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ROYAL NAVAL

DIVING MAGAZINE

Vol. 9 No. 2 H.M.S. VERNON 2/-

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R.N. Diving Magazine

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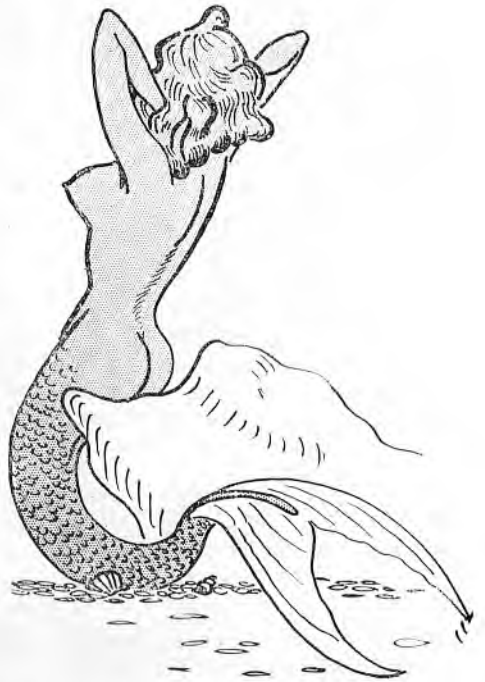
Secretary and Treasurer .. .. Lt. K. G. Lees, R.N.
Photographic Assistant .. .. Mr. R. Fordham

Vol. 9 October 1962 No. 2

Editorial

I am happy to report that your magazine is now holding its own financially. This has been due, mainly, to the efforts of our readers in recruiting new subscribers. Thanks all round.



Since the last edition I have received many letters in praise of the technical articles we carry from time to time. I have some material on the way but as yet it is not free for publication. For the benefit of our civilian readers I am reprinting one of the papers by Surgeon Commander S. Miles. (Breathing Patterns 1957).

Mr. David Wheeler of Dartmouth wrote to me recently suggesting that it would be an aid to civilian enthusiasts if we carried a section for queries. If anyone has a problem, send it in and it will be given a place in our 'Letters' section.

Bernards of Harwich have again added centre page decoration for the benefit of the lads in the barren outposts, "Lest they forget".

The Team news is still poorly represented, lets have something for our Christmas edition members. On the subject of articles, there is still room for Sub Aqua Club offerings. See "Guardrail Critic."

After many years of work as 'back room boy' to this magazine, "Uncle Bill" has retired. On behalf of the readers and staff, all the best in Civvy Street Bill.

Editor.

Letters to the Editor

From: CPL. LOCKWOOD, E. A.,
Royal Engineers.

Dear Sir,

The undermentioned Divers of the Royal Engineers would like to take this opportunity of thanking all ratings of the Diving School, H.M.S. *Vernon* for making our stay at *Vernon* such an enjoyable one.

We would especially like to thank P.O. WYVILL for his great *patience* in instructing us 'PONGOES' for a complete month without having a nervous breakdown. We are convinced that Willy carried out a screw change on Noah's Ark.

If the Army Diving Authorities could see their way clear to allow us to do a further course, we would jump at the chance. That is if the Navy would have us. '*Dodgy*'.

Thank you all again.

Cpl. LOCKWOOD (Lucky)
L.Cpl. DOUGHTY (Brum)
Spr. ELLIS (Lofty)
Spr. MCBETH (Bugsy)
Spr. UNSWORTH (Charlie)

P.S.—I am sure that if it had not been for the time factor we would have been able to teach the 'Matelots' a lot more.

* * *

From:
LT.-CDR. W. Y. MCLANACHAN,
M.B.E., B.E.M., R.N.

Dear Sir,

With reference to Mr. A. Huggins of London's letter about the Salvage Operations of H.M.S. *Tedworth*, the reason that no book corresponds with his story, is that his story is completely wrong, and that the facts do not substantiate it. The facts are as follows:—

H.M. S./M. *Thetis* which was salvaged after failing to surface during trials off Liverpool in June 1939, was re-commissioned as H.M. S./M. *Thunderbolt* about two years later.

H.M. S./M. *Thunderbolt* carried out many successful patrols in Home Waters and in the Mediterranean. On March the 14th 1943 she carried out a successful torpedo attack and sank the Italian oil tanker *Esterel*, off Cape San Vite, Western Sicily. *Thunderbolt* was then subjected to an intensive depth charge attack by the escorting Italian sloop *Cicogna* and was sunk with the loss of all hands.

The salvage job which Mr. Huggins is probably referring to concerned a submarine called H.M. S./M. *Untamed* which sank during her working up period in the Firth of Clyde about June 1943. The *Untamed* was salvaged by divers from the *Tedworth*, one of these being C.P.O. MARSH who went to Pensive from *Vernon* a couple of years ago.

On being salvaged the *Untamed* was refitted, re-named *Verulent* and re-commissioned about the Spring of 1945, but as far as I know never did any operational patrols, and went to reserve and scrap soon after the end of the war.

The fact about the Chief E.R.A. being trapped in the Escape Hatch is correct and was caused by incorrect operation of the vent. Incidentally the *Untamed* was completely intact, as her sinking was due to flooding of the compartment containing the Cherinkeef log. This flooding was caused by the Sluice Valve for housing the log which although showing SHUT was not completely SHUT.

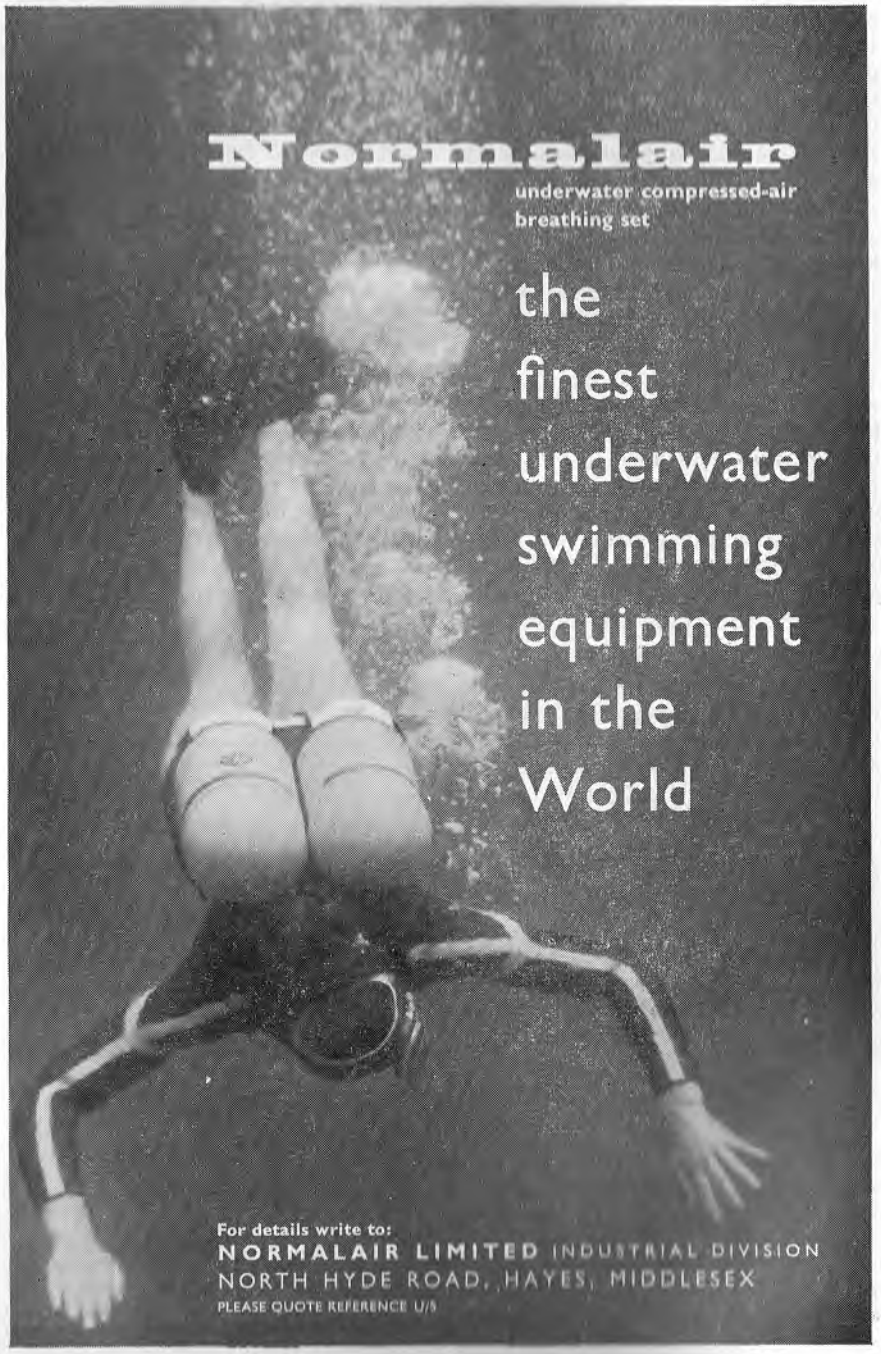
Some earlier boats of this class had nearly suffered a similar fate for the same reason, and I remember once having to steam on the surface for 200 miles because of flooding of the log compartment.

The crew of the *Untamed* were buried in the cemetery at DUNCON. I don't think there was ever any question of the *Tedworth* rescuing survivors from the *Untamed* since by the time she had been located there was no chance of any survivors being alive.

Just before the *Untamed* was lost, another submarine called H.M. S./M. *Varne* was lost again in the Clyde area, during her working up period but as far as I know she went down in 100 fathoms and no trace of her was ever found.

Now to a slightly lighter incident to this sad story. On the evening that the *Untamed* had failed to make her surfacing signal I had just returned from an unsuccessful and rather trying patrol off Iceland. I went onboard the depot ship *Forth* anticipating a nice hot bath after six weeks without one, only to be informed that the P.O's bathroom was cleaned up for rounds and would not be opened until the following morning. I was returning to my boat when a messenger came up and asked me if I was *Untamed*; having been sent to check up on which of the crew had been received in the depot ship. 'I don't know about being *Untamed* I replied, 'but I'm . . . fed up with this . . . depot ship'. It was not until some hours later that I learnt that the *Untamed* had failed to surface.

Now to an even more lighthearted true story about our U class submarines. During the first postwar Navy Days to be held in Chatham an old gentleman asked a sailor if he could tell him where the 'URINAL' was. After some deep thought the sailor replied, 'I think she's gone to Sheerness for a refit'.



Retirement

IN many ways this is a sad issue of the Magazine because we have to say farewell to two Clearance Diving Officers who are retiring. LT.-CDR. P. S. W. ROBERTS, V.C., D.S.C., R.N. and LT.-CDR. W. B. FILER, M.B.E., G.M., R.N., are both leaving the Service.

Lt.-Cdr. Peter Roberts who qualified as a Clearance Diving Officer in 1955, but was well known in Diving circles long before that, has held many Diving appointments including: C.O. of the Home Station Clearance Diving Team, Acceptance Trials H.M.S. *Vernon* and Experimental Trials at Portland. Many of the new techniques and equipment which are just filtering through to the Fleet are the result of his efforts in the past.

Lt.-Cdr. Bill Filer, or 'Uncle Bill' was almost weaned on a diver's mouthpiece and it would be unfair to go back to when he first qualified as an underwater operator but at least it is true to say that he became a Clearance Diver in 1954 after numerous years in the 'tin hat' department. You mentioned the various Diving jobs and almost certainly 'Uncle Bil!' was there sometime or other. Even now he is not severing his ties with the Diving world because he is going to continue his profession at the Royal Naval Physiological Laboratory where I am sure we shall all meet him again.

To both of them, on behalf of their numberous friends in all walks of the Diving world, both service and civilian, we wish the very best of good luck in their retirement.

To their wives also, we say than you for much of the credit for their ready assistance and cheerful attitude must be due to your help and understanding.

C.D.

* *

To: THE R.N. DIVING MAGAZINE.

Dear Readers,

The stark naked, brutal, all revealing statement "Retired (age)" has appeared beside my name in the Admiralty C.W. List, "tired" I read with understanding, **retired** sounded like officialese meaning "w.r.t. tired" and I guessed it must mean me. Really painful was the ghastly realisation that "(age)" did not refer to some historical period but was intened as a personal reference to that fact that I've become too old. To disprove this terrible insinuation I promptly whipped out to Spithead and caught me a more than average sized lobster, which was presented to the Commander of VERNON for divers reasons, during my farewell party I'm not sure that this proved anything at all actually, except perhaps that VERNON has a damn fine Commander.

To get down to the purpose of this letter, may I express my sincere thanks and appreciation to all those divers who have supported me so admirably in the various diving appointments I have held. It has indeed been a privilege to experience the tremendous strength and power of team spirit at one's back, when leading a team of divers on any worthwhile task. I honestly believe that I am not guilty of undue bias, when assessing divers as the finest category of ratings in the service. There are probably some exceptions to this generalisation but they are few and far between, and rather like beer, there is no bad beer, it is just that some brands are better than others. I confidently forecast that the very qualities that go to make a diver, will ensure that this high standard is maintained.

May I also take this opportunity to

thank those who have rallied round to support the DIVING MAGAZINE and help keep it alive. You will all be pleased to know that under the present management the magazine is on a sounder footing than ever before and is being produced with healthy enthusiasm and sound economy. Mind you, a couple of draft chits would certainly shake the foundations more than somewhat, but surely, now that sales have been increased by 500 there will always be somebody to step into the breach. During the many crises in the magazines' struggle for survival there has always been a hard core of supporters whose encouragement, in various ways, have enabled us to triumph over the dismal Johnnies who would have scuttled the ship. It is to the spirit of "hard core", which incidentally is the back bone of Naval Diving, that the magazine owes its existence. Now that it is on such a good footing, please make sure that whenever you can, in whatever form you like, you forward material for publication. No matter how good the administration may be, production cannot begin until the machine is adequately supplied with fuel.

The Annual Dinner is under fire from certain quarters who don't find it strictly to their "taste". This is nothing new of course, it merely comes from a different quarter. The thing to remember here is that it **is** a **Divers** Dinner and should be kept at a level which divers can enjoy. After all there are enough personalities in the diving world and those associated with it, to give adequate colour to the occasion, without resorting to unnecessary pomp and ceremony. Whatever form the dinner takes, however, I do feel it should remain the highlight of the diving social calendar. There is no doubt as to its growing popularity, as is evidenced by the fact that the members attending have increased from 70, when I took over from Harry Wardle, to 250 last year. The future organisers can take it from me that there is ample reward for any hard work they may put into the project. They only have to listen to those who have left the service reliving the past with comrades they have not seen for some time; written on their faces is the joy of recapturing that precious bond of comradeship they knew during their service careers.

If all goes well I hope to be appointed Diving Officer for the Wet and Dry Compression Chamber project to be built in the new R.N. Physiological Laboratory Headquarters at Stokes Bay. This should enable me to maintain contact with most diving activities and if I can assist the diver's enterprises in any way, I shall be very pleased to do so. In the meantime, good luck and good diving to all, see you at 1,000 ft. in the wet pot.

Yours sincerely

"B.F."

'Friendly Swimmer'

by MR. 'FRANKY' FRANKLIN, EX-C.D.O.

