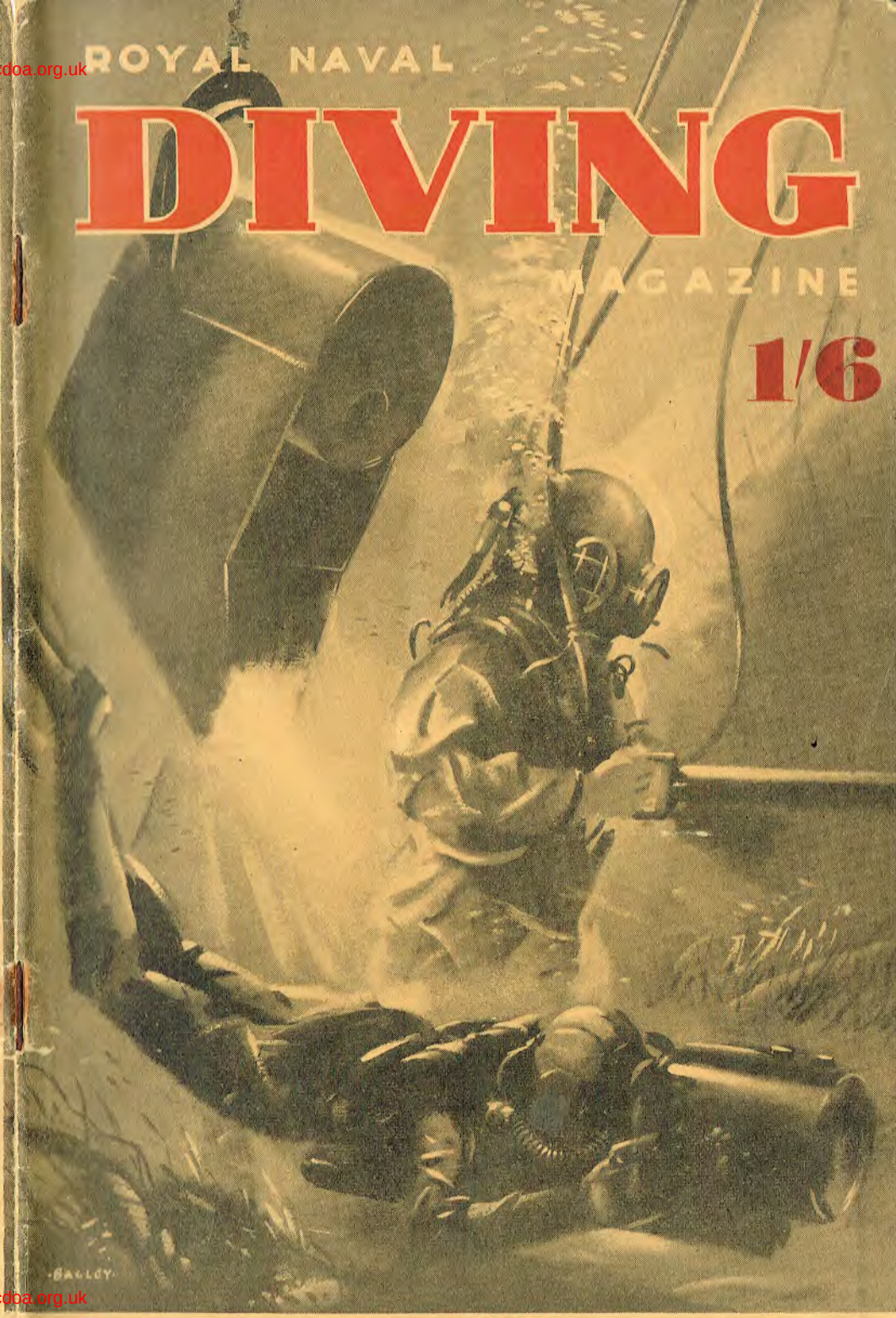
ROYAL NAVAL

DIVING

MAGAZINE

1/6



Vol. 5 H.M.S. VERNON No. 2

HEINKE

THE ONLY PEOPLE IN THE WORLD WHO MANUFACTURE A FULL RANGE OF DIVING EQUIPMENT IN THEIR OWN FACTORY

- Standard and Harbour-Type Diving Equipment
- Diving Dresses
- Diving Hoses
- Delta Dry Underwater Swimming Suits
- Wet Suits
- The Hans Hass range of Fins and Masks
- Heinke Lungs
- Heinke Demand-valve Regulators
- High-pressure Air Charging Units for Aqua-lung Cylinders
- Pump Gear of all types
- Motor Compressors
- Hand Pumps
- Diver Phone Sets
- Knives, Compasses, Gloves, Weight-belts, etc.

C. E. HEINKE & CO. LTD.
87 Grange Rd., Bermondsey, S.E.1 Tel. Bermondsey 4461

1820-1957

OWEN J. CARTER (NAVAL SUPPLIES) LTD.

ESTABLISHED 1864

SHIPPERS OF FINE WINES
AND
SUPPLIERS TO THE
ROYAL NAVY
OF
WINES, SPIRITS,
TOBACCO & CIGARETTES

Our aim : *'Service to the Service'*

Head Office:
3/3A HALF MOON STREET, THE HARD
PORTSMOUTH
Telephone 70201/2

Branches at:

DEVONPORT	25 WILLIAM STREET
CHATHAM	37/41 HIGH STREET
MALTA	27/28 PINTO WHARF, VALLETTA
GLASGOW	220/220A BROOMIELAW

CONTENTS

R.N. Diving Magazine

EDITORIAL STAFF

Vol. 5 July, 1957 No. 2

EDITOR'S NOTES

Dear Readers,

I regret the delay in getting this edition circulated, but the magazine was left without an Editor as PO Collar has departed for a short spell in Christmas Island. However, I volunteered to become temporary Editor for this edition only, as my future commitments will not allow the time required. To my horror, I discovered that even at this late date, June 4th, only a very small amount of material had arrived.

The magazine was launched for the single purpose of linking up all three Royal Naval diving schools along with their diving teams and units both at home and abroad, and more recently it has embraced Sub-Aqua Clubs and many other 'Diving Happy' civilian readers.

To all readers, especially regular subscribers of interesting stories, diving science and progress and news letters, the great success of our magazine owes its very being. They are the only source of material, so please! please!! don't fall over now. I implore regular writers to keep up the good work and also readers who have done something of interest to send in their contributions now! Make it early and a good magazine will continue to be produced on time.

Lieutenant Gillum is leaving very soon for service in Persia, though we will be hearing from him from time to time. The Crossword he has so kindly contributed each edition will now be lost. Would some other crossword fiend consider the gap? Cheerio! Editor (Temp.)

TREASURER'S NOTES

Dear Readers,

The financial situation is still sound due to a steady increase in sales. The last volume was increased from 900 copies to 1,000 copies of which we still have a few left to sell. Any offers?

If you have read the Editor's Notes you will see that this issue was touch and go. It is not as large as last time and is late in being published, due to the fact that articles are not being sent in by you.

We ask you to rally round and not let us down with the next one due to be published in September, any article small or large, cartoon or photograph, will be gladly welcomed.

It is good to know that our Sub-Aqua Club friends have started to supply articles for the magazine, and we hope they keep up the good work.

TREASURER.

SUMMER TERM OBSERVATIONS

Now that the warm weather has set in I have come out of hiding, to rear my ugly head around and see what has happened in the cold, cold world.

First we said cheerio to Lt. Barrington and his three musketeers, namely, CPO Locke, PO Collar and PO Kerr who have flown to the sunny Pacific to recover moorings at Christmas Island. The latest bulletin is a coloured card from Honolulu stating the millionaries wish to be forgotten by old drafty and left to rot amidst the palm trees and waving grass skirts. Any old bath chairs or crutches we could borrow to issue on temporary loan to the heroes on return in about eight weeks time?

Congratulations to the officers and ratings who gained honours through working on the German 'G' mine in the West India Docks, London on 25th January last. They are Lt.-Cdr. Leslie G. Gutteridge, R.N. (Retd.) the O.B.E., Lt.-Cdr. Mark Terrell, R.N. (Since Retd.), Lt. (S.D.) Charles W. Heatley, R.N. the M.B.E. and PO Peter J. C. Cobby, L/Sea Peter H. Alderton and AB Eric S. Harris the B.E.M. Whilst on the subject of congratulations we wish the new CDO'S all the best in their first appointments as CDO's. They are Lt. Cuthbert, R.N., joining the Australian Navy for a spell, Sub.-Lt. (S.D.) Wright, R.N., who is taking over the Clearance Diving Team attached to HMUDE Portland and last but not least Sub.-Lt. Allen, R.N.V.R. who is completing his R.N.V.R. training.

