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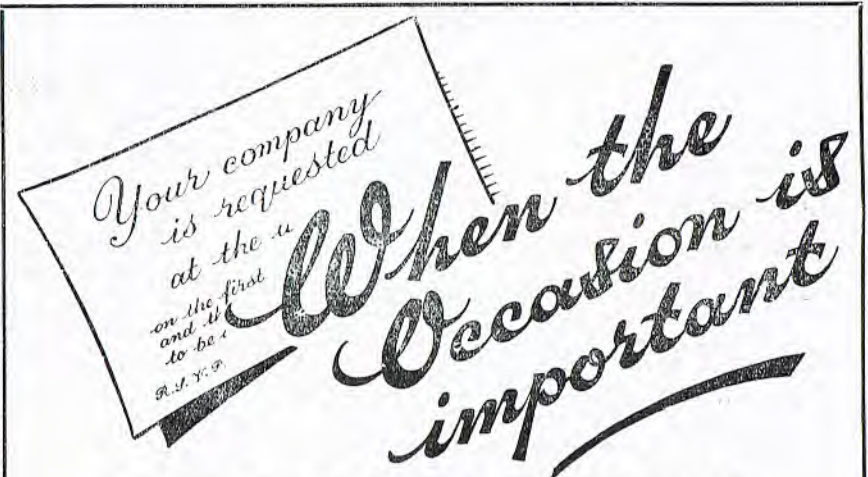
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R.N. Diving Magazine

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 Chief Petty Officer J. E. PEACH, *Editor*

Vol. 4

March, 1956

No. 1

EDITORIAL

Dear Readers,

Since December's magazine was launched, the Editor, Petty Officer Burt Farmer, has been drafted to H.M.S. *Kingfisher*, one of the R.N.'s submarine rescue ships. A vote of thanks for his stalwart support of the magazine will be echoed by all readers; we also join to wish him good luck in the future.

As Petty Officer Farmer relieved me on *Kingfisher* I suppose the magazine staff put their heads together and decided I would be a natural choice for the next Editor. I received this news with much trepidation. Who has ever heard of an Editor with shovel thumbs? However, I have accepted the work and have started learning the one finger method of typing and hope soon to progress to two.

It is with sad regret that we note the passing away on January 29th, 1956, of a Diving Colleague, Lt.-Cdr. Maclean Foreman, and our deepest sympathy goes to his bereaved family.

I hope all regular subscribers of news letters and stories will continue in their support, and what about some 'New Blood.' Please try and get your material away early in each quarter and so help to get the magazine out on time.

Our next edition is due in June, so until then, cheerio!

EDITOR.

TREASURER'S NOTES

Dear Readers,

I am pleased to inform you all that the circulation of our magazine continues to increase from strength to strength finding its way to all corners of the earth. We have received gratifying letters from new readers in South Africa, Australia, Canada, New Zealand, Ceylon and the United States of America.



I would like at this point to thank all our friends, whether service, ex-service or non-service, for their unfailing support and particular one generous reader who is donating a yearly grant for the magazine and the charities with which it is associated.

The remainder of my news is less cheerful I am sorry to say. During the last few months, the cost of paper, printing, and last but not least postage, have all been increased with the sad but inevitable result that the price of the magazine will have to go up to 1/6 (postage paid). This increased price will take effect as from our next edition in June. All those subscribers who have paid for future editions will have their account adjusted accordingly.

The editorial staff feel confident that you will all understand the necessity for this unfortunate step, and are sure that you will continue to support this increasingly popular magazine.

TREASURER.

THE SUBMARINE RESCUE BELL

by

LIEUTENANT COMMANDER R. J. CLUTTERBUCK, D.S.O., R.N.
H.M.S. *Kingfisher*

Part 2

(Continued from Part 1, Vol. 3, No. 4)

Air and Water Services.

Supply and exhaust air hoses from the surface lead into the upper compartment, being of $1\frac{1}{4}$ " and $1\frac{1}{2}$ " bore respectively. The supply leads to a manifold whence it is fed into the air motor, the ballast tanks or either compartment. The pressure in this system is controlled from the surface and must be sufficient to overcome sea pressure at the required depth. It is usually 200 lb./sq. in. at shallow depths. The exhaust hose can be connected either to the air motor discharge or to the upper compartment vent.

While the air motor is running this vent is kept shut to prevent a pressure building up inside the bell. There is also a flooding manifold by which water can be admitted to ballast tanks or to the lower compartment. The ballast and lower compartment have vents opening into the upper compartment. The lower compartment flood pipe has a large cock in to known as the quick-acting valve, the use of which will be explained later (fig. 4).

Hauling Down.

Once a downhaul has been connected, either by diver or messenger buoy, and the slack hauled up on the reel in the lower compartment, the bell is hoisted out by derrick and manned. The downhaul can overcome a friction clutch between the reel and the air motor or can overhaul the air motor so that if it should be hove too taut it should not be carried away by the motion of the ship. As the bell is lowered into the water the lower compartment is vented until it is flooded.

When waterborne the bell is unhooked and, on the order from the surface, the crew start hauling down. A $2\frac{1}{2}$ " wire backhaul remains attached to the bell and is paid out by hand together with the air pipes and electric leads as the bell goes down. This serves as a preventor by which the bell can be hauled back to the surface if necessary.

Making a Seal.

As the bell approaches the submarine the crew look down through sighting ports into the lower compartment and see that all is clear. If so, they continue hauling down until the air motor stalls. They then ship

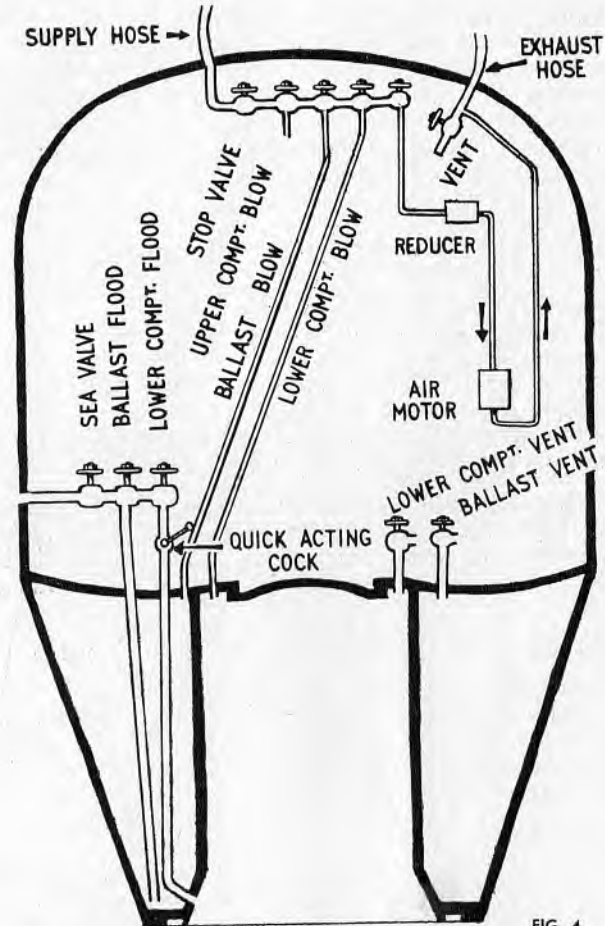


FIG. 4

a long ratchet spanner on the hand turning gear and help the air motor to bowse the bell well and firmly onto its seating. If the submarine has a list they may find it necessary to shift some of the lead ballast to assist

canting the bell the required amount. It may also be necessary to flood some of the water ballast.

When the crew think they have the bell seating all round, the lower compartment and ballast tank floods are opened, keeping the sea valve shut. They also open the ballast tank vent. They then throw open the quick-acting valve which immediately vents the lower compartment, containing water at sea pressure, into the ballast tanks which only contain 'upper compartment pressure' i.e., nearly atmospheric. Provided there is no leak under the gasket, the pressure in the lower compartment is instantly released and sea pressure seals the bell firmly onto its seating with an unmistakeable thud.

If for any reason a seal is not made, air, followed shortly by water, would continue to flow through the ballast vent. The quick-acting valve would at once be shut. The crew would then ease the bell a few inches off its seating, sight all clear and haul down for another attempt. The only reason why a seal could not be made would be because something was fouling the seating or the gasket was damaged.

Securing the Bell in position.

Once a seal is made the water in the lower compartment is blown into the ballast tanks. If there should be too much, as there certainly would be if a seal was not made first time, this would be shown when water came through the ballast vent. It would then be necessary to shut the vent, and the lower compartment flood, and blow some water ballast out through the sea valve. When this has been done the ballast must be vented into the upper compartment and the process of transferring the water from the lower compartment can be continued. When it has all gone the lower compartment is vented into the upper compartment.

The hatch leading into the lower compartment is next removed and a man is sent down to rig two or more bottle screw holding-down bolts between eye-plates round the submarine's hatch and the inside of the lower compartment. When these are set up taut the downhaul can be slacked away.

The fairleading gear is unrigged and pushed to one side.

All this venting of air which has been used for blowing builds up a considerable pressure in the bell (although nothing like full sea pressure, as a rule) and it is necessary at this stage to pause while this pressure is vented off to the surface. This may take some minutes owing to the limited size of the pipe (1½" bore).

Access to the Submarine.

The submarine's crew can be instructed, either by underwater telephone from the surface or by knocks, to open a small vent in their hatch. Thus pressure between the submarine and the inside of the bell can be equalized. The hatch can then be opened. It will probably be designed to open from inboard or outboard, as is the case in U.S. submarines. The one we used experimentally in H.M.S. *Seraph* could only be worked from inboard and I have not yet seen the one for new construction.

If the air in the submarine is very bad it is possible to drop down a hose from the bell manifold and supply some fresh while the bad can vent up through the bell to the surface. Also, of course, the bell can take down protosorb and oxygen cylinders to help alleviate conditions for those who have to await the second trip.

The first load of survivors climb up and an equivalent weight of lead ballast is lowered into the submarine in exchange. Portable water ballast tanks have been tried instead of this but they tended to restrict space in the upper compartment too much.

Returning to the Surface.

The ascent is a reverse of the descent. The submarine's hatch is shut and clipped. The downhaul is rigged and hove taut. The holding-down bolts are removed. The lower compartment hatch is shut, the compartment is flooded from the sea. The ballast is blown, when theoretically the bell can float off. Frequently it is necessary to put a puff of air into the lower compartment to start it off. As the bell floats up air pressure on the air motor is adjusted so that it overhauls at a controlled rate.