DURING the recent trouble in Cyprus when quite a large number of H.M. ships were operating in the island's coastal waters, the danger of some form of underwater sabotage was prevalent in the authorities' minds. At night, ships at anchor were ordered to take certain precautions against this danger by posting of armed sentries, boat patrols dropping small underwater charges, and keeping at the ready, a unit of divers.

For months there had been no sign or intelligence of any underwater action and the nightly precautions became boring and their value questionable. Duties were carried out half-heartedly and talks on the possibility of relaxing the precautions were about to commence, when the 'scare' came.

It occurred at Famagusta where there were six H.M. Ships and three Auxiliaries anchored in the bay, a most attractive target for the saboteur. Further, on the night in question, weather conditions were ideal for underwater operations, there was no moon, the wind was just sufficient to disturb the water and it was a Sunday, the day of 'rest'.

At about 2140 a lookout on one of the Fleet Oiler reported a swimmer 50 yards on the port bow making for the ship. When illuminated by signalling light, the swimmer submerged and the lookout was the only witness to the incident. The report was passed to the Master of the Oiler, who, on questioning the lookout, found the report hard to believe. The swimmer was described as a 'lady or barrel chested man', wearing a white bathing cap and doing the breast stroke'. The lookout was adamant in this description and was certain that it was no trick of imagination, he *had seen a swimmer*. The Master therefore had no option but to make a report to the Senior Naval Officer and a general alarm was made to the assembled ships. In a matter of minutes all ships were darkened, additional sentries were placed and the water echoed with the explosion of the patrolling boats charges.

In the following half hour a number of sightings were reported, which on investigation were found to be bits of floating garbage or wake trails left by the patrolling boats. Then, when the first flush of excitement was over, the 'swimmer' was sighted by an officer and a signalman on a ship in the adjacent berth to the original oiler. This confirmatory report brought fresh orders and renewed activity. All ships were ordered to raise steam immediately, H.M. Ships were to proceed to sea when ready and the Auxilaries were to standby to follow.

Just before midnight, five of H.M. Ships put to sea, the sixth, a depot ship was detailed to stay and accompany the Auxilaries. Every one was now on their toes and signalling lanterns, used as searchlights continuously swept the anchorage, resembling Spithead on Coronation night. Thus when the 'swimmer' again made an appearance, he was clearly seen and indentified before he submerged — the swimmer was friendly. A detailed report was immediately sent to the Senior Officer now at sea, and messages crackled to and fro as information was sought and passed on to higher authorities at Malta and Whitehall. 'Had the swimmer been captured? Was there only one', 'How was it known that he was friendly'? and so on. Meanwhile boats continued dropping charges and sentries to stare into the night, although the 'buzz' had quickly spread that it was a 'friendly swimmer'. Finally at 0240 the signal was received to 'revert to normal'.

The operation was a false alarm, though many, whose nights' rest had been disturbed, disbelieved this and claimed it was just another B - - - Y silly exercise. However it had been very good operational training and just the thing to stop the lethargic attitude to the underwater threat, and the one responsible, the 'friendly swimmer', oh, that was a TURTLE.

Men Against the Sea

by R. W. McWILLIAMS, Radio Officer, *Foundation Vigilant*

Our old Diving collegue, Ex-C.P.O. 'Algy' Ware has recently hit the headlines in Canada where he follows his trade as Second Mate on M./V. *Foundation Vigilant*, one of the ships of Foundation Maritime Ltd. of Canada. To quote the Editor of the '*Foundation Bulletin*' who has supplied the story:

'Few recent stories of rescue at sea have aroused such widespread interest as that of the dredge *Cartagena*. Here is the story of that gallant display of seamanship by Canadian and United States seamen, related by one who took part in that epic drama.'

THERE are few things in the life of a man to equal the helplessness he feels watching mountainous seas roll down on a ship's deck, or seeing his shipmate carried over the side, to be lost to the mercy of wind and water.

This is a story of modern day rescue and salvage in which, despite modern ships and equipment, skilled and heroic men, little has changed since the days of Columbus. The sea with its terrifying force continues to take its toll.

The dredge *Cartagena*, named after a port in South America, is one of the largest of its type in North America, a powerful vessel fully equipped to widen and deepen rivers and channels for safer navigation. Normally she carries a crew of some 30 men while dredging and a skeleton crew of 7–10 while being towed from job to job.

Such towing is usually uneventful, but on Christmas Day 1961 her crew of 10 men and *Foundation Vigilant*'s crew of 22 were to begin an adventure

Four brave men: the boarding party from 'Foundation Vigilant'. (L to R) Third Engineer, R. Vardy; Second Mate, H. G. Ware; Seaman L. Coffin, and Seaman C. Carroll.

which will never permit them to forget that Yuletide.

Foundation Vigilant departed Halifax with *Cartagena* in tow at noon on December 23rd and struck out down the Atlantic seaboard bound for Baltimore where the dredge was expected to commence work at the beginning of the new year. The weather was fine and despite the fact that both crews would miss being with their families at Christmas, goodwill prevailed with the promise of seeing in the New Year together at Baltimore. Unknowingly the crew of another ship was also to miss Christmas at home, that of the U.S. Coast Guard cutter *Acushnet*.

Christmas Eve is usually welcomed with much handshaking and well-wishing; on the Atlantic seaboard it was welcomed in with gale force winds and heavy seas.

The two vessels, *Vigilant* and *Cartagena*, maintained continuous radio-telephone contact, checking the conditions of men and equipment as the howling gale and pounding seas increased. The wind was from the east, the most dangerous quarter, for, should a failure of equipment occur both tug and tow would be driven on the rocky coast of Nova Scotia, joining the many brave ships similarly driven there in years past.

At 2100 hours, with an eye on the worsening weather, Captain Shears on *Vigilant*'s bridge altered his course to carry the vessels off the land to the protection of deeper water. Wind and sea increased rapidly and the night was made to seem more violent by threatening streaks of lightening. The two vessels had now reached a point of no return and were at the mercy of the sea. Towing speed was reduced to mere steerage way in the hope of easing the dreadful pounding.

As the night wore on there seemed no limit to wind and sea. A careful watch was kept on towing equipment but in spite of every precaution, as dawn broke, the chain towing-bridle on *Cartagena* parted and the 800-ton dredge was adrift and wallowing helplessly in mountainous seas. Without power for steerage, she lay broadside to the murderous waves.

Vigilant moved in as close as possible but it was soon realized that rescue of the dredge's crew would be impossible at this time; both vessels were being subjected to such violence that men overboard in either boat or raft would be crushed against either of the steel hulls.

Captain Shears immediately signalled the United States Coast Guard requesting assistance and the single appeal on the Distress Frequency '*calling any Coast Guard Unit within range*' resulted in the prompt reply '*Roger/this is U.S. Coast Guard cutter* Acushnet/*What is your position and difficulty*'? The perilous situation was explained and *Vigilant* received assurance that *Acushnet* had altered course and was steering in her direction with an estimated time of arrival of 10 hours.

Maintaining constant radio contact with the crew of the dredge, *Vigilant* assured them that she was standing by; and further assistance was on the way.

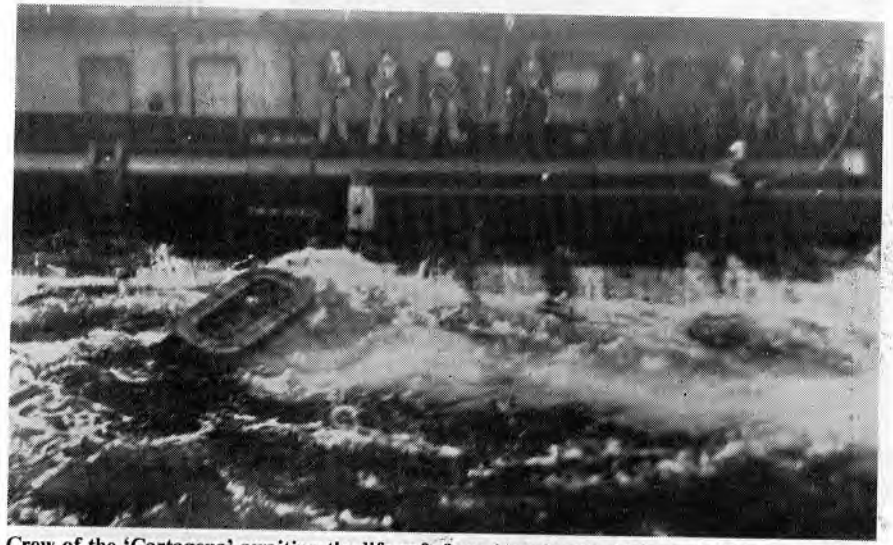
Vigilant was now receiving a beating that her crew will never forget, in circling *Cartagena* and coming round broadside to forty-foot waves to maintain her position and remain close by. The feeling that every sea that hit her was her last prevailed in the mind of every man aboard the tug. Listing to more than forty degrees and heart-sickening thump and shudder as tons of water broke over her, were to be *Vigilant's* nightmare for many days to come. The hours awaiting the Coast Guard cutter's arrival were filled with such

anxiety as condemned men must feel Although both crews knew that the cutter could do little more than *Vigilant* at this time, the knowledge that they were not alone buoyed up their courage.

Due to snow and sleet Captain Shears was unable to take a sight, but an aircraft from the vicinity of Nantucket homed in on *Vigilant's* radio signal, passed overhead, and gave an accurate position fix via Loran. This was relayed to *Acushnet* and she adjusted course accordingly. The hours of waiting took a heavy toll on *Vigilant*'s electronic equipment. The terrific shudder and vibration caused severe damage to her main wireless transmitter and she was foced to use emergency equipment operated from storage batteries on the distress frequency of 500 C.K. Her main radar required constant attention to ensure not losing contact with *Cartagena* in the diminishing visibility. However, communications were maintained at all times and the progress of the coastguard relayed to the dredge's crew.

Acushnet arrived at nightfall and took up station off *Cartagena*'s starboard bow, being at once subjected to the battering being endured by the other vessels. Summing up the situation with the typical calmness of a man who knows his job, her captain recommended that no rescue attempt be made that night. *Cartargena* then advised both *Vigilant* and *Acushnet* that she was taking water and that her pumps could just barely cope with the situation. On the strength of this information anxiety for her crew was greatly increased and it was felt a rescue attempt must be made at once.

The coastguard urged the derdge's crew to man lifejackets and to tie each other together with a line, leaving about twelve feet between each man. The cutter then lowered a rubber raft secured by a line to haul it back, which drifted down wind to the *Cartagena*. But attempts by the crew to board the raft failed as breaking seas and swell prevented them from leaving *Cartagena*'s deck. One man was washed overboard, but was saved by his lifeline linked to



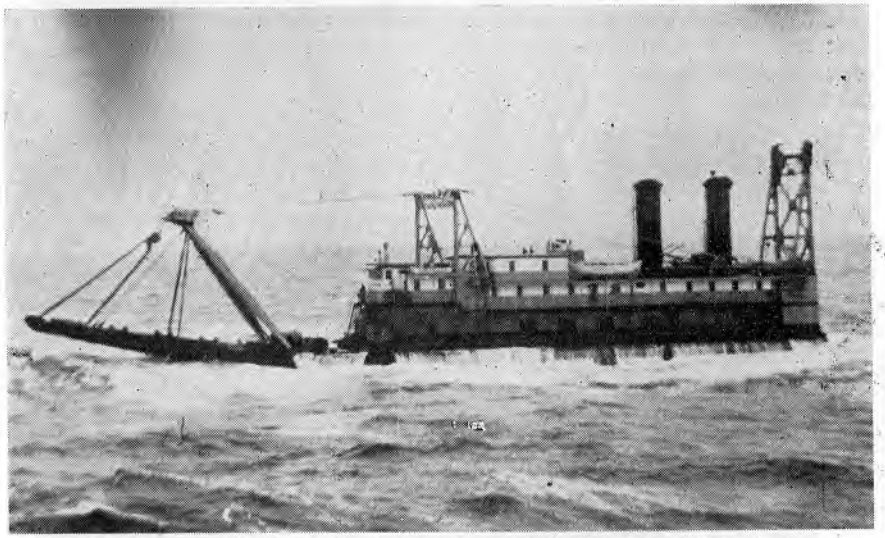
Crew of the 'Cartagena' awaiting the life raft from 'Acushnet' which carried them to safety.

his fellows who were able to haul him back inboard although badly beaten and almost drowned. No further attempt was made that night, *Acushnet* and *Vigilant* remaining close by in case of disaster.

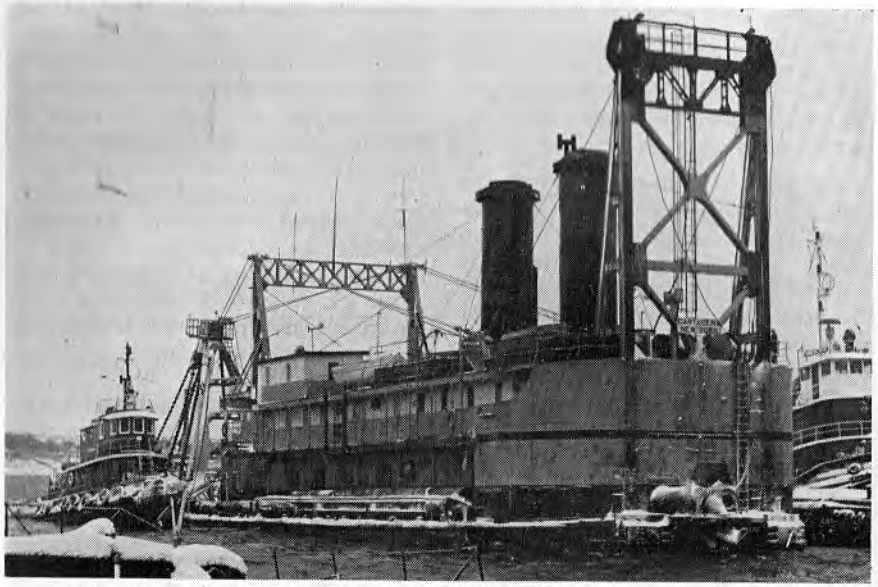
The terrible night wore on with the gale undiminished. From storm-tossed *Vigilant*, lights of the other two vessels were visible only when they rode up on the crest of a sea, to disappear again into a trough for what seemed hours on end. As dawn broke with the hope of some relief. *Cartagena* informed *Vigilant* and *Acushnet* that her huge ladder was beginning to sway.

Since high seas still made impossible the rescue of her crew it was decided *Acushnet* would fire a rocket aboard *Cartagena* with the hope of getting a line fast in order to hold her up into the wind and sea and provide some protection for her ladder. *Vigilant* also prepared her line throwing rockets in the event that coastguards' shot should fail. Cautiously, but with masterful seamanship *Acushnet* was inched closer and closer to the dredge: then at the precise moment her rocket soared away and landed fair across *Cartagena*'s upper deck. The emergency lending them strength, the crew of *Cartagena* were able to haul the five inch nylon line aboard and affix it to one of their towing bits. *Acushnet* then headed into wind, gradually drawing the dredge round head to the sea. But just as it seemed that some progress had been made the nylon line parted and *Cartagena* was once again on her own.