We are losing a lot of old faces in the diving world, PO Ben Claxton has left the Navy and has set up business outside, training civilian divers, doing any type of under-water work and organising trips from certain Butlins Holiday camps for people interested in spending half-an-hour under water sight-seeing, all equipment supplied. Probably he will keep us informed of his success and of any vacancies for the tea-boy in his business. Lt.-Cdr. Mark Terrill has retired and has also set up in business in the outside diving world.

If you should see a familiar face outside *Vernon*'s gates selling boot laces and dirty post cards it will most likely be our old friend Currie hyphen Davies who has just retired. It is rumoured he has a job as general manager of a banana plantation in the Midlands starting at a mere pittance—£10,000 a week. Anyway best of luck to them all in their new adventure in the large cold bleak world outside the R.N.

Lt. Mike Gillum is off to Persia to train a few Persians in diving. It is rumoured the base is a fifteen day camel ride from any civilisation. He is eager to purchase a DUNLOPILLO camel saddle, anyone knowing of one going cheaply please contact him. Watch this page closely for further news of cheap lines in dirty postcards, hashish, camels, etc., which can be purchased direct from Shiek Ali Gillum. P.S.—Address will be supplied on request, price 10/-. P.P.S.—Regret Harems cannot be supplied:—STOP PRESS—The Queen's Birthday Honours List has brought the branches to the fore again. First Lt. Harry Parker (C.D.), R.N. has been Mentioned in Despatches for the part he played as CO of the CDT (A), during the team's great work in the Suez episode, the team's photo appeared in the last edition, page 19, and Lt. Parker is the only one in the photo standing to attention. Secondly the steamers have made the grade and appear in the Honours List. We refer to Lt. (S.D.) George Wookey, R.N. who received the M.B.E. and CPO Robert Linscott the B.E.M. for their part in the two world records, diving suit to 600 ft and observation chamber to 1,000 ft. Well done the steamers, slow but steady plodders. The pen is running dry and so is news from this quarter so must say cheerio for this edition.

A. N. OTHER

'THE HOPE OF THINGS TO COME'

'Oxygen Pete' has had us all
beat and many friends from
us he has parted.

The physiological lab. have
been driven quite mad by the
antics and capers he started.

This Jeckyll and Hyde preyed
upon Alverstoke's mind, for
their efforts he had so long
resisted.

'Till at last in despair surgeon
Miles and his pair decided his
life be for-feit-ed.

So with needles and pills they've
now cured O_2 ills and 'Old
Pete' from this earth has de-
parted.

'Now we know our anoxia symptoms we'll go on to O_2 poisoning!'

'YO-YO' (H.M.S. ADAMANT)

The *Diving Magazine* keeps asking for material from 'Steamers' afar which we presume includes Outcasts in the Isle of Bute so, with four Divers breathing heavy beer fumes down my neck, the time has come to recount what has happened in 'Yo — Yo' during the past month or so.

PO Rolly Rackett made the boat lighter (literally speaking that is or should we say figuratively . . . we don't know), when he left us in mid-March. He was relieved by PO Nick Queripel whilst we were in the process of changing boats from 1184 back to the old 'Yo — Yo,' MFV 1077.

After the change there were various odd jobs to do, the most interesting of which was probably the mine that had to be rendered safe. Corkheads might note that 'Steamers' can deal with mines too. Mind you, we rendered it safe with a rifle but that's neither here not there.

And then it happened! We were steaming from Rothesay to the Gareloch when everybody got a dose of what divers dread the most i.e., the shakes. However, 'Stokes' stopped the engine and everyone ceased to shake. It turned out that a blade of the screw had dropped off. Yes, Chief, it just fell off! This caused a bit of a panic as it seemed almost impossible to get the 'Yo—Yo' leaning over on to her side against a jetty before a fast ebbing tide left us in the mud of Carwell Bay. It all worked out in the end and two or three hundred Dockyard Mateys were soon at work replacing the screw.

Able Seaman Moore joined and relieved 'Pete' Holder who now rejoices in the name of Mister (best of luck to him). Since then there has been a fairly regular pattern of work to do, varying from the perpetual fairing off of submarine propellors to the recovery of the launch which tried to imitate a submarine.

Monday, 27th May, dragged peacefully to a close. It was a quarter-to-four, and the natives were all lined up ready for the gun. In 'Yo—Yo' it was really peaceful. They were painting ship, but you would never have guessed it. Twice 'Pony' Moore fell off his brush, 'Steamer', our pup, was taking five with 'Blackie,' the Diver 1, as his attendant and 'Frank' was inboard supposedly shopping. It was hot for this part of the world and that alone should have warned us as ten minutes later, in the words of a famous Naval worthy, the game was on.

The orderly panic started with a telephone call from an Apothecary in Dunoon. A Norwegian diver had the 'Bends', and boy what 'bends' they turned out to be. With Sub.-Lieutenant Simmons, our Diving Officer, and the Doctor aboard the 'Yo—Yo' we did a full power trial towards our patient who was picked up half-an-hour later looking a delicate shade of blue and practically unconscious.

It was decided that unless he was put into the pressure cooker at once he would have absolutely nothing to worry about in the future. He was put under pressure with 'Nick' Queripel, 'Pony' Moore and Surgeon Lieutenant Russell, hereafter known as 'Narks.' The Diving Officer put him down on Table 3 and by the time 165 ft had been reached, had

finished his finger nails and half way to the elbow, for it was his first 'bends' case and probably the first time that an SDO has ever carried out 'bends' treatment. All went well until the 30 ft stop was reached some time later, when the patient had a relapse which nearly finished the job for us. The prisoners were re-pressurised and moved on to Table 4.

The Norwegian certainly was a character to be admired for he was handicapped by not being able to speak a word of English and never gave any visible indication of the pain he was suffering. Good luck to him for apart from some stiffness in the legs he seems to be back to normal now.

Many weary hours later, amid newspaper men and photographers, the Norwegian emerged from our single chamber pot with three disreputable characters who desperately needed a tot and a fag. 'Narks' funnily enough, enjoyed his forty-and-a-half hours and is now the local Scottish hero. Joking apart it was a good show and the Diving Officer now thinks that his angelic shower of divers are wonderful instead of just a bunch of alcoholics.

Best of luck to the magazine. Maybe you will hear from us again. If you want to find us ring, or better still arrive at the Lorne Hotel, the divers' retreat, where even the Diving Officer goes when he can remove his Ball and Chain.

P.S.—What's happened to *Maidstone*'s diver—gone 'T' or something?

DIPCHICK.

'GINGER'S' MED. INTERLUDE

This article is a little late in reaching the magazine, but in spite of that, it is hoped some readers may appreciate it.

On August 21st while most chaps in the Navy were enjoying their leave, a number of divers received those dreaded telegrams telling them to report back to *Vernon*.

After the initial shock, I found myself and Able Seaman 'Jasper' Peters (Diver 2) were to be flown out to Malta to commission HMS *Kingarth* from the Reserve Fleet.

Soon after our arrival we received a visit from PO 'Ted' Butler and some of the Med. Fleet Clearance Diving Team. 'Ted' was the advanced member of the many divers from the U.K. who were to grace the shores of Malta.

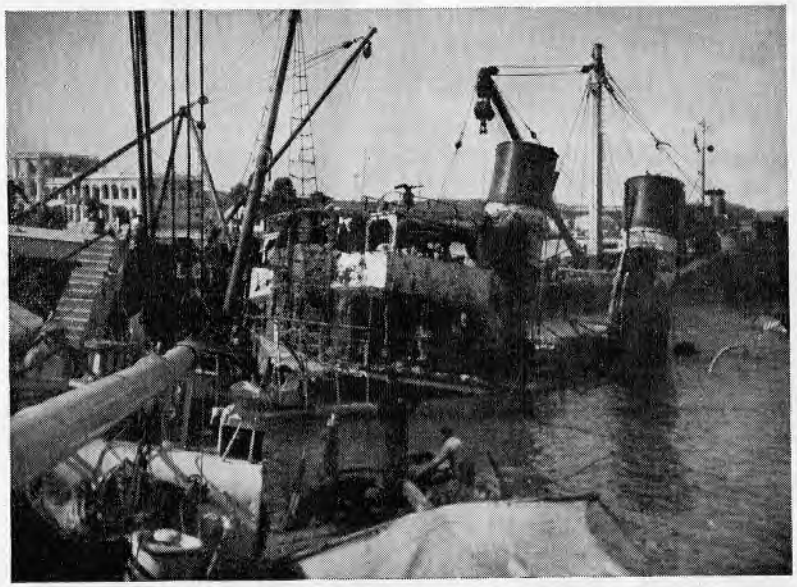
In spite of the hard work necessary to prepare a salavage vessel we found time to go to a social organised by the Med. Fleet in the Gzira Football Club and a good time was had by all.