Every move made in the bell is reported to the surface by telephone and as it comes up the slack of the gear is taken in. The bell arrives on the surface and is hauled alongside by the backhaul. The derrick purchase is hooked on and the bell is hoisted a few feet alongside the ship. Passengers get out, more lead ballast is taken in and the bell is ready for another trip.

The Rescue Ship.

The ship used in the Royal Navy is H.M.S. *Kingfisher*, originally the 1,900 ton displacement ocean salvage vessel *King Salvor*.

The salvage equipment has been removed and it is not now part of her duty to undertake lifting operations. This was one of the reasons her name was changed when she was converted in Portsmouth Dockyard in 1953-4.

Diving Equipment.

Kingfisher carries electrically driven air compressors and storage bottles for compressed air, which are also used for the rescue bell. An oxygen-helium installation has been enclosed in a gas-tight compartment. A recompression chamber is carried on deck together with two submersible decompression chambers. The former may very likely be required if survivors from a sunken submarine make individual escapes, but it is primarily for use by divers. It is not intended to describe diving technique in this article as it is no different in *Kingfisher* to anywhere else.

Mooring.

In order to be able to operate divers or the rescue bell it is necessary to moor the ship accurately and securely over the wreck. This must be possible in water as deep as 850ft, and in bad weather or strong tides. H.M.S. *Reclaim*, the navy's deep diving training ship, has carried the rescue bell during early trials and can operate it, but she is not equipped to carry her own mooring gear and needs the assistance of other vessels.

Personal Breathing Equipment

Already well-known in the field of
aircraft cabin atmosphere control,

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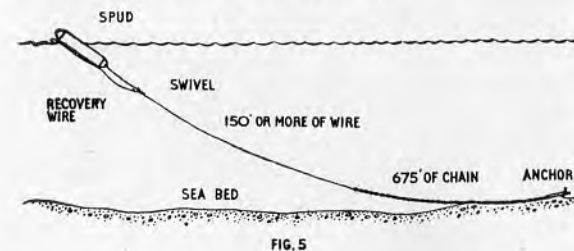
have now extended their activities to
include personal breathing equipment.

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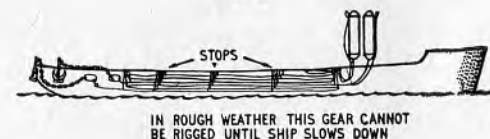
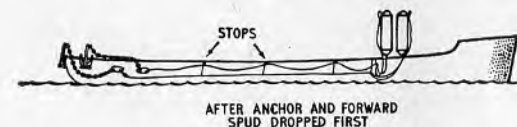
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If the ship is to be firmly held at least four anchors must be accurately placed around the wreck. It would not be possible to drop these successively from the ship and pay out the cable while manoeuvring to each position in turn. The drag of the gear would prevent accurate ship handling and one or more of the cables would almost certainly foul the wreck. It is therefore necessary to be able to drop each anchor with the end of its cable buoyed and leave the ship free to proceed to the next dropping position. In effect, moorings must be laid. Most moorings use heavy gear and more than one anchor, because they are laid in confined space and have to withstand a pull in any direction. In this case, however, sea room can be expected to be ample and each mooring need only sustain a pull in one direction. Therefore one anchor is used for each and as long a length as possible of the lightest chain that will stand the necessary strain. This means that the same gear can be used over a wide range of depths, unnecessary extra length being acceptable.

In *Kingfisher* four 42 cwt anchors are used, each connected to 675ft of $1\frac{1}{4}$ " or $1\frac{1}{8}$ " chain. The established amount should be 720ft of $1\frac{1}{4}$ " chain but this rather peculiar figure arose because some $12\frac{1}{2}$ fathom lengths had to be accepted instead of 15 fathom lengths owing to shortage of supply. This also accounts for the two sizes. The chain is stowed in open-topped bins under the quarterdeck, with both ends up. The top end is lead to the anchor hanging ready to slip from its stowage at the stern. The bottom end is shackled to a $3\frac{1}{2}$ " wire which leads out over the side and onto one of the mooring buoys, called spuds, stowed in chutes, two each side of the foremast (fig. 5).



When an anchor is dropped, it takes the chain straight out of the bin. The old seamanlike practice of verrying some cable out before letting go in deep water has to be ignored. When the chain is nearly all gone the spud is dropped from forward. The wire which has been hanging in stops over the side breaks away and the mooring is then clear of the ship (fig. 6).



The standard gear will serve in depths as great as 285ft. In deeper water more wire must be included between the chain and the spud, this

extra length being hung in long flakes outboard of all on spunyarn stops (fig. 7).

A mooring board is used and the position of each anchor is plotted in advance relative to the wreck. Something has to be used as a datum for plotting ranges and bearings. Under some conditions asdics may be used on the wreck itself but more often a dan buoy or a boat moored over the wreck is used, radar and visual ranges being taken from the ship.

It does not matter, of course, whether the datum is vertically over the wreck, provided its relative position is known or can be estimated. Many United States rescue ships use ranges taken from the boat and passed to the ship by 'walkee talkee.' This appears to have the advantage over other visual methods in that the angle subtended by the relatively long ship's mast can be measured as opposed to the short base length of a range-finder. As yet I have been able to find no instrument in our naval stores which is robust enough, quick enough to read, and covers the required range of angles, so we have not yet tried out this method.

The ship is manoeuvred into each dropping position in turn and finally 9" manila hawsers are run out to each spud by boat. It is possible to lay the last-but-one mooring with its manila already connected, paying out as the ship goes ahead, and then to use a bower anchor instead of the fourth mooring. This has the advantage of getting the ship into a head and stern moor near the wreck without using boats and is therefore useful in bad weather. The boats are necessarily heavy in order to be strong enough to run out generally at least 200 fathoms of large rope. In fact the 28 ft general service launches supplied have had to be strengthened and fitted with more powerful engines to enable them to carry out this task. Handling boats in rough weather may be a critical factor in these operations.

There are many and various methods of laying and securing to these moorings and in America I found that most commanding officers had their own ideas as to the best way.

If boat work were impracticable, it might still be possible, provided the ship was in a head and stern moor, for other vessels to come near enough to take lines aboard and then steam out and anchor themselves on either beam. A certain amount of skill and luck is required in ship-handling in rough weather and if all ships have been clever and lucky enough, an adequate moor might be achieved in almost any conditions. Heavy seas are not quite such a menace to bell handling as might be expected as the bell does not rise and fall in the water like a boat. Having only 1,000 lbs. reserve of buoyancy to its nine tons weight, the seas go over it like a half tide rock. It is therefore difficult to state conditions under which no rescue could be attempted. Heavy seas might prevent diving but if the downhaul came up by messenger buoy a bell run might still be possible. Controlling the bell while it is still hanging over the deck on the derrick may well be the worst part.

Limiting Factors.

H.M.S. *Kingfisher*'s full speed barely exceeds 10 knots so it may take some time before she can arrive at the scene of an accident; however, she may be towed by a destroyer to speed this up.

Experience in *Reclaim* and *Kingfisher* both on the submarine *Seraph* (especially fitted for experiment) and on the dummy hatch have shown that we can operate this gear in tides up to $4\frac{1}{2}$ knots, lists up to $37\frac{1}{2}^\circ$ and depths as far down as 240ft. There seems no reason why it should not be just as easy at deeper depths and we hope to try it out soon.

It takes *Kingfisher* between two and three hours to moor if all goes well, although there are hazards in this business which may easily cause delay. On the other hand with more practice and better boats we may be able to improve upon this time. It is necessary to attach the downhaul by diver, so much depends on the depth, the tide, and the exact positioning of the rescue ship, that no worth-while estimate of the time required can be given. It is reasonable to allow about one hour for each bell run, again provided all goes well.

By kind permission RN Scientific Journal.

LAMENT TO A DIP CHICK

He entered the water with a splash
Right amongst the floating gash,
Relief valve venting as it should
He would have by-passed if he could.

As it was his valve stuck fast
Goodness knows when opened last.
To the depths he then descended
Obviously not properly tended.

Eventually, with lifeline taut
Came up all standing as he ought,
His drums to bursting point were straining
His lungs and chest likewise complaining.

Now Diver Dan upon the deck
Has seen his comrade's violent check,
With little fuss and less ado
He eased the line from round his shoe.

Our diver's fate we now relate
St. Peter met him at the gate
A gory mess our friend presented
Revolting to the best intended.

Christian principles remembered
Diver's corpse was soon dismembered,
And pickled away in heavenly juice
To guard against its further use.

St. Peter being well versed in things
Issued Aqualung with wings,
Our friend was sent to nether regions
Draft note marked Cloud Clearance Regions.

By B. FILER.

NOTES FROM THE MEDITERRANEAN FLEET CLEARANCE DIVING TEAM

Greetings from this ruptured isle.

Since our last letter we have been graced (????) with the presence of C.P.O. Allen in the hut next door. The amount of chalk dust flying about is often mistaken by the locals for a sirocco.

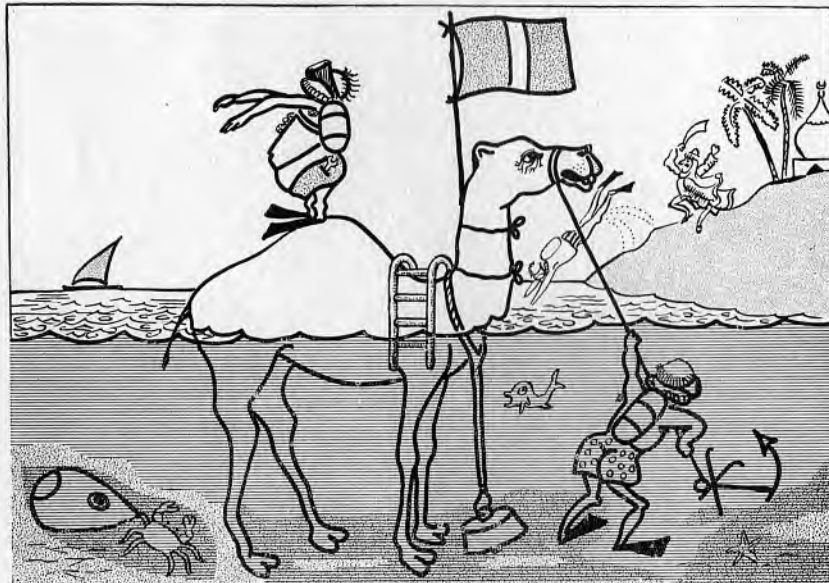
We, the team, have recently returned from cavorting with our French and Italian counterparts at Marsala and Bizerte.

At Marsala full advantage was taken of the opportunities to visit the local winery, which, together with other nefarious and nocturnal skull-duggery, seems to be the main industry of this charming little island.

