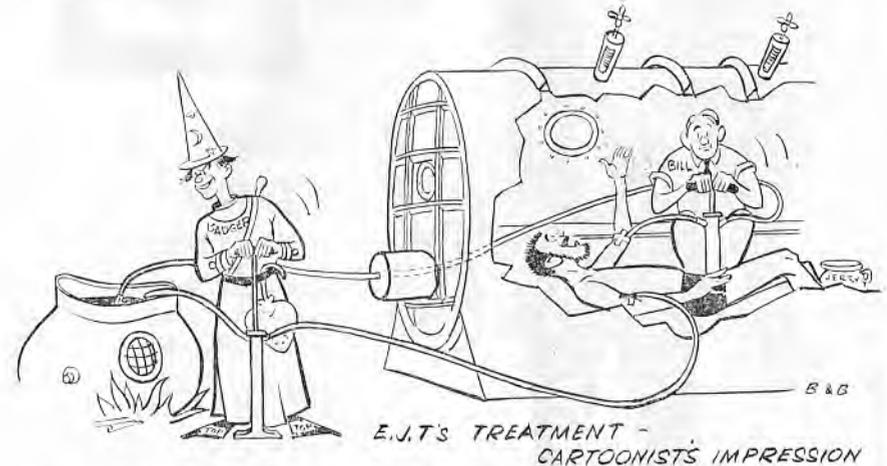
ANONYMOUS LETTER

86 hours is excessive.

With the patient under compression, take blood, as from transfusion donor, pass through chamber of sub-atmospheric pressure. Absorbed gasses will

'boil off' and the blood can be pumped back into patient.

No expensive apparatus is required, no highly trained staff either. E.J.T.



INCANTATION (TO BE USED ON ALL OCCASIONS)

Mumble, mumble, boil and bubble
Clear this Bend a'fore there's trouble,
From his arm suck bloody mass,
Into cauldron, boil off gas,

Then back from cauldron goes the blood
Full of germs, a mighty flood.
The moral of this gory deed,
Never compress, just slowly bleed.

NEW DEVELOPMENT

PYE'S, the well-known electronic firm, were probably the first British company to produce an underwater T.V. camera. One of the fore-runners of this equipment was used in H.M.S. *Reclaim* during the search for the submarine *Affray* in 1951. The camera used then was a large, rather unwieldy, mass that was lowered over the side on derricks and its subsequent positioning was controlled from the surface.

Pye have now produced a small lightweight camera which can be easily handled by one diver or underwater

swimmer. The instrument, because of its size and ease of handling, is ideal for use in the inspection of ship's hulls and port installations. It can also be used in bore holes.

It is designed for depths of 200 feet and can be operated up to 1,000 feet from the control unit. The camera is a cylinder 24 inches long and about 2½ inches in diameter with a weight of 15 pounds in air and 4 pounds negative bouyancy in water. The camera can be fitted with its own lights and, it is claimed, still be operated by one man.

G.A.F.

News from H.M.S. Blackwood

WE have now been running for 16 months and as we are about to finish as 'Captain Fish', due to the present credit squeeze, it seemed a good time for a few words on our efforts.

The commission started with four weeks at Portland, working-up, after the ship's modernisation. C.N.D. had managed to muster together the minimum number of divers to allow a search to be achieved and as the Diving Officer only joined the ship two weeks before we sailed for shakedown, there was little time in which to train. However, all went well during the work-up period under the excellent tuition of the late P.O. Mackenzie, C.D.1.

The task for our diving inspection consisted of searching the R.F.A. *Olynthus* in combination with the divers from H.M.S. *Rhyl*. This was no mean task as the Master of the *Olynthus* greeted us with, 'My circulators are running and on no account are you to dive on my ship'. This impasse was sorted out and we managed to search her from bow to gangway using seven divers, which was just enough.

Thereafter our diving took place in the far northern waters of Iceland and Norway, in summer and winter alike, with some interesting dives in the Orkneys, Shetlands and around the coast of Scotland. The highlight of the period was a dive in Scapa Flow. As most divers know there is an area littered with wrecks of scuttled German Warships. We decided to try and find one of these and dive on it. During our search we saw an oil slick, so we dropped a shot behind the Gemini and dragged it until it snagged. Three divers had a chance to have a quick look over the wreck. From all reports it seemed to be a large destroyer or a small cruiser in about 100 feet. The oil is still seeping

out despite the fact that she was scuttled after the 1914-18 war.

In September 1966 we were called out to control the search for the German Submarine *Hai*, lost in bad weather in the North Sea, from which there was only one survivor. The ship's team made ready but the professionals, both hard hat and soft, came with us and it was H.M.S. *Iveston's* Team which positively indentified the *Hai* in 150 feet — a story in itself which I have left for someone else to tell.

Training has been a perpetual problem, first to keep the team up to date with their diving practice, but far worse to try and keep one move ahead of C.N.D. For a brief period of two months we had our complement of six divers before they started to be whisked away. Perhaps we malign the drafting oracle but the impression we got on his line of thought runs something like this — 'Oh, Good! *Blackwood's* trained another diver. Where can we send him Chief?' (With apologies to the Drafting Commander who is incidentally, a C.D.)

The following claim to be members of Captain Fish's family:—

- Lt.-Cdr. Turner, S.D.
- P.O. Lees, C.D.
- C.Y. Dance, S.D.
- E.R.A. Woodfine, S.D.
- L.S. Lee, S.D.
- L.M.E. Moore, S.D.*
- O.S. Perkins, S.D.
- R.O.1. Burgess, S.D.*
- J.S. Brett, S.D.*
- O.S. Temple, S.D.*
- O.S., Belsom, S.D.*
- M.E.1. Bailey, S.D.*
- O.S. Jell, S.D.*
- A.B. Fitzsimmonds, S.D.*

* Denotes fish netted in *Blackwood*.

Lt.-CDR. TURNER,
Diving Officer, S.T.A.S.O.





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Relaxed**
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Leisure Suit*

*Fine Tailoring
Superb Cloths
Styled for Comfort*

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your new suit is
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SEE THE EXCITING PATTERNS FOR 1967

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49 QUEEN STREET, PORTSMOUTH

HEAD OFFICE: MAIN ROAD, HARWICH, ESSEX

Clearance Diving Training

THE course is tough, some say that it is too strenuous but mostly these are the people who have failed. It seems that we C.D's do nothing to scotch the rumours about how 'roughly toughy' we do it but instead bask in a kind of reflected glory. Now the gaff is about to be blown and I hope it will assist some Ship's Divers to make up their minds to try and join us.

The course has necessarily been designed to qualify a C.D.2 who can dive world-wide and compete with the best. To do this, it is highly selective, which means we get what we want, but, in turn there is always a shortage. The hardest part is during the first five weeks, and all we ask is that the trainee should dive for long periods followed by some toughening up periods which include the dreaded 'mud run'. This appears to be where 50% of our volunteers can't take it. Also a lot do not like the Petty Officer shouting at them. The poor fellow is only doing his best to give inspiration and assist the flagging spirits.

Let us look again at the 'mud run'! It happens about six times in training and to me, it seems a pity, to throw up the prospects of something you really want, for about three hours graft. Underwater too, it is obvious that it is a requirement to be able to dive for the full endurance, 90 minutes, come to the surface and recharge and dive for a further 90 minutes. Once in a team and employed on a job such as demolition of underwater obstructions, diving for periods such as this will be necessary.

Swimming on the surface is another role which may well have to be met in a team, so it is part of the training.

Swimming underwater for long per-

iods, over long distances and the use of the compass accurately is once again obviously a must, if we are to train the fleet adequately to combat the attack swimmer. The trainees are made to jump from a height into the water. Who knows the time when you may be despatched from a helicopter or the deck of a ship — the course has to prepare for it.

That wasn't too hard, in fact I haven't even worked up a sweat and the first five weeks is past. School is over and now it is time to settle down to some real diving. The slog to Horsea Island has produced the spark and off into the great beyond, 60 feet in the harbour, 100 feet in the Solent and then to the thrill of diving at 180 feet at either Falmouth or Malta. The pressure has slightly relaxed and it is possible to look around our class-mates and have the odd run ashore to wash away the salt. Of course there is the final exam to worry about but an evening session on the diving manual with our 'buddy' is a good way to prepare. The satisfaction of knowing, it is over half-way through, and that the second half is down hill is something to be proud of. The remainder of the course deals mainly with the tools of the trade to fit the C.D. for the numerous ship husbandry tasks, he is asked to perform, dome exchange, screw change, etc.