After a short while we were joined by CPO John Peach, PO Nutty Hallam, AB Pat Hammill and AB Nobby Clarke, all of whom had been detailed as Naval Party 1234. Nutty was heard to mutter that he had a green rub and it wasn't his turn for a draft chit!

By this time the Great War Bar and Cardiff Bar looked very much like combined diving schools, but it wasn't all play. There was a geat hustle and bustle at the Boom Defence Depot, Deck tables, Pumps and many other useful articles used in salvage were being dusted down and put aboard the ships.

Salvage officers with Rosyth and Dover tans were swotting up in the 'Cardiff Bar' and 'Dockyard Club'.

It wasn't long however before everything was ready. Two salvage ships were sent to Tripoli on a job and to get the ships into shape. One of them found that with a stern sea she could do a good 7 to 8 knots.



On return to Malta the divers in Naval Party 1234 were detailed to return to the U.K. John Peach by air and the remainder were to sail in an L.S.T. While John Peach managed to snake in a crafty weekend the remainder were disembarked the same day, a bitter blow to say the least. Ted Butler and his team mates even got as far as Gib. on various I.M.S's before being turned back.

On Wednesday, October 31st, when even birds are asleep we slipped out of Grand Harbour and joined up with a large convoy. Soon after we were told that we would be taking part in salvage operations at Port Said.

We arrived at Port Said on the 6th November and dropped anchor outside to await orders to proceed up harbour. We didn't have long to wait and as soon as we got in, we were put on a salvage job. There was diving gear everywhere plus the Bosun rigging his Deck Tackles.

Our first task was to lift a floating crane with a 15 ton lift (displacement 365 tons) which was stopping our light craft from getting further up the harbour. After about two days we managed to get it upright so that ships could pass. By this time Nutty Hallam had got himself two other divers and was clinging to L.C. 10 and 11 like grim death. John Peach with Pat Hammill and Nobby Clarke were attached to HMS *Salvestor*, later on they were joined by PO Spike Wheeler from HMS *Bulwark*. Their wreck was a bucket dredger, and the immediate task was to fair off some sixteen holes caused by explosive charges and remove the buckets prior to parbuckling. We were all lucky in the respect that the Canal Company had good diving boats (which had been left undamaged) from which we were able to work.

I would like to say at this point that it now looked as though half the divers of the Navy were present, the only thing that didn't have a diving suit on was the film camera that some of our friends insisted on having with them wherever they went.

Soon everyone was busy at their various jobs and it wasn't long before there was a procession of wrecks going to the graveyard. By the time our forces were ready to leave Port Said and the salvage fleet had become part of UNO, no less than nine wrecks had been moved.

On the morning after the evacuation, we were given a fine display on how to get Union Jacks from the hands of Delesseps Statue and a slippery flag pole. After much encouragement from a large mob and lots of fist shaking in our direction they achieved their object.

At first the United Kingdom Salvage Unit were all in one corner of the harbour under the protection of the United Nations Guards and they did quite a good job. One MFV which decided to have a trip round the harbour without lights on had a short burst from a very efficient guard. He didn't appreciate it was Christmas.

On the 29th December, the *Kingarth* and the French salvage vessel *LST 525* moved to the tug *Hurcule* 1,200 tons and work actually started on the 1st January. It wasn't long before the language problem was overcome. The divers found out that Admiralty Salvage Pontoons are very easy to operate compared with the French Pontoons, in fact moving 7″ and 9″ stops underwater is now child's play.

After lots of hard work and set-backs the wreck was lifted out of the main channel with the aid of six pontoons. (Lifting capacity 150 tons each.) *Kingarth* on the bows and *Kingbrace* on the stern each with a lifting power of 200 tons on their deck tackles. After getting it clear of the main channel it was decided to raise and pump her. The only snag at this time was the fact that the Egyptians gave us a time limit and as it will be appreciated this is disastrous in salvage work. Anyhow we pressed on and Sunday the 19th January saw the bows of the *Hurcule* above water, but fate took a hand and the 9″ wires which were over the bows of *Kingarth* and through the hawse pipe of the wreck parted, giving two of the divers a 0-20 fathoms without a suit on. After a tot they were soon back to normal. This mishap plus the time limit ended any further attempts to get her raised.

Much experience was gained by all hands, and at least one diver now knows how to carry out the duties of coxswain and canteen assistant as well as those of Diver 1.

On the 21st January, the *Kingarth* sailed from Port Said after a total of 85 days without shore leave. To the younger members of the ship's company this was rather grim. However, with our extra pay (1/3d a day) jingling in our pockets we wended our way to Malta.

Malta Funny—A L/Seaman sent for some matches to light underwater cutting torch, was heard to ask the 1st Lieutenant for a box of underwater matches.

I would like to take this opportunity of congratulating the United Kingdom Salvage Units Senior Salvage Officer, Capt. W. Fell, R.N. (Rtd.), on his award of the G.M.G. announced in the Queen's Birthday Honours List.

Below is a brief time-table of work carried out by the United Kingdom and French Salvage Units.

Wreck	*Displacement*	*Date Started*	*Date Lifted*
Floating Crane and Pontoon ... (Two separate lifts)	2,180 Tons	31–12–56	21– 1–57
Floating Crane ... ... (Lifted by *Kingarth, Barhill* and *LC*'s *10* and *11* ...	365 Tons	7–11–56	30–11–56
Paul Solente, Suction Dredger ... (*Sea Salver* and *Salveda* and *LC*'s *10* and *11*)	4,000 Tons	9–11–56	16– 1–57
Triton, Sand Hopper	1,500 Tons	15–11–56	16– 1–57
Floating Dock	5,000 Tons	28–11–56	6–12–57
Sand Hopper No. 45	1,000 Tons	9–12–56	13–12–56
Sand Hopper No. 44	1,000 Tons	6–12–56	15–12–56
Hurcule, Suez Canal Tug	1,200 Tons	1– 1–57	11– 1–57
Hardi, Pilot Boat	490 Tons	28–11–56	17–12–56
Gar II, Tug	235 Tons	28–11–56	7–12–56
Barq, Tug (*Kingarth, Succour*) ...	350 Tons	1–12–56	3–12–56
Bassel, Tug	450 Tons	28–11–56	6–12–56
Approximate Total Displacement Lifted ...			16,870 Tons
Approximate Total Salvage Ships			11

A.Q.B.

(*Photograph is of* Hurcule *Suez Canal Tug during final state of salvage.*)

50th CLEARANCE DIVING TEAM, MAY, 1957

Dearly beloved readers, we now propose to reveal another instalment of the adventures and misadventures of the 50th.

Our big adventure was a trip to Bremen in HMS *Burley*. The Captain of that vessel was a little perturbed to be sharing the diving store with our team and equipment, but on the whole we had a pleasant trip, and most enjoyable time in Germany. As they don't believe in 'time' there, and the bars stay open until the last customer leaves, some of the team found it very difficult to get up in the morning !

The misadventure was and still is that we are without a ship, but we are now due in Gosport to collect *Brearley* on 17th June, so watch out for us all you Pomponians. The reason for delay is tied up in some mysterious way with Rosyth Dockyard unable to complete refits on time. However, most of the team are living ashore in Buckie and diving in Burghead Bay as required by the trial. With us are PO Cobby, L/Sea Alderton and AB Rowe of the UCWE Team. There are two members of the team who are not so happy, as they are working in the Care and Maintenance party at Port Edgar, being used as five toed Dab-dabs as opposed to web-footed Dip Chicks.

Readers may have heard of PO Lardner's mishap here at Buckie but we are happy to tell you he is well on the way to being his normal self, and is making improper suggestions to all the nurses !

This seems a very short letter but very little seems to happen in Scotland, and you will see our smiling faces soon we hope (smiling to be South again) and we are looking forward to a good time, good diving and to meeting all our old aquaintances.

STOP PRESS:—Have just had a deputation from the RA's who say that they won't have smiling faces at coming South—well, that's all, so cheerio once again from all the 'Macs.' D.G.E., R.H.

REVIEW OF DIVERS' DISEASES

(Part 5)

PREVENTION, SYMPTOMS, RECOGNITION, TREATMENT

By V. R. FOSTER

This will be a brief review of the diseases primarily encountered in diving, with particular emphasis on recognition and prevention, also the correct First Aid treatment to be administered. It is submitted with the sincere hope that both Dip-Chicks and Non-Service 'Free' divers will find it helpful in furthering their diving studies of Caisson Disease, Air Embolism, and Spontaneous Pneumothorax.

CAISSON DISEASE

Cause.

Caisson Disease occurs as the result of making too rapid an ascent to the surface after sufficient exposure to increased partial pressures of nitrogen at greater depths than 33 ft.

The disease rarely occurs at depths less than 45 ft but may occur if the time on the bottom at 40 ft is very great and the diver has been working very hard.