At Bizerte we had a return run with the French team whose hospitality with wine and women was overwhelming.

On our return to Malta, Mr. Lawrence and two members of the team were shanghaied to Benghazi and Tobruk to deal with a mine, a British 1,000 lb bomb, and a certain number of shells. They were disposed of in the approved fashion (BANG); and 'tis said that there are a lot of humpless camels wandering around the desert.

Diving out here at this time with the temperature down to 70° and the visibility closing to 100 ft is 'rough brother, mighty rough.'



SHIP OF THE DESERT RIGGED FOR DIVING
If required for acoustic mines treat daily with bi-carb

Another of our interesting jobs was to render aid to a French submarine who decided to do it the hard way and go overland. However, she inflicted little damage on herself and, according to *The Times of Malta*, we heaved her off only slightly the worse for wear.

The article in a previous issue of this magazine *re* experiments with sharks was noted with great interest and we all agree that experiments should be carried out, having in mind a few persons who we think would make smashing bait. The laws of libel forbid us from naming them, but there is one little red man on a little diving boat in the Hie'lands who would be ideal for the job.

Cheerio, and all the best from Farsons.

SAM.

CHATHAM DIVING SCHOOL NOTES

We do apologise for missing the last edition, and can only put the lack of news from the East down to the fact that we are all so thin and half starved after a certain A.G.M. that we couldn't put pen to paper. We are, however, getting used to our new diet; you can get used to anything, so here goes.

We have had three additions to the family: P.O. Bull, Melville and a Diver 3 goat (yes a Goat) called Patch. Patch managed to join the School in the absence of the Officer-in-Charge, who was busy on the coast at the time, and Patch's sole contribution to the efficiency of the School seems to be a liking for Fag Ends, and also keeping unwelcome visitors away.

C.P.O. Brooke-Foster has gone to the Clyde Diving Unit, who deserve our pity, as he was very C.D. minded, having been doing their training for two years. I can see that they will now swim to any job in the Clyde.

P.O. O'Conner has been drafted to *Kingfisher* and P.O. Killon to *Civy Street*. We presented Killon with a mug at the 'Jolly Sailor' and I am sure that we all join in wishing him good luck in the great cold outside world and—should we say it—'Happy Returns.'

Petty Officers Jackson, Foreman, Helps, and Flanagan, can now be addressed as Deeps having successfully completed the Diver 1's course.

We are getting in some interesting work on Upnor Pier, which should last a few months; blowing it up in fact. So if anyone is in the Chatham area and hears loud bangs followed by a liberal supply of mud—You have been warned.

The new 75 ft M.F.V. will be coming along in February—suppose it will be here long enough to have been thoroughly cleaned up and in working order before shifting billets.

We are just removing the carpet after the visit of HIGH DIVING and in doing so found only a couple of missing files—must remember to put them back.

This is all for the moment,

All the best to Divers everywhere from Chats.

J. ROCK.

A watch that stays waterproof 660 feet under water!

ROLEX have produced a new watch for sea-going activities called the Submariner. Particularly designed for deep-sea divers, this special Oyster wristwatch is guaranteed waterproof and *pressureproof* to 660 ft. (200 metres) under water. Incorporated in the Submariner is the revolutionary "Time-Recorder" revolving rim, which enables the watch to be used as a stop-watch. It is invaluable for navigation, speed testing etc., and *indispensable* to divers, who can now tell at a glance how long they have been under water and how long they may safely stay there.



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BREAKING THE WORLD'S DIVING RECORD (1948)

by

LIEUTENANT COMMANDER H. WARDLE, R.N.

(Note—This article continues from Part 5 in Vol. 3, No. 4)

Part 6—Oxy-Helium Diving

All who have qualified in deep diving know that the success of every dive depends on the efficiency of the whole diving team and only to a small extent on the man actually diving. Indeed, it would probably be more correct to say the efficiency of the ship as a whole. It was quite clear, therefore, that if we were to be successful the Oxy-Helium Drill must be perfect with all the team knowing exactly what to do.

Commander Shelford, Surgeon Lieutenant Barnes and myself had discussed the procedure to be carried out down to the last detail. As a result of this I had produced a Oxy-Helium Drill. The overall principle of this drill was: (1) That we would follow normal British Deep Diving on Air procedure only modifying the drill where it was necessary due to the Oxy-Helium factor. (2) Where modifications were necessary we would carry out the normal diving practice of doing as much as we could from the surface. (3) We could economise as much as possible on Helium observing we have only 20,000 cub. ft of Helium for the Trials. (4) The equivalent O₂ depth would never exceed 33ft. The main modifications to the drill were as follows:—

- (a) The Submergible Decompression Chamber would be lowered to the diver's first reasonable stop (i.e. of about 5 minutes' duration).
- (b) The diver would remain on air until he reached the S.D.C.; he would then stop until changed over to Oxy-Helium.
- (c) The diver would be pulled up from the bottom.
- (d) On reaching the S.D.C. he would get on to the S.D.C. ladder in the normal way, keeping his helmet on so that the Helium escaping from his outlet valve would dilute the air in the S.D.C.
- (e) The S.D.C. would be hoisted up in stages to conform to the diver's stops.
- (f) The diver would enter the S.D.C. at 60 ft, and go on to Oxygen from the Novus Set to complete his decompression.

To meet (b) above an air supply was connected to the Oxy-Helium Panel. It was decided, therefore, to exercise the team to 300 ft. on Air carrying out the full Oxy-Helium Drill. This proved invaluable, and when all had dived most of the divers preferred air diving with the modified procedure to our normal drill. Being pulled up instead of spindling up was the main attraction.

During this period our infallible Leading Sick Birth Attendant Soulsby with Petty Officer Hopewell had been mixing and analysing the Oxy-Helium. Soulsby was not officially a Deep Diver but there was not a diving job in the ship he could not turn his hand to.

Friday, 14th August saw the end of the Air Dives and we were all flat out humping around O₂. H_e. bottles, checking cannisters, air pipe, etc., ready for Monday morning.

I was now faced with a difficult problem. With our short supply of Oxy-Helium it was clear that all the team could not dive on Helium. The undermentioned team were a mixture in age and experience, with no attempt being made to pick out the best. The only deliberate eliminations were Chief Petty Officer Clements who I wanted on the Oxy-Helium Panel, Shipwright Harfield to keep the rather complicated Diving Record, and myself as Officer in charge.

Oxy-Helium Diving Team.

Mr. W. Barrington, Gunner (T), R.N.; P.O. Hopewell; P.O. Soper;
P.O. Bollard; P.O. Bryant; A.B. Caruthers.

Reserves and Stand By Divers.

P.O. Yates; S.P.O. Jackson.

Morning 16th August saw *Reclaim* on top line. To facilitate later concentration on the team it was decided to dive the reserves first. Both carried out an efficient dive to 250 ft on a 20/80% Oxy-Helium mixture. Neither felt cold. I should mention here that the Electrically Heated suit had become unservicable so we were using normal woollies.

During the next two days the 'Team' dived to 300 ft on a 15/85% O₂. H_e. mixture. All went without a hitch. When we thought of our troubles at this depth in H.M.S. *Deepwater* only the previous year the simplicity with which we had put six divers down to 300 ft sent a great wave of confidence throughout the ship.

Typical Divers' comments were:—

'Not as cold as I thought it would be.'
'Head much clearer than when on Air.'
'Helium better than Air.' 'Quite Comfortable.'
'Lovely. Quite warm enough.'
'Hard to believe I was at 300 feet.'

Thursday, 19th August saw the start of the 360 ft series. Mr. Barrington led the way and with 358 ft broke the 16-year old British Deep Diving Record of 344 ft. The end of the day saw two more successful dives to 360 ft and some comment on the cramped conditions in the S.D.C. during the long decompression.

As the period in the S.D.C. would be longer for the proposed 400ft dives it was decided that on the next day to 'Surface Decompress' the diver and his attendant, and transfer them to the comfort of the main 'Recompression Chamber,' after 10 minutes at 30 ft in the S.D.C.

The other three members of the team dived the next day without incident. The transfers were carried out with great efficiency and was a very popular move from the divers' view point.

The diver's comment on this series was 'The dive is little different from my first 20 fathom dip.'

So our first week's Oxy-Helium Diving ended with the reigning British Champ an Able Seaman Diver 3rd Class with 364 ft to his credit.

(Part 7—The Final Dive, will be included in the next issue.)

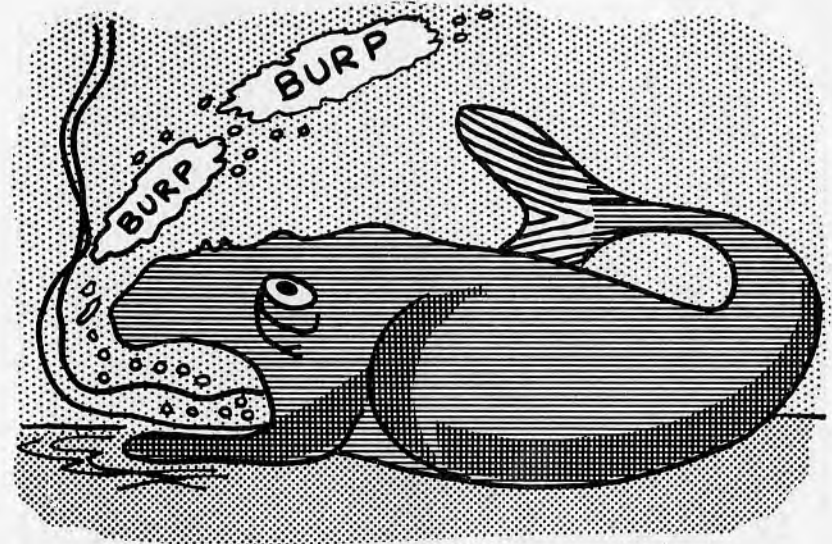
A MORAL ALPHABET D

(With apologies to Hilaire Belloc)

The Deepest Diver that dared to be,
Will have to do the best for D.
The Early world observed with awe
The Brazen Pot-like top he wore;
His look was gay, his voice was strong
His air-pipe neither short nor long;
This pipe, or elongated hose
Was not so large as some suppose
His lungs, as suits most mammals best
Delighted in fresh air and rest;
He therefore should have wished to spend
Long peaceful nights without a bend
But being mad the brute did choose
To root amongst primeaeval ooze
A creature effervescing thus,
You see at once could hardly fuss,
When bubbling madly as he shot
From mud to surface bent a lot
His fossil therefore comes to light
Schweppervescent: Serve him right.

MORAL:—

If you were born to walk the ground remain there, do not fool around.