Without further delay and while daylight remained the decision was taken to make another rescue attempt. Once again the dredge's crew prepared themselves for the ordeal of entering a raft and the hazardous journey across mountainous seas to the *Acushnet*. Another rocket was fired to *Cartagena* and *Vigilant* manoeuvred down-wind to be in a position to attempt recovery if the raft should break loose. Anxious eyes scanned the seas from *Vigilant*'s bridge and long minutes passed before the bob-



'Cartagena' wallowing in the stormy Atlantic, 250 miles east of Cape Cod.



Safe at last. 'Cartagena' tied up at the FML dock in Halifax after her ordeal.

bing and weaving raft was at *Acushnet*'s side. A few seconds later the coastguard's radion told *Vigilant* that the rescue attempt had succeeded but one man was injured and unconscious when hauled aboard. The coastguard then advised it was proceeding to Boston with all hands at best speed. A salute was passed to *Acushnet* and she soon moved out of the area.

Vigilant was now alone with the unmanned dredge until either it sank or weather conditions improved sufficiently to put men aboard to man her pumps and begin the difficult job of getting heavy towing equipment aboard.

Security messages were now broadcast every hour warning all ships that *Vigilant* was standing by the unmanned dredge and to approach with caution should they be passing through this area.

Another night passed and with the dawn came a slight improvement in wind and sea. As the day wore on *Vigilant* closed in on *Cartagena* several times for a closer inspection to determine whether or not the dredge was lying lower in the water and/or how fast a rate she might be sinking. No noticeable difference was seen in her freeboard and high hopes were held that she still might be saved if a crew could get aboard before another day passed.

By late afternoon the sea had further abated, and although a heavy swell remained the decision to attempt a boarding of *Cartagena* was made. *Cartagena*'s deck was still awash and the landing would be most difficult but it was felt that skilled and experienced men might make the landing, even under such difficult conditions.

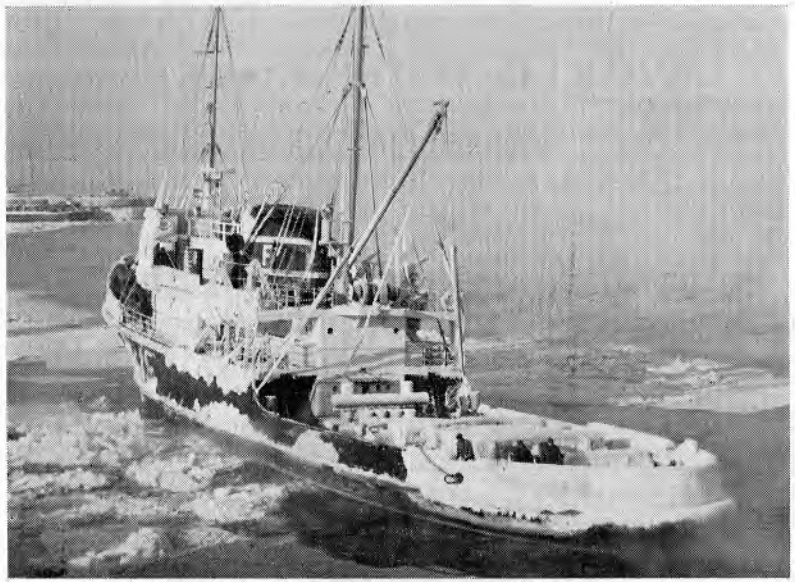
Four of *Vigilant*'s crew were selected for the job: Mr. H. G. Ware, Second Mate; Mr. R. Vardy, Third Engineer; Lloyd Coffin, Seaman; and C. Carroll, Seaman. Each was chosen for his ability in seamanship and in the case of Vardy for his ability to

improvise under difficult circumstances.

It was decided to use the motor life-boat, and this was immediately prepared and a routine worked out for lowering her into the heavy swell. The motor would be running; the rudder hard to port and the boat dropped from a few feet above the sea. By this means it was hoped she would be carried away frnm *Vigilant*'s side without danger to the crew or damage to the boat itself. *Vigilant* then manoeuvred into position as close as possible to *Cartagena*. However, just as the order '*drop boat*' was given, disaster in the form of a heavy and unexpected sea struck *Vigilant* with all its force. The forward pin securing the life-boat gave way prematurely as a wave struck and she dove into the sea, Seaman Carroll being thrown into the sea from the forward end as the boat thrashed and beat against *Vigilant*'s side. Only by some miracle did he escape being crushed. The Second Mate fought desperately to pull the after pin, so that the boat would fall into the sea and be carried free.

Meanwhile Vardy and Coffin were able to reach Carroll with an oar and haul him back to the boat. Finally, the after pin parted and the life boat hit the sea with a thud, shipping water and all but capsizing. Another sea followed and before Vardy could regain his balance he was thrown into the raging water. The battered and leaking lifeboat drifted clear and Vardy was left on his own to be smashed time and again against *Vigilant's* side. With superhuman strength he was able to grasp the life-boat falls where he was alternately plunged into the sea and carried aloft as *Vigilant* rolled perilously in the heavy seas.

Frantic attempts to reach him by *Vigilant*'s crew were of no avail. Seaman Harold Coffin went well out on the tug's rubbing fender in an effort to reach him. Captain Shears rushed from the bridge, and at the risk of his own life scrambled along



'Foundation Vigilant' returning to Halifax harbour.

the same fender; only to feel his hand brush Vardy's as the Engineer slipped from the lifeboat falls into the sea. Horrified crew members heard his cry '*So long fellows*', as he disappeared. Unknown to Vardy and by some stroke of fate the damaged lifeboat was directly astern and he drifting towards it. But as darkness fell *Vigilant's* crew were gripped with the fear that both Vardy and the boat's crew were lost forever.

Once again wind and sea increased in fury. *Vigilant* was swung round and her searchlight pierced the murk for sign of Vardy or the boat. By now white caps of breaking waves made finding the white lifeboat almost an impossibility. Minute after long minute passed as earnest eyes scanned the sea for any sign. Then a cry from a crew member: '*I see the boat*'. The searchlight's beam had picked her up. For a moment only she was visible then lost again in the breaking seas.

Some minutes later the searchlight was played on the dredge and the lifeboat was seen alongside. Despite the terrible seas the three men had rowed the damaged lifeboat to the dredge's side. Further anxious minutes passed. Then the voice of the Second Mate split the airways with the only Christmas present *Vigilant's* crew would ever want. '*We have Vardy and we are all safe*'. Our prayers had been answered.

On board the dredge four brave men went to work almost immediately; Vardy despite his terrifying experience, going below to the engine room to see to the pumps. Meanwhile the Second Mate and his two seamen made a quick but close inspection, reporting by radio that the vessel could be saved. Their herioc efforts had not been in vain.

A change to dry clothes and some sustenance, found aboard the dredge soon changed the outlook of the boarding crew and they settled down to a routine of keeping watch on the pumps and diesel generator. Meanwhile, *Vigilant* swung round to the sea and drifted with the wind to provide some measure of relief for her own sorely tried crew. Throughout that night *Vigilant* remained within easy reach, and when morning dawned with very little change in weather conditions several attempts were made to get lines aboard the dredge, but to no avail. The sea prevented too close an approach and the boarding party could not man-haul the heavy lines aboard. (There was no power source available). That day passed in relative quiet, *Vigilant*'s crew arranging towing equipment, while aboard the dredge, Vardy and the others, having reported the pumps working, busied themselves with *Cartagena*'s machinery and cleaning of the galley stove. In almost jovial voice, Mr. Ware reported that the refrigerator was full of T.bone steaks and they were all set for a feed!

Next morning a Search and Rescue aircraft appeared on the scene and *Vigilant* took this opportunity of checking her position after days of drifting with the unpowered dredge. The sea had begun to diminish and line-firing rockets were sent to *Cartagena* and the long and difficult task of getting the heavy towing equipment aboard the dredge began.

All hands had been on deck since 4 a.m. and at noon the tow line hook-up had been completed. *Vigilant* was once again underway with *Cartagena* in tow. But the fair weather lasted only a few hours and it was not long before the old feeling of anxiety returned. This time for the safety of our own men aboard the dredge. The tow line hook-up was lighter than normal, due to lack of power on *Cartagena* to haul heavier towing wire aboard, and therefore as

sea and wind began making up it was feared the dredge could once again break free.

However, towing speed was kept to a bare minimum to keep strain off the towing bits of *Cartagena*. A course was set providing some ease for the dredge but little for *Vigilant* who kept the sea on her port beam. So passed another night and another day and at long last our home port of Halifax was but a few miles distant.

But the elements had not yet finished with us for now in the lee of the land we encountered a northeast blizzard. Another grey dawn and at last Halifax harbour, our trip completed: for the time being at any rate. The last I saw of my fellow crew members as I headed over the hill for home were the ready smiles of thankful and successful men.

(*The final chapter of the story can be told briefly from Foundation Maritime Limited's 'Report of Ship Movement' form*:

Date: *January* 12th 1962.

Foundation Vigilant *departed Halifax towing* Cartagena *to Chester, Pa.*

Date: *January* 19th/1962.

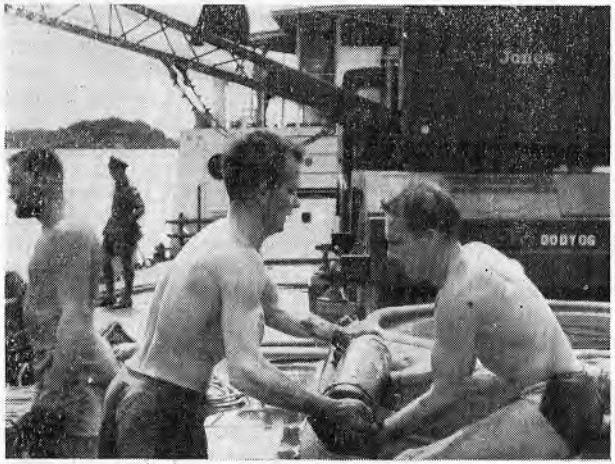
Foundation Vigilant *arrived Chester, Pa.*, Cartagena in *in tow.*

Mission completed).

News from the Far East—July 1962

AT long last the silence is broken and we in the Far East take time off from the *Tiger* to tell you what has been happening out here.

It is just over two years since that sad day when the Fleet Clearance Diving Team made their last farewells to Hong Kong as a permanent base and joined the Bomb and Mine Disposal Team in Singapore. Having settled in it became only too obvious that the teams should join forces and work as one unit. This presented some accommodation problems, especially as the Fleet started to require more and more divers to be trained on the station. Plans were made, therefore, for the extensions of the buildings and facilities in order to cope with this increase of numbers. The improvements have continued and will shortly be completed, by which time the Fleet Diving Centre, H.M.S. *Terror*, will be able to afford adequate facilities to the team, training classes, and the ship's diving teams. If all goes well we should be able to include a photograph of the completed Centre in the next issue of the Magazine.



150 mm. Jap shell being loaded into storage tanks on Army 'Z' craft for dumping.

Portrait of man(?) with bomb! British 250lb. G.P.

Basic diving training is carried out from an old battle practice target which is moored alongside the Diving Centre. Many were the cries of 'Timber' when Pat Christmas and his merry band of lumber jacks demolished the upper works of this somewhat curious craft. This is an excellent diving platform for the trainee divers, but is seldom used by the team. Apart from our routine visits to Hong Kong we have worked off Borneo, Malya's East and West coast, the Andaman Islands, and of course all round the island of Singapore.

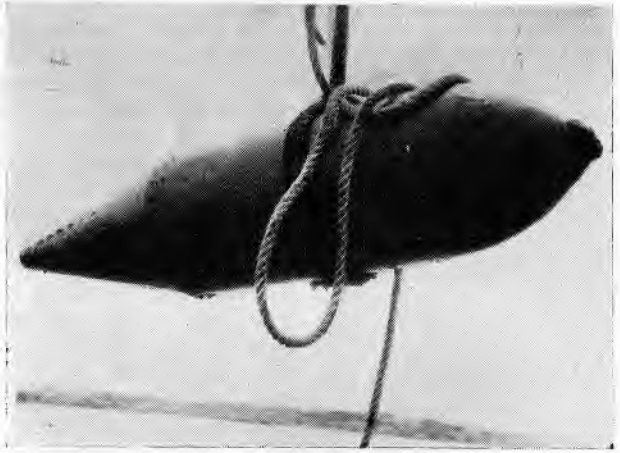
Our most recent job has been the recovery of ammunition from the shallow waters around an old dump in the West Johore Strait. As this ammunition had become a danger to local fishermen it was decided to bring it up, and re-dump it in deeper water. The rounds were scattered over an area about two miles square and so presented quite a formidable task. The area was systematically searched to a depth of 80 feet by a series of overlapping circular searches. As ammunition was found it was immediately brought to the surface by hand and placed under water in a Carley raft. From there it was transferred to an ammunition lighter and placed in canvas baths where it awaited weekly collection and re-dumping. This was a joint service operation with the Navy recovering and storing the ammunition, the Army assisting with the recovery and then re-dumping it at sea, and the R.A.F. providing one of their Yacht Clubs as a most splendid base for the operation.

For the first three months of the operation about a thousand rounds a month were recovered using the Carley raft method of lifting, but then

we discovered that some of the ammunition was piled up in heaps and a more efficient method of lifting was required. The anchoring of an M.F.V. over these heaps proved to be a better method of recovery, but it was still 'handraulic' and when a dump consisting of several hundred tons of ammunition was discovered the method had to be changed again. This time the Royal Engineers provided a 'Z' craft with a crane aboard which increased our lifting potential to a thousand round a day.

The job took seven months and 650 diving hours to complete and it was calculated that the 29,447 rounds that were recovered weighed over 400 tons. Of this amount some 80 tons was lifted by hand. No wonder the team won the Tug-of-War! The ammunition itself was a completely mixed bag of British, Japanese, and American ordnance in varying states of disintegration. The largest single items were Japanese 250 k.g. bombs which invariably spilled their cast picric filling all over the deck The most numerous were the British 25lb. H.E. which were alright when unfused but a little distressing with strikers exposed. Those items which caused any worry were taken to a deserted island in the vincinity and countermined. On the whole diving conditions were quite good with a mixed sand and mud bottom and up to five feet under water visibility. Our only real problem was the tide which cut down diving time considerably.

There were several amusing incidents like the time when someone mistook a sea-snake for the down haul, he was the only one who didn't laugh. On another occasion the expansion of gas inside a recovered shell case caused a 75mm. shell to be fired right behind the Boss. But happily, the whole operation was relatively free from accidents.



250 kg. Japanese G.P. Bomb

Scandinavian Hospitality

IT was in the late Autumn of 1960 that I first encountered Scandinavian hospitality in its most violent form. It was in Khorramshahr, Iran with the temperature in the lower hundred and twenties.

I was with the Cementation Company, working on the Aklek Pahlevi Bridge foundations, and being the only diver on the site, I was kept very busy, a 12 hour day being the rule rather than the exception. My main task was to seal and caulk off a coffer dam to enable de-watering to take place. This was duly accomplished, though not without a certain amount of blood, sweat and toil, to say nothing of 'avoir-dupois' being shed.

After this, life for me became a little more tranquil but not for long!