Factors influencing the occurence of Caisson Disease or 'Bends' are:

(*a*) Depth of dive.
(*b*) Time at the bottom.
(*c*) Rate of ascent to surface.
(*d*) Physical condition of the diver.

The Physiology of bubble formation is briefly outlined.

Nitrogen comprises about 80% of the mixture of air we breathe.

Breathing compressed air increases the partial pressure of nitrogen delivered to the alveoli (air sacs) of the lungs with the result that increasing amounts of nitrogen are dissolved in the blood and tissues with each cycle of blood passing through the lungs. Hence the greater the alveolar partial pressure of nitrogen and the longer the time on the bottom, the more nitrogen will be dissolved in the body tissues. When the pressure is suddenly released, the dissolved nitrogen in the tissues and blood will be liberated, and in a similar situation to uncorking a bottle of ginger-ale, bubbles will be released. The bubbles in the body are formed more slowly, because blood has a viscosity approximately twice that of water, and may take some time to increase in size sufficiently to cause symptons.

The physical condition of the diver, in addition to overweight, may contribute to the occurence of 'bends'. A diver who has been dissipating, is tired, or who has been ill or indulging in alcoholic beverages—will be more susceptible to the 'bends'. An older person is also more likely to suffer symptoms than a young person. Working extremely hard or in very cold water could also be contributing factors. Finally, an inadequate supply of air will give rise to the danger of a build-up of carbon-dioxide which greatly increases the susceptibility to the 'bends.'

Symptoms of the 'bends' may occur before the diver is out of the water. Generally they occur within the first hour following inadequate decompression. Cases have been known to be delayed for 15 hours or longer. To the best of my knowledge there is no record of a case occuring after more than 40 hours and it is safe to assume that 'bends' will not occur after 24 hours from the time of surfacing.

Bubbles produced in the blood act as emboli and block the circulation producing anemia (asphyxia) in the particular part supplied by the blood vessel in which they happen to be situated. Symptoms are thus the result of a mechanical blocking of the blood vessels. They occur most frequently as: dull aching type of pain and frequently found in joints or deeply in muscles and bones.

Asphyxia Symptoms: Choking sensations, dizziness and paralysis of lower extremities (emboli along spinal cord).

Minor Symptoms: 'Skin-rash' and itching occur with regularity if skin is chilled during ascent.

TREATMENT

This involves three primary principles:

Reduction in size of bubbles, to approach soluble state, by application of pressure and re-absorption of the gas (nitrogen) from the bubble by the passing blood stream.

Expulsion as a whole from the lung capillaries (breathing pure oxygen such as Novus/Salvus apparatus in the Re-compression Chamber rapidly increases nitrogen elimination). Oxygen pressure limit is 3 atmospheres absolute. Immediate transfer to the Re-compression Chamber with a strict adherance to simulated 'Stops,' the last few pounds/sq. in. must never be reduced quickly, in fact, these last few are the most important, Many divers have in the past spent unnecessary hours in the Re-compression chamber all because the last few pounds of positive pressure were reduced too quickly.

If a Re-compression chamber is not immediately available, send the diver down again preferably accompanied by a second diver to control his air, and if using self-contained equipment to make sure he doesn't lose his mouth-piece. In the majority of cases of the 'bends', sending the diver down to approximately half the depth at which he has been working will be sufficient to reduce the symptoms and de-compression can be commenced in accordance with the appropriate treatment table, again remembering that the last 'Stop' near the surface is not to be hurried.

PREVENTION

Your De-compression Tables which give you a definite depth with a definite time spent on the bottom have a reasonable safety factor and if used correctly will prevent the formation of bubbles ('bends').

AIR EMBOLISM

Air embolism occurs when an excess of air pressure within the lungs over-expands the lungs and ruptures the air-sacs and blood vessels; air is further forced into the ruptured tissues and blood vessels causing bubbles of air to enter the pulmonary capillary bed. The air bubbles are then carried to the left chamber of the heart and into the arterial blood producing various symptoms.

This occurs most frequently with divers wearing self-contained apparatus or on Free-Ascent exercises who, from necessity or intentionally, discard their equipment and swim to the surface while holding their breath. It can occur in full diving equipment. Under these conditions the expanding air in the lungs cannot escape by way of the windpipe, nose or mouth. When experimentally, one holds one's breath during such an ascent, a sensation of discomfort is felt behind the breast-bone (Sternum) and a feeling of actual stretching of the lungs will force one to exhale at periodic intervals. However, under conditions resulting in equipment failing and having to be discarded, a state of fright usually exists. This condition of fright causes a spasm of the throat muscles sealing the main lung passageway and this brings about over-expansion of the lungs.

Under certain conditions death has occurred in an ascent from a depth of only 15 ft. On the other hand safe ascents have been made by EXPERIENCED divers from depths in excess of 150 ft after abandoning breathing apparatus. Recent developments in 'Free-Ascent' techniques are solving many problems of Air Embolism.

SYMPTOMS OF AIR EMBOLISM

Symptoms of Air-Embolism generally occur immediately and may begin before a diver reaches the surface. The symptoms are serious asphyxial symptoms such as choking spasm, dizzyness, paralysis of extremities, loss of speech, unconsciousness and death. Generally a characteristic bloody froth will be present in the nose and mouth.

TREATMENT

Treatment must be given immediately if it is to be successful. This involves re-compression to a pressure of 75 lbs per sq. in. (165 ft) and de-compression in accordance with an approved treatment table. Generally treatment is not possible in sport diving areas. It is therefore most important that all non-service sports divers ascertain the location of the nearest Re-compression Chamber so that a diver can be rushed to the Chamber for treatment.

PREVENTION

As with all divers' diseases and accidents, prevention is the most important aspect. To prevent air-embolism the diver must breath normally as long as his breathing apparatus functions. If it becomes necessary to discard the breathing equipment, the diver must exhale slowly as he rises to the surface. Escapes from breathing apparatus should be practised in a safe depth (10 ft or under), under carefully controlled conditions by removing the breathing equipment and exhaling while swimming to the surface. If this is practised until it becomes second nature to exhale when ascending little chance of air-embolism exists when an actual emergency arises.

The rate of exhalation should vary depending on depth. A slow small stream of bubbles (with lips pursed as though whistling) will be adequate in water more than 40 ft to 50 ft deep. In shallower water, particularly in the last 30 ft, a rather rapid exhalation is required to compensate for the more rapidly expanding air in the diver's lungs.

Note.—From 33 ft depth to the surface, the air in the diver's lungs will double in volume, and therein is one of the most dangerous periods of Free-Ascent. Air Embolism cannot occur when Skin-diving without breathing equipment. The air is taken into the lungs on the surface and is compressed by the water pressure as the diver descends. However, the air cannot expand beyond its original volume when the diver again surfaces.

SPONTANEOUS PNEUMOTHORAX

This is often confused with Air-Embolism. Spontaneous Pneumothorax, this disease, or accident, refers to the forceful entry of air into the

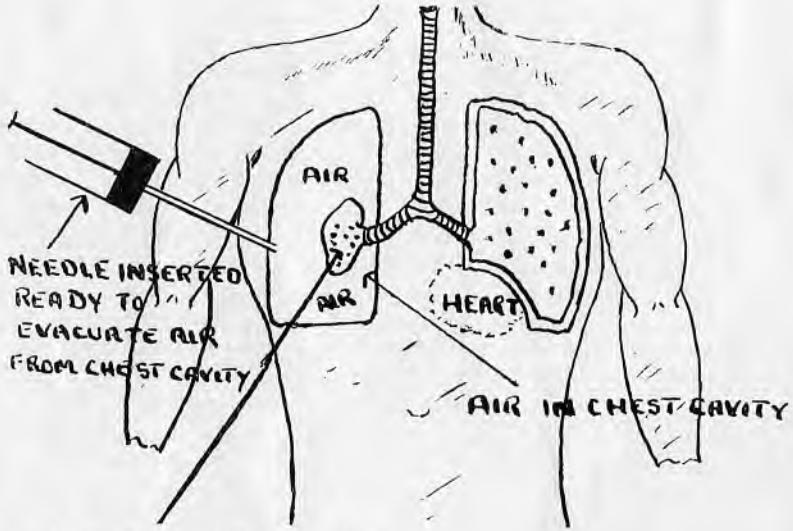
chest cavity resulting from over expansion of air in the lungs. It can occur with or without the occurence of air-embolism, and is produced under similar conditions, but differs in that the air pocket is formed within the chest cavity but outside the lung surfaces. As the pocket of air increases in size with a reduction of pressure, the collapsed lung and heart are pushed towards the sound side of the chest.

Symptoms: Extreme shortness of breath, distention of the neck veins, irregular pulse, bluish discolouration of the skin, and other signs of pulmonary or circulatory derangement will occur.

Prevention: involves the same precautions as noted for air-embolism.