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NOTES FROM CLEARANCE DIVING TEAM POOLE (AMPHIBIOUS)

The Amphibious School has completed its first full year at Poole and we are getting used to trekking back and forth across the wide open spaces which separate the various parts of the school.

The team is looking forward to Spring and the chance of getting outside more frequently; the water near the home base is nowhere more than twenty feet deep, which cramps our style a bit, especially since the bottom is about as flat and uninteresting as it can be.

The yarn of the month: Two swimmers surfaced and said they found difficulty in breathing; ice was found to be forming in their breathing tubes!

Our membership is now: Lt. Parker; P.O. Lennon; Ldg. Sea. Andrews, Baldock, Dunbar, and Farley; A.B's Ayre, Smith, and Tyzack.

We shall look forward to seeing you whenever you pass this way; if you live in *Deepwater* you will be seeing our ugly faces at frequent intervals. H.P.

NOTES FROM THE 50th C.D.T.

Brr! It 'aint 'alf chilly up 'ere, but a pleasant break occurred a fortnight ago when in company with *Inglesham* and our gallant allies in *Brenchley* we set sail for Dundee—somebody said it would be a piece of cake! The object of the visit was to boost the Tay Division R.N.V.R. recruiting drive; this was achieved, but it was somewhat significant that the W.R.N.S. had the highest recruiting 'figures.' We gave three displays in the Dundee Public Baths as a joint 50th and 51st effort; at the last show 400 people were shut out after the baths had been filled to capacity. We draw the conceited conclusion we were a hit. We formed a good liaison with the Dundee Sub-Aqua Club and were most impressed with their enthusiasm. We dived the division's 'Toothy' who hopes to become their shallow water diving instructor; he appears to be excellent material, we didn't probe his dental capabilities.

We arrived at Dundee on the Friday and were due to leave on the Monday but for divers reasons and the fact that 'the bar' was impassable we did not arrive back in Port Edgar until Thursday tot time and then only by *Brenchley's* good leadership, as by that time it was only possible to take a dim view of anything outside Dundee.

We congratulate 'Harry' on picking up his hook (what no cooking?) and wish him luck in his future jobs. In Harrison's place we welcome A.B. Whitmore and apologise to him for the soda-lime flavour of our soup.

It is with regret that we hear of the passing away of Lt. Cdr. Maclean Foreman. Working, as we are, in *Brenchley*, his last Command, it just doesn't seem possible. We extend our deepest sympathy to Jane and the children in their sad loss.

Working in close co-operation with the 51st C.D.T. has brought a little warmth into this otherwise dour and bitterly cold area of operations,

any dirty jobs they take from us should be considered as purely coincidental.

We have reversed our telescope for the purpose of looking into the future; *Diver* gets annual inspection next month, the Skipper swears he used to possess a sword and medals and has given us three weeks to find them.

Did you hear that crack on the radio the other day? 'He's very inventive, he's invented an upside down lighthouse for submarines'; we might even use it if we venture out of the Forth again, it would be easier to time the flashes as we troll over.

Until next time, cheerio, good diving and roll on summer, we did get one last year. 'B.F.'

THE ARMCHAIR DIVER

Cold work for you active chaps. Now that the thaw has set in let's see what's happened in the Diving World.

We must of course remember the passing of Lt.-Cdr. MacLean-Foreman and convey our deep sympathies to his family.

The funeral, with full Naval Honours, took place from Haslar Hospital on Friday, 10th February. The bearers were diving officers—all personal friends of Mac. The cortege and field guns crews carriage were from the Diving Personnel.

Mac's diving career was briefly *Lochinvar*; M.F.V. 1609; 51st Flotilla; H.M.S. *Brenchley*; A.S.R.M., Poole.

At a recent film premiere in Paris, Captain Cousteau of the French Navy showed his film 'The Silent World.' The Divers I see were using underwater scooters. We expect to see Lt.-Cdr. Brooks and his team to suddenly appear mounted on their scooters (borrowed from their French confederates) or with the machine tucked under their arm with a spurious British label.

The Sub-Aqua clubs are a permanent and mounting responsibility; we are visiting them and they are visiting us. Their queries are numerous and most involved. Problems like Filters, Testing, Charging are always cropping up.

There is a future on any southern beach for the person who sets up his pump or compressor saying FILL UP HERE 1/- PER BOTTLE.

Further lectures are being given by the Diving Officers to the numerous youth organisations in the country; Portsmouth Cathedral club and the Y.M.C.A. at Nottingham are the next on our list of visits.

Holidays in the South of France and some of the Mediterranean Islands are advertised entirely with the underwater adventurer in mind, 'All in' fees are moderate and include use of apparatus and instruction. With the new rates of service pay it is expected that divers will be flocking to these camps for their August leave. At least you won't return in plaster as does the ski-ing diver. It has been suggested that he takes his standard boots off when he slaloms.

Horsea Island improves day by day; real roadways, level and smooth macadam surfaces—Mr. Dodd has been driving the boys hard, Rome wasn't built so quickly; soon we hope to have a high class galley close to the diving position.

Lt.-Cdr. Warner is now on his slow boat to China. We hate to think how long the turn-over will take. How long does it take to learn to count in Chinese?

There is an awful buzz that we may have to increase the price of the magazine to 1/6. There is a way you can help: Sell the extra copy; Write an article; The larger the Mag., the greater the interest and value and so the higher the sales. It's as easy as that. Those odd units like *Jupiter*, *Lochinvar*, B. and D. Team, Singapore. Don't stay dumb, give us the gen, we will write the article.

Sad news, the unit's barber has been detailed for *Kingfisher*. He joins her on the 9th April. *Vernon's* divers owe him a great debt for snipping for nothing, contributions to the Divers' Wireless fund. So goodbye Teazy Weazy—keep the weapons sharp and we will let our hair grow.

Doctor Fulford is now doing his diving acquaint course—he joins *Kingfisher* next month. We are sorry that his first ship must of necessity be a Chatham ship but no doubt he will remember his Pompey training.

Bill Gates is off to the Med. to relieve Nobby Hall in *Forth*, and Blackie will probably relieve Jones in *Adamant*.

Our heavyweight champ, L.-Sea. Fisk, met his match this week in the boxing meeting R.N. v Slough. He went down so often that the referee had to count him out with combined dive stops.

Got to stop, the tea boat has arrived. Send me any snippets of news you may come across, I can't go out and search for news, somebody might pinch the chair.
H.D.S.N.G.W.

NOTES FROM THE FAR EAST CLEARANCE DIVING TEAM

It is with regret and surprise that, upon doing a few mathematical equations, we discover it is almost a year since we last contributed to the *Diving Magazine*, and so with thinking cap on and pen and paper at the ready here goes:—

The activities of the team during the last twelve months have been numerous and colourful in more ways than one, and have included visits to the outposts of this large and interesting station. Early in June most of the team, together with equipment, embarked on H.M.S. *Oppossum* for passage to Singapore. Upon our arrival I was pleased to discover that Mr. Mapple had arrived from the U.K. a couple of days before us. Thus with Lt.-Cdr. Crawford in *Cossack* there were for the first time THREE C.D. Officers on the station at the same time. I will leave the social life of this trio to your imagination.

The main object of this trip was to enable us to take part in a Fleet Exercise and then to carry out shark trials. After only a few days ashore, we embarked on H.M.T. *Enigma* and sailed with the fleet which consisted of ships and submarines from the R.N., R.A.N. and the R.N.Z.N. The day following the exercise, which was successfully carried out during the night of the 10th of June, we were detached from the fleet and still in H.M.T. *Enigma* we proceeded to Pulau Tiomim which is an island of the east coast of Malaya.

Our shark trials were most enlightening, and an enjoyable diving programme followed. The story of our experiences during this series and also a further trial conducted at a later date will be covered by an article to be included in the next edition of this magazine. Came the end of June and Mr. Mappley was called to render safe a Japanese mine that had been washed ashore on the north-east coast of Malaya. He arrived on the spot by means of rail, air, jeep and jungle foot-slogging. The mine was duly rendered safe. But oh, the story we heard on his return. At the same time the F.C.D.O., together with L/S. Sadler and A.B. Egan, sailed in the Royal Malayan Navy M.L. No. 3508 for the East coast of Johore. The Gurkha Regiment had been carrying out one of the many operations against bandits, when one of their craft capsized. Our job was to recover the Bren guns, rifles, etc. With the excellent knowledge of the M.L./C.O. Lt.-Cdr. 'Jock' Erskine, a well placed marker by the army, and some good diving by the team, we were on our way back to Singapore the following day with all the guns and ammunition in our possession.



THE DIVERS' MESS, H.M.S. TAMAR, CHRISTMAS DAY 1955

Seated, C.P.O. Hopewell; Left to right, L/S Wilcox, A/B Merrill, A/B Horner, A/B Davies, A/B Hendricks, L/S Saddler, A/B Carr, A/B Egan, A/B Stockton, A/B Stuart, A/B N. Carr

Most of July was spent carrying out further shark trials, trying to find out a little more about their habits. It may be interesting to note here that on one occasion a 6ft tiger shark was hooked and landed. Whilst the shark was wriggling and snapping on the deck, attempts were made to stab the shark through the so called 'soft' underbelly, using a Diving Knife Patt. No. 110. Although the knife was brought down with the full force of the forearm in no case did it penetrate the shark's skin. So much for FILM AND FICTION! There is obviously some difference between a tiger shark's and a nurse shark's skin.

August saw our return to our home base, and old hunting grounds, Hong Kong. September and October passed with little of interest except the Annual Cross Harbour Swim from Kowloon to Hong Kong, and *Tamar's* regatta. F.C.D.O. pulled for the officers' crew which finished first. The C.D. team did well in coming a close second especially as they has been out on an exercise the night before.

C.P.O. Hopewell arrived early in November to relieve P.O. Butler and has now settled down to the way of life out here.

Christmas arrived with its accompanying festivities and once again the divers won the cake for the best decorated mess. The New Year was greeted in the traditional way and once again life returned to normal. Our opposite numbers, the B.D.O.'s team, did well the other day in recovering an Auster aircraft which crashed in Tolo harbour, a well executed operation.

With best wishes to all the diving fraternity.

F.C.D.O./F.E.

U.D.E. (Portland) CLEARANCE DIVING TEAM

Since last appearing in these pages we have been engaged mainly on trial work, local port commitments and exercises. Apart from a rather hectic month at Falmouth, life has been unusually placid and this current issue will probably find us still daily chugging across Portland harbour to our stamping ground in Weymouth Bay, or searching Jetties and quaysides for tool boxes and guardrail stanchions. (Anyone know a market for old messtraps?)