One day, the Agent sent for me; it appeared that Sen-Tab. Ltd., a Swedish contracting firm engaged in constructing a new jetty, had run up against a snag. In a week's time the jetty was due to be inspected by a horde of Government Officials, everyone from the Governor himself to the local dog-catcher in fact. A number of concrete piles had run off at an angle whilst being driven and had to be cut off at bed level before the inspection.

When I arrived on the site I was greeted with all the fervour a group of men lost in trackless waterless desert would bestow upon a Coco Cola vendor. The Engineers and Foremen were mainly Scandinavian although Josef the Engineer, with whom I was to work, was Viennese.

I was immediately taken to the mess hall and a glass of Atvik thrust into my hand. Atvik is a Swedish drink I had never heard of before, although in the ensuing days I was to become intimately acquainted with it. It was a colourless and harmless looking enough liquid, and I felt no apprehension when in reply to the others I raised my glass shouted 'Xkol' and downed my drink. Immediately I felt as if I was going into orbit, my eyes revolved, my stomach somersaulted, my ears flapped and my hair stood on end; when I came back to earth I was horrified to find my glass was full again. It was only later that I learned that Atvik was a Swedish rocket fuel!

As to the rest of that day, I draw a discreet veil of silence. Next day I started work and managed to make good progress, though never a day passed without Josef saying, 'Frank, you must come to der mess hall, Anderson, Johannsen or Nils or Jacobsen vish you to take a little glass of Atvik mit dem'. So, like a man approaching the 13 steps to the gallows I would be led to the mess hall. Despite these daily distractions I managed, to the delight of my Scandinavian friends, to complete the job on time. As a result of this a firm bond of friendship was established between the sites and a frequent interchange of visits for social evenings took place. This culminated in a grand dinner party, held at the Sen-Tab mess hall, when 27 men representing 11 different nations sat down to a veritable banquet, during which all nationalities were toasted, all national drinks were drunk and the songs of all nations were sung.

This memorable evening ended with the whole 27 of us led by a Greek accountant and Irish steel erector, doing the 'Conga' around the Swedish camp.

A few days later I left for a few weeks home leave before flying out to the West Indies, to start a new job.

I still occasionally hear of my friends through Josef. Anderson and

Johannsen are back in Denmark and Sweden respectively, whilst Josef now a fully qualified engineer is back in Iran in charge of building a new factory. I hope one day we'll all meet again, but please boys — No Atvik!

N.B.—Lest any past, present or prospective clients of the Sen-Tab. Co., or the Cementation Co. for that matter, read this, I would like to point out that life in Iran was not all parties and celebrations, as the Khorramshahr new jetty extension and the Aklek Pahlevi Bridge, can testify.

Jammed Rudder

from **H.M.S. "VICTORIOUS"**

Extract from VICNEWS for Monday 12th December 1960:

"We've been caught in a storm of unexpected proportions, with four *Sea Vixens* and one *Scimitar* ranged on the for'd end of the flight deck. In addition the rudder is jammed at an angle of three degrees to starboard It is thought, though until it has been viewed by a diver it is by no means certain, that the jamming has been caused by a wooden block which acts as a securing pin. Yesterday was spent riding out the storm which moderated somewhat in the course of the day. As we went to Press last night there were hopes of further moderation during the night, albeit slowly. Our future arrangements are then at this moment dependent on the weather . . . "

* * *

Extract from VICNEWS for Tuesday 13th December 1960:

"A 'NUDDER RUDDER? An inspection of the rudder was carried out yesterday by P.O. Diver I 'Spero' Collar and his Number One, L.S. Diver II Borland, to ascertain the cause of the rudder jamming. As the Shipwright Officer had prophesied the fairing plate covering the top of the rudder had loosened, furled back by the force of the water and wedged against the ship's hull, causing the rudder to jam at 3° to starboard. The task of clearing this obstruction is not beyond the capabilities of the Divers, even with the the limited tools available, but calm conditions are needed, and even then may take a long time. Conditions yesterday were not at all favourable, as the diver experienced difficulty in remaining in the vicinity of the damage. Visibility was very good, so it did not take long to see the extent of damage. The swell caused the ship to move up and down considerably, and the divers either had to hang onto the bottom lines with both hands, or be shot to the surface. Had they hung on they would have descended to a depth of possibly 33 feet, at which depth oxygen becomes toxic. Under these conditions it was, therefore, decided to press on to Gib. where in calm water and with more appropriate tools the task should be completed in a few hours.

Keep your fingers crossed, and our E.T.A., U.K. may still be as per the programme."

* * *

Extract from VICNEWS for Wednesday 14th December 1960:

"THE SAGA OF THE RUDDER. A full account of the incident will be published in our next edition."

* * *

Extract from VICNEWS for Sunday 18th December 1960:

"THE SAME RUDDER — 'NUDDER AUTHOR. The jammed

rudder is clear. The ship's Company were kept in the picture at the time by snippets of news passed over the broadcast system. A ship without the use of her rudder is a serious matter at the best of times. Occuring as it did in the height of a storm and prejudicing a very tight programme, including a trip home for Christmas, the situation could not have been much worse. The story is worth telling from the beginning.

At about 1410 on Sunday 11th December, excessively high pressures in the rams of the steering machinery indicated all was not well. The rudder was making hard work of getting past amidships and conditions got steadily worse. Checks on the system were made but no defect could be found. While on the starboard side, the rudder came up all standing at 5° while returning to amidships. A change to secondary steering had no effect and by using the hand pump a small movement out to starboard was achieved but again stopped at about 3½° when trying to return to amidships.

Re-checks to machinery were made the symptoms were diagnosed and discussed and the final conclusion was, that some external physical obstruction caused a jam at 3½° preventing the rudder from passing through amidships to port. It was considered that the filling piece on the top edge of the rudder had become displaced causing a jam under the bottom of the hull.

To prove this an underwater inspection was required but prevailing weather conditions made it impossible for a diver to go over the side. Meanwhile the ship was being steered by main engines in rough seas and high winds with the rudder jammed to starboard; the immediate aim was to keep the head of the ship into the weather to minimise damage through heavy rolling and to wait for the weather to abate.

At about 1530 on Monday, weather conditions improved sufficiently for a diver to go down and make a preliminary inspection. His report confirmed the diagnosis to be correct and the task of clearance to be quite formidable for ship staff with available resources. With underwater cutting equipment and sheltered anchorage the job could be undertaken, but on Monday evening we had neither — on Tuesday afternoon we had both. Such is the speed with which the Navy can move in an emergency.

After the initial inspections, signals were made and with the co-operation of *Albion* a 'plane was flown from her to Gibraltar. The oxy-hydrogen underwater cutting gear was collected on Tuesday morning and by 1215 it was delivered on the flight deck. Meanwhile the ship had been steaming steadily through the night to reach the lee of the land (not far away on the previous day really but such were conditions to prevent progress). Diving gear and equipment was all at the ready and the divers literally went over the side with the 'G'. The time was about 1415 Tuesday 13th (ouch!)

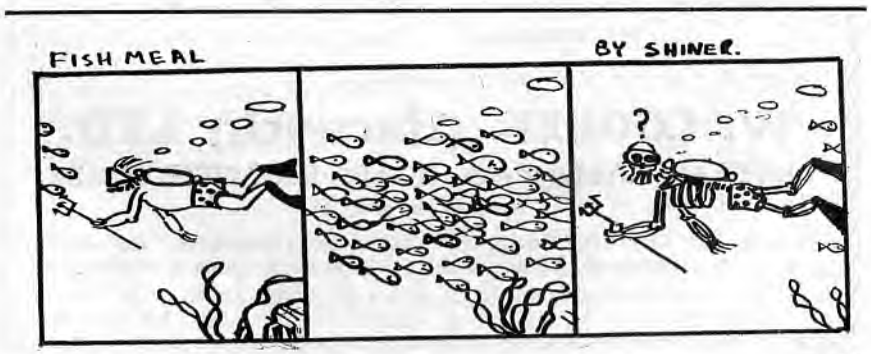
While awaiting for the ship to anchor, the nearby shoreline could be seen. One could but stop and wonder what consternation there was in the hearts of the local inhabitants of this peaceful sunny island on seeing a mighty aircraft carrier approaching so close to their shores. Could this be an invasion? At least they took no risk. The Spanish Admiralty may well have been alerted for soon to appear over the horizon was a Spanish frigate with lights flashing and probably one up the breech and in State I. Little did they know the state we were in.

In a couple of hours the bottom line was rigged, diving stage placed, equipment ranged and the seaboat lay off the stern. All was ready for the main task.

The top of the rudder casting has a depression shaped to the form of the section of the hull plating at this point. This is faired off with a portable chock which can be removed to enable the rudder to be withdrawn from the ship when in dry dock. *Victorious* is fitted with another locking chock underneath the pintle — the two should not be confused.

This portable chock consists of two large shaped wooden filling pieces covered with a top and two side plates of ⅜" steel secured to each other and the rudder structure by welds and tapped bolts. The whole formation is wedge-shaped being some three feet wide by one foot three inches deep at the forward end, tapering off over a length of seven feet. The weld along the 7ft. length on the starboard side and a few bolts on the after end of the port side plate had sheared due to a combination of vibration, high speeds and heavy weather. These three causes were also prizing the top plate upwards thus allowing the wood filling pieces to move aft. The clearance being small, this obstruction had wedged between the top of the rudder and the underside of the hull and the task was to remove it, and anything else that could cause a similar jam on a future occasion.

Working on the port side with the rudder still jammed at 3½° to starboard, cutting commenced at 1415 to free the port side plate and its securing bolts. To present a cutting flame to a steel plate, movements to and from the plate are restricted to about ⅛" and the traverse must be slow and regular to maintain a cutting heat. On a workshop bench, this requires a high degree of skill and practice. In 16 feet of water beneath a ship's bottom, with a body moving with the swell and vision restricted by the diver's facepiece, the job is a little harder. To make it really difficult, the stage should upend and the operator should be seated on the upturned edge — he was! Notwithstanding all this, the P.O. of the diving party worked well with encouraging results. Added to this, the cutting torch developed a touch of hiccoughs after a short while. This type of equipment is somewhat sensitive to the handling of strangers but after a while, the user becomes accustomed to the peculiarities and adjusts accordingly. Due to a sticky valve guide, oxygen supply was not consistent but nevertheless, good progress was made. By 1830 the first phase of the



cutting had been completed and the time had come to move the debris.

Supervision of the work was being done from above and the instructions were based on the information brought up by the divers. It was vital that this should be accurate, and equally important that the divers did what they were told to do and no more. Not once did they fail in either of these requirements.

By using a hole cut for the purpose, a wire was shackled onto the port side plate, passed through the port fairlead on deck, brought to the after capstan and hauled taut to 'anchor' the top and port side plate. The rudder was then 'inched' by hand pump in 5° steps to starboard in order to free the jam and remove the two plates in one operation. Divers' reports at each step told that fastenings in the side plate were parting and the plate was peeling back like the lid of a sardine can. At 20°, this relatively small piece became detached and was hauled inboard. Not a particularly large catch.

The top plate had remained jammed between rudder and ship although a small displacement was detected; this coupled with the fact that the further the rudder went to starboard the greater the clearance (and there was still a few more degrees in hand) was heartening. The wire was now transferred to the top plate, the rudder move to starboard 30 and, we of the rudder clearance party had landed the catch of the week. A 7ft. by 3ft. flat (plate) fish weighing 294lbs. (Piscatorial Officer please note).

The obstruction was cleared, 85% of the job was done, a relatively small portion of plate on the starboard side remained to be cut away and the time was 1950. Portsmouth

looked a bit closer, and who could be blamed, in the light of experience until then, for thinking the job would be completed by say 2100 it all went well, or 2105 if snags were encountered. The latter condition was met but not the time-table.

Broken only by the need to come up for change of breathing apparatus, the cutting team at the coal face, so to speak, had been on the job for well over three hours and now as the time to 'all change'. Reliefs closed up, new faces appeared in the water, but they were unfortunate in having a pretty rough time; the cutting torch, previously suffering from hiccoughs, developed asthma and seemed to resent the change of hands. The swell had got up a bit and the night air was chill. Those above water were feeling the effects; those below worked all the harder knowing the point of no return had been reached. Rate of progress was now unpredictable and good divers though they were, their arithmetic was sometimes in doubt. Subtracting the estimated length of cut from that which had previously remained did not tally with that which was remaining to be cut at present. At one stage, a 2ft. run remaining was followed by a successful spell achieving 12 to 15 inches *leaving still 2ft. 6in.* to be cut. Nobody could deduce how this could be so. Surely someone on the other side of the plate was welding up faster than it could be cut! By this time, Tuesday 13th had passed and it was now 0100 Wednesday 14th. Earlier successes were being overshadowed by the present situation but still nobody showed any sign of disappointment or despondency.

The cutting gear which had served so well was becoming quite troublesome and after short spells in use, required to be stripped to free the stuck valve. Parts from one set were interchanged with parts from the other. Full gas bottles to replace the empties passed like flying missiles. Some doubt existed as to whether the Met Officer could continue to forecast if he had no hydrogen left with which to inflate his balloons — some doubt existed as to whether he had done so in the past.

The time was 0115 and thoughts began to turn to other methods of removal should the cutting torch fail completely before making the last 2ft. 6ins. The Commander was overheard to say, 'Well, we can chop the bloody thing off with a pneumatic chipper'. We who heard knew he was only joking as he wasn't keen to stay in this anchorage for another four days.

However, someone must have taken this flippant aside quite seriously for lo, the cutting nozzle stayed alight, it didn't flutter, neither did it cough or whistle or lose its hot spot. Within 15 minutes, the diver indicated when he surfaced by use of his fingers a distance of some ¾in to 1in. while screaming into his facepiece. His annoyance was understandable, but even an inch was some progress albeit slow. We on top would have felt more encouraged had he held his hands a short distance apart. How wrong can you be?

The distance indicated, one inch, was all that *required* to be cut and the display of disgust was due to the fact that the final cut had been denied due to a cutting torch blow-out. Perhaps this is how it should have been. The team had worked so well and as a team. The disgusted diver will surely agree that it would have been a little unfair if any one man could have claimed to have 'finished' the job.

What remained presented no problem. A shackle, a wire, the capstan and a heave ho and at 0145, the piece that completed the catch lay on deck.

The engineers who had stood by all day patiently pumping the rudder from side to side as required, nipped smartly below to connect steering motors, run up and test through the systems. The quarterdeck buzzed with excitement and never have things been got back inboard so quickly with so few hands. Bottom line, diver's stage, underwater floodlights and the accommodation ladder all appeared on deck as if by magic. Those who had been there for up to 15 hours or more packed the gear and drifted away for a well earned rest, and secure in the knowledge that Pompey on the 19th still has a ring of truth."

Sea Food

by J. BEATON-WARNER

AS a change I think we might introduce a little international flavour into the sea food section. BOUILLABAISSE — or translated from the French into Diving language a FISH POT MESS.

This should be made from several different varieties of fish but avoid the oily ones like herring, mackerel or pilchards. Use haddock, cod, whiting, garnet, fillet of sole, plaice, turbot, skate, dogfish, in fact almost any fish that is not too oily. Cockles and mussels can also be added but some cooked lobster or crab meat is really essential.