Note:—As a matter of interest, *Artificial* Pneumothorax is used in modern surgery to assist the cure for Tuberculosis. Briefly: if one lung is diseased it is better kept collapsed and at rest, until it has had a chance to heal, and collapse is brought about by putting air into the chest (predetermined volume) around the outside of the lung.

At its simplest, it involves pushing a needle into the chest and putting in air from a syringe—known as 'Artificial Pneumothorax'.



LUNG IN COLLAPSED CONDITION
DUE TO AIR-PRESSURE ON *OUTSIDE* OF LUNG

FIG. 1 SPONTANEOUS PNEUMOTHORAX
(ROUGH SKETCH)

TREATMENT

Treatment is essentially the same as for air-embolism. In addition, the services of a doctor must be obtained to reduce the air pocket in the chest. Surgical procedures will necessarily be involved whereby a needle is inserted into the chest and the trapped air withdrawn. Pressure within will equalise with the outside pressure and any residual air will absorb spontaneously. See Figs 1 and 2.

Over Expansion of Gas in Diver's Stomach:

Occasionally while diving, gas formation may take place in the diver's intestines or air may be swallowed and trapped in the stomach.

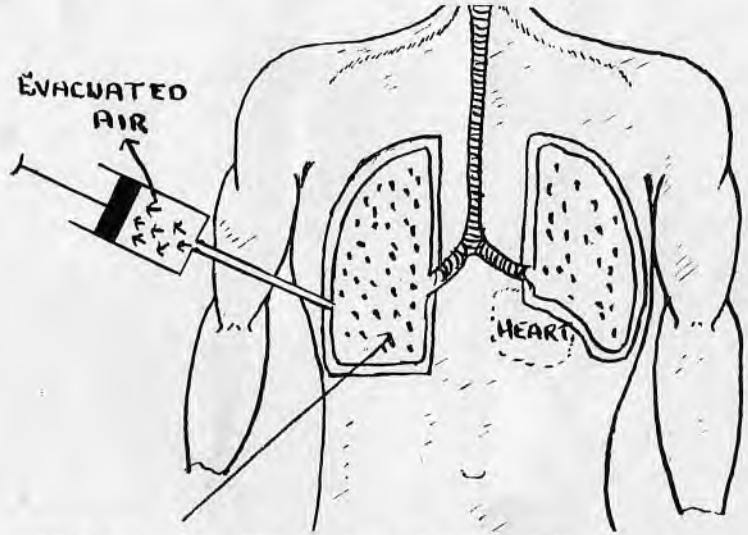
On ascent the trapped air expands causing serious discomfort which may last for several hours. This is one of the major reasons for not eating or drinking carbonated beverages just prior to diving.

Spicy or other gas producing foods should be avoided.

In the next part of this article I hope to deal with 'Face or body squeeze,' 'Nitrogen Narcosis,' 'Oxygen poisoning,' 'Carbon Dioxide poisoning' and 'Carbon Monoxide poisoning.'

To A. H. R., HMS *Defiance*, Diving School, I send my very best wishes, and many thanks for his kind remarks *re* my previous articles in this magazine.

VINCENT R. FOSTER.



NEEDLE HAS EVACUATED AIR FROM CHEST CAVITY
LUNG RETURNS TO NORMAL

FIG. 2 NORMAL
(ROUGH SKETCH)

THE FAR EAST STATION CLEARANCE DIVING TEAMS

'WHO PUT THE THUNDER FLASH UNDER THE ADMIRAL?' This is the big question. You may gather from this that we have recently carried out an operation with the Fleet. You would be right. The result of the operation we leave to your imagination. Enough to say that there are places in the Far East where the name CD is treated with suspicion.

We apologise for the delay in our contributions to the magazine but unfortunately we have no literary minded characters in the team, and to get a letter out of the Singapore section is worse than getting blood out of a stone.

Lieutenant Mappley and his unit are kept constantly busy on disposal and diving jobs. Their last effort I think is certainly worthy of note. It was a buoyant mine fouled up in a wreck with the mooring switch made and corroded and jammed with underwater growth.

It is not often that a render safe job has to be done under water these days and I think that great credit is due to the Singapore CD Unit.

Another incident that I think is also worthy of note is the fact that Leading Seaman Cobb read the lesson in church in the trooper coming out here.

The result of a post mortem carried out on a 15ft Tiger Shark

Photograph by F.C.D.T.

Shark Trials are still continuing and we are looking forward to a busy season. Our last visit to Pulao Tiomin produced the biggest Tiger Shark to date. The contents of its stomach were of great interest. In addition to 45 large meat and fish bones, a sea snake, carrot and potato peelings, there was a partially opened tin of corned beef. (Petty Officer Hills swears that he threw this overboard two days before the shark was caught.) Just to prove that we are not 'shooting a line,' a photograph of the tummy operation is included. Information obtained from these trials is piling up, and we hope soon to produce something of value to the diver. There is at least one member of the CD's out here who will tell you that a shark is more frightened than a CD when they meet. Or could it be that the shark's reactions are faster?

Under water photography is proceeding in leaps and bounds and the results are improving with every film. So much so that we have moved on from colour and black and white stills to 8mm and 16mm cine.

Life in Hong Kong is much the same as always except that we have just had the coldest winter on record. This in no way curtailed the divers' activities but unfortunately it did restrict the views offered by the delightful 'chumsangs' favoured by the local beauties.

We have just seen that Romulus Films are going to make a film about 'Buster Crab'. There is no doubt that his story contains much of interest and it is hoped that the film company employs somebody that really knew 'Buster Crab' to keep them on the right tracks. J.W.

DEEP DIVING

WHAT DO WE MEAN BY DEEP DIVING? The British Navy recognises all diving carried out in excess of 30 fathoms as being Deep Diving. 30 fathoms is the depth at which the supply of air by the orthodox handpump is impracticable and the standard diving equipment requires some modifications to give the diver reasonable chance of survival. Before examining the methods of supplying air to these depths, and the peculiarities of the equipment required, a brief glimpse into the history of Deep Diving will give us a better appeciation of the problems involved.

THE HISTORY OF DEEP DIVING. In 1837, Augustus Siebe (Founder of the Firm, Messrs. Siebe Gorman & Co. Ltd., which still bears his name) produced the first diving dress, the general style of which is still in use today. With this dress, it was found possible to dive to depths of about 20 fathoms. With increased diving depths, however, came increased problems, and it was not unnatural that in 1905 the Admiralty lent their support to Professor J. B. S. Haldane to attempt to combat these problems. The diver in these days, had very little appreciation of the physiological change that took place in his body when he was working at, what were at these times, great depths, and the discomforts he suffered on surfacing were generally thought to be the mystic deserts of probing the deep. Fortunately, men like J. B. S. Haldane and Paul Bert were not satisfied with this form of explanation and decided to devote their energies to the problem. Paul Bert advised a system for compressed air workers which necessitated them returning to atmospheric pressure at a very slow rate, which had the desired effect reducing the incidents of those mysterious illnesses. J. B. S. Haldane with the assistance of the Admiralty Diving Committee made diving comparatively safe to depths of 200 ft in 1905, and again during the period 1930-33 the safe working depth was extended to 300 ft.

THE PROBLEMS. The problems confronting the physiologist, strange to relate, originated from the very air that they were pumping to the diver to support his life at these depths. Considering the three main components of the air we breathe we find that we have approximately ·03% carbon dioxide, 20% oyxgen and 79% nitrogen, each of which presented the physiologist with its own separate problem.

Considering carbon dioxide first, it was found by practical trials that if the CO_2 content reached 3% due to the diver's exertions, it would cause him distress to the same extent that discomfort would be caused to an untrained person running half a mile, i.e. his breathing would become laboured. If the CO_2 content were allowed to build up as much as 10%, the diver would, in all probability, lose consciousness. It was also discovered that the effect of CO_2 was increased with depths. To illustrate this, whereas 10% CO_2 would cause unconsciousness on the surface, it requires only 1% to produce the same effects at 300 ft, which is the equivalent of 10 atmospheres. It was clearly necessary, therefore, to provide the deep diver with some means to rapidly eliminate the CO_2 resulting from his exertions. To do this, a canister containing Soda Lime

granules was added to his equipment and an injector system which operated on the Venturi principle was employed to suck the air from the diver's helmet and cause it to pass through the Soda Lime granules which removed the CO_2 present before returning it to the helmet again. The latest injector system has a circulation rate of 10 to 1 which gives very efficient CO_2 elimination and greatly reduces the quantity of air that is necessary to supply to the diver.