We are expecting, almost any day now, the arrival of two canoes on temporary loan from our friendly neighbours, The R.M. Amphibious School S.B.W. It is hoped that the introduction of these craft will add spice and variety to our daily round. Meanwhile we just plod on and there are now very few places round these parts which have not felt the stamp of our tattered (but treasured) last two pairs of 'old type' short length 'P' boots. (We favour them much more than the newer longer type but then I suppose it's just a matter of taste.)

Recently we have completed a concrete diving platform with steps virtually a continuation of our own doorstep, and find this extremely useful for testing leaky suits, using shallow water diving candidates from H.M.S. *Osprey*; if they get a dry dip, they scrub out the store afterwards anyway, so at least contribute to raising our already (ahem!) high standard.

Our so called liaison with 'X' craft merchants is still on the same old footing, and as usual consists mainly of a one-way traffic in 'proto' and 'gas' bottles in a Westerly direction along the South breakwater arm; rumour has it that the O₂ is being used to liven up barrels of stale beer and home-brewed 'scrumpy.' Talking about stale beer, may we take this opportunity of wishing C.E.R.A. 'Yorkie' Barker the very best of luck in his next job, which we understand is a spell of 'Gens.'

Last but not least we should like to mention our chums in Maidstone who by the time you read this will have completed their bottom survey of milk tins and paint pots, and possibly will be afloat on the Spring Cruise.

We shall wave them goodbyes
With tears in our eyes
Oh! do come back to me
Our dear old R.C.C.
nuff said!

Regards to all, and here's an open invitation to all in the fraternity to look us up any time you are in Portland. Our store is on the South Breakwater Arm and our telephone number is Portland Dockyard, Extension 2205, and so cheerio from Mr. Currie-Davis, P.O. 'Daddy' Christmas, L/Sea. 'Boom' Cannon, A.B. 'Shiner' Wright, A.B. 'Merry' Christmas and A.B. 'Ginger' Richard.

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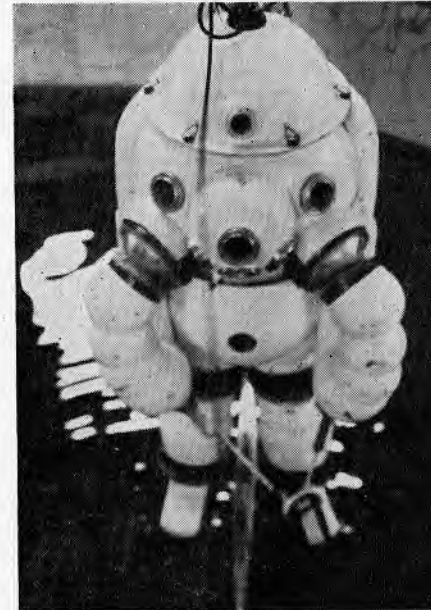
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"NIAGARA" RECALL



The rattle of teacups in the odorous pantry heralds the dawn of another day and the stewards, tousled, unkempt, busy themselves with the tannin compound that will resurrect life to all hands.

The salvage vessel *Foremost 17*, weatherbound at the Reotahi anchorage, swings in the tide rip, and a long belch of oily smoke pollutes the early morning from her rakish funnel.

The light off One Tree Point blinks its fitful message into the murk.

'Main engines at 6.30, please, Chief.'

The skipper, early astir, cocks a wary eye at the dawn gloom of the New Zealand autumn, and, satisfied that the weather is improving, seeks

confirmation in the early weather report.

The crackle of atmospherics blends with the staccato announcements. 'Good! Let's go!'

In the wheelhouse the steady drone of the gyroscope links with the occasional 'tick' as the ship frets in the tideway, and the stand-by helmsman, hat arake, cigarette glowing, awaits orders.

'Weigh-forward.'

Arthur, the mate, supervises the cable snaking inboard, jets of steam from drain cocks obscuring him at times.

The cable clatters down the locker, creating an all too familiar bedlam within the confines of the awaking forecastle.

In silence, the telegraphs are ordered to 'Stand by' and down in the engine room the chief complies.

As the anchor comes home, the mate signals the bridge the decreasing number of shackles and, looking overside, notes with satisfaction that all is clear.

'Aweigh.'

'Half-speed ahead. Hard a starboard.'

The strident cacophony of the steering engine destroys the last semblance of peace on deck, and the asdic officer groans in unison from his nearby bunk.

'Steer 130 degrees.'

The wheel spins under the guidance of Arty, and the little vessel noses seaward, rippling of bow wave under forefoot and milky azure at stern.

The two cooks, busy in their galley aft, whistle tunelessly as they prepare breakfast.

'What! Eggs and bacon again!'

Products of hen and hog spatter and crackle in the pans and their aroma vanishes into early morning air through vents and fiddley.

Helmsmen and firemen alike notch in their belts – it's not breakfast time yet and the smells are tantalizing.

Gathering speed and threading tortuous channels '17' pushes a furrow to her rendezvous in between Bream Head and the Moko Hinau Islands where, hundreds of feet below, the stricken *Niagara* lies.

The Sugar Loaf and Smugglers Bay drop astern to port.

Half-naked betowelled men splash noisily in buckets or jostle for a wash in the tiny washplace, and the watery sunrise glows on tattooed forearms and matted locks.

'What's the prospects, Skip?'

'Looks fair enough, I think, Frank.'

Breakfast over, a haze of tobacco smoke fills the messroom and saloon and dispels as all proceed to their duties.

The clatter of crockery being washed up emerges from the pantry, mingling with the din of winches on deck. Wire hawsers veer and haul, a trap for the unwary.

The salvage officer returns to his room, pipe aglow.

The divers, long versed in their duties and craft, repair on deck.

'Whatcher, Chads.'

'Howyar, Dick'

'Whatcher, Frank.'

'Hiya.'

The ship curtsies to the long swell outside and forges along steadily, leaving a smoky signature skyward.

Salvage hands, under the mate, prepare the hawsers while the greaser, oilcan in hand, does the rounds on piston slides and cocks. The donkeyman, Harry, sunlight aglint on spectacles, sounds the tanks with a flourish, logging their contents with stubby pencil. All is well and today, maybe, a few more bars of gold will be snatched from the deep.

The recompression chamber door clangs open as Charlie, the diver's winchman, assists with the tools for the day's diving.

'Chamber and Iron Man?' – 'Yes.'

Soda lime rustles into canisters and the clang of spanners betokens the changing of oxygen cylinders for the job. The Iron Man hisses a little and gives a metallic hiccup to acknowledge his cylinders are full,

and continues to gape owlshly at the world in general, steel arms crossed in idleness. Soon he will be feeling nearly 200 lbs of pressure all round him, with his steel mate, the observation chamber.

'There's the buoys.' The captain lowers his glasses as the ship closes smoothly on the wide circle of yellow topped conical buoys, bobbing in the seaway.

'Stop engines. Out boat.' The ship's momentum eases and she rides easily to the swell. The giant derrick swings over obediently under the watchful winchmen and the purchase wire snakes down to Willie, the launchman, who hooks on with the ease of long practice.

The reek of petrol assails the nostrils as the boat is fuelled. Watching the roll, the mate hoists out the boat, the mooring party scrambling into her as she becomes waterborne. With a stutter, the engine roars into life. Rapid orders from the bridges and Willie, tiller in hand, hurtles off with the snakelike hawsers trailing astern, to make fast to the appropriate buoys.

For about half-an-hour the air is strident with commands and replies until the salvage ship lies snug over the wreck. In the control room, the 'tch tch' of the echo-sounder reveals the outline of the prostrate ship, in her watery tomb.

The boat is hoisted inboard, swaying into her crutches. Busy salvage hands haul the chamber and Iron Man to their appointed places, while Dick runs out the attendants' 'phone leads. Frankie, the electrician and 'ping' man, checks over the amplifiers. The job of attendant is a vital one, he being the sole arbiter of the accurate interpretation of the submerged diver's orders. Inaccuracy means—fatality on this operation. Frank, the diver, briefed and ready, checks his canister and cylinder and slips into the chamber, chamois leather to hand and throat 'phones dangling ready for connection. 'On lid.' 'Up Charlie.' The chamber lid is hoisted gently, with submarine light attached, and clangs into position. Spanners fly as the diver is screwed down. With a crackle of distorted fuse, communication is made as Frank plugs in.

'Hello surface. Can you hear me?' 'Hearing you loud and clear, over.' 'All ready?' 'OK' 'Up Charlie.' The chamber rises from the deck, swings overside, and plunges into the greeny blue murk.

'Ready to leave.' – Frank adjusts his mask and settles in his seat, as, smoothly, with pauses to lash cables together, he descends, through schools of curious fish, to the ghostly fastness holding the erstwhile pride of the New Zealand waterfront.

'Last stop.' Just above the wreck, Frank awaits his partner. Peace reigns below. On deck, Chads appears, incongruous in waders. Adjusting harness, canister and 'phones, he climbs into the Iron Man, and, with difficulty, slips into the steel limbs. Tools waggle, free to use as required. Oxygen, main ballast and fan motor are tested.

'Right, on lid.' The dome is raised, and once again spanners clank closing the air and light from lungs and vision. Frank, immersed hundreds of feet below, links up with a cheery wisecrack, control and bridge check and Dick confirms all communications.

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'OK.' 'Over the man. Up Charlie.' With a nip of the limbs as the cradle is cleared, Chads becomes airborne in one third of a ton of steel. 'Lower Charlie.' With a splash he enters the water, and floats! 'Flooding ballast.' A gurgle of entering sea water is heard as the ballast tank floods up – then, all is silent.

'No leaks.' Good. 'Nice change.' 'Ready to leave.' From sunlit blueness to green, green to semi-darkness, the Iron Man descends, surrounded by fish, goggle-eyed at the strange intruder. Kingfish rasp at the ballast tank, very chummily. 'Last stop' – from the surface. 'Hiya Chads.' Through the eerie gloom, Frank appears, chamber rotund and red eyed, and beneath both human denizens of the deep, the dim lines of *Niagara* appear. 'Lower both together.' Obedient to commands, Iron Man and chamber approach the wreck. Two passenger decks, ripped apart by explosives, gape and protrude with penetrating fingers.

The chasm of fatal mine explosion appears. The bullion room lies beneath us, its contents still, and ever, coveted by man. 'Three feet to port.' Frank's command is heard and obeyed on deck, the resultant movement being transmitted through the suspending hawsers to submerged divers both. 'Heave aft on the traverse.' Cheek by jowl, chamber and Iron Man are aligned to lower, and slowly enter the bullion room.