Clean, trim and wash your selection of fish, remove heads, fins and tails and cut into slices. Peel an onion and a clove of garlic and chop into slices. Cut up two tomatoes and place them into a saucepan together with a bunch of herbs, ½ teaspoonful of saffron, one blade of mace, two teaspoonfuls of chopped parsley, fish, lobster or crab, two tablesponnfuls of salad oil.

Add just enough water to cover the fish, bring to the boil, season with salt and pepper and boil fairly fast for 15 to 20 minutes adding the cockles and mussels after the first 10 minutes.

Remove fish, drain well and keep hot.

Lightly draw a cross on slices of French bread with a clove of garlic, place the bread in soup plates or a tureen and pour on the liquor in which the fish was cooked and serve as soup. (A dish of dry sherry improves the flavour but is by no means essential).

Serve the fish, which should be decorated with parsley and cut lemon.

Do not hesitate to experiment with this, it is delicious.

* * *

HERRING SALAD (SWEDISH)

This is a very easy dish to prepare and attractive.

Ingredients:

1 Salted herring
1½ cups of dried, boiled potatoes
1½ cups diced pickled beetroot
1 large pickled gherkin, diced
1 large sour apple, diced
1 medium chopped onion, diced
4 tablespoons vinegar
2 tablespoons water.
2 tablespoonfuls of sugar
Dash of pepper

Clean and fillet fish, soak overnight in cold water, cut the herring into slices and mix with all the other ingredients blending in the vinegar, water, sugar and pepper, pack into a mould and chill.

When chilled turn on to a dish and garnish with whipped cream coloured with beetroot juice.

* * *

FISH — SWEET AND SOUR

Those of you who have been to the Far East, I feel sure look back with pleasure on some of the delicious Chinese dishes that are so difficult to get in this country. Why not try this one.

Grill a large fillet of cod or haddock with a little butter and whilst this is cooking, prepare the sauce.

Chop up together:

2 pieces of ginger preserved in syrup (can be bought in jars)
2 large pickled onions
1 gherkin
1 piece of carrot
2 pineapple rings or some cubes
1 desertspoonful of brown sugar

When the fish is cooked remove and place on a dish in the oven.

Using the same grill pan add to the juice from the fish all the chopped-up sauce ingredients with a little vinegar and pineapple juice, heat and blend together, thicken with a little cornflower and pour over the fish and serve with rice.

The Guardrail Critic

AS we all know, the above expression is used to describe the 'expert' in every walk of life who can, according to his own 'waffling', do a far better job than the chap who is actually doing it. Yet he, the critic, never seems to make the attempt.

The type under review at the moment is he who, from the very first copy we managed to get into print, has consistently found fault with the DIVING MAGAZINE. His remarks covering one or more of the following, on which he normally bases his dreary complaint.

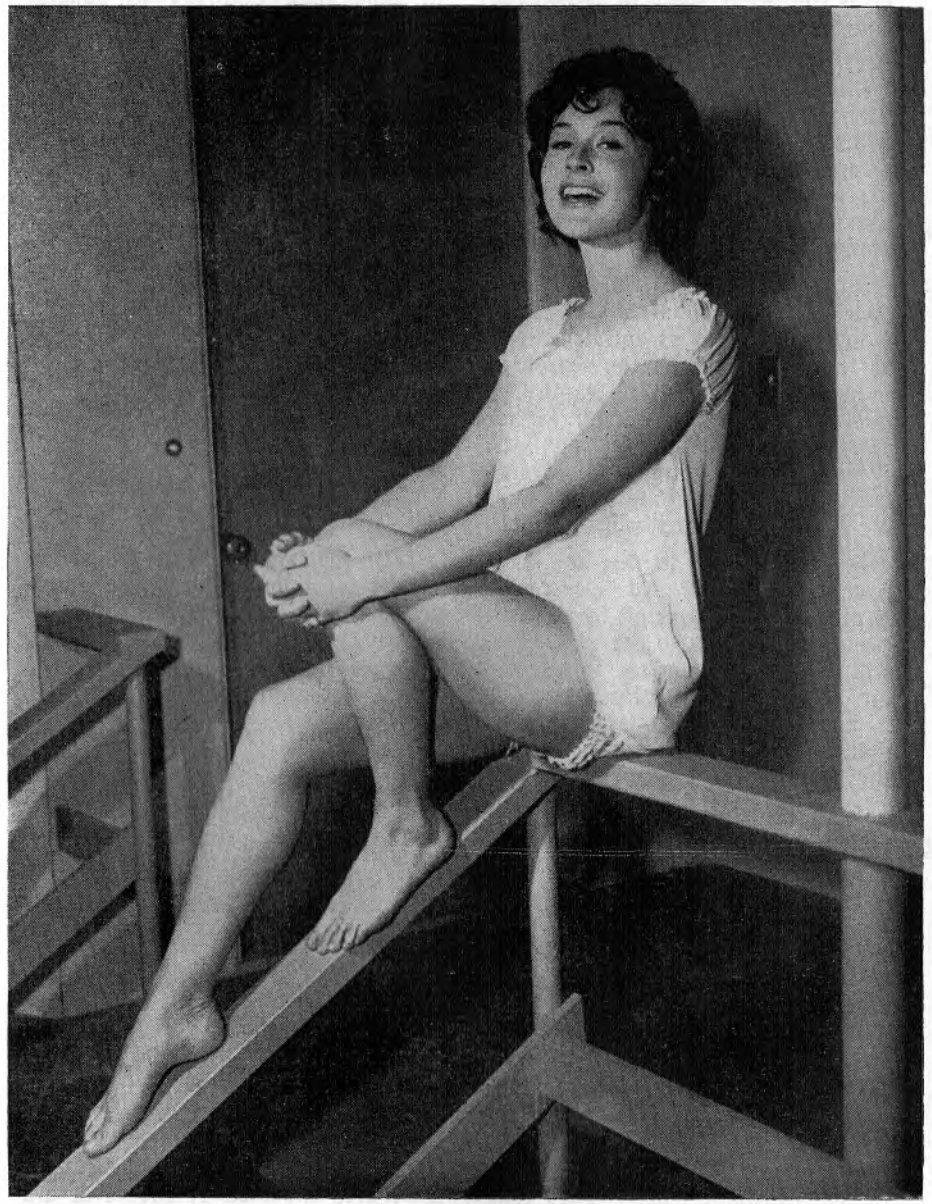
1. It is not worth the money.
2. Same old stuff every issue.
3. Too 'Pusser'.
4. Same people have articles in every edition.
5. I sent an article a year ago (?) and it has never been published
6. An excuse for a 'quiet number' (referring to the Magazine Staff).
7. It is always adrift in publication.

Suppose we take these points once by one and see if he is correct. Who knows, he may be!

1. Two shillings, the present cost of the Magazine, it not going to 'bend the pocket' of the present day 'Dipchick', or his shore-side counterpart. The articles, always varied in content, are considered to be value in anyones money, and are quite obviously aimed at the chap for whom the Magazine is run. THE DIVING TYPE! In any one issue there is generally a good cross-section of material, ranging from the scientific through adventure, salvage, reminiscence and humour, to the plain sober truth of drafting and qualifying courses. Certainly it is on a par with magazines of a like nature, published by branches of other Forces, and way ahead of most! Apart from the customary service method of im-

Continued on page 34

TERRY MOORE *(By courtesy of M.G.M. Studios)*



MAGGIE PIERCE *(By courtesy of M.G.M. Studios)*

parting information (A.F.O's) regarding new types of equipment, safety routines, etc., the Magazine gives the *inside* story of How, Why and What For (WHEN — as we all realise, is a different matter)!

2. This is a complaint — one of the critic's standbyes, which hardly deserves comment. Quite obviously, if such *were* the case, it would not sell. Circulation figures are the answer to that. (One wonders just how *many* copies he has bought — or read)?

3. If it *was* too 'Pusser' (Navy style) the shore-based characters would not buy it as enthusiastically as they do. (Watch the search for money whenever the Sub-Aqua Club members are visiting H.M.S. *Vernon*. They even take all the back numbers)! Even our own union members have been known to voluntarily ask for a copy AND pay for it on the spot!

4. The answer to this one surely rests with himself? All he has to do is put pen to paper and forward the result of his effort to the staff. They will be only too pleased to knock it into shape for publication. Providing it is good enough material. The details and punch line, if any, are all they require.

5. Unfortunately, this one is of a constant nature and not easily disapproved during discussion. I would appear to me, that either our critic is 'spinning a bender' or the article in question was not up to standard, or had been covered in previous material. The answer is of course, to try another one for size!

6. From personal contact with the varied staff, over the years since its inception, I can assure the critic that, far from being a 'quiet number', the reverse is the case. The running of the Magazine entails much really hard work, concentration and running around, all generally undertaken in the most adverse conditions; not to mention having to suffer the caustic comments of the character we are discussing. It may be of interest to note that, contrary to general belief, the whole staff do not receive a penny piece for their trouble. The whole effort is undertaken entirely voluntarily and *in excess* of their normal service commitments.

7. On the odd occasion when the Magazine is late for publication, it is generally due to the initial lack of suitable material. (Which brings us back to our critic). As in all good magazines, the aim is always to give the best possible value. With some of the steady contributors not always conveniently placed, it follows that some delay must ensue before an article can reach the office, where it then has to be edited, etc. before going to print. Thus the delay in publishing.

With the clientele of the Magazine spread throughout the world, and a growing and constant demand, it is obvious that a steady stream of material is *most* necessary for the Magazines' improvement and growth.

Who has the answer to this problem? 'YOU, THE READER!'

What can you do about it? Well now, here is the whole point of this article! If you have any anecdote, joke, experience, etc., which you consider may be of interest to others, THAT IS WHAT IS REQUIRED.

Don't tell everyone that you cannot write a story about it, just put the salient facts, etc., down on paper, in your own words. Send it to the staff and they will knock it into shape. Always assuming your effort has sufficient 'meat' for publication.

Among the many capabilities and attributes expected of the diver are the following:

(*a*) He must have a sense of humour.

(*b*) He must be able to conserve his strength for the critical period.

(*c*) He must have an enquiring mind.

(*d*) Be of a determined nature.

As our medical advisers tell us that we use far more muscles to frown, than to smile, the answer is obvious— SMILE (as your write your article) and you endorse (*a*) and (*b*). Forward your effort to the magazine staff This will confirm (*c*) (enquiring whether your article is good enough). Continuing to make contributions, regardless of results, ensures (*d*).

Above all, KEEP A LEVEL HEAD! Spread the 'Dipchicks' Gospel', and chase up the 'converts'. One hears much of the so called 'Ball of Fire' outlook; why not put it to good use with *practical* results, and confirm all the 'propaganda'?

SIR HOOK.

Promotions and Advancements during the last six months

To C.D. First Class:

C.P.O. H. D. Jackson
P.O. P. Scott
P.O. R. Hartshorn
P.O. D. Bray
A./P.O. R. Lusty
L.S. B. Bray

To C.D. Second Class:

L.S. D. Campion
L.S. W. Futcher
L.S. D. J. Smith
L.S. A. Rose
A.B. A. Wannerton

To D.C. Star — New Member of the Branch:

L.S. J. Wright
L.S. W. Jones
L.S. A. Lumbus
L.S. F. McGrath
L.S. R. Gardner
A.B. B. Boulton
A.B. L. Thompson
A.B. T. McClusky
A.B. W. Turton
A.B. D. Harker
A.B. J. Maher
A.B. R. Eastwood
A.B. D. Longthorne
A.B. T. Templeman
A.B. P. Turner
A.B. G. Jordon
M.E. (1) K. Harrison)

To Artificer Diver:

E.R.A. L. Antcliffe
Shipt. D. Kirby
Shipt. L. Bendon

To Chief Petty Officer:

I. W. Collar, D.1.
W. W. Wyvill, C.D.1.
G. Hallam, D.1.
L. G. Howe, C.D.1.

To Acting Petty Officer:

T. H. Kissack, C.D.2.
L. J. Maynard, C.D.2.
K. Snowball, C.D. Star
L. Smith, C.D. Star
D. Lott, C.D.2.

The Investigation into the Loss of the Motor Vessel 'Dara'

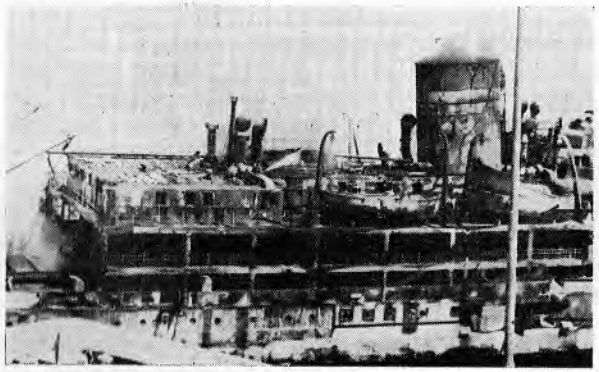
continued

by LT. N. L. MERRICK, R.N.

THE first dive was made by Lt. Futcher and Ginger Andrews. During the preliminary dives the former had come across several bodies as he swam through the wreck; Ginger reported later that he could not understand why Lt.Futcher was humming 'When a body meet a body' on this later occasion!

Most of the diving during the next three weeks was routine examination interspersed with cutting as much of the ship out as we could, using Sea-fire. The dhow proved an excellent diving platform and we were able to leave all the gear onboard overnight. Unfortunately, with a change in wind on the second day, the dhow swung onto a submerged davit and holed herself. This lost us a day's diving whilst an Arab carpenter repaired the holes; the tools he used were extremely primitive but in his hands they were remarkably efficient.

Whilst we dived from the stern, the Arab crew fished over the bow — the barracuda they caught made excellent steaks and it was a change to meet them on more favourable terms. Underwater they proved most intimidating, swimming around us in shoals and getting closer and closer wherever we worked outside the wreck. Fortunately they never went inside. We had been rather worried about sea snakes and sharks, particularly as the former had seemed as common as sticklebacks back in Bahrein. However, in the end we saw only one sea-snake near the wreck and our only encounter with sharks was confined to a rather tired sand shark that did not like being photographed — (but then, Ron was wearing a beard after all). The shark incident was quite an amusing one with Ron throwing all caution to the wind (current?) and rushing up with camera at the ready whilst his companion, Pincher, was trying to look inconspicuous behind a three inch wire muttering 'No Ron, leave it alone — Ron — come back Ron'.



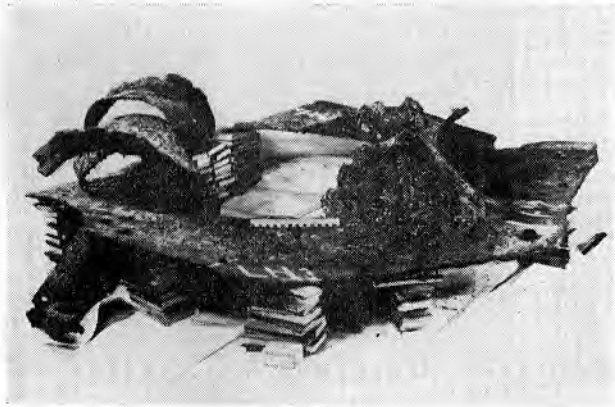
The 'Dara' during fire fighting operations

One day Pincher and I had a most unnerving experience down in the bows of the wreck when the usual crackling noise was broken by an ominous creaking. We were just about to turn and disappear (followed, we imagined, by the underwater version of the Hounds of the Baskervilles) when we noticed a screen door opening and closing with the swell as it passed backwards and forwards through the wreck.