The oxygen, that is so necessary to support life is not without its own peculiar problems. It has been established from a wide range of practical trials that it is not safe to breathe 100% oxygen below a depth of 33 ft. 100% oxygen has been breathed below this depth in the course of trials which had varying effects upon the experimentors. Neither the effects nor the form which they took formed a basis from which definite conclusions could be drawn. The effects usually made themselves manifest in the form of violent uncontrolled twitching of the lips, which if allowed to continue would produce convulsions and finally, loss of consciousness. The time and depth required to produce these effects, which we now call oxygen poisoning was also terribly inconsistent. A diver might work quite happily at 60 ft for a full hour one day breathing 100% oxygen and the next day at the same depth produce oxygen poisoning symptoms in a quarter of an hour. One fact however, did emerge with abundant clarity from these experiments, and that was that if the diver was going to be free from oxygen illness, he must not breathe 100% oxygen below 33 ft.

This factor is one of the reasons for imposing a limit of 300 ft whilst diving with an ordinary air supply because at that depth the diver is receiving the same mass supply of oxygen although he is only breathing 20%, as the diver who breathe 100% at 33 ft.

WE NOW COME TO NITROGEN. The effects of nitrogen are two-fold, firstly, if we let it escape uncontrolled from the diver he will undoubtedly suffer from compressed air illness. We have already said that the air we supply to the diver to protect him from the surrounding sea pressure contains 79% nitrogen. The diver at 300 ft, which is 10 atmospheres has to be supplied with 10 times the mass of nitrogen that his body is accustomed to on the surface. This enormous amount of nitrogen is dissolved in the blood stream and circulated round the body. In this state, the diver is completely unaware of any physical change in his body. When, however, we wish to bring the diver back to the surface, the excess nitrogen will endeavour to escape. This is amply illustrated in the Soda Water bottle where the gas has been forced in under pressure, and which remains in solution and is not evident all the time the seal is kept on the Soda Water bottle. When the seal is broken, and the pressure released, gas bubbles can be observed to escape at a very fast rate. Similary, if the diver is brought out of pressure, the nitrogen will also endeavour to escape. Due to the greater viscosity of the blood, the nitrogen will be, to a certain extent, retarded, and as the pressure falls it will expand and form bubbles too large to pass through the tissues of the body. If this condition is allowed to arise the diver will suffer great pain and possibly death, from

the expanded nitrogen bubbles which are trying to force their way out of the body.

This effect of nitrogen is called Compressed Air Illness, a minor form being also referred to as 'BENDS', and in olden days it was known as caisson disease, being the illness that caisson workers frequently suffered.

The physiologists gave us the remedy by providing a set of tables detailing the depth and time which divers should stop in their ascent to effect a gradual and safe elimination of nitrogen. Thus, a diver who has dived to 300 ft for 20 minutes will take 86 minutes to complete his ascent. In actual fact, the deep diver of today breathes pure oxygen during the latter and shallower stages of his ascent to expedite the elimination of nitrogen from his body, i.e. instead of taking in a further 79% of nitrogen with each breath, the diver merely inhales oxygen and thus increases the nitrogen extraction rate.

Secondly, nitrogen is a gas of high molecular weight and this fact, coupled with the large quantity of nitrogen that has to be supplied to a diver in deep water greatly affects his mental alertness. Divers are affected in various ways, some sing, others make completely irrelevant statements, some get garrulous, in fact those affected behave just as though they have had one over the eight. The good deep diver is the one that can control the desire to do any of these things and instead, get on with the job that he was sent down to do. This effect of nitrogen is known as Nitrogen Narcosis and normally occurs at depths greater than 240 ft.

THE USE OF HELIUM. The Americans solved the problem of Nitrogen Narcosis by replacing nitrogen with Helium and diving from specially prepared Oxy-Helium Mixtures. During the 1939-1945 conflict the British Navy obtained a set of Oxy-Helium equipment from the U.S.A. for trial purposes. Trials were commenced in 1947 and comparisons made between the American equipment and procedure and our own. By the end of 1947, sufficient date had been assembled to carry out deep water trials in Scottish waters with the newly acquired equipment. These trials proved, without doubt, that the use of helium instead of nitrogen in the diver's gas supply completely eliminated nitrogen narcosis. A few minor troubles were encountered which were remedied in the early part of 1948 and in August of that year, the British Navy captured the world's Deep Diving Record with a dive to 535 ft, Thus in twelve months of trials, the British Navy's Diving Record had been extended from 344 ft to 535ft which was a truly remarkable achievement.

This record dive, although a great achievement, does not represent a new working depth for the diver. The British Navy is now concentrating on increasing the depth at which divers can perform useful work using oxy-helium mixtures. At present it has been found possible to work at 360 ft for 20 minutes without ill effects, and further efforts will aim at increasing this depth to the maximum.

GENERAL PROBLEMS. To send a diver to the great depths that we have already discussed requires a team of specialists operating from a

specially equipped ship. The British Navy built H.M.S. *Reclaim* specifically for this purpose and luckily she was completed in June, 1948, in time for the oxy-helium trials. *Reclaim* carries a team of three Diving Officers and twelve divers and has compressors which supply air at 4,000 lbs. per square inch, which is reduced to a working pressure and distributed to the various diving panels.

A deep diving operation necessitates the ship being held rigidly in position over her job whilst diving is in progress. To achieve this against tides and weather it is sometimes necessary to lay out as many as 6 anchors, each of which must have sufficient cable appropriate to the depth of water. To carry out wreck surveys, even this amount of ground tackle is inadequate and special moorings have to be laid.

TIDES. In addition to imposing a great strain on the ship's moorings, the tides also have their effect on the diver. The diver is particularly vulnerable to the effect of the tide in deep water because, apart from being an air controlled object, he also has possibly as much as four or five hundred feet of air pipe and life line for the tide to play on. It follows therefore that diving in deep water cannot be achieved when the tidal flow is more than half a knot.

Note:—This article has been with us quite some time now and in consequence some of the detail is out of date. As most readers will already know the World's Deep Diving Record is now held by Lt. G. Wookey, R.N. who descended to 600 ft off Norway in September, 1956. ED.

'If I don't get my tea soon someone's in for the highjump!'

CHATTY 'CHATS'

Here in 'Chats' life has really warmed up, masses of Dockyard employees have arrived for courses and the warmer weather has caused the usual increase in Naval volunteers.

The CD's have just completed three weeks' tour of the East Coast, seeking various things that go 'bomp' in the night. Whilst they were absent, a mine report caused we 'tinheads' to dash forth valiantly, equipped with charges for countermining, only to find that we were stalking a man-eating beach ball. Of course, we had our S156 book already made out for GONGS, but as usual they are not on our complement of stores.

Lieutenant Heatley and AB Eric Harris have been duly warned that the wetting of their awards will not be confined to Clearance Divers only.

Steepholm has at last sailed, bearing away PO Robinson and his team for which the *Badger* be truly thankful. Ramsgate Water Carnival is due to be attended by King (Badger) Neptune and his cohorts on July 11th, whilst the CD's once more go looking for mines.

Well, that is about all from Chatham, apart from the fact that by the time that the next issue comes forth, Algy Ware will have departed to Canada.

STANDARD DIVING ADVANCEMENTS IN CHATHAM DIVISION DURING 1957

Diver 3 to Diver 2

A.B. Bell
A.B.B. Dwelorth
L.E.M. Middleton

"Peasant" to Diver 3

M.E.I. Crawford
A.B. Monery
A.B. Wilson
L./Sea. Holroyd
A.B. Brown
A.B. Green

"CHATS".

DIVERS'