'On light.' The stygian gloom is alleviated – a little, by the light. An eel glides into further gloom. To both divers a picture is etched sharply on the mind – tortured steel atwist, gaping rivet holes, debris, oily mud – and – bullion boxes inaccessible to previous salvors.

Scrabbling in the watery murk, Chads is watched with interest by Frank, his eyes wary, too, on the slack cable. With iron limbs pinned by slurry of wreckage, the search continues, until the peak of salvors' dreams, GOLD, is wrested from the deep. 'Lower the grab.' Meanwhile, on deck, the favourable cry 'Teasup,' mingles with the clatter of the winches. Robbie, the sailors' 'peggy' circulates with tea and biscuits. In due course, Frank and Chads will emerge, sunshine scintillating on cascading water – sometimes successful and sometimes not.

'Dick's turn now.' The weather holding, the little ship, small world of endeavour, will chafe at her buoys as the sun sets. The Moko Hinau Island light renews its winking warning to the mariner.

And far into the night, the wail of Jock with his bagpipes and Mike his accordian will blend with, far to the west, the songs of New Zealand.

C. W. CHADWICK, *Deep Diving Officer.*

SALVAGE SECTION—H.M.S. SAFEGUARD

FEBRUARY, 1956

Since the last issue of the magazine, there has been one important change in the staff; Senior Commissioned Boatswain, Mr. Barrington, M.B.E. (Q.D.D.), R.N., being relieved by Senior Commissioned Boatswain, Mr. Gordon (Q.D.D.), R.N.

We were sorry to see Mr. Barrington fiddle himself into a comfortable chair in the diving section at H.M.S. *Vernon*, he must have taken a leaf from the spider of Robert the Bruce whilst resident in Scotland. We also hear that on his journey South he attempted to sabotage the 'Last link with civilisation'*—after all we'd done for him too. No doubt Mac. Barrington will wear out 3 trousers to 1 jacket in the chair, and numerous pencils sorting out Q.D.D's to go to *Reclaim* and *Kingfisher*—excluding Mac. Barrington. We wish him all the best of luck, and hope he will visit his old school at Pitt Street to keep his weight down.

We welcome Mr. Gordon, who is once again back in the land of his ancestors, and we will all be very disappointed if, in the near future, he doesn't appear on the target in kilt, sporran and claymore.

We have had our usual S.W. Classes, but the cold weather seems to dampen their enthusiasm for getting under water. The same as down South, we have had lots of that white stuff that looks good only on Christmas cards. The staff had one trip to the R.N.A. Station Lossiemouth to exercise their S.W. Divers, and to survey the U/W fittings, etc., of their M.F.V. If anyone needs a guide on how to fit out one of these vessels, I strongly recommend a trip to Lossiemouth to inspect their M.F.V.

An interesting job almost came our way recently, when a Norwegian ship went ashore in the Pentland area. It is not Admiralty policy to compete against civilian firms—quite rightly so—and the chances of any work in that direction are remote. We are looking forward to the Salvage Course starting mid-February; the tank heating unit is working well, and we will endeavour to keep the temperature in the vicinity of -10° .

All the best from the land of the Haggis.

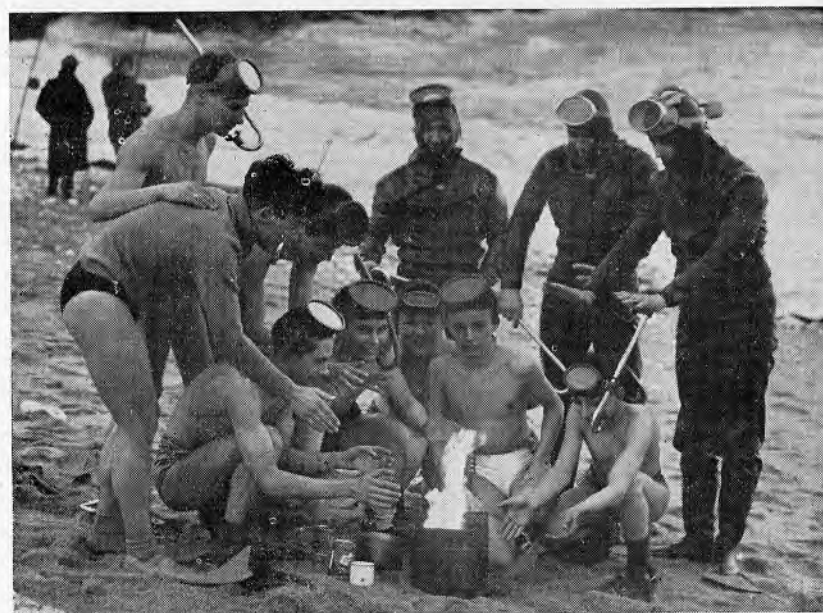
ALGY.

* For the uninitiated—The Forth Bridge.



THE EXPERTS

A-TISHOO, WHAT A FLIPPING SWIM!



AND WILD HORSES WOULDN'T DRAG ME IN

By ARTHUR DAY

There were 12 shopping days to Christmas. There had been over-night frost. The weather forecast was SNOW.

A bitter nor'easter sent clouds scudding across a steel-blue sky, and wild white horses stamped in a foam of froth and spray over the beach of the North Landing cove at Flamborough, to rear up high against the cliffs. A party of Hull sea anglers plied their rods for inshore cod, weather-proofed in cocoons of thick woollies, fleecy-lined jackets, Bala-clava helmets, hoods and sea boots.

Like thousands of winter anglers they had risen early. But they were not prepared for a school of the strangest 'fish' they had ever set eyes on, as rubber-suited and helmeted members of the Leeds Underwater Swimming Club suddenly broke surface. 'Str'th' cried one; 'I don't believe it' muttered another; 'They must be mad!' gasped yet another. Then words failed these Hull anglers when the 'skin divers' of the club frog-flipped their way across the beach wearing only swim trunks, goggles and breathing-tube headgear, to plunge into the 38° sea.

It was Brrrrr-eath-taking just to watch. All the rubber-suited swimmers remained in the water for half an hour. By exercises in three- or four-fold layers of heavy woollen 'undies'—socks, long-sleeved pullovers, 'long Johns' (you may know them as combs) or flannel pyjamas

—they had first worked up a warm body temperature, which they then trapped in their airproof and waterproof rubber suits worn over their welter of woollies, before dashing into the sea. Their 'undies' were perfectly dry after their immersion.

Why must these aquatic Spartans go down again to the sea when it's at its wint'ry wildest?

The leaders of the party, Admiralty official Geoff Cliff and commercial photographer Alan Dredge, explained: 'It's good training. It helps to tone and toughen us up.'

Eddie Chadwick, T.V. engineer, at 43 the oldest of the swimmers, wore an automatic self-inflating life-jacket over his rubber suit. 'But I didn't have to squeeze the trigger that blows it up,' he said afterwards.

Bill Robertson tried out a double-skinned rubber submarine escape suit, but found difficulty submerging because air retained in the suit gave him too much buoyancy.

COLD FEETNOTE:

I took swim trunks and woolly undies along, too, but decided to let the others have the fun—while I watched in heavy overcoat over warm jacket, polo-necked jersey, cavalry twill trousers and with feet in fleecy-lined boots. I CAUGHT A CHILL!

This condensed version of an article which appeared in their columns and the photograph, are reproduced by courtesy of the YORKSHIRE EVENING POST.

NOTES FROM H.M.S. CALEDONIA

This 'Empire' was introduced to the 'Diving World' for the purpose of giving early underwater incentive to Boy Artificers. When I took over from Petty Officer Carr in May, 1954 the equipment consisted of 12 sets of 'Salvus'; by June we received our first consignment of swim gear—6 sets of pattern 5562A.

Our merits with the swimming technique got off to an early start with 'Navy Days' on June 9th and 10th, when the apprentices joined up with the divers from H.M.S. *Safeguard*. In July came *Caledonia's* swimming gala, and the boys gave an impressive display of pattern swimming. The programme was also supported by Mr. Barrington, Q.D.D. and his divers from *Safeguard*. Chief Petty Officer Gates kindly did the commentating for the 'Caledonia Tadpoles.'

After summer leave, classes of boys were given a two-week course of diving consisting of one week 'Salvus' and one week 'Swim'; also during this term we were given the treat of witnessing a fascinating exhibition of spring-board diving by Peter Heatley, the Scottish spring-board champion.

During the spring term, January, 1955 we were visited by some B.B.C., T.V. officials with Peter Heatley and his manager, to discuss a T.V. broadcast to be called 'It's all in the Balance.' It was publicity for Peter, and he required the P.T. staff and myself to give a swimming

exhibition with a 'Mermaid' thrown in. The show was actually broadcast on the 1st February, 1955. I am told it went over quite well. The spring term ended without further incident.

Summer term arrived and with it the sun; a most unusual occurrence in this geographical location I am told. Navy Days arrived and the 'Caledonia Tadpoles' once again helped out with the diving display, which also included *Safeguard's* divers and divers from the Bar Boats and other ships in the area. Came the end of summer term and the baths were closed for leave.

During the early part of the winter term, underwater training was at a standstill, while the swimming baths were redecorated, but we are now fully active once again.

Petty Officer C. H. D. Jackson relieved me at this period and once again I have returned to the old stamping ground at Chatham Diving School. Cheerio!

NEWSE.

TRIALS REPORT

Let X and Y each represent a type of diver and W the column of wet each gets under or around.

According to Y the column of wet he gets under (W^Y) = $3W^X$1. On the other hand that which he gets outside of is known and is expressed as W^Y = 5 feet of dense dark liquid in 10 glass vessels of 0.568 litres capacity ie. W^Y = 5 litre feet (approx.)....2.

Diver X asserts however that diver Y would become unconscious through 'Narks' if he went out in a damp mist, a statement which receives support from the fact that Y falls flat when leaving the bar to face the elements for a short period. This phenomenon should be investigated as it may lead to a serious limitation of maximum safe Air Depth.

X went on to add that whereas the depth to which he could dive outside any known liquid, including lighter fuel, would be at least W^X = $9W^Y$3. Yet this could not be ascertained exactly and anyway depended on who was paying. An interruption in the trial then occurred whilst 0.05 litre feet were added to W^X . Apart from changing the estimated value of formula 3 above to W^X = $18(W^Y)^2$ this had no other noticeable effect on X and only transferred 0.0925 lbs of copper nickel from the experimenter to the till.

The known magnitude of W_X however saved the trial from degenerating into the wild guessing initiated by X who was obviously unaccustomed to the inherent dangers of increasing the value of W^X above 4.544 litre feet in a vain effort to prove that W^X = W^Y .