With the wreck lying on its side, the problem of examination proved a difficult one at first, because everyone saw the same thing on a different bulkhead (or was it a deck? . . .!) In places like the engine room with large chunks of machinery lying bent and broken all over the place; where it was pitch black and thick with sediment so that every movement stirred up a cloud to obscure the small amount of vision that our torches gave us, our job became a nightmare and we soon learnt that it did not pay to make yourself neutrally buoyant — to coin a phrase, one did not know whether one was standing one one's base or one's apex . . . And the Scientists are worried about weightlessness in space.

We used the oxygen and mixture sets for the examination and it was, of course, impossible to use buddy-lines or life-lines. The S.D.D.E. we used for cutting and this was an excellent arrangement. The water temperature (around the nineties) did not worry us as much as we thought it might; the surface temperature was a welcome end to an English Summer (?), though it was still too hot in October to sunbathe intentionally.

The Trucial Oman Scouts proved excellent hosts and whenever occasion permitted we up-anchored and moved South to Shergaih to swop social amenties (and the usual thick heads). In fact this occurred every day or two because we had to meet the officials conducting the Enquiry to report on our progress. These gentlemen, very wisely, preferred the comfort of the air-conditioned Political Agency at Duboni to the conditions on board an L.C.T. (not exactly cool man!) However, the



The reconstructed hole which was recovered from the 'Dara'

hospitality we received from our host ships more than outweighed any discomfort — besides, I have to say this, 'I won at cards'. One incident occuring after a social evening is worthy of mention. The tank deck of the L.C.T. looked like the Carlsberg brewery after a Home Fleet visit, the result of a hectic tombola session with the Scouts as guests. A rather soulful looking crew were tidying up, putting the empty beer cans gently into padded cardbord boxes in order to keep the noise level down. One young A.B. wore a smile on his face and the First Lieutenant was suspicious. The First Lieutenant called out to him to finish what he was doing and get a box that was at the other end of the tank deck. The A.B. nodded obediently and trotted off on his mission, the rest of the crew gaped wonderingly at this strange operation. Back came the A.B. — the smile still on his face. 'Put the box on that crate' said the First Lieutenant. The A.B. obeyed. 'Now take those full beer cans out of your pocket, put them in the box and take them to my cabin'. The A.B's during a lull in the diving took the opportunity to visit a sister ship of the *Dara*, the *Dumra*. The ship in its original condition was quite different from the one we knew. It was hard to imagine that the burnt out wreck had been anything like this. It was particularly difficult to walk around a ship which was the right way up and co-relate what we saw with the wreck on her side.

During the three weeks diving we came to know our Arab crew very well and their peculiar brand of sweet tea also their particular brand of humour and they proved to be great fun. One thing that they were very struck on was Ginger's medical abilities. Regular as clockwork, as soon as the days' diving got under way, they would fall in for the daily cures — apsirins for internal ills, acriflavin for external ones (with the odd iodine tonic thrown in).

However, like all good things, the operation came to an end and on the 20th of October we returned to Bahrein; our host ship providing the comic relief — the Captain knew a short cut. Unfortunately a newly formed coral reef cut short the short

Photograph taken during the firefighting, showing the hole caused by the explosion

cut and there the ship was, high and dry. The ship's boat was sent away to drop a kedge but due to a technical 'slip' the kedge ended up attached only to the transom, causing the boat to up-end and subside gently beneath the surface 'a la films', with the crew scrambling frantically onto the dry part as it got smaller and smaller and then disappeared altogether. The plight of the shipwrecked mariners, which included the First Lieutenant, was not made easier by the call of a sailor with an obvious sporting instinct — 'SHARK'. This was probably a certain A.B. who had been 'seen off' a few days before.

Eventually we arrived at Bahrein and got all our stores (including half a ton of scrap iron from the *Dara*) into crates, booked our passages (B.O.A.C.) and then 'hit the town'. Our plane was due to leave at 0200 in the morning which meant we had ample opportunity to go native for a while. Around 0100 we started to collect at the Airport, and what a sorry crew we were — all in the first throes of that 'after feeling' (except one and he was disgustingly sober), another had lost his air ticket whilst a third smelt and felt strongly of after-shave which some sociable type had poured into his beer. I was still smarting after being high-jacked by a B.O.A.C. Taxi whilst proceeding between parties; obviously Big-Brother had been watching me! Even the sight of a beautiful Indian Air hostess in a flowing sari failed to stem the inevitable and soon after we had taken off the quiet hum of the Comet's engines was drowned by the unmusical and unrythmical sound of five divers 'Charging bottles'.

Our first stop was at Cairo and the second at Dusseldorf (temperature 42) and we all agreed that whilst Dusseldorf was a very nice airport and all that, we felt obliged to strike it from our books. Throughout our journey out and back we had been given little cards whenever we stopped — these cards, produced in the right spot gave a free grog and a biscuit. Imagine our chagrin at Dusseldorf when we slapped our cards on the counter, ordered coffees all round and got a bill for 7/6 EACH. They wouldn't even take Gulf Rupees

We arrived at London Airport at 0930 in the morning, weary, worse for wear and a trifle chilly. However, the sun did give a little smile to greet us. Five stark faces before the customs soon convinced them that we had nothing to declare and we went our separate ways on a well earned L.W.E.

After a weekend sporting our 'tans' we assembled in *Vernon* and started to sort things out. Bit by bit our gear started to arrive back, the crates containing the bits and pieces had broken open on being off-loaded from the aircraft at the Gulf due to a hitch and out fell five pieces of the *Dara*! The look on the faces of the B.O.A.C. crew when they saw a plane full of junk and sawdust going all the way to U.K. must have been worth seeing.

Eventually all the equipment and parts arrived in *Vernon* and we carried on sorting things out. One day the explosives' experts came down to see what was what, asking extremely pertinent questions whilst we scratched our heads and tried to explain how two pieces fitted together when quite obviously they did not, e.g. six inch gaps were explained away, as the hole caused by the hot-spot!

Then followed a two-day photographic session, followed by two days in the *Vernon*'s photographic section scraping off the barnacles which had transferred their affections to the studio walls. After this came numerous visits, to 'Smoke' making statements, etc.

On the 19th March this year the Public Inquiry opened in London with the Solicitor-General, Sir John Hobson, Q.C. (now Attorney-General), opening for the Minister of Transport. The Inquiry was a long one, lasting for three and a half weeks with countless questions and witnesses. In due course the R.N. were given their grilling, not only ourselves but the firefighting personnel also.

The Court's decision was announced some time later and the *Dara* incident was at an end. And what of the *Dara* herself? The court decided that the loss of the ship and 236 lives was directly or indirectly caused by the explosion of a deliberately placed explosive by person or persons unknown.

What happened to the bits and pieces that we so carefully cut out and so lovingly brought back to U.K.? — That's what we'd like to know — we never had a cut of the scrap value!

Diving News from H.M.S. 'Vidal'

THE past eight months in the West Indies have brought an interesting series of jobs to the divers of H.M.S. *Vidal* who are Lt.-Cdr. Dixon (E.D.), P.O. Neave (D.3), L.E.M. Shove (S.W.D.), A.B. Hunter (D.3.), A.B. Pastides (F.D.) and A.B. Meighen (E.D.). Before leaving Great Britian our seventh Diver, A.B. Bartholomew (C.D.*), had the very bad luck to break a leg on the forecastle when slipping a tug and had to be left behind.

The ship's first visit was to hurricane ravaged British Honduras, where we were soon underwater helping with the salvage of small craft blown up on the shore. Then, a week after we arrived, the R.M.S. *Essequibo* carrying a cargo of relief supplies, went hard and fast aground on a reef in the harbour entrance. After three attempts the ship managed to pull her off (but not before Lloyd's Salvage agreement had been signed!), and after she was refloated we inspected her bottom and were able to assure the Lloyds surveyor that it was safe for her to proceed. Actually there was no sign of the grounding beyond a slight polishing of her plates.

Christmas saw us at Bermuda, where the ship was communications' link for the Prime Minister's conference with the American President. Here the Harbour master called on our services to search the harbour bottom for large boulders which were reported to be a danger to shipping. After a systematic grid search we found several of these, but in no case were they less than the charted depth. All this caused considerable local interest, and in spite of the more important doings in the island we found ourselves front-page news in the local press. Also at Bermuda some of us had a couple of very interesting dives with the local skin divers, including H.E. the Governor. On the first day the, locals complained that the water was very murky when they could only just see the bottom in 120 feet! One of the more interesting wrecks we visited was that of an old Greek steamer, whose bows were held up on a submerged reef, thus enabling us to swim right under the hull.

On to Barbados in the New Year for our first major survey, which included some jobs of finding the least depth over shoals, and reporting on the nature of the bottom of the new deepwater harbour. After Barbados we had a short stop in St. Lucia, where once again we helped the

Harbourmaster by searching for obstructions off the jetty and inspecting his buoy moorings. Outside the harbour was the 70 year old wreck of the sailing ship *Volgo*. We found her, some distance from the charted position, lying in about 30ft. of water, with the forecastle and poop remarkably intact, as were the masts and spars, but the rest of her was flattened. Parts of her rose to within a fathom of the surface, and these we fixed accurately for the new chart. Her complement is now made up of giant crayfish, and she's well worth a visit by any ship's diving team visiting Castries.

Next came surveys between Trinidad and Tobago, with more jobs of finding the least depths over shoals and several banyan dives off these delightful islands. On one of these 'Scrubber' surfaced in great excitement, having found a Spanish treasure chest. Seldom has a stand-by diver entered the water so quickly, only to surface a sadder but wiser man — it was an empty tin box! Our last survey was off British Guiana, where the Demerara River must have the worst visibility in the world. During a practice bottom search there, carried out in the short slack water period, we found that if you held your arm above your head it broke surface before there was the slightest glimmer of light in the stygian blackness in front of your mask!

During our final weekend, at Tobago, we spent every possible minute underwater scrubbing the ship's bottom, as six months growth of barnacles had decreased the ship's economical speed by almost two knots. After 16 hours at it we reckoned we'd cleaned half to two thirds of the area, and the Navigator estimated it gave a good knot increase in speed — but that could be because he's also the diving officer! However there's no doubt that we arrived at Gib. a day earlier than scheduled!

Our last foreign visit was to Monaco for the International Hydrographic Conference, and here Captain Cousteau's vessel, the *Calypso*, secured alongside us. Unfortunately arrangements for a dive with his team fell through, but some of us retrieved an anchor for a private yacht, and were generously repaid in kind (liquid).

And so, at the end of May, home to Chatham with 10 requests from the ship's company for shallow water diving courses.

Breathing Patterns

by SURGEON COMMANDER S. MILES

SUPPLYING oxygen and getting rid of carbon dioxide is only one function of breathing. In addition the breath is used for talking, blowing of hot soup, shouting, singing, coughing, sneezing and even spitting. A pressure can be built up in the lungs to clear sticky ears, blow bunged-up noses or form an air cushion to assist in straining in moments of constipation. Many wind instruments require huge pressures and breathing control to be played. Even the baby at the breast must employ its respiration to assist the suction, the teenager likewise needs its help to raise 'coca-cola' through the straw and the joys of smoking are dependent entirely upon the breathing ability.

These are the positive functions of breathing but perhaps more interesting still is the way in which the breathing reflects the activity of the mind. Literature is full of reference to the close association between respiration and emotions such as, 'the hot breath of burning passion', 'the sigh of despair', 'gasp of surprise', 'the breathlessness of anticipation', 'the panting of desire' and many others. It is not unreasonable to assume, therefore, that when breathing is studied in detail it can be full of surprises.

For many years physiologists were content to count the rate and measure the depth of respiration and in so soing much of the significance of its variation was missed.

In the past year or so at the R.N. Physiological Laboratory continuous tracings have been made of the respiratory patterns of 175 divers and the quite startling finding was that however much conditions were standardised, the individual patterns were vastly different. There was no conformity in rate, depth or regularity. Rates varied from 4 to 32 per minute, depths from 442c.c. to 3,259c.c., volumes from 7·6 to 33·2 litres per minute, and 32% showed marked irregularities in rhythm. All occurred under identical standard condition and three extreme types are shown in the figure.

It is of course possible for the same volume per minute to be breathed by rapid shallow breathing as by slow deep breathing. Of the two the latter is more satisfactory especially in diving. In all breathing, a certain volume of air in each breath never gets to the lungs but fills up the nose, mouth and windpipe. This is called the 'dead space' and the quicker the breathing the greater volume will be wasted in this dead space. The slow deep breather has less of this waste and the lungs are stretched and fully ventilated. In the survey, the slow deep breathers were to be found amongst the best and most experienced divers. In some cases breathing is both deep and rapid. This occurs in men who have been taught to breath deeply but who in their anxiety increase both depth and rate. This increases the total volume breathed and may wash out too much carbon dioxide which if undesirable.

A few men, particularly when breathing against a resistance, may breathe shallowly without sufficient rate so that they build up carbon dioxide in the body. When this pattern is recorded it is often seen that at frequent intervals they take single deep breaths to catch up as it were.

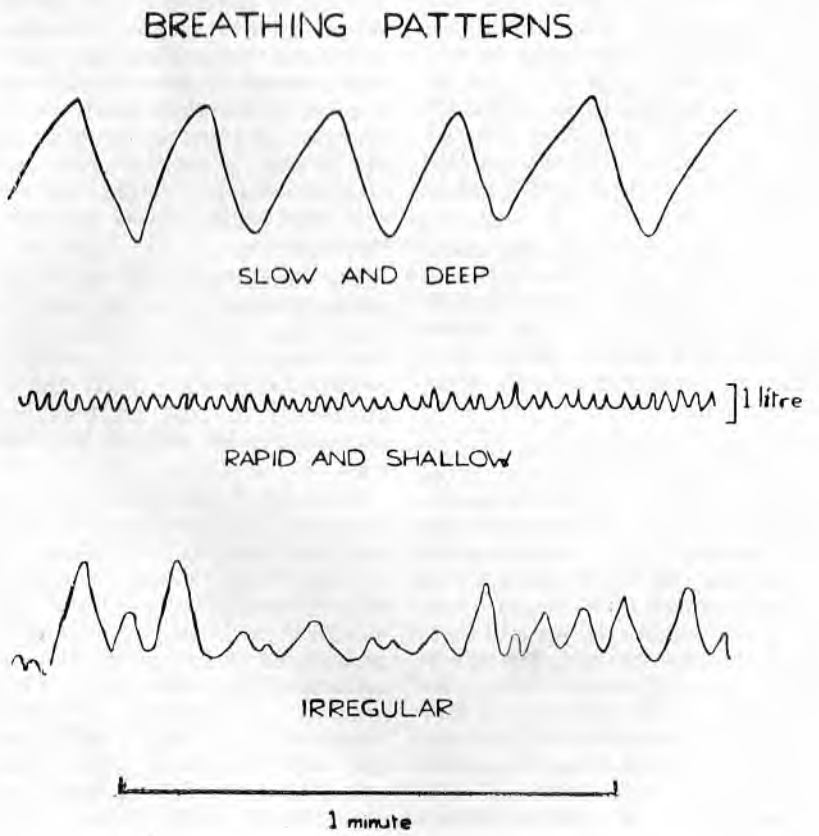
But most interesting are those whose breathing patterns are completely irregular. It seems that these

men have a respiratory centre in the brain which is more sensitive than others. They show a marked response when carbon dioxide is breathed and their 'brain wave' records react more acutely to simple mental problems. These are the men who are generally sensitive and more emotional than others.