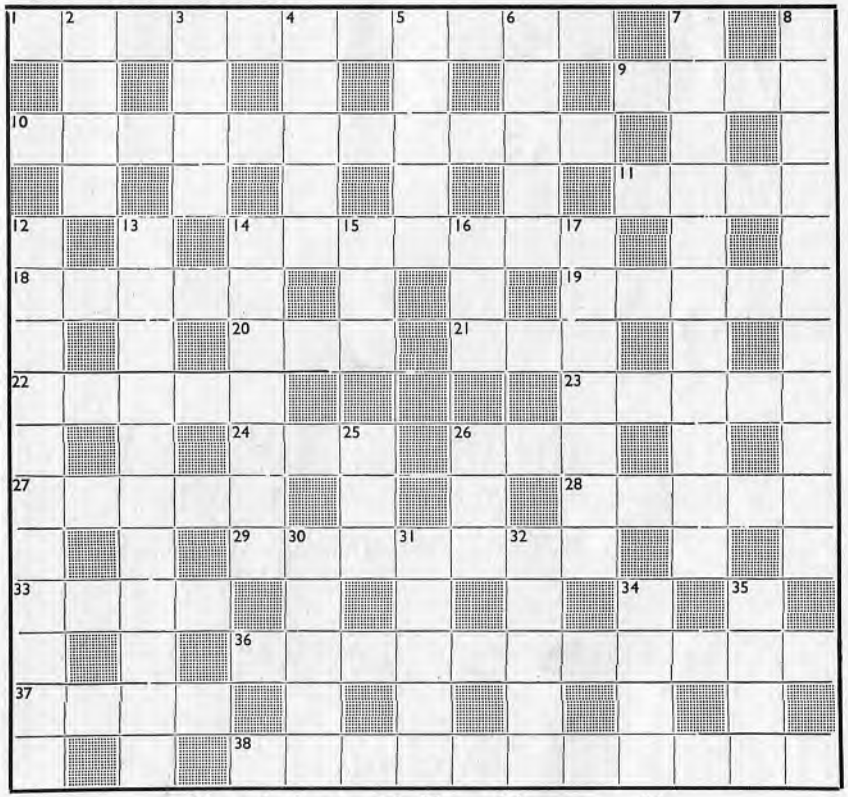
CLUES ACROSS

1. A standard name in diving (5, 6)
9. Three make a riot (4)
10. Could white slaves be sold in this ? (5, 6)
11. They make a case in the pack (4)
14. East 50/50 makes a star, a star (7)
18. Straight to the point, but not sharp (5)
19. A vile stranger may not be dead (5)
20. Not in sight, but in shouting distance (3)
21. Does not make a weight—yes (3)
22. An American tree with a Royal cipher (5)
23. A gradient in the paste Epstein uses (5)
24. Fish is aback down wind (3)
26. I'm in negotiation (3)
27. Very expanded, light inventor (5)
28. Getting on a horse or a hill (5)
29. The study of stationary bodies (7)
33. An outing rip after a capital tea (4)
36. This underwater operation sounds like a low haunt for master mariners (4, 3, 4)
37. A trog leers within (4)
38. So later cups can be chancy investors (11)

CLUES DOWN

2. Disease you get from pills (4)
3. This and call make one liable for summons (4)
4. Morning in Straight Street gives a range (5)
5. The Royal Ulster Rifles are more than half rustic (5)
6. Are Naval armaments used for mortal combat (5)
7. A Naval rehearsal for a marathon (8, 3)
8. Stop, Rest, Lob, (anag) and may be you'll find your dinner (7, 4)
12. A crazy Serb gives a good look when within the applause (11)
13. Sub is back in odd rebel thousand for underwater craft (11)
14. Floors from strange Eastern tales (7)
15. Consume an odd sort of tea (3)
16. Allow, lease or fault (3)
17. A Naval stores officer in a male flock breaks the law (7)
25. A meadow in a pleasant setting (3)
26. Biblical character from Helios (3)
30. When the stand easy cuppa is ready this shout would get the caddy moving (3, 2)
31. Subject in a Pietto picture (5)
32. A hundred dance for a fish basket (5)
34. To compile pointless edicts without number (4)
35. Zero five east-roger-finish (4)

X-WORD No. 4



The solution to this X-word is on page 33

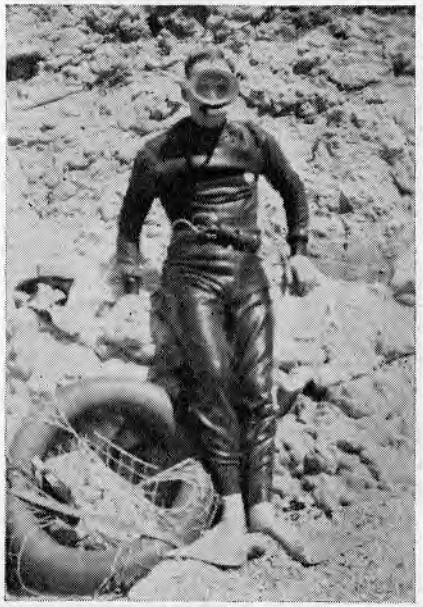
WHY USE A SNORKEL?

There are many civvy clubs in Britain whose members largely use a snorkel, mask and fins to get their ticket of admission to the sea.

I don't know whether our dip-chick friends in the Services have given much thought about us while they do their underwater cruising in super oxygen suits. Anyhow, even as they occupy themselves with their thoughts (whatever they may be !) we do use these simple gadgets.

We use these because we can't afford to buy one of the civilian 'Aqua-lung' sets which are on the market — in case you don't know, they cost approximately £40 and that's a lot even for a civvy.

The snorkel is usually a piece of anodised aluminium tubing bent at the bottom to clear the side of the face and is fitted with a rubber mouthpiece which very much resembles the one used on your oxygen breathing apparatus. As compared with the compresssd air breathing sets, the snorkel has many advantages apart from the price — which is 12/6d. It doesn't need testing or a certificate issued, or charging with air, and it is easy to transport to the water's edge. When we are in the water we can enjoy a continuous view of the sea bed from the surface in 30 ft of water, and if anything interesting appears, we take a deep breath and dive down to explore.



One of our Skin Divers ready for the water. Note the improvised weight belt.

Although we can hold our breath, out of the water, for as long as 1½ minutes without exertion, the underwater duration is only 10—15 seconds. This is not very long, but long enough to permit a diver to pick up a crab, spear a fish, or just look. Skin Diver is the name often used for a snorkel swimmer, but don't run away with the idea that it means we swim in our birthday suits ! We have rubber suits, and they make snorkeling really comfortable — you may be surprised to learn that an hour exploring the coastal sea-bed soon passes when you keep paddling around with a snorkel.

For new-comers to the game, snorkeling is an ideal way of getting them used to the breathing, correct use of fins and making a clean surface dive.

Naturally enough, the next step is the 'Aqua-lung'; even so, a snorkel tube should always be carried by a 'lunger' in case of an emergency, such

as exhausted cylinders, when it may be necessary to swim back to base on the surface.

This may sound all very tame to you veterans of the deep; what would you do if you wanted to make an excursion into Neptuneland and you were in our position? As they say 'there is no Jack like one with his own retractable ladder'.

FROM THE PUBLICITY OFFICER AND YOUR MATIES,
UXBRIDGE SUB-AQUA CLUB.

NOTES FROM H.M.S. 'SAFEGUARD'

City desk calling, with the latest news from the Highlands. The new training period started in HMS *Safeguard* with great gusto, a new Shallow Water Diving Class joined, and of course with the arrival of the Home Fleet many requests for 'Monthly Exercises' in accordance with the new Admiralty Fleet Order.

An interesting salvage job was witnessed here the other evening by a large group of spectators (unfortunately), namely the recovery of a jar of rum which was inadvertently dropped over the side by the *coxswain*. Many of the spectators were heard to mumble 'I bet it's broken', but on recovering the jar it was found to be sound and hearty (Cheers).

Although many of the Diving Branch may not know it, Lieutenant Dodds besides his arduous duties as Diving Officer, is also Sports Officer, and the volunteers to put *Safeguard* on the map are derived by the simple method of (You! You! and You!!!)

This method at times is liable to be misunderstood and a case the other day was when a group of men arrived at the playing fields on the understanding that they were going to play snooker, found to their horror that they were given Hockey Sticks which only goes to show how easily men can misunderstand the spoken word.

The only staff change at *Safeguard* is AB Bell *vice* Leading Seaman Pennington. AB Bell is noted in the Chatham School as the Bard Of Bull Nose, and to keep up this reputation, has appended a poem which we trust will be enjoyed by all.

Acting Petty Officer Scott will be leaving us soon for Diver First Class Course, and it is heard in the Bazaars, that his relief will be Petty Officer Friend, who is known by his friends as the Suez Bandit. It is understood that Sub-Lieutenant Otley has made peace with the aforementioned Bandit in exchange for some 'Feelthy Port Said Photographs!' How true this is remains to be seen of course.

*Any generous persons, having old woollens they do not require, please send them to:—

The Otley Woollen Bank, c/o Chatham Diving School. SHAN.

SCOTCH MIST *

In the land of the hairy old haggis,
They are out with the claymore and kilt,
Every Jock from McLean to McTaviss,
Is crying o'er milk that's been spilt,
'Cos 'Dinger' has shacked up in *Safeguard*,
While 'Pennington's' going abroad,
'Shan' and 'Wilbur' are wailing, that life's hard
'Scott's' alright with a diver one's board.
In spite of the gloom and the misery,
We'll all settle down in a while,
But only (this thought makes me shivery),
'Shan' says 'when yer down alf a mile.'

'DINGER BELL.'

* A mist induced by drinking too much 'Scotch.'

SOLUTION TO CROSSWORD No. 4

Across—(1) Siebe Gorman; (9) Trio; (10) Black Market; (11) Aces; (14) Stellar; (18) Blunt; (19) Alive; (20) Out; (21) Ton; (22) Elmer; (23) Steep; (24) Eel; (26) Ego; (27) Verey; (28) Mount; (29) Statics; (33) Trip; (36) Deep sea dive; (37 Ogle; (38) Speculators.