All you Ships' Divers look into the mirror the next time you shave, jut out that chin and ask yourselves these questions:

- (1) Do I like diving above all other jobs in the R.N. ?
- (2) Am I prepared to work really hard over a few weeks to prove that I am an above average diver?

- (3) Have I the mental and physical stamina for long periods underwater and the dreaded 'mud run' ?

Ask some more questions:

- (4) Will it get through to me when the P.O. shouts ?
- (5) Am I frightened of jumping from height ?
- (6) Am I a sick-bay ranger ?

If the answer to those questions was

NO! read on some more, it is you I am trying to get at.

Cut straight along to your Diving Officer or Divisional Officer and tell him it is you, I am writing to, and could he possibly get you an interview with a Clearance Diving Officer and forward the necessary recommendation to 'Drafty' and you will at least find out if you were lying to yourself. Alternatively you could find yourself in, dare I say it — the best branch in the Royal Navy!

Solent Diving Sites

by ALEXANDER MCKEE and TONY BYE

FURTHER to Volume 13/3, in which some sites inside the Solent were described, here are a few more, although not necessarily within the Solent.

(EDITOR).

Langstone Harbour.

Best known wreck is the *Irishman*. Mined in 1941, with no survivors. Depth is around 10 to 25 feet. The port side and stern shows at low water and is buoyed. Current up to 5½ knots. Visibility is very often poor, but large congers and lobsters inhabit the wreck. The 'Mulberry', which is actually a Phoenix Caisson that broke its back and was therefore not towed to Normandy in 1944, has only a few feet of water around it at low tide, although the visibility inside is exceptionally good. There is a steel wreck on the west side of the harbour, north of the wreck bouy, and a wooden one off the Ferryboat Inn. The latter is supposed to be the hulk of a convict ship, which once moored in the harbour. There are, also, many other wrecks in the harbour and in the Langstone Channel including the Dredger *Fravis*, and the 98 gun *Impregnable*. Because of fast currents and poor visibility, in conjunction with

many obstructions, particularly around the wrecks, this area is dangerous.

Horse Sand.

There are two known wrecks, the Trawler *Cambrian* and the Boom Defence Vessel *Clan Ryan*. The former is buoyed. The *Cambrian* is in three pieces: boiler, engine room and part of the hull frames, and plating. Depth is about 30 feet at high water. Fast currents, except at low slack, when parts of the wreck are dangerously near the surface — so take care! Average visibility is about 4 to 5 feet, but can be as much as 25 feet.

Bullock Patch.

A famous fishing mark for tope and skate. A rock sample taken by a sub-aquarist was identified as sandstone. There is little or no weed, and the depths vary from 65 to 75 feet, but the chart marks an undersea mount rising to near the surface. The area is prominently buoyed. An area of dead flat sand lies to the south. The current is fast and the visibility poor, but it may get up to 6 feet at slack water. The area is not protected by the Isle of Wight and is, therefore, a rough ride for a small boat.

Bembridge Ledges.

The Bembridge Ledges stretches out from near Foreland and is a famous Bream fishing area. The other ledges only go out about a quarter of a mile (except off Culver Cliff — be careful) with about 18 feet of water, flat sandy bottom with a few outcroppings of Bembridge limestone. The ledges stretch from East of Whitecliff Bay right round to Bembridge Harbour with only one break — a man-made channel opposite Ducey Avenue. There is one wreck, the Troopship *Empress Queen*, completely shattered, with a possible aircraft, so far unbound. The Bembridge ledge is the meeting place of two currents — St. Catherine's and Bembridge have claimed many lives, hence dive only at slack water and watch for the guardsmen's 'about-turn' as at Church Rocks. The best times to dive are on the flood, at low water, or 2 to 2½

hours after low water as the ledge covers. Visibility can be 35 to 40 feet. Exotic weed and algae, many lobsters.

South and South-Eastern Isle of Wight.

Only one wreck has been located to the South-East, but it is believed that there are quite a few colliers and aircraft in the area. Not much is known about the southern side of the island, and, as a boat is definitely required to reach the best areas, and a substantial boat at that, not a great deal of diving has been logged. There are more than 50 wrecks, lying in 60 feet of water or more, so probably it may be fruitful for someone to start covering this area. The back of the Wight is a notorious wreck area and has claimed ships from the pre-roman era, so one may expect to come across anything from Roman Amphorae to a tug lost, the other year, but be careful — they got wrecked so may you!

ROYAL NAVAL DIVING SCHOOL

HORSEA ISLAND

SUB AQUA

OPEN DAY

PORTSMOUTH

1300 21st MAY, 1967

PROGRAMME

Admission to the Open Day will be by Ticket, obtainable from Southsea B.S.A.C.

Foreword

As many of our Sub-Aqua readers will already know, The Royal Navy has formerly made certain facilities available to clubs for weekend Diving. This has now ceased for a variety of reasons.

However, in 1966 we had and now, once more, in 1967, we are having, an Open Day where sub-aquarists may meet the Navy divers, see their equipment and if they want, to have a dive.

The venue for the occasion will once more be Horsea Island. It is situated at the northern end of Portsmouth Harbour, access to which is from Northern Parade to the rear of H.M.S. *Phoenix*. Admission to the island is by ticket only, obtainable from the Hon. Secretary of Southsea B.S.A.C., 38 Cumberland Road, Southsea, Hants.

Visitors are asked to be at the footbridge to the island by 1245 on Sunday 21st May.

There will be many items of interest to the sub-aquarist and if there are any questions you wish to ask please do so of the uniformed personnel in charge of the stands.

A Map of the island is printed in the centre pages of the Magazine to enable you to find your way around the island. A programme of events is also included in the centre pages.

We are grateful to our friends in the Southsea Sub-Aqua Club for their help with organisation. J.H.

**PROMOTIONS AND
ADVANCEMENTS**



To C.P.O.:

D. King, C.D.1.

To P.O.:

F. Newman

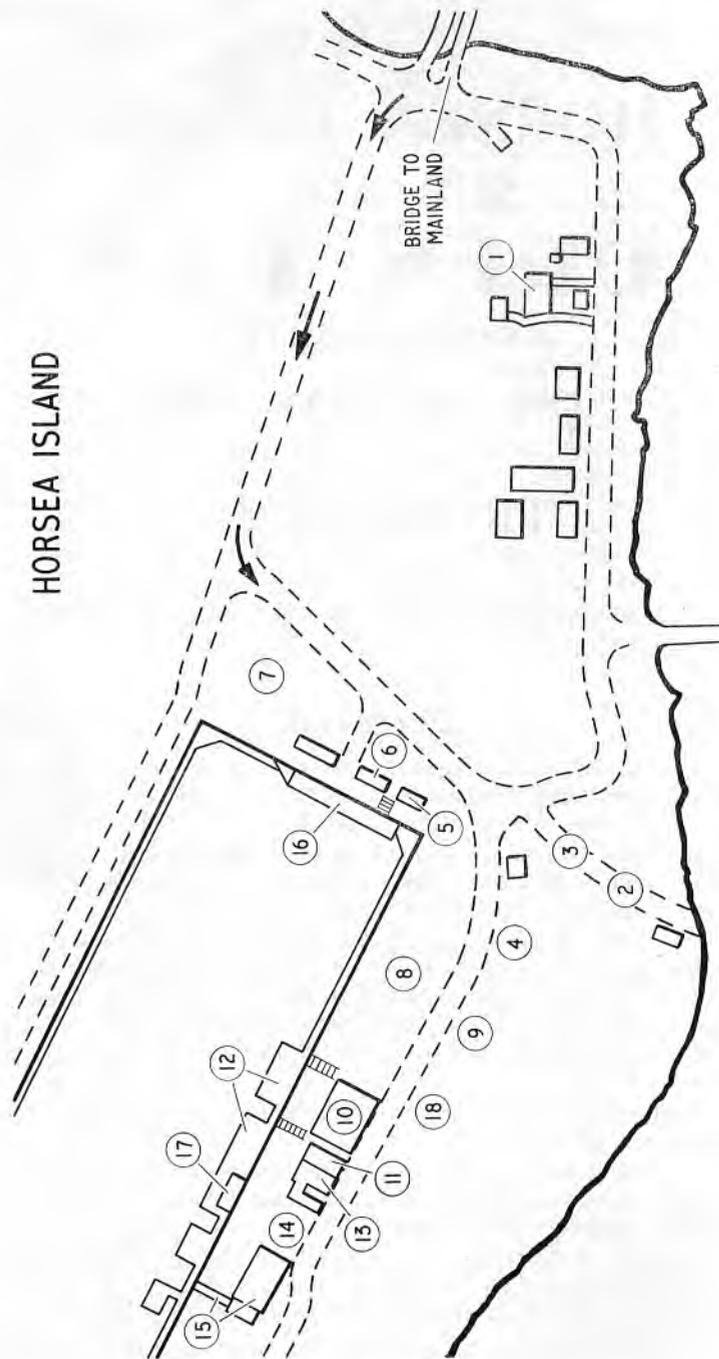
To C.D.1.:

- P.O. D. Stevens
- P.O. D. Shewen
- A./P.O. F. Newman
- P.O. L. Ross, R.N.Z.N.
- A./P.O. L. Hewett
- P.O. G. Fegan
- L.S. Slowgrove, S.A.N.
- L.S. J. Cooke, S.A.N.
- L.S. Liebenberg, S.A.N.
- L.S. Potgieter, S.A.N.
- L.S. J. Meakin

To C.D.2.:

- A.B. Peacey
- M.E. Marriot
- P.O. Woods
- L.S. Huddy
- E.M. Zwart
- L.S. Brayne
- L.S. Smith
- L.S. Green
- A.B. Sweeney
- A.B. Kidman
- A.B. Curtis
- A.B. Stokes
- A.B. Gosling
- M.E. Flower

HORSEA ISLAND



KEY TO CHART

1. Cinema. Adult Diving Films.
2. Gentlemen's Toilets.
3. Gentlemen's Changing Tent.
4. Buffet Tent.
5. Explosive Ordnance Disposal Section.
6. Children's Films (Cartoons).
7. Explosive Ordnance Disposal Static Display
8. Naval Equipment Static Display.
9. Civilian Firms' Tent.
10. Ladies' Changing Room and Toilets.
11. Creche.
12. Standard Diving.
13. First Aid Post. Main Office.
14. Royal Engineers Tank.
15. Swimmers Air Breathing Apparatus Diving.
16. Demonstration Jetty.
17. Recompression Chamber Dives.
18. Children's Swings and Roundabouts.

Static Displays

- Bomb and Mine Disposal.
- Diving Equipment and Tools.
- Mobile H.S.C.D. Team Lorry.
- Mine Identification and Disposal.
- Royal Engineers Underwater Cutting.

Demonstrations

- EXPLOSIVES ORDNANCE DISPOSAL.
- SEARCH AND RESCUE DIVERS.
- LIFE-SAVING.
- FAST DRESSING.

The Demonstrations will take place in the Lake commencing at 1400.

Compression Chamber

Practical operation and dives to 80 feet in the Chamber will be carried out to a maximum of 10 persons per dive.

VISITORS WILL BE INFORMED BY THE BROADCASTS AS AND WHEN ITEMS ARE TAKING PLACE.

Cinema

Continuous Film Programme which includes:—

Emergency Resuscitation.

Physical Effects of Pressure.

Physiological Effects of Breathing Gases under Pressure.

These will take place in the Cinema marked (1) on the Chart.

A continuous Cartoon Programme will be shown in the Cinema marked (6) on the Chart.

Visitor's Participation

From the earlier application forms sent to various clubs you will see that visitors may take part by having dives in Standard Gear (Hard Hat) and also in the Swimmers Air Breathing Apparatus as well as being to able have a Chamber Dive to 80 feet. As only a relatively small number can carry out these dives please do not be disappointed if you personally cannot have a go.

GENERAL INFORMATION

The Car Park is at the bottom of Matapan Road and cars can also park in Matapan Road itself. Naval personnel will be available to direct the parking.

Visitors to Horsea Island do so at their own risk. No liability will be accepted by the Secretary of State for Defence, his Servants or Agents, for any injury (including fatal injury), damage or loss to person or property whether due to negligence or otherwise.

BOAT SHOW 1967

AFTER the smoke of the five-minute gun had cleared and we had turned away from the radiant beauties of the fashion parade, we started to search for any new ideas applicable to diving.

The boats were of all shapes and sizes and also the engines to propel them, ranging from water jets to inboard/outboards. Basically though, all the craft were for pleasure. Some, no doubt, could be altered to suit diving conditions, but why alter a new boat when it would be decidedly cheaper to alter an older model.

There were, however, quite a few other interesting points to catch the casual divers' eye. As most people, who have been to the show in recent years know, there is a display in the centre pool. This is apart from the usual, eye-catching display of feminine pulchritude lounging on the boats moored in the pool, to entice the unwary into the ever ready grasp of the salesman who swiftly approaches with a 'Can I help you Sir?' The display this year was provided by the Royal Air Force and in particular by their Air/Sea Rescue Arm, who demonstrated the single and assisted method of rescue into a *Whirlwind* Mk. 10 Helicopter suspended above the pool. The crew, who were doing the display, came from R.A.F., Leconfield. Why, you may ask, as I did, should an Air/Sea Rescue Crew come all the way to London just for a display? The reason was quite simple. You see, as an added attraction, this was the crew that were involved in the rescue of personel from the Oil Rig, *Sea Gem*, which collapsed during a gale in the North Sea.

A firm connected with diving in the Royal Navy and with life-saving as a whole, by producing safety lights, head-lamps and the sea cells for them,

had a stand. They are McMurdo Instruments Ltd. Talking to Lt.-Cdr. Simmons, R.N. (Retd.), he informed me that his firm was testing a prototype of a rechargeable battery for these lights, which can hang on a divers belt. It would give up to three hours of useful light, the charger of which can charge three batteries at once, and is fully sealed, so does not require venting during charge. They also had a variety of other lamps and safety lights useful to the sub-aquarist and mariner.

A machine, that was demonstrated quite effectively during the fishing display, was the Dolfin Waterkart. This is a surface vehicle propelled by a water jet and will, if the diver lets go, gyrate in a tight circle of about 5 feet. It will adequately tow two divers on the surface or one on the surface and one on an underwater sledge. It is very compact, being of size 37×27×12 inches, and easily fits into the boot of the average size family car. It can be carried by two people as it only weighs 80lb. The engine is a 125cc. Mi/Val Italian two-stroke that produces a speed of 5 knots. The Kart can carry 50lbs. of equipment on it and has polystyrene built in to it to make it unsinkable.

Our old friends the Avon Rubber Co. were there but their stand was mainly of small inflatables and life-saving equipment — no sign of the very great range of products this company markets.

Evinrude, the outboard engine makers have produced the Aquanaut. It has great possibilities for someone on holiday with their own boat, and who wants to taste the delights of diving without venturing too deep. The set-up is a rubber ring that supports a compressor driven by a two-stroke engine, which supplies two divers through 25 feet of hose, and lasts for approximately

55 minutes on one tank of fuel. The rig is not meant for a working diver; only for pleasure. A thought which immediately springs to mind is that this could lead to over-simplification of pleasure diving equipment, and consequently of danger, through ignorance, to their user.

The boat, in which two paratroopers rowed across the Atlantic Ocean, was on display, as were the paratroopers themselves. I am sure that they must have asked themselves countless times, which was the harder, rowing or signing autographs?

For the 'Do It Yourself' enthusiasts, there was a complete boat kit costing only £21, a small version of a speedboat and only 8 feet long, that could be

powered by a 3 h.p. outboard motor. Talk about boating on a budget!

The Royal Naval stand consisted of a mock-up of the bridge of H.M.S. *Hecate* manned at various times by personnel from the survey branch. Also on view was the R.N.S.A. Yacht, *Mermaid of Portsea*. The experimental boys from Gosport had a demonstration, showing the holding power of various types of anchors.

Looking very closely at the current yachting and boating fashions as displayed at the show, I think I will hunt out my old P.V.C. foulweather coat as it seems as if P.V.C. is in fashion this year. J.H.