Although the respiration is very largely sensitive to the emotional changes there is the well known underlying chemical control of which the most important factor is carbon dioxide which limits breath-holding more than oxygen lack.

As far as oxygen supply is concerned breathing is uneconomical. The inspired air contains 21% oxygen and the expired air 16% so that there is still plenty of oxygen left when breathing out. This is of course the reason why an air breathing set is so wasteful as compared with the closed circuit oxygen breathing apparatus.

Carbon dioxide is being given off from the blood in the lungs continuously, just as oxygen is being absorbed, and during inspiration it builds up. This increase, together with the stretching of the lungs themselves, brings inspiration to a stop and sets off expiration. It follows, therefore, that a person who is more sensitive to carbon dioxide is likely to be a rapid shallow breather and vice versa. This is indeed borne



out when breathing patterns are studied with carbon dioxide added to the inspired air.

Good swimmers, athletes and those who have been interested in physical training invariably show a deep slow respiratory pattern and make the best divers. There is a lot to be said for physical training which emphasises the value of breathing exercises and in time many people develop a basic slow deep rhythm which is a good thing. A slow deep rhythm is to be encouraged and with time should become natural. The main danger is that of over enthusiasm. So many men have increased their depth of breathing without sufficient slowing. This results in hyperventilation which washes out too much carbon dioxide and upsets the chemistry of the body. This is more likely when attention is being paid to the breathing rhythm. Success is only achieved when the rhythm is unconscious and unless the habit is fully formed there is a risk that, in sensitive individuals, the pattern may revert to a rapid one in and emergency.

In whales and other diving mammals, the body is much less sensitive to carbon dioxide and therefore these animals are able to hold their breath for quite long periods, using up a greater percentage of oxygen from the inspired air.

In man, it is well known that by taking a dozen or so deep rapid breaths some carbon dioxide can be washed out so that it will take longer for it to build up to the limit again. By this trick the breath holding time can be increased by a minute or so. This is not without danger and there are three cases on record where it nearly caused disaster. These men were trying to see just how far they could swim under water. They dived in after hyperventilating, by swimming hard whilst holding their breath, they actually used up all the oxygen in the lungs before the carbon dioxide had built up to the breaking point. They lost consciousness in the water from oxygen lack and had to be fished out to avoid drowning.

The effect of oxygen lack on the breathing pattern is very interesting. There is a chemical mechanism in the body which detects a fall in the blood content of oxygen. This signal is received by the brain which automatically increases the breathing volume. However at the same time, if blood flowing through the brain is lacking in oxygen, the brain centres are affected and lose their sensitivity to the incoming chemical stimulation. If the oxygen lack is sudden the brain packs up before respiration is increased but if it comes on slowly, increase in respiration may be seen. When a 10% oxygen mixture is breathed it is touch and go what the result may be. In about half the men respiration decreases and in half it increases. In some the actual struggle can be seen taking place with bursts of increasing respiration mixed up with gaps where hardly any respiration occurs.

The importance of this is that generally speaking oxygen lack (provided there is no simultaneous carbon dioxide build-up) is unlikely to be detected by the sufferer and it is quite easy to pass gracefully into unconsciousness without any warning.

In diving, respiration is perhaps the most important function of the body and much is to be learnt from its study under various conditions, both in the water and out of it. It is, however, essentially a subconscious process and the less one is aware of its occurrence the more likely it is to be fulfilling its purpose efficiently. Therefore, visitors to R.N.P.L. who find their breathing patterns being traced in scarlet ink on snow white paper should not be alarmed if theirs do not look quite the same as the other chaps'. There is no such thing as a normal breathing pattern and under the experimental conditions used it is fairer to say that the resulting pattern is the normal one for the individual under investigation.

A Letter from our Civilian Friends

WORLD'S LEADING UNDERSEA EXPLORERS TO MEET IN LONDON

AS a climax to what promises to be the most exciting summer of undersea exploration in history, the world's leading marine scientists, doctors and divers will meet in October in London under the leadership of the Duke of Edinburgh.

Delegates of nearly 40 countries, some of them fresh from epic exploits of exploration, will describe and discuss the new undersea continent now being opened up.

This will be the Second World Congress of Undersea Activities. It will be held at Church House, Westminster, from October 18th to October 24th. It is being organised by the British Sub-Aqua Club and the Confederation Mondiale des Activites Sub-aquatiques (World Underwater Federation), under the patronage of the Duke of Edinburgh, himself a keen diver and the active President of the B.S.-A.C.

One of the highlights of the summer should be the first dive by an unprotected diver (i.e. not in an armoured suit or vessel) to below 1,000 feet. Previously this has been thought to be impossible for medical reasons; the existing record is some hundreds of feet less. But a young Swiss mathematician, Hannes Keller, last year shattered this cherished conception, by working out new techniques of safe, deep diving. He risked his life to prove his ideas in tank tests. This summer he hopes to prove his ideas 'in the wet'. He will be attending the London Congress to describe this dive; with him will be Dr. Albert Buhlmann, Zurich University, the medical brains behind this revolution.

Two men will attempt to live on the sea bed for a week, going out of their undersea house to work, and returning for food and sleep. They are Commandant Jacques-Yves Cousteau, the famous pioneer of aqua-lung diving, and Edwin Link, American millionaire and inventor of the famous Link trainer, who has now turned his talent and resources exclusively to probing the mysteries of the sea. This new way of life arises from new medical discoveries about the behaviour of the human body under pressure. One of the doctors who has blazed this trail is Captain Albert Vehnke, Consultant to the Surgeon-General, U.S. Navy. All three will join at the London Congress to present their findings.

Going deeper and for longer, brings nearer the day of what a few years ago seemed just a Wellsian fantasy — undersea farming. Professor Sir Alister Jardy, Oxford University, one of the world's foremost marine biologists, will describe how 'underwater cowboys' will ride sea-bed tractors to herd fish. The first practical attempts at aqua-farming will take place off the English coast this summer, when scientists will plant embryo fish in the sea and

hope to get a better return than unaided nature provides. The leader of this team, James Shelbourne, will present the first report on what might be a revolutionary experiment. The Danish Scientist, Dr. Gunnor Thorson, will show how divers 'weeding' the sea-bed could increase fish production tenfold.

Some of the most fascinating work under the sea relates to the past. Under the Chairmanship of Sir Mortimer Wheeler, some of the growing number of professional undersea archaeologists will report on the highlights of the summer's work . . . Britain's Dr. John Waechter on the early underwater caves of Gibraltar . . . Crumlin Pedersen of Denmark on the Viking galleys newly discovered off Copenhagen . . . Fernand Benoit of France on some of the fabulous finds in the Mediterranean.

Other doctors and engineers will describe the ever more complex equipment which is being forged, and the human problems which are being met, in this quest to open up this last undiscovered continent. For the technological challenge and the demands on the human body and spirit are akin to those of space travel.

The highlight of the week's events will be a unique 'all-star' bill. Joining Keller in a public lecture and film show will be three of the greatest names in underseas exploration: Hans and Lotte Hass and Jacques Piccard. The Hasses will describe their exploits below the Indian and China Seas. Piccard, who piloted the bathyscaphe (deep-sea vessel) *Trieste* to the deepest-known part of the ocean, will report on plans for the range of undersea vessels which will bring the undersea world — two-thirds of the area of the entire planet — under man's domain.

Enquiries for Tickets and further information from: British Sub-Aqua Club (Second World Congress of Underwater Activities), c/o The Pallantype Organisation, 229/213, High Holborn, London, W.C.1.

The Diving Department was well represented in the recent 'Vernon Players' presentation of *And So To Bed*. (Not an unusal situation for divers.) Left to right: Bill Barrington as Caesar, Terry Tomkins as King Charles II, Mick Corbett as Prodgers.

Hot and Cold Diving

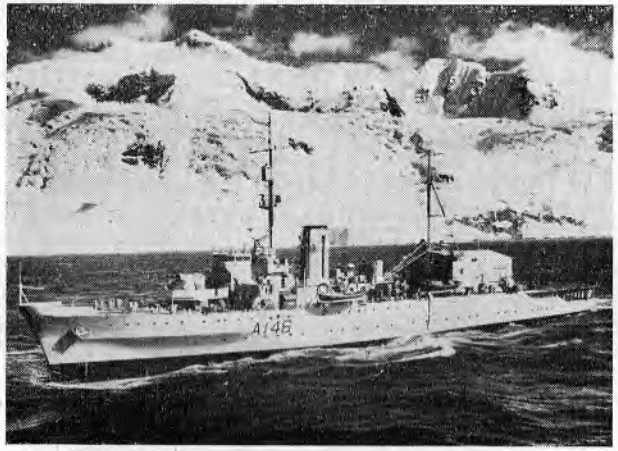
by LT.-CDR. M. K. BURLEY, F.R.G.S., R.N.
DIVING OFFICER OF H.M.S. *Protector*

IT is bad enough when the Diving Officer, who likes pottering up mountains as a hobby, gets described as having been 'highest and lowest' in Antartica (see last Magazine). At any rate, the rest of the diving team can counter that they have been 'coldest and hottests' in operating from Antarctic ice and the still smoking volcanic lava of Tristan da Cunha within a space of three months.

The Commission started conventionally enough exercising Operation 'Awkward' at Gibraltar. This degenerated on the second day into a competition to salvage the most interesting pieces of junk off the bottom of Rosia Bay. At any rate, Inst.-Lt. Brian Drinkall, the biggest scavenger in the business, won himself a somewhat tatty deck-chair.

Apart from a brief but interesting diversion at Dakar when the Diving Officer surprised a ravishing French mademoiselle wearing a *very* decollete bathing dress (the top bit was replaced later), the first major operation was at Port Stanley, the southern most Capital in the world, in the Falkland Islands.

The nearest docking port for M.V. *Philomel*, which is operated by the Falkland Islands Government, is several hundreds of miles away in South America. Consequently the team was asked if it could remove the hull cheek plates and skeg, which had become heavily corroded through galvanic action, and replace them with new. This presented a formidable problem with the small time available in harbour but by intensive and systematic diving and the expert advice of Shipt. Sub-Lt. George Mitchell, the work was completed and the Ship was left as good as new, thereby earning the signalled personal thanks of H.E. the Governor. In flagrant contravention of Q.R.



H.M.N. 'Protector'

and A.I., the Diving Officer accepted a large box of penguin eggs, most of which were passed on to the Ship's Company. When these are fried, one is presented with a large vivid blood-red yolk nestling in a translucent 'white' which seemed to deter all but the most insatiable gannets.

Apart from this, diving activities in Stanley were confined to clearing the engine-room inlets of the ubiquitous kelp (seaweed) which bedevils nearly every ship which enters the inner harbour at Stanley. This was sometimes followed by a sortie to fill a sack of mussels from the hull of one of the derelict remnants of the sailing era which had fallen victim to the violence of Cape Horn. A.B. Ted Cox always seemed to have found his forte here as standing kelp clearer and 'mussel' bosun.

The British Antarctic Survey asked if the divers could carry out a survey of the sea bed in the proximity of the Antarctic base at Signy during the Ship's visit. Consequently Shpt. Sub-Lt. George Mitchell, Sgt. Ted Brewer, A.B. Ted Setchell, A.B. Bungy Williams and the Diving Officer were helicoptered ashore to carry out the survey. The dense brash ice and bergs inshore proved to be no deterrent but some frisky and inquisitive seals which came in to see what was going on were not very helpful! Nevertheless the survey was completed and a report on the result, together with the feasibility and details of constructing a quasi-permanent jetty in the light of the ice conditions, was submitted to the British Antarctic Survey who expressed their appreciation and gratitude for the information. Opportunity was also taken to renew acquaintanceship with the huskies and the penguins in the vicinity of the base.

A further survey cum exercise was carried out at Deception, another Antarctic island of volcanic origin which provides an unusual aspect in having steam rising from the hot beaches against a background of snow covered mountains.

The Ship then carried out a series of seismic tests with R.R.S. *Shackleton* in the Bransfield Strait off Antarctica with the object of establishing certain geological data about which the scientific world was still in doubt. After a particularly heavy charge had been detonated underwater near the end of the tests, one of the engines started to run roughly. It was thought that the propellors may have been damaged and despite the very heavy swell running, the Diving Officer inspected the screws and reported all was well. It was subsequently discovered that the main gearing bearing had been loosened from its bed by the submarine explosions.

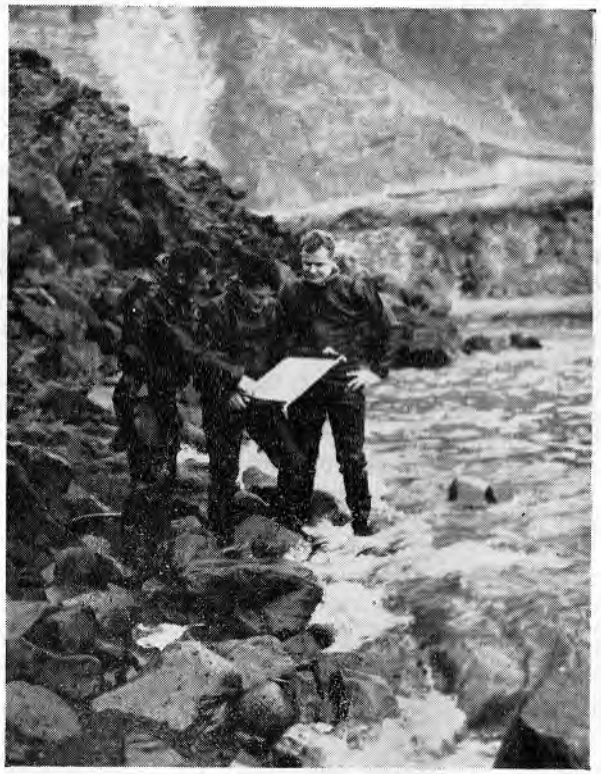
The next day, R.R.S. *Shackleton* signalled that she had some 100 feet of seismic cable firmly wrapped round her screw and was unable to free herself. Again the diving team was called upon and still with heavy Antarctic swell running, P.O. Ben Crouch and the Diving Officer went down to free her. With encouragement from the attendant boat of the large numbers of killer whales and ferocious leopard seals which could be 'seen' in profusion from the surface, the screw was cleared in less than an hour and the seismic tests were then resumed to give extremely successful and gratifying confirmatory results to the scientists.

Whilst the Ship was en route northwards, we passed through evidence of a very recent volcanic eruption in the form of a vast carpet of pumice spread over thousands of square miles of sea. Some pumice was drawn into the auxiliary machinery putting it out of action temporarily; it was amusing to hear on

the B.B.C. news and read in some of the papers that the diving team was (entirely erroneously) credited with clearing the pumice to enable the Ship to get clear, although no such information was ever released by the Admiralty. Such must be the penalty of fame!(?)