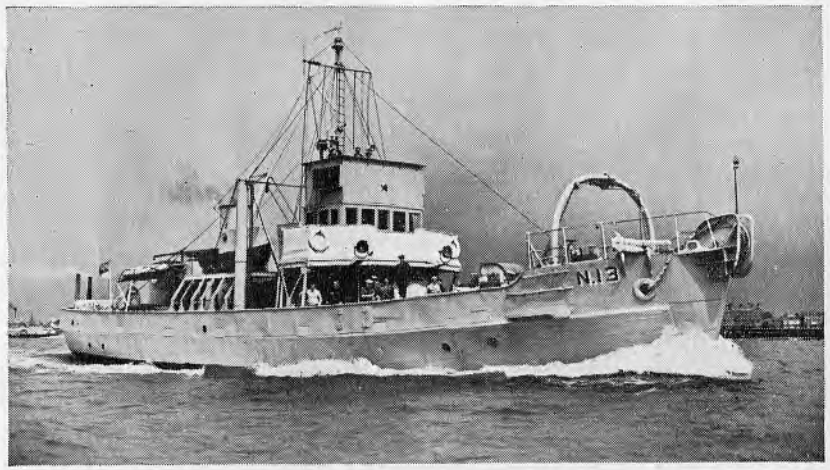
Down—(2) Ills; (3) Beck; (4) Gamut; (5) Rural; (6) Arena; (7) Practice run; (8) Lobster pots; (12) Observation; (13) Submersible; (14) Storeys; (15) East; (16) Let; (17) Ransoms; (25) Lea; (26) Eli; (30) Tee up; (31) Topic; (32) Creel; (34) Edit; (35) Over.

'When I say 'go' I want to hear one big splash!'

INTERLUDE IN NORWAY

HMS *Miner III* left Portsmouth on Saturday, May 4th, 1957. To many, this may not seem important but to those aboard it was a momentous occasion. It was the first time this vessel of 300 tons had ventured so far afield since being converted to a Diving Tender. After 36 hours the ship's company's worst fears were realised. It blew up to force 7 and 8 and we eventually arrived in Kristiansand on Wednesday, May 8th.

The eight Dark Class MTB's and MGB's arrived later that evening and straight away we were up to our relief valves in work. It was the duty of the diving team to inspect and 'slip' them. After one false start a slip was modified and all the boats needing attention were dealt with.



Photograph by kind permission of Kenneth Pratt Ltd.

On May 20th we sailed to Stavanger to continue the exercise with the Norwegian and Danish contingents. Around the Naval Base at Ulsnes it was a spear fisherman's paradise and many nice plaice fell victims to the hungry diver's spears. We were also fairly lucky with lobsters, but just ask about the monster that got away (minus a claw).

We returned to Kristiansand on May 25th and after several more prop changes we sailed for Portsmouth early on Wednesday, May 29th. Against the advice of the song *Dark Hunter* 'Knocked the Rock' so we had to retrace our steps and replace a starboard screw. Once again we sailed on Friday, May 31st and this time arrived at Portsmouth on June 4th.

The team consisted of PO Witherall, L/Sea Brooker, L/Sea Andrews, L/Sea Mansfield and AB Robinson. Many valuable lessons were learnt two of them being: (1) Don't get involved with 'Dark Boats.' (2) Don't pick on lobsters you can't handle. S.L.B.

BOOK REVIEW

'THE WORLD BENEATH THE WAVES,' by Gilbert Doukan, published by Allen and Unwin is a translation from 'Les Decouvertes sous-marines modernes' and is a book which covers a somewhat wide field in technical details. As such, it may not be of great interest to the general reader but is certainly a wealth of information to the professional or technically minded enthusiast. Doctor Doukan, a well known figure in French underseas activity, has meticulously recorded his observations on and impressions of various aspects of diving and life on the sea-bed. In addition, there are excellent chapters on Submarine Archaeology and Underwater photography which, apart from being well presented and extremely interesting, are most instructive to the 'layman' diver with little experience or knowledge of either subject.

A variety of plates and illustrated figures make the contents of 'The World Beneath the Waves' more interesting than it might otherwise be, and, in this respect, it is felt that the written explanations of some subjects are somewhat ponderous in detail particularly in the chapter 'Ethology as observed by underwater hunters—the habits of fish in their natural environment.' However, as a scientist, Doukan can obviously be excused for this ! On the other hand, the author shows a remarkably practical outlook in his appreciation of submarine exploration and the use of diving apparatus.

To sum up, the book is very much a manual and its 300 pages contain information extremely valuable as a reference.

A 'must' for the enthusiast's book shelf and a 'possible' even for the learner who can afford the purchase price of 30/-. 'SEADEE.'

THE EMANCIPATION OF NELLIE

Whilst all you types were basking in the sun on a sandy beach, or if married, breaking your backs with a spade in your gardens, during your 'well earned' ? leave, a signal came from Admiralty instructing the retard party to get the Mk 2 chariot operational. Now this in itself was a mighty strange state of affairs, as practically every Clearance Diver in *Deepwater* had, at some time or other, cast covetous eyes on that museum piece, which could do all the work in diving. Some had gone to the extremes of getting on bended knees to get the thing going, but had always been met with a blank refusal. Now, here we were, actually being told to get it going !

Needless to say, it was ready in record time and, after trials, was put in Horsea Lake for a work-up.

We now come to the second part of this wonderful story—the maestro himself, Lt. Cdr. J. Brooke, D.S.C., R.N., was called in from his sick leave to supervise the preparation of the Mk. 2, the training of the crews and to provide a further three Mk. 1 Chariots for a film which will shortly be made in the Mediterranean, called 'Silent Enemy'.

All trials were completed by the middle of May and it was decided unanimously, by the members of the 'Submersible Craft Diving Unit' to hold a small launching ceremony at Horsea Lake on Saturday, 18th May, followed by 'Cocktails' in the Coach and Horses.

A 40/60 mixture of draught cider and champagne was provided and about fifty people turned up to witness Mrs. Brooke's blessing this craft and all who dive in her! Lt.-Cdr. Brooke explained afterwards why it was decided that the craft should be named *Nellie 2*.

It appears that, during the war, a chariot was captured from the Italians by Commander Crabb, who immediately commenced to learn the hard way, how it worked. He was rather anxious about getting a No. 2 to go down with him and on asking his cronies, was always met with the same reply:— 'Not on your Nellie'. It followed that Nellie would be an ideal name. An invitation which was then given to anyone to have a 'Dry' run on the surface, was promptly accepted by the Captain's Personal Assistant.

Unfortunately, due to the specific gravity of the water at Horsea, as compared to that in the sea, the Craft lost a certain amount of positive buoyancy, which resulted in a few feminine splutters and squeals for help—anyhow that's my story and I'm sticking to it!

That a good time was had by all at the party afterwards goes without saying, judging by the number of people complaining that the cider must have been off.

Seriously though, aren't we now reaching the stage in diving where we need submersibles to conserve our energies so that we can do the jobs in hand more efficiently? As a comparison with the life above, we on the beach must be about in the penny farthing stage. Let's keep our mind on the boys in the air who are travelling at great speeds with excellent mobility and keep this as our yardstick.

Incidentally, don't get too impatient. You can all have a run when we are fully organized.

J.R.

DIVER'S EMPLOYMENT BUREAU

The bureau continues to function, and if you wish your name to be recorded, please forward the following information to 'Employment Bureau', *R.N. Diving Magazine*, H.M.S. *Vernon*, Portsmouth.

Applications can only be considered from serving R.N. Divers or Ex-R.N. Divers who have 'Paid Off' in the last twelve months and who are subscribers to the magazine.

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

Time as a Diver..... *are you willing to serve abroad*.....

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

Married or Single.....

This record, when received from you, will be filed, but it is regretted that no acknowledgment can be made. Please remember that we have far more employees than employers, and the Bureau does not assure you of a job. If, however, any are available, we will put you in touch when your turn comes up, and the rest is up to you.

DUNLOP — *Pioneers of Streamlined form fitting underwater* **SWIM SUITS**

DUNLOP SPECIAL PRODUCTS LTD., FORT DUNLOP, BIRMINGHAM 24

marine salvage towage & underwater contractors

ALL CLASSES OF OCEAN AND COASTAL TOWAGE UNDERTAKEN ON DAY OR CONTRACT TERMS. HARBOUR CLEARANCES AND ALL BRANCHES OF DIVING AND UNDERWATER WORK CARRIED OUT

The Company's Fleet includes the following:—

"Salveda" 781 tons 1200 I.H.P.
"Metinda III" 593 tons 1275 I.H.P.
"Lord Anson" | Coastal Salvage
"Lyness" | Vessels

METAL INDUSTRIES (SALVAGE) LIMITED

FASLANE PORT SHANDON · DUNBARTONSHIRE

TELEPHONE (DAY AND NIGHT) GARELOCHHEAD 351 (3 LINES)

A METAL INDUSTRIES GROUP COMPANY

MS/8/3655