Conclusions:—

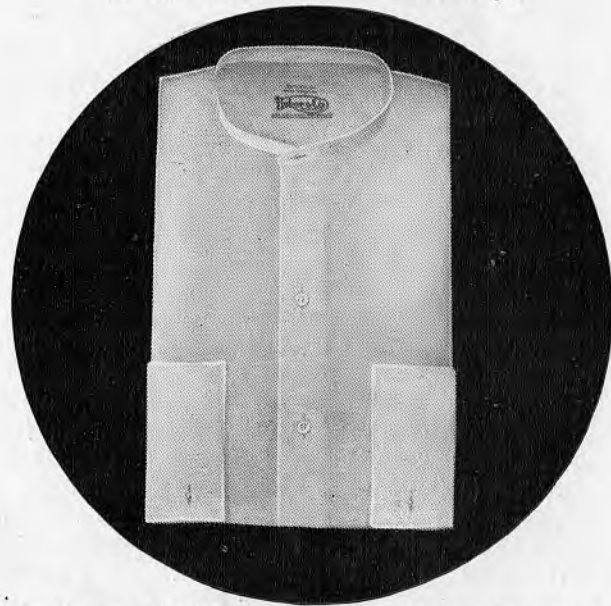
1. That 'Narks' can be experienced at any depth.
2. That 5 litre feet is the maximum safe depth for any diver to get outside.
3. That the depth to which a diver can get inside is inversely proportioned to that outside.

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With H.M.S. PROTECTOR in the news having assisted the THERON through the ice, it is with great pleasure we welcome the Ships Diving Team to our list of contributors.

EDITOR.

NOTES FROM DOWN SOUTH: H.M.S. PROTECTOR'S DIVING TEAM



J. Green, L/S

Cmd. Gnr. Calway (T.A.S.), R.N. A. Martin, M.E.I.

P.O. M. Tappin

B. Waddingham, A/B

Introducing the diving team as the Antarctic Expeditionists, we first advertise the fact we require at least 150 dip-chicks including our Gallant D.I.'s manned with scythes, to start a Kelp clearing campaign, in aid of our future Antarctic Explorers. Kelp being large seaweed (for the benefit of long stay at home dip-chicks). This kelp is thicker than any jungle in most places down south. Its length is found to be over 50 feet, and amongst it we have come across hard spherical portions as large as a pusser's round fender. As usual my diving team has been 100%, having had no failures in all our operations; first dip was carried out in Montevideo to test out all new equipment. On completion, we could then boast of being the only department 100% (keeping up the good name).

The Ship then proceeded to the Falklands, which is our home more or less till we see you in June (we hope). Once again into the limelight we stepped, and recovered a large anchor for the Governor of Falklands; on doing this, I was the first to experience the difficulty of plodding

through the Kelp, having to hack my way through. On trying to surface, I found I could not reach surface, or even go back to the bottom, so I was hauled up. A pretty picture I must say, trussed up like a Whale Island chicken plus one cwt. of seaweed all over me (well stuffed).

After a short but enjoyable calling at Husvik in South Georgia, noted for its whaling industry run by Norwegians, we had the usual cry, 'our inlets are blocked,' so away we went the following morning, to experience the Antarctic weather. At the time of diving there was a snow-storm raging; we braved the difficulties in self-contained, but to our surprise we found it hard to breathe. The sets being 100% we put it down to the extreme cold weather; eventually we overcame our difficulties, and once more kept up our good name.

From Husvik we proceeded further South, finding the ice pack approximately 64° 40" South (not Depth). We then returned to our base. During the short spell here we dived several times to clear Kelp from inlets, including night operations, so we are fully experienced in night diving.

May I, on behalf of our Diving Officer Mr. Calway and team, suggest that all ships, with divers borne, that are proceeding south on an expedition similar to ours carry a small jap compressor, as boats and men are very scarce to aid us in our diving operations; may I quote too, plenty of nylon underwear, which has been a blessing.

Having run out of thinking O₂ I will surface now, and on behalf of my team we wish all dip-chicks A Happy New Year and Good diving.
TAPS AND HIS 3 SEALS.

UNDERWATER-SWIMMER'S SECTION

In previous articles the danger of compression illness and Nitrogen Narcosis have been dealt with. Now I am going to discuss the effect of pressure on the ears.

It is not generally realised that the majority of ear trouble occurs in the first 33 ft. The change of pressure between the surface and 33 ft is doubled, that is from 15 to 30 lbs.□" absolute, and although the pressure increases 15 lbs.□" with every subsequent depth increase of 33 ft, the relative change is greatest at this depth.

The ear is like a cylinder with a parchment covering over one end. If this cylinder be lowered into water the pressure would act on the parchment, forcing it in until the parchment split. Now, if a hole be made in the other end of the cylinder there would be no movement of the parchment because the pressure would be equal on both sides; the conditions of the ear are exactly the same. The middle ear is the cylinder and the drum is the parchment stretched across one end. At the other end is a tube which leads to the throat, and this acts like a hole allowing the pressure to equalise. It will be seen that should this tube be blocked it would be impossible to equalise the pressure and thus it is essential that you clear your ears before diving. This can be done by swallowing hard, yawning, or blowing hard with nose and mouth closed. When diving, the

gas in the lungs must be the same as that out-side the body, and as the throat is connected to the lungs, the pressure in the inner ear should be the same as that acting on the drum. If this is not so the flexible membrane forming the drum is forced in, with consequent pain ('EARS') and in some cases rupture of the drum.

People suffering from heavy colds and catarrh are well advised not to dive, as these complaints cause blockage of the tube which is extremely hard to clear.

Reverse ears occur when the pressure inside the ear is greater than that outside the drum, and the drum is then forced outwards. This occurs when the outer ear is blocked either by cotton wool plug, or perhaps a close fitting hood, locking air at atmospheric pressure inside it. There should be either a channel in the ear pads of the hood, or sufficient slack in the hood, to allow gas to pass between from the mouth to the ear drum.

One final word of warning;—if you experience 'EARS' while underwater swimming, and are unable to clear them, you should surface. NEVER FORCE THE EARS, as this may result in permanent injury, and consequential damage to your hearing.
G.A.F.

H.M.S. MAIDSTONE NOTES

Since our last contribution to the magazine which concerned the accident to H.M. S/M *Sidon*, life in the diving world has been somewhat subdued.

Petty Officer Riley has just completed qualifying our fourth Shallow Water Diving Class; the classes to date have worked out to an average of 75% making the grade; each class finishes up with a night swim underneath *Maidstone*, on a life-line and not beyond the keel.

The response for volunteers has resulted in more than we can cope with, and now each candidate is chosen from a roster depending on departmental commitments.

Several of the successful candidates have opted for C.D. and it is to be hoped their ground work here will stand them in good stead during one of the most difficult of courses.

The highlight during this year was assisting the civil authorities during the very bad floods at Upwey Dorset, when the team here salvaged three live pigs(!) and personal property of those whose homes were flooded out.

Petty Officer Burgess has been through the wet and dry escape chamber in an 'X' Craft which is quite something for him when one realises the cramped space one has to get into.

A very close liaison is kept with the 'X' Craft, with the odd run ashore to strengthen the ties. Senior Officer 'X' Craft, Lt.-Cdr. Todd on occasions, has called on us to train up several of his team for S.W.D. which we have done our utmost to fulfill.

It is hoped to start up another class before our visit to Gibraltar from the end of January to the end of March, 1956, and subsequent docking at Portsmouth in early May where we intend to renew our acquaintance with the School.

Yours Aye,

A. LEWIS.

"DROP AND PICK-UP DRILL" DOWN UNDER

by R.A.N.

The Royal Australian Navy has adapted the 'Drop and Pick-Up' method used for beach reconnaissance, and our first class of trainee clearance divers recently completed training of this nature.

The craft used for this operation is a Landing Craft Vehicle Personal, powered by a 6-cylinder Grey Marine Diesel, which has a top speed of 10—12 knots approximately. An aircraft rubber dinghy encased in canvas and fitted with towing and holding pendants is secured alongside the craft.

The 'Drop' entails a half roll half jump from the craft on to the rubber dinghy, landing face downwards, and then a further roll from the dinghy into the water, landing on the back. For the actual picking up of the divers from the water at speed, a cane loop covered with foam rubber is used.



PICKING-UP DRILL OFF CLARKE ISLAND, SYDNEY

During early training 'Dropping and Picking-Up' drill is carried out at slow speed, with long intervals between each 'drop and pick-up'.

As training progresses the entire operation is speeded up and it is not long before the divers can be dropped or picked-up at maximum speed, at five minute intervals.

At first, wear and tear on the biceps of the left arm is very much in evidence, but it is not long before the art of catching the loop under the left arm pit is mastered.

NOTE:—Many members will remember having seen this method demonstrated on the television during the latter part of last year.

DIVER'S BOOKSHELF

By JAMES BENSON

One of the most enjoyable books I have come across recently is *SPECIAL OPERATIONS* edited by Patrick Howarth (Routledge & Kegan Paul, 16s.). This is an anthology of extracts from works already published by members of the Special Operations Executive, dealing with the various awe-inspiring activities of that organisation. A peculiar characteristic of the book is that its origin

lies in the need to bolster the finances of the Special Forces Club and of a related benevolent fund. Accordingly, its nineteen component stories have been given free, and, of course, they deal exclusively with espionage and the organisation of resistance forces in occupied countries. These subjects, in the hands of some of the most experienced and capable writers of our generation, produce perhaps the most romantic recounting of all war stories.

The most amusing of the stories tells of Peter Fleming's encounter with an ammunition train. If you've ever driven a train—I have for a matter of minutes—you'll find it killing and reminiscently funny. Ordinary mortals will find it plain hilarious. Julian Amery's contribution deals with his liaison duties with Albanian guerillas. Among its other virtues this piece contains some of the most fascinating social-study-cum-pure-travelwriting I know. And, while it is invidious to have to choose individual stories for particular mention out of such a galaxy, I must confess to finding the adventure-content of Xan Fielding's capture by and escape from the Gestapo the complete proof that truth is stranger than fiction. Other contributors include Peter Churchill, Bruce Marshall (of *The White Rabbit*), Stanley Moss (of *Ill Met by Moonlight*), Anthony Quayle (the Stratford actor), Spencer Chapman (of *The Jungle is Neutral*) and J. H. 'Elephant Bill' Williams. As you will have gathered, this is a book which I heartily recommend.