The Ship then called at Tristan da Cunha to embark the Royal Society Expedition. When they had been disembarked at Simonstown, the Ship returned to Tristan da Cunha to await the putting into space of Britain's first satellite so that it could be monitored. During the waiting period, the diving team was helicoptered ashore again to carry out a further survey. Now there is no harbour at Tristan and the only way of getting ashore by boat previously was through the heavy surf on to an open beach — a hazardous business at the best of times. When the volcano erupted, the beach was almost entirely engulfed by the lava, but as it spread out into the sea on one side, it had the effect of forming a small cove, almost completely sheltered except from a southerly wind. It was felt that, in the event of the island being re-occupied, there might be scope for developing the cove into a small harbour which could be an improvement on the former pre-volcano arrangements.

Sgt. Ted Brewer, L./S. Jimmy Green, A.B. Ted Setchell, M.(E.) I



Survey of the lava flow—Tristan da Cunha

Jan Beaumont and the Diving Officer then carried out a survey operating from the lava, parts of which are still glowing red and emitting clouds of steam and pungent sulphurous fumes An approximate chart was then drawn up, augmented by photographic evidence, giving the relevant soundings out from the shore and lava. It was very noticeable that although there is no plant life yet on the lava underwater, the plant life on the sea bed is apparently unaffected by the close proximity of the volcanic effluence, even though it must have heated the water considerably and given off noxious emissions under the water as well as above.

For a last 'jolly', the whole team went down in the warm clear waters at Capteown to terrorise the crayfish. And lamentably unsuccessfully too! This is certainly one of the most interesting Commissions for a keen diver. As Diving Officer, I have been supported by the most enthusiastic and conscientious team one could ask for. My only problem has been in restraining them from diving on almost every occasion the screws have stopped turning and I can only wish other Diving Officers compareable good fortune in their Ships.

The nearest thing to an accident occurred when one of our many visiting Free Swimmers from the Fleet went down from the 'Z' craft into 30 feet of water to have 'a look for himself'. Being used to S.A.B.A. he took a bit of a dim view of the oxygen set and 'rocker boots' that were given to him to use. But nevertheless down he went and was duly impressed by the mound of ammunition and the C.D. who was clearing it. Then, wishing to have a word with the other diver he spat out his mouth-piece. With one swift movement the water that was half filling his face mask drained straight into his set. According to the eye witness there was a pause, a veritable moment of truth, then a look of dawning horror as the unfortiunate visitor attempted to draw breath from his unwilling apparatus. A moment later his mask was off and his life-line was subjected to the longest and fastest series of pulls seen in these parts for many a long year. It was not long before a very white faced Free Swimmer was sitting on deck surrounded by a most unsympathetic group of C.D's who just couldn't stop laughing. Such are the perils of those who forget which type of apparatus they are using.

A deep throated growl from the changing room indicates that once again the *Tiger* is calling, so until the next issue we remain yours very truly.

Lt.-Cdr. GILLAM
LT. MAJENDIE
C.P.O. FAWCETT
P.O. CHRISTMAS
P.O. ATKINSON
P.O. ROBERTS
P.O. TEMPLETON
P.O.M. (E) MCCAW
L./S. DRAIN
L./S. FORD
L./S. LEES
L./S. HUMPHREY
L./S. VAUGHAN
A.B. HARRISON
A.B. DOLAN
A.B. FOWLES
A.B. SUMNER
A.B. RUSSELL
A.B. WOODS
M. (E) HERRINGTON.

For this operation the Team were commended by the Commander-in-Chief Far East Stations, in a Special Order of the Day dated 13th June 1962.

Diving Report for 1882

THE following report might be of interest to the more salty members of the Branch.

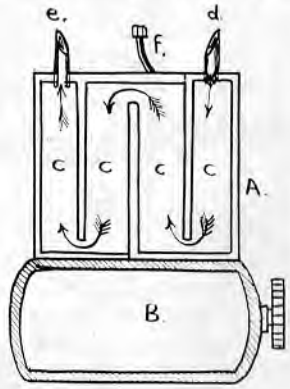
REPORT OF DIVING EXPERIMENTS CARRIED OUT IN H.M.S. "VERNON"

As qualifying torpedo Lieutenants go through a course of diving, the subject has received considerable attention in this School.

As some of these Lieutenants are, or would become with practice, accomplished divers, I think they should be afforded more facilities in sea-going ships of utilizing the knowledge they have gained here. Besides which the supervision of an Officer Diver is badly wanted when any important operation is being carried out abroad. Our present divers are rather apt to make out that it is a dangerous and arduous practice, while in reality, nine cases out of ten, there is no more danger to a man who is physically fit than there would be to the same man going aloft.

We have no Diving staff on board the *Vernon*, being allowed two A.B. Seaman Gunner Divers (who are constantly changed) to do the ordinary diving for the ship. In carrying out such experiments, such as those with the Fleuss dress, etc., a thoroughly practiced diver is a necessity if the experimenter in the dress is not to be exposed to great danger. It is hardly safe to trust to an A.B. Seaman Gunner Diver, who has only just passed through the *Excellent*, and has had no real diving experience.

REPORT ON FLEUSS'S DIVING APPARATUS



This dress is designed so that a man may go down without the assistance of pumps or air pipes.

The diver is provided with a knapsack to carry on his back, which is filled with materials to enable him to breathe pure air as long as the charge in the knapsack lasts.

This knapsack, a section of which is shown below, is made in two parts.

(*A*), the upper part, is a strong case divided into four partitions, the partitions being open alternately at the top and bottom, so as to have a free passage from the first to the last. The two end partitions have each a copper pipe to screw on to corresponding connections on the corslet of the diving dress.

(*B*) is a cylindrical metal cylinder, capable of standing a pressure of 250lbs. to the square inch. This cylinder is also connected by means of a small flexible pipe, (*f*), to the inside of the helmet.

The manner of using the dress is as follows:—

The knapsack is prepared by first charging the upper portion with layers of tow and caustic soda, taking care not to pack it so tight as to prevent all four partitions being easily blown through in the direction shown by the arrows.

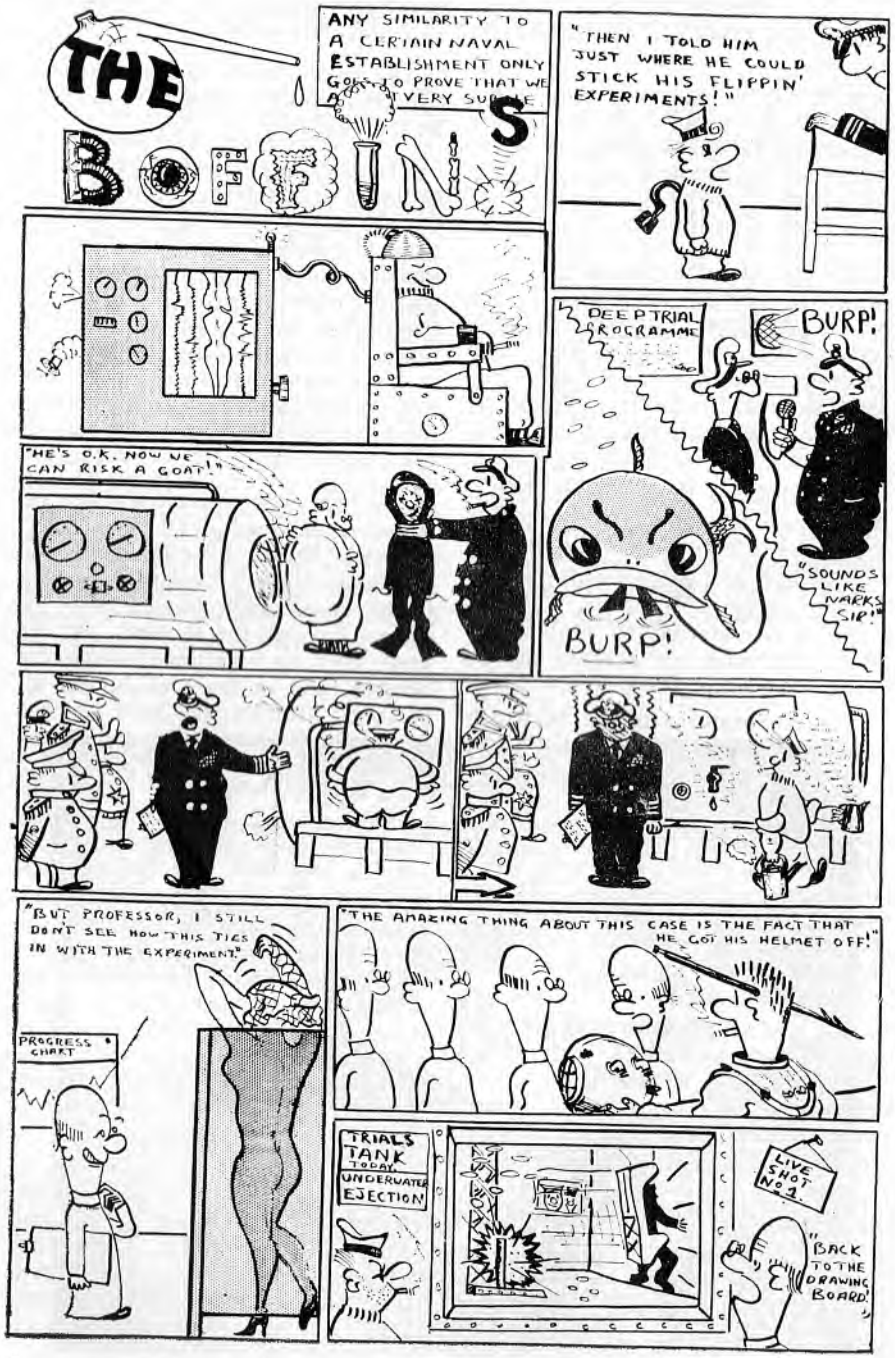
The reservoir (*B*) is then charged with compressed oxygen to a pressure of 250lbs.

The diver after being dressed in an ordinary diving dress, but the corslet of which has three nozzles on the back to connect three pipes to, has this knapsack secured to his back, and the pipes connected. Before the front glass is screwed on the diver places one end of the flexible pipe in his mouth, the other end of this pipe being firmly secured over the inside end of the short pipe to which (*d*) is connected.

After the front glass is screwed on the diver descends, and then opens the cock (*B*) with his right hand, and so allows a small stream of oxygen to be continually flowing into his helmet through the(*f*). pipe At the same time he breathes through the flexible tube in his mouth, the air passing through the filter in the direction shown by the arrows, back to the dress through a non-return valve at (*e*). By these means the vitiated breath is made to pass through the various layers of caustic soda in the filter, and the carbonic acid gas separated from it, the breath being returned into the dress purified. At the same time the oxygen from the reservoir replaces that consumed during the passage of the breath through the lungs. The action of breathing, therefore, is to inhale the pure air through the nose, and exhale through the mouth.

* * *

Editor's Note:—This apparatus was subsequently tried out and was found to have an endurance of an hour down to six fathoms. It was never accepted into the Service, due mainly to the bulkiness of the knapsack on the diver's back.



Portsmouth Command Bomb and Mine Disposal Notes

OPERATIONS in the Command have continued at a fairly steady pace in recent weeks, although one hears that our friends in 'Oggyland' have been even busier, and perhaps the term 'poison dwarfs' recently coined by a German could be applied to them rather than to a famous Scottish regiment. Speaking of 'poison dwarfs', one of our team mates appears to have an inexhaustible supply of a somewhat virulant form of gas, and this added to Cuts's pipe is the reason why the Landrover proceeds these days with all windows fully open!

Recent disposal operations include shells, bombs, mines and even 200 lbs. of some very 'dodgy' looking Polar Ammon Gelignite that has lain forgotten on a disused airfield since 1945. One of the bombs was right on our own doorstep, having been dredged up at Boat House Jetty. The most interesting mine was a German type G.U., probably from World War I, which was trawled up S.W. of the Sledgeway and landed in a neat and very seamanlike manner near the golf course at Felixstowe. The way it was landed and secured by the trawler skipper made the task of disposal comparatively easy. The main filling of T.N.T. and the primer were in very good condition, but the detonator was rather crumbled, probably due to electrolytic action.

One thing one does learn on Bomb and Mine Disposal and that is geography, but although Kent may be the garden of England, Norfolk has its Broads (both types), Surrey and Sussex have their Downs, I still prefer the Northern Lights over the Shetlands.

MAC.

* * *

Footnote.—The subject of gas brings to mind an incident that occurred last year in Portsmouth Harbour

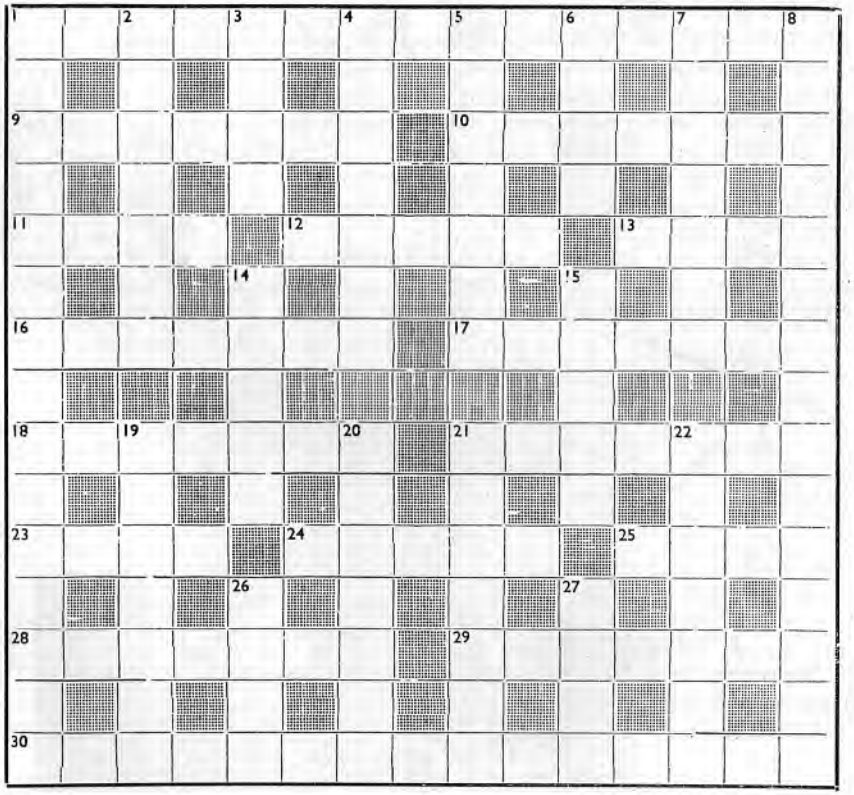
Burning out the main charge of the G.U. at Felixtowe

The Bomb and Mine Disposal Officer received a report that two Dockyard painters working on a buoy near a coaling jetty had reported an underwater explosion. They had also described a large oil patch in the area of the disturbance.

The report was immediately investigated by the Bomb and Mine Disposal Unit and members of the Experimental Diving Unit. Within minutes of the first diver's entry into the water a further disturbance occurred in the search area. There was no explosion, just an upheaval of the water. An oily mass appeared and spread out on the surface. The diver