Article from *Western Evening Herald* — Saturday 7th January

Navy Alarm at "Bends" Cases: Divers Dice with Death

by ALAN ENDEAN, *Evening Herald* Services Reporter

DID you receive an aqua-lung as a Christmas present? Splendid. But before you start dashing off to the water make sure you know what you are doing.

Hidden dangers lurk for the diver and the complaint known as the Bends can be among the most frightening.

For the fit and adventurous-minded the 20th century has produced a wonderful new pastime. Many people have marvelled at the exploits of Jacques Cousteau and Hans Hass, but how many consider the years of effort behind it all?

Even the professional diver is not immune from the Bends. Only this week another diver had to go into the recompression chamber at H.M.S. *Drake*, Devonport, after a Bends case attack.

Why do these cases happen? Are there more now than there used to be? Is it possible to stop people maiming themselves, or are they just luckless victims of circumstances?

The list of questions one can ask is just about endless. The more you probe the more frightening the situation seems.

People have to be licensed to drive or to have a pistol, yet there is nothing to stop an adventurous youngster buying an aqua-lung and attempting to explore the depths armed with little more than ignorance.

Even some so-called instructors have questionable training standards. Especially when one considers that the Royal Navy (with a fund of experience) may

spend up to six years producing a top notch diver.

My records show that in the last six months the Navy at Plymouth has been called in to treat four cases of the Bends. This kind of story can be repeated in other parts of the country.

Too Frequent.

Cases of this type are becoming far too frequent and the implications are alarming. For instance, one man who had a bad attack six years ago is only now beginning to get the use of his legs.

I estimate (and this is a conservative figure) that the treatment given by the Navy must cost at least £800 a time. For a civilian-operated service (as on an oil rig) the cost must be even greater.

If the diver is uninsured (and this is usually so) the cost falls squarely on the shoulders of the taxpayer via the Ministry of Defence and National Health Service.

I do not know whether the Ministry has received any protests from the Navy, but it seem surprising if none has been made.

The Navy may be the Silent Service, but behind its tight-lipped reticence there must surely be a growing disquiet over the present situation?

After all, the recompression chambers operated by the Service were, presumably, set up with one primary aim — to aid submariners involved in a mishap at sea.

Disturbing Quiet

When Operation Sub-miss is signalled,

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it isn't going to help if civilian skin-divers are having to be treated; in 99 cases out of 100 for something which ought not to have happened.

This is a disturbing aspect.

Although there are the biological unfortunates who will never be able to dive without getting the Bends, for the most part the complaint is the by-product of foolhardiness or just simple ignorance.

There is no shortage of good advice and the British Sub-Aqua Club Manual (it costs only a few shillings) is worthy of the highest praise. Indeed, properly conducted diving as advocated by such experts ought to attract no criticism whatever.

Unfortunately, there is a fringe of skin-divers who feel they can 'go it alone' without professional advice or instruction.

Make no mistake, they are dicing with death, so don't join them.

Sporting types who go astray are probably in the minority — there is a more insidious reason for getting into difficulties.

Diving for gold (literally and metaphorically) can produce an odd reaction in even highly-professional divers.

One crayfisherman is reported to have said he got into difficulties (because he surfaced too rapidly) owing to the economic squeeze. But it isn't good business to risk your neck in this way.

Understandably, many divers are reluctant to talk about how they got into trouble. A couple of years ago I spent an unpleasant time in an air-lock waiting to interview one of them. He said nothing.

At one recompression chamber, where several divers have been treated, only one of the patients has ever been known to say 'thank you' for the help he received.

There is even the amazing case of a man who complained about the food he had while undergoing treatment — all on the National Health.

With sub-aqua activity growing and summer beckoning the unwary, surely this crazy situation needs investigating? Now.

deeps — deeper than any other country — and strung a glittering pearl necklace of achievement around her bows.

But tragically there is more than Naval supremacy at stake; commercial and national interests are also involved. Buried off Britain's shores, on the continental shelf, is a hoard of treasure. Natural gas, oil, mineral deposits, and new sources of marine food. All that is required is a ship in which to set sail on a new voyage of discovery; one with a diving bell that could hover at 1,000 feet.

Underwater exploitation is rapidly becoming a world-wide enterprise; yet it is to the emissaries of Canute at the A.E.D.U. that the far corners of the globe come to for advice and help. Here flourish the courts of deep sea progress . . . peopled by a shoal of boffins and diving experts; lockers from which have floated the best there is in diving, breathing and other apparatus and diver's clothing; laboratories filled to the gills with proved and unproved ideas; a fertile fungus of science.

'Our programme is one of research into new equipment and techniques as well as trying improvements to existing ones.' Cdr. White said.

'In the main this side will not be affected by any Government clamp down on funds; it is the deep sea diving aspect which is in danger.'

Heading the world's most renowned team of diving scientists is Chief Experimental Officer R. Common. His comment: 'We would like to stay in the lead; but it is not our decision — we must bow to what is in the national interest'. While the unit is stranded on the shore of uncertainty, the work continues unabated. And it is manipulating its fins over another problem, the growing scarcity of Naval bases. Mr. Common: 'We are reintroducing a Nelson touch — the maintenance of the fleet by itself. Ships must rely on themselves more and more and on their skill to maintain themselves. We are concerned with all aspects of ship maintenance underwater, which includes painting and cleaning. This will mean eradicating spells in dry dock for some overhauls.' And the divers themselves: they are a race apart, equally at home beneath as above the waves. Cdr. White: 'We train two types, the part-time and the clearance divers. The latter are few, and men of outstanding qualities. They take nine months to complete their training, and the failure rate is 60 per cent. Their primary function is to find and render safe the sea's inheritance of war-mines and bombs.'

They are also princes of the deep-sea diving domain — Canute's courtiers who may soon be marooned on a financial ebb tide. Their humble supplication . . . let Britannia Rule.

Britannia's Rule (beneath the waves) Threatened

(The following article was printed in the *Portsmouth Evening News* of January 12th)

THE courtiers of Canute's Kingdom are holding their breath waiting for the Government to take the plunge.

For a shark's shadow is circling the future of Britain's Deep Sea Monarchy — the Admiralty Experimental Diving Unit at H.M.S. *Vernon*, Portsmouth. And the men who have given Britannia rule (beneath the waves) may soon be washed from their throne.

The trouble lies in the dry docks of Whitehall, where the fangs of financial retrenchment are undergoing a sharpening. It could mean the severing of the

unit's lifeline—funds to keep it submerged. 'Britain leads the world in the deep sea set', explained Cdr. White, R.N., Superintendent of Diving, who commands the unit.

'We have gone as far as we can go with our present equipment. If we are to go farther and keep the country's nose in front on the sea-bed, more money is needed.'

By that he means a new deep sea diving ship, for the present vessel, H.M.S. *Reclaim*, is now an old glory. With her, the Navy has conquered the

INTERNATIONAL PHOTOGRAPHIC COMPETITION

A COMPETITION will be held by the Faroes magazine *Froskmannatidindi*. The date for closing is 1st August 1967 and the competition is divided into two categories:—

- (1) The Sea above the Surface;
- (2) The Sea below the Surface.

All photographs are to be black and white, size not less than 13cm. x 13cm., and not larger than 18cm. x

18cm., as many entries as you care to make with attached to the photograph the following information:—

- (a) Name and address;
- (b) If you want the photograph back;
- (c) Title and any technical data.

There will be three prizes in each category. Address to which to send the photographs is:— 27 Vardagota, Torshavn, The Faroes.

Underwater Ejection from 100 foot in Malta



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FOR many years in Naval Aviation, an aircraft on ditching, floated for some time and crews were often able to escape on the surface, some without getting wet. Nowadays the crews are not so fortunate. With the advent of the ejector seat, some successful underwater ejections were carried out and the aircrews recovered, not much worse for wear.

This sparked off an interest in ejection as a means of escape from a submerged aircraft. Many tests were carried out. Once more, progress in design had its disadvantages and with a later type of high energy cartridge, the blast effects underwater are dangerous and successful ejection unlikely.

Work was started to develop separate underwater ejection systems operated by compressed air. These systems will be fitted to carrier-borne aircraft. Although most are automatic, operating when the aircraft reaches a given depth, there is a requirement that they should be capable of manual control to a depth of 100 feet.

It is the job of the R.A.E., Farnborough and the Institute of Aviation Medicine to test these systems throughout their development, culminating in tests of the complete system at 100 feet. For this, it is necessary to have water clear enough to permit cine-recording, and reliable weather conditions.

Thus it was that a trials party, led by Lt.-Cdr. A. Baldwin, left for Malta in August 1966, complete with a *Gannet* test fuselage. The trials were planned to last a fortnight and the object was to get three successful consecutive shots at 100 feet. For the trials we obtained the

services of a fleet tender, F.T. *Aness*, on which to carry the fuselage out to the trials site in Marsaxlokk. This vessel is some 80 feet in length, steel built, with a single screw, and provides an excellent diving platform. The lifting and lowering of the fuselage was carried out very ably by H.M.S. *Layburn*.

Before attempting the 100 foot shots, it was decided that we would carry out a live ejection at 40 feet to check the procedure and the system, which had already been extensively tested down to 25 feet at Glen Fruin in Scotland.

The subjects for the trials were to use compressed air breathing equipment since depth precluded the use of Oxygen. The equipment decided upon was the Army Tank Escape Apparatus. This consists of two 0.36 litre bottles joined by a manifold, supplying a 'Bibs' demand valve by way of a first stage reducer. The demand valve could also be supplied from external sources, in this case an 84 cubic foot bottle secured to the fuselage. This latter source of air to be used until the moment before ejection, when it was disconnected and two small bottles used. These gave sufficient air to allow for a hold-up and also for a few small breaths on the way to the surface.

We arrived in Malta on Sunday 14th August to find that the next day was a religious holiday, hence it was difficult to find the equipment which had preceded us, let alone draw it. However on the Tuesday, we were more successful, and managed to get the fuselage moved to Kalafrana. Alas, we were still without three tons of ballast weights, which had gone out by sea. Thanks to a dock strike, they were discovered on their way to Haifa. With no more ado,

Alan Baldwin and Terry Montgomery, managed to beg (borrow or steal) some two tons of anchor cable and some 5cwt. sinkers which were draped around the fuselage like a Christmas tree. At last though, we were prepared and it was decided that the 40 foot shot would take place the next day and yours truly should be the subject.

Wednesday came and the fuselage was loaded onto the *Alness*, equipment was rechecked and we set sail for the rendezvous with H.M.S. *Layburn*. According to plan, I mounted the cockpit and was strapped in shortly after leaving Kalafrana. Unfortunately, we had not allowed for the difficulty of manoeuvring under the *Layburn's* bows hence half an hour was spent in the cockpit under the mid-day sun before I was lowered into the blissfully cool waters of Marsaxlokk. During the waiting period, however, Alan took pity on me and annointed my steaming brow with buckets of water delighting the spectators in the process.

From the surface the plunge to 40 feet was fairly rapid and we reached bottom with a heavy bump. I was soon comforted by Alan's familiar face peering at me in the cockpit. Whilst he was clearing away the lifting wire, I was surprised to see that I was surrounded, not only by underwater photographers, but also by spectators in the form of the Fleet Clearance Diving Team. Alan returned and gave the O.K. sign to start the countdown, first for the canopy jettison and then for the ejection. Soon I was back on the surface again, the actual ejection having taken so short a time as to be only a fleeting memory, one second I was in the cockpit and the next I was suspended above it wondering why my life-jacket had not inflated.

Back to Kalafrana and the task of stripping the system and refurbishing it for the next test, which was to be the first 100 foot shot and was scheduled

for Friday. This time, it was Terry's turn to take a ride and to be the first person to eject from that depth.

We had learnt several lessons on the first test and so we delayed manning the cockpit until the last minute. Standing on *Layburn's* bows, I watched as the cockpit with Terry in it and Alan astride the frame, disappeared in its rapid plunge to the sea-bed. However by now everyone was prepared and the expected stops to clear ears, etc., were not necessary. Throughout, I was in contact with Alan by D.U.C.S. and was able to broadcast a fair picture of what was happening down below. It was no surprise therefore when Terry arrived on the surface, L.S.W. inflated, giving the O.K. signal.

By this time, the organisation was getting much smoother and the remaining shots (for we felt sure of success by now) were planned for the following Tuesday and Wednesday.

At Kalafrana, after unloading the fuselage onto the jetty, we prepared for a weekend trip to Xlendi in Gozo, where a number of people were anxious to dive. Stories of Roman wrecks added to the excitement. After a good days' diving, we spent the Saturday evening in the local Hilton, where the Gozo wine helped to keep the spirits high. But that days' aquatic activities had not yet been concluded as arriving back at the *Alness*, we found that we were cut off from the watchman onboard and so Alan was elected to swim out for the Gemini. Gamedly he stripped off to his underpants entrusted his clothes to us and set out. Unfortunately, when he came back, there was some difficulty experienced in boarding the Gemini, and the cardboard box containing his clothes, disappeared over the side with a fully clothed member of the team. At last, however, we all returned safely to the *Alness* including the cardboard box.

Xlendi had lived up to all our expectations.

On Monday, we were back at work preparing the systems for the next day's tests. The shots on Tuesday and Wednesday were as successful as we had expected, with Alan doing the first and Surg.-Cdr. Davidson the second shot. Our trials were complete, except for packing up and the farewell party.

Throughout the fortnight, we had spent all our spare time diving on Beughisa Reef and Delunard, not only

to enjoy ourselves, but also to give our photographers more experience as most of their diving is confined to the tanks at Glen Fruin and H.M.S. *Vernon*. If anyone tells you that Malta is fished out, don't believe them, it is probably their bad marksmanship. It was with genuine regret that we left Malta to return to our home base, the trials having been both enjoyable and successful. This was in no small way due to the help we received from the R.N. and R.A.F. units out in Malta.

LT.-CDR. J. GAYTON.

SEA LAB III

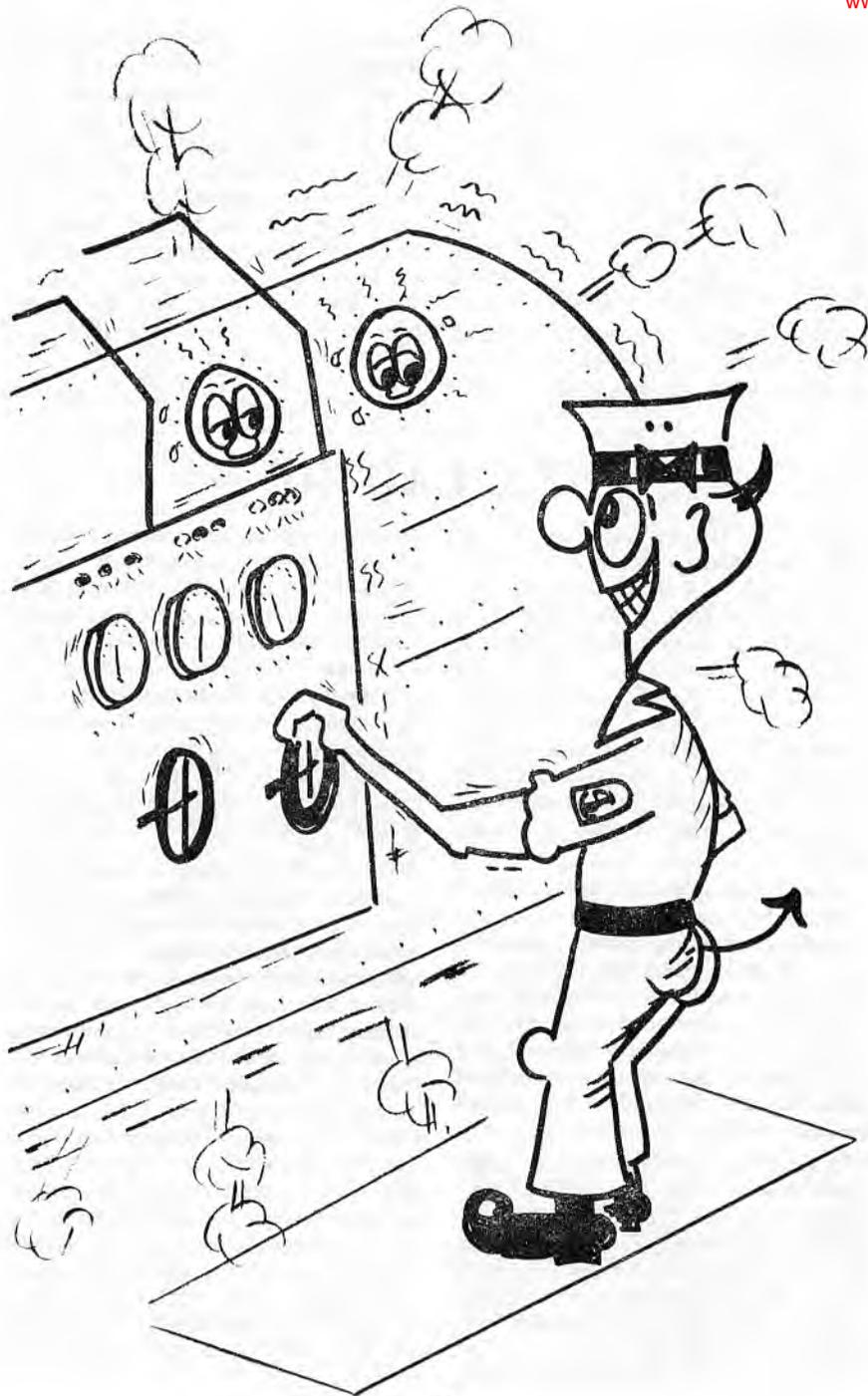
SEA-LAB III, the third stage in the United States, 'Man in the Sea' programme, is due to commence in the winter of 1967. The operation is intended to take place off San Clements Island in 430 feet of water and to last for 60 days. Naval Aquanauts will carry out experimental research, independent of surface help as far as possible. The main object of Sea-Lab III is to gain more experience in the underwater environment with regard to Naval needs.

Five diving teams of eight will alternate under pressure for twelve day periods. The training of these aquanauts is now under way and final selection will take place nearer the date of the trial. In addition to physiological and psychological tests on the divers there will be a series of tests and experiments to learn more about the sea and on how to live and work safely in it.

The experimental laboratory will be a modification of the house used in Sea-Lab II. Two extra rooms will, however be attached, one forward and the other aft. The after room will be used as a diving station and the forward one as an extra food stowage. Other modifications include an automatic mixture sensor instead of the hand-operated one used

last time. All the main supplies such as electricity, fresh water and T.V. will be supplied from the surface control vessel. Emergency supplies however are carried in the laboratory and could last the aquanauts 15 days. There is a CO₂ scrubber to keep the interior atmosphere clean and a humidity control to keep it reasonably dry. The temperature will be controlled at 92° F., as there is very great heat loss with such a high percentage of Helium in the atmosphere.

The surface support ship will be a modified Medium Rocket Landing Craft. It will be held in a tight five point moor over the laboratory. Two deck compression chambers, capable of supporting four men for four days, will be installed. There will also be a personnel transfer capsule that can mate with the D.D.C's. The support ship will hold the reserve supplies of gas. Due to the amount of Helium to be used a recovery unit will be used for evaluation. Two portable vans as control and medical are to be shipped. Also included in the ships' fittings will be a 60 ton gantry crane and an active positioning system. To facilitate all this work the ship will be effectively lengthened 21 feet and have sponsons fitted on the shipside at the stern.



Fire Brigade Dry Divers

THE peace and tranquility of *Vernon* has been shattered on a few mornings each week, recently, with the rumbling of fire appliances from the Portsmouth City Fire Brigade. Firemen, clutching Siebe Gorman, Mk. 3 oxygen sets, have been seen to emerge from the Red Monsters and be shepherded into the diving bay by the Brigade Breathing Apparatus Instructor, Station Officer G. Clark.

Here Lt.-Cdr. Wilson stands by, grinning and eager, to receive the Blood Chits, and to pass the order to L.S. Fellows to commence compressing the poor devils (no volunteers in the Fire Brigade incidentally) after the usual briefing has been carried out.

This is all a part of training and preparation by the Brigade to deal with any emergency that may occur in the



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Due to the waterlogged condition of the soil it is necessary for the five miles of tunnelling to be at a pressure of up to 12lbs./sq. inch above atmospheric pressure.

Although the firemen are fully trained

to wear Breathing apparatus, the additional hazard of pressurised working is something that is new to the Portsmouth units.

Many thanks to I/Diving and his staff for the invaluable advice and assistance that has been given.

Oh! Doctor I'm in trouble

NO doubt there is the possibility that some of you, at one time or another, might have been resident in hospital — be it civvy or service!

The gods were not smiling on me that day in September when I found it was my turn to visit the noble fortress of doctorine — HASLAR.

The circumstances leading to this were rather annoying to my point of view. There I was, having a nice pleasant little tussle on the rugger field, when — Crack! — ten minutes from full-time away goes my starboard stilt, busted clean in two.

Other than the fact that this was the first match of the season, what hurt most was that I had just lashed out and bought a new pair of boots two days before — anybody want to buy a pair of rugger boots size seven!

Leaving out the short time taken to get me to hospital — one hour — the next phase found me in the 'Broken Bones' section.

Strangely enough the inmates could be grouped into three main categories, namely, motorcycle and car accidents, football players and rugger players — rugger players were predominant — a couple more and there would have been a full fifteen.

In all sincerity, I think I did have a slight twinge of apprehension, but having been brainwashed by the 'do-it-yourself' medical world (Emergency Ward 10, Ben Casey, Dr. Finlays Casebook, etc.), I was a bit more at ease.

It wasn't long before they sorted out my little problem — I mean to say, it's not the done thing to have one's foot pointing out to the starboard beam!

The actual goings-on in the inner sanctum of the operating theatre, I cannot tell you, naturally enough, but I awoke to find my leg correctly positioned and screwed together. Yes, *Screwed* — I was just as surprised when I was told about it. Gone are the days when one had to clump around with a half hundred-weight of plaster one one's hoof. A note of interest for the more technically minded, the screws are $\frac{1}{4}$ inch long with Allen heads, U.N.C. threads — no planned maintenance required!

Returning to the world of the conscious, life was to be surveyed from a bed for the next few weeks, and — even being bed-bound — *life* can be observed.

As with many environments, the odd joke name comes into being, sometimes not always a joke. The first of these

'joke names' applied to the cleaners who came into the wards in the mornings. They were referred to as 'Storm troops' and believe me they stood up to their names. Next to follow was the 'Gestapo' the general term addressed to the physiotherapy females; I am convinced they get their 'dogwatch instructions' by watching wrestling on the 'box' on Saturday afternoons. Other titles followed suit, such as, the ward was known as 'Stalag B5', Sister as 'der Kommandant', senior nurse as 'Oberleutnant Scouse'.

Bed-pans came under a new heading too strange to relate. In this modern day and age they are now made of stainless steel, but there are still snags. If you get one straight out of the sluice, and are not very careful, one can clue up with first degree burns! However, they are just the same in shape and style as their predecessors.

Strangely enough, listening in to a horse race one afternoon there was a horse running called 'Silversaddle' (same name as the bed-pans were now christened). Just out of curiosity I listened to how it fared and of course it came in last — all behind!

A couple of small items of interest did come my way during my confinement. I noticed one day, some bottles of oxy/helium about the place and on closer enquiry discovered they were 20/80. They turned out to be used in the operating theatre for certain asthmatic cases — so it's not just for divers. The second item I came across was the Hyperbaric section — to put it in diving language, a one-man pot using O₂. What it boils down to, is a one-man pot styled apparatus with a perspex domed door, on the outside was a trans-receiver

and a regulator, with the supply coming from a 150 cubic feet bottle of O₂. The patient was placed into the 'pot' and the perspex dome permits him to read and also to be observed. The patient was then put under pressure to one atmosphere (2ats., abs.) where he was kept for any period from $\frac{1}{2}$ hour to 3 or 4 hours according to his complaint. I was never able to find out what sort of tables they used in relation to the patient/complaint/time ratio. The only fact I did discover was that it was used in conjunction with bone disorder or injury, skin healing, and similar skin and bone complaints due to accidents.

Eventually, I was returned to the realms of *Vernon* where I was bombarded with questions and such witty remarks as:—

'When are you having a screw change.'

'I thought they fitted a grease nipple in your ankle and did planned maintenance'.

'When are you due for a 5,000 miles service.'

All taken in good heart!

One person who was intrigued was the G.I., 'I've always wanted to drill someone on sticks' he gloated. Well, just to please him I showed him how the 'Change step' was done and this made him as happy as a pig in the old proverbial.

Well, I am still making out the best I can, but it is not an experience I would wish on anybody. However, it happened to me and if you didn't have a bit of a giggle, life would be so dull wouldn't it?

D.R.

"Corkhead" versus "Steamer" — is this the last word ?

(The article below was received in the form of a letter from Mr. M. R. Pemberton (ex-P.O. Diver), Diving Inspector of Works in Karachi. In view of the interesting facts which he includes, it was felt better to publish it as an article in its entirety, in the hope that some of the information may be useful to those about to leave the Service. Ed.)

Dear Editor,

May I, through your column, add my piece to the question of 'Standard' versus 'The Rest'.

To me there is no controversy, neither is it a matter of 'Esprit de Corps', but (in a civilian capacity anyway), much more a matter of economics or 'the right tool for the job'.

In the R.N., I started my life as a S.W.D. qualifying in Haifa under the tuition of the late Cdr. Crabbe — the gear used then being Sladen suit, Salvus and captured Italian 'Gamma', of which Cdr. Crabbe seemed to have an inexhaustable supply. From there, I became a Diver 3, thence Diver 2, eventually leaving the service in 1958. In this time I had used 'Salvus', 'Frog Mk. 1', U.B.A., S.A.B.A., Standard M.R.S. and had dips in 'Gamma', Cousteau - Gagnan, 'Draeger', and 'Masse', so I can consider myself acquainted with the various types of diving equipment.

Having continued to dive continuously, since leaving the service, I have found that the considerations pertinent are:—

(a) Nature of job.

(b) Location of job.

(c) Local labour available (for telephones, tenders or 'recruit' material).

(d) Average hours to be spent underwater per day.

So far as (a) is concerned, on two occasions, I have been involved in the excavation of coral by hand operated tools.

Each job was of some 12 months duration, the average depth in one case being 40 feet and the other 65 feet.

Allowing for an average of six hours underwater per day, seven days per week, the average life of a standard suit, or Siebe-Heinke 'Harbour' gear suit, was three weeks before it was cut beyond repair, after daily patching. In the same instance a rubber suit probably would not last a week. Diving from an anchored pontoon, there is little need for visibility and the extra weight of boots, making a firm anchor, made for much more comfortable working. An Arab labourer can be trained in a week to dress you in Standard or Harbour within six minutes, so a time limit doesn't really enter into the problem.

On another occasion, spending some years at a tanker offshore loading terminal, we carried aqua-lung, surface demand and standard. Aqua-lung was invaluable for 'walking the lines', a bi-annual inspection of a mile of 36 inch pipe on each berth, from berth to shore and for searching for lost anchors from tankers coming into berth.

Surface demand was equally useful

when taking the turns out, in the flexible hose runs, which are lifted from the sea-bed to make the deck connection onboard, and generally wrap around the moorings.

Standard came into its own for hose changes, even if only for the communications (pre-D.U.C. era) and also for cutting and welding.

At a later date in the North Sea, working about the wreck of the *Sea Gem* and its damaged gas well, aqua-lung and surface demand was used. By this time, D.U.C. set had become available on the civilian market, which has greatly enhanced surface demand for civilian operations.

In this instance, standard, although useful on the bottom during air-lifting, sinking caissons, etc., was out of the question due to the tidal conditions and

surface conditions dived in. According to the run of the tide, it was not unusual to surface 150 feet ahead of the diving vessel. Regarding location of this job, water temperature and tide were of great importance.

Having dived in Port Sudan and the Persian Gulf, each for over a year, wearing standard or the similar harbour gear, I cannot agree with Corkhead, (Volume 13-2) that it is crippling and after six hours on the bottom a day, in a water temperature of 86° F., one can still get cold, but it *can* be crippling to return to the North Sea from the Red Sea and spend even one hour in a two-way stretch when ones hands become so numb that no gainful work can be done.

All but six months of my time outside have been spent abroad, I have found Arab labourers (in various areas) and West Indian labourers can be very

easily trained as tenders and one doesn't have to look too far to find one who speaks enough English to act as telephone number.

There is often, on civil engineering projects, a call for local divers, which are not always available and have to be trained with maximum speed and minimum cost, yet always bearing in mind the ever necessary safety factor. For this, I have found surface demand the answer — the diver has the minimum amount of cares and worries and can settle down very quickly to the job in hand. After two weeks of a dip a day, the average local diver will be doing a fairly hard stint A.M. and P.M., decompression permitting.

Some diving jobs call for diving as required or for certain diving periods, but the great majority are for continuous diving, usually 12 hours a day or sometimes 12 hour shifts around the clock. In these cases, enough divers are borne to 'relieve' on the bottom but the average dip is three to four hours and the whole emphasis is get down and stay down.

As already mentioned, even in the warmest water, providing it is not blood heat, you can and will get cold. And often for this reason alone, if you are contemplating an 18 month contract, one can be strongly advised to pick primary equipment of Standard or Harbour gear, using surface demand or aqua-lung as a subsidiary.

The need for mobility, so often given as a high point, rarely occurs, except for limited periods on occasions. On harbour construction, one may often never move more than 20 feet away from your datum for months on end — as the job moves so does the diving ladder.

What I have tried to make clear, through the whole question, is not which is the best type of equipment, or the best type of diver. A diver, if he is a good diver, can dive in the equipment laid before him. The type of equipment laid before him should be the best equipment for the job, which can be either aqua-lung, surface demand or standard.

I remain, yours faithfully,
MIKE PEMBERTON.

An article on Canadian Diving reprinted from their Magazine, *Sentinel*.

Webbed Feet for Wet Work

by LT.-CDR. A. SAGAR

IT was dirty and dark under 30 feet of harbour water. The diver was cold, and practically, had to grope for the object of his search. And when he found it, he knew he wasn't going to like it. He was looking for a body.

Of course it was just part of the diver's job, but that didn't mean he had to like it. But I was talking to him afterwards, and on the whole, he is happy in his profession. So am I. It

takes us to some of the remotest geographical locations, and is as varied as a chess game. There's nothing unusual in looking for a drowning victim; the Navy divers look for about 20 bodies each year for the R.C.M.P., provincial and local police forces. But most of us prefer the more routine work.

For instance, right now — at the time of writing — there's a team of Navy divers up at Resolute Bay in the Arctic,



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removing 4,000 pounds of deteriorated explosives. At Alert, another team is replacing an underwater pipeline. Two other teams of divers are supporting the D.E.W. Line re-supply operations with beach clearance, ship repair and salvage operation.

From the top of Cape North, at the north end of Cape Breton, N.S., you could see another group at work. Gazing down the 1,800 feet of almost vertical mountain-side to where the waves crash onto the black rocks, you would see three tiny dots, a squadron of tenders. 30 feet below the tenders you would find divers drilling into the rock of the sea-floor with jackhammers. They are preparing for cable laying, a scientific project to determine how noise levels act underwater and in other conditions. When they have finished drilling that set of holes, they will fill them with explosives, blast the rock, clean up the debris and then lay footings. When the cable is in place, they will secure it, and then backfill the trench to protect the cables.

When the divers surface, you might see them putt-putting ashore in a rubber diving boat, or sailing for Ingonish for a ball game, outdoor cookout and a bit of recreation. But this task is typical of the work we do.

At the same time, yet another crew is preparing itself at Esquimalt for a trip up the west coast, where they will be repairing the underwater foundations of lighthouses for the Department of Transport.

Another team is working along the shore of Lake Ontario. At the moment they are laying pipeline near the Meaford Range and laying instruments underwater to determine the position of artillery hits. Later, they will move along to the Trenton area to raise nine 500 pound bombs that have been in the lake since 1945. They will cruise around

using a mine detector and then dig them out of the silt in Cinsecon Bay.

Another team is just returning from the British Columbia interior where they have been laying underwater charges for a seismology survey in a lake there. When the charges go off, the seismologists can determine the hidden structure of the terrain with their instruments.

And at the same time, I can guarantee that there are a couple of ship repair jobs going on in Halifax harbour, replacing a propellor and hammering ret hot rivets into the hull underwater.

All these divers are known as trade divers in the Navy, or full-time professional divers. But there is another group of Navy divers — all highly trained in this secondary duty — who are known as ships divers. Their full-time jobs may be anything from cook to aircraft handler. But they are always on hand to do a diving job when required. They might be asked to find the body of a drowned man by a local authority. And they do, often. Or they might be asked to make some minor underwater repairs in a foreign port. Or they might be asked to render safe some explosive item by some civil authority, like a live mine on the beach, or a live and touchy souvenir hand grenade.

The duties of the trade diver take him by land, sea and air to an incredible variety of tasks. It might be by R.C.A.F. transport to northern Quebec to search for a lost aircraft in 120 feet of black lake water. The same diver might return to work all weekend repairing the underwater fittings of a destroyer on duty with the operational Gold Squadron. In this case, the ship is spared the heavy cost of dry docking and sails on time to meet her commitments.

Another diver, wearing the standard hard hat and weighted boots, might dive 250 feet in Bedford Basin to search

for lost equipment. The next night, he puts on deep swimming attack equipment, that will not show bubbles on the surface, and carry out a night sabotage attack 80 feet down on ships engaged in operational work-ups.

The diver is first a qualified seaman, experienced in the art of small ship handling. In his trade, he soon learns that he has to carry out his seamanship underwater. It takes a fair bit of finesse to blast a propellor free of its shaft underwater, with a finely judged quantity of explosive. And it takes real seamanship to hoist a submarine or destroyer propeller underwater using 10 ton chain blocks.

Peace-time brings mostly ship repair and searches for lost articles, from minor items to ships steel gangways. But all divers are trained in explosive ordnance disposal, the recognition of mines, and how to render them safe under a ship or at sea. He becomes a highly trained technician who enjoys his time underwater and receives extra pay

up to 16 cents a minute for his labours.

The variety of the jobs is endless. One group of divers found themselves not so long ago, building a heliport on an island in the Strait of Juan de Fuca, and another found themselves recovering experimental ammunition from the violent depths of Whirl Bay, B.C. The variety is expanding too, as Army and Air Force teams are trained by the Navy for special tasks.

But whatever the diver has done in the past, he is always looking forward to the next job, and the future looks promising. New equipment will enable divers to go down and move safely at 800 feet to assist in submarine safety programmes and deep water searches. Underwater vehicles are now familiar, and the use of the two-man deep water craft is firmly established.

It's hard work, and the water temperature can drop to 28° F. but, the Canadian Forces divers think it's the best job in the service.

OBITUARY

WE are sad to report the death of Dave Merrell, who was a Clearance Diver in the Royal Navy for many years.

Dave left the Navy some time ago and has worked in many parts of the world for different firms. At the time of his death, he was working in the North Sea for Reed & Malik.

The facts of his death are that he was

involved in an accident during a gale in the North Sea. A piece of machinery, on a barge secured to an oil rig, broke loose and crushed him during its movement.

All our heartfelt sympathy goes out to his relatives from all those who knew him personally and from the present members of the Diving Branch. ED.

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BOOK REVIEWS

by J. HARRISON

The Treasure Seekers by Hans Roden.

(Harrap & Co. Ltd. — 25/-)

THE average treasure book that one reads is very much the same as another. In 'The Treasure Seeker', Hans Roden has stepped out of the well trodden paths and picked upon several interesting incidents. He has elucidated simply and to the point about them.

At the mention of treasure and pirate gold most of our hearts start to beat a little faster and the thought of something for nothing makes one look furtively around to see if you are being overheard.

These are some of the fallacious ideas people have about treasure. Hans Roden does a magnificent job of blasting these ideas asunder.

'To begin with,' he says, 'you need time and money — lots of the latter plus a fatalistic attitude. That you may fail should always be in the forefront of your mind.'

The whereabouts of most treasure hoards are known, not exactly but within miles. Even so, that gives a very large area to search, for any particular treasure hoard, taking into account that someone may well have discovered it previously and not reported the fact.

The book covers twenty treasure hoards or incidents, if one cares to call them such, from Captain Kidd's to the gold that went down with H.M.S. *Hampshire* and the *Egypt*, via the Lutine and Tobermory Bay searches.

What visions those names must conjure up, to the ardent treasure seeker, what dreams of wealth and

power. 'But', as Hans Roden says, 'All is not found without great expense and plenty of time.' Some win fortune as did the salvors of the *Egypt*'s and *Niagra*'s Gold. Other die in their attempts and are forgotten in their failure.

The present day treasure hunter will find many drawbacks to his search' local politics being a major consideration. As a lot of treasure hoards are considered as antiques, there is no guarantee that the finder will receive its value. The fact that one requires permission from people, who seemingly have nothing to do with the hunt, never ceases to amaze the author.

The book makes very interesting reading and is a reservoir of established facts. If, however, you wish to start on the treasure trail you will need an almost insuperable amount of evidence to guide you to the right spot. Without a doubt, those facts will not be verified until the treasure is uncovered at your feet.

MAN IN THE SEA DOWN UNDER
by WADE DOAK Price — 15/-

A Dive South Pacific Publication

THOSE who have had contact with diving in New Zealand will know about the magazine *Dive*. This book is a combination of several issues of the magazine to form a year book on diving. The book is in four parts.

The first part is on some techniques of diving, bringing to the fore the troubles that can arise from incorrect drill. One excellent idea that I think

should be adopted more widely is the accident report sheet. From these, accidents could be evaluated, and measures to stop their reoccurrence worked out.

Wreck diving forms the basis for the second section. The dives that were carried out and the material recovered is quite lucidly described.

'Tools', a term used in a particular context, are next in line for discussion. The word tool covers a multitude of sins but I can say that the ones written about particularly were the Manta Board, Photography at close range, Building a

Hookah and the use of a Powerhead in Shark hunting.

In conclusion, a skin-divers guide to, and some stories about, the Great Barrier Reef provide thrilling reading. One article that stands out is the report on the capture of a Grouper weighing 397lbs.

Wade Doak has done a fine job in producing this book and has called on numerous sources to provide interesting underwater photographs of excellent quality to illustrate the articles. Even a non-diver would be interested and held enthralled by some of the descriptive passages. J.H.

Letters to the Editor

Dear Sir,

After reading your article on S.A.B.A. (Volume 13, No. 2), I really must protest the article itself was fair enough but please lay off the part-timers. Many of us have been diving for many years as far back as the tin hat days so we are not the complete fools your screed seems to make us out to be. I think I speak for all the older part-timers who have worked with C.D's and enjoyed doing so time after time.

STRIPEY.

I think that the two main points of the article have been missed. Firstly the article is a complaint from a C.D. about a piece of equipment and secondly the complaint is answered by saying that the S.A.B.A. was designed for someone who was new to diving with a view to safety and dependability. I do not think that the author of the article was in any way deriding the capabilities of the ships divers or for that matter the ex-shallow water divers. EDITOR.

Dear Sir,

Regarding cause and effect, the following article and answer was observed in a National Sunday Newspaper.

Since my husband took up underwater swimming he seems to have less appreciation of normal marital relations. Can this new hobby affect his fertility? There seems to be no reason why it should. Any strenuous sport, especially when it involves breathing under pressure could lead to tiredness and lassitude for some time afterwards. However excessive cold, such as is experienced in persistent very deep diving has been suggested as a cause of lost fertility in males.

... And, as Stanley Miles suggests in the British Medical Journal, another cause is Shark Bite. EDITOR

Letters to the Editor—continued

Dear Sir,

I have always been led to believe that the personal life of a diver was beyond reproach, but an extract from an article in the Bristol Evening Post seems to imply that this is not so,

i.e. — Rosyth NAVAL Base.

I wonder if this will encourage a rush of volunteers.

Yours faithfully,

RONALD T. H. BIRD,

Med. Tech. 1., S.D., R.N.R.

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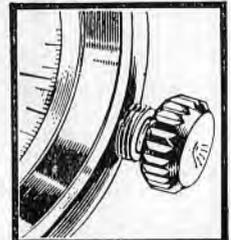
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