In similar vein is *NINTH TIME LUCKY* by Elio Toschi (William Kimber: 16s.). And, while its writing—in translation at least—cannot compare with much of the content of *Special Operations*, this is another war book I can recommend. Toschi was one of the first of Italian naval officers to experiment with human torpedoes. During an attempt of his own to penetrate the harbour at Alexandria the submarine carrying his torpedo was forced to the surface, and its personnel taken into captivity, by a British destroyer's depth-charge attack. This part of the book is really only prologue. The story proper begins with his imprisonment, first in Egypt and later in various camps in India. After eight frustrated attempts at escaping he finally gets clear from a camp at the foot of the Himalayas and lives among local shepherds while trying to reach Cashmir or Afghanistan. Eventually, disguised as a Pathan, he succeeds in travelling across the breadth of India and in reaching Portuguese territory. The book contains a number of somewhat acid references to British service personnel, some of which may well be true and many of which are certainly funny.

Those of you who are Richard Gordon fans will probably already have read his recent effort. *DOCTOR AT LARGE* (Michael Joseph; 10s. 6d.) continues the adventures, amorous rather than medical, of Dr. Simon Sparrow. It is easy and tempting to feel that number three in the series is less efficiently titivating than numbers one and two. Whether it is or not, it is still a highly enlivening evening's reading, for its short length and its irresistible anecdotes preclude its lasting for a Saturday while.

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PETER F. HOBSON

79 SOUTHBROOK ROAD, COUNTESS WEAR
EXETER, DEVON

Three brief mentions: *FREE DIVING* by Dimitri Rebikoff (Sidgwick & Jackson: 25s.); *JUMP FOR IT* by Jerald Bowman (Evans: 12s. 6d.) and *K-MEN* by C. D. Bekker (William Kimber: 16s.). *Free Diving* is sub-titled "a book that tells you how to do it." As such its interest to professionals must be consequently restricted. However, I'm sure that most of us haven't stopped being able to learn about our own jobs; and this book throws in some warm-water Mediterranean nostalgia into the bargain. *Jump for It* recounts a number of stories of parachute escapes from wrecked aircraft, principally, though not entirely, of 1939-1945 vintage. I imagine the thought of parachuting must be complete anathema to all underwater practitioners. In this event the book could be a spine-chiller. A small word of warning, however: the author has not completely succeeded in avoiding the impression of a long list of not-very-different incidents. *K-Men* is the story of German frogmen and midget submarines. It is pleasant, for once, to read of one of our enemies following rather than preceding us in the adoption of technical innovations. Not only did the Germans start late in this field, they also made the mistake of dissipating their energies between a large number of ideas and designs. Their frogmen were infinitely more efficient than their midget submarine crews and the accounts of the work of the former provide a number of interesting comparisons with our own methods.

I am writing this with the Penguin Stock List in front of me. Not the least attractive quality of these excellent publications is the fact that their lists bring back books that are not new. Old favourites of mine at present listed include: *CLOCHEMERLE* by Gabriel Chevallier, the story of a French town's decision to erect a public convenience next to the parish church; a recent issue of ten books by C. S. Foster; *SIX CURTAINS FOR STROGANOVE* by Caryll Brahms and S. J. Simon, a skit about the ballet which you are bound to enjoy equally whether you are a serious balletomane or whether you always turn the T.V. set off; *DEATH IN VENICE* by Thomas Mann, because I feel sure that one of the great virtues of the Penguin organisation is that it brings us the classics of every generation and because, classic though it is, I find this an excellent 'thriller' of its own kind; and finally, for specimens of the real detective thriller, an excellent collection of the works of my personal favourite, Georges Simenon.

I hope some or all of the above keep some or all of you amused or intrigued, but please don't give Chiefie my name and number if he catches you reading one of the juicier passages during 'Hands to Quarters, Clean Guns.'

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- THE THUNDERER*.—Magazine of the R.N. Engineering College, published April, July and December. Price 2s.
- GLOBE AND LAUREL*.—Magazine of the Royal Marines, published monthly by R.M. Barracks, Eastney. Price 1s.
- NAVY NEWS*.—The official Newspaper of the Portsmouth Command, Home Air Command, and Royal Naval Association. Published monthly by R.N. Barracks, Portsmouth. Price 3d.

Also recommended are:—

NAVAL ORDNANCE INSPECTION JOURNAL.

STAND EASY.—Magazine of H.M.S. *Ocean*, published three times a year.

H.M.S. MODESTE.—Magazine. 1954-1955.

THEY DIVE TO WORK

The officer working in semi-darkness under the foggy waters of Kalkara Creek looked down in alarm as a distant metallic sound travelled through the patchy blackness. He was upside down and working in the rusty ruins of the submarine *Pandora*, rendering the boat's torpedoes harmless. They were still dangerous, even after 14 years under the Grand Harbour.

The noise became a soft crunching, and as he looked a torpedo came rumbling from an upper rock shelf towards him. He couldn't move away quick enough. The missile came on, stopping a scant few inches away from his inverted flipper-footed body. A sigh of relief mingled with the bubbles from his back-pack compressed air set, and he went on working, removing the firing pistols from the remaining torpedoes.

This is but one of the incidents that the Mediterranean Fleet's Clearance Diving Team have to cope with. Led by Lieutenant P. A. White, R.N., they are direct descendants of the old Port Parties, whose job it was to remove underwater obstacles from war-scarred harbours, and conduct underwater surveys.

Based at Manoel Island, the activities of the ten-man team are usually marked by the presence of a pinnace flying the red Diving flag. Among their tasks are experiments in underwater swimming methods.

The second officer of the Team, Commissioned Gunner TAS (CD), C. L. Lawrence, has been seen around the harbours by many people, clearing wartime missiles.

The team are in constant demand, rendering harmless everything from 1,000 Kg. aircraft bombs to much smaller projectiles. In a month, they have been called upon to deal with no less than 376 assorted projectiles from harbours and around Malta's coastline.

Naturally enough, as can be expected from their amassed experience, the men of the F.C.D.T. are often flown to various parts of the Mediterranean to perform their duties, and there are many extremely interesting stories that must be left untold of their work.

In their course of action they have done everything from groping around in the murky waters off Fort St. Elmo for a 1,000 Kg. German bomb to recovering a senior Royal Navy officer's spectacles from off Custom House Steps.

The Mediterranean Fleet Clearance Diving team, all of whom are volunteers in the world of diving, have operated in the icy waters of Portsmouth's black mud harbour near H.M.S. *Vernon*, and are unanimous in their approval of the water temperature off Malta.

The team's equipment ranges from the skin-diver's twin compressed air cylinders, flippers and lead-weighted belt, to the 'Clammy Death' shallow-water diving dress, via sponge rubber 'mid-season' outfits worn when working in chilly waters for some time.

One of the most experienced men in the team and one who heads what must surely be the only all-diving family in Malta is Chief Petty Officer 'Stan' Stanley, a qualified deep diver, who has been for 15 years in the diving profession. His wife often dives with him during off-duty hours, and his small son is fitted with a diving rig.

As a final word of advice, the team, who carry out their work with trigger-quick minds that belie their slow movements under the sea, be it clearing ropes from around ships' screws, coping with unexploded missiles on the sea bed or merely fishing for lost valuables, had this to say:

"Don't monkey around with home-made breathing gear. Either buy a recognized rig, or leave the aqua-lung business alone. Much technical and medical thought has gone into making a reputable breathing set."

This is sound advice, from those who know.

This item has been condensed from an article appearing in *The Times of Malta* and has been reproduced by kind permission of the Editor.

NOTES FROM DEVONPORT DIVING SCHOOL



AN EMPIRE BUILT ON CONCRETE

Some five years ago it was proposed to build a 'Diving Tank' for the Diving School Devonport, as it was then, isolated as we were from the main body of H.M.S. *Defiance*

The tank was required to replace our own-made effort of a few years previous, and was intended to be bigger and better than anything before in any of the Diving Schools.

At that time we foresaw neither the closing down of H.M.S. *Defiance* hulks, nor the building of the 100 foot tank at H.M.S. *Dolphin*. Had the former been known, it is doubtful if our efforts would ever have been successful. However, the pipe dream of days long ago suddenly started to materialise last year, with a large concrete base being laid. As you see by the photograph, the tank is practically completed.

All the appropriate fittings are here, though I don't suppose we shall run to the luxury of steam heating as in H.M.S. *Safeguard*, neither do we need it. Still, all being well, we hope local divers and those from visiting ships will be able to keep in practice with Oxy-Arc cutting and Under-water Welding as well as the usual exercises.

Those divers not banished to the far West during the past eight months may not know that the three hulks forming the old *Defiance* have now been sold privately and are at present being stripped of all their valuable copper, brass, wooden and glass superstructure, and are in turn being towed away and scrapped. Amazing how many greenhouses are being built in and around Plymouth these days!

Many people will view the passing of these old ships with mixed feelings. It does seem odd to be able to look clear across to *Impregnable* from Wilcove jetty.

It's a case of scraping the bottom of the barrel for this edition, I hope we shall do better next time. G.W.

THE EMPLOYMENT BUREAU

Many enquiries have been made recently from divers away from their depot regarding the Employment Bureau, and wishing to know if we can help in any way by giving names of firms requiring divers in civilian life.

Many of you I am sure will be pleased to hear the good news that the Employment Bureau has been revived. If you wish to have your name on record please forward the following information to *R.N. Diving Magazine*, H.M.S. *Vernon*, Portsmouth.

Full Name.....Rating.....Off. No.....

Time as diver.....are you willing to serve abroad.....

Time expires.....Private Address.....

This record, when received from you, will be filed, and when your turn comes, "Who knows." Please remember the bureau does not assure you of employment. It merely puts you in contact, the rest is up to you. Records held show that many divers upon receiving information from this Bureau have found good employment in civilian life.

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R.N. DIVING BADGE



This blazer badge is available to all R.N. divers and ex-divers.

The badges are made by Messrs. Greenburgh Bros. Ltd. of Portsmouth, and are available for purchase either from the *R.N. Diving Magazine* or direct from the makers at a cost of 42/6.

The aim of the Association (sponsored by the *R.N. Diving Magazine*) is to help all serving divers and ex-R.N. divers to obtain employment (see page 45—*Divers' Employment Bureau*). It also aims to help in any way the dependants of serving divers should a fatal accident occur.

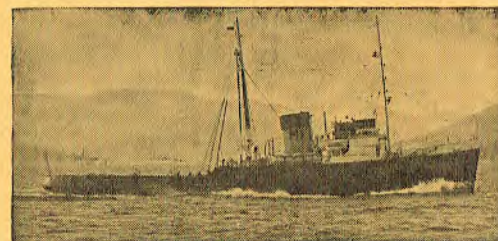
The colour scheme of the badge is: Gold lettering in Red scrolls outlined with Gold Braid; Yellow helmet with Gold and Silver Braid, finished Black and White; the whole outlined with Gold Braid on a Black ground. The above illustration is true to size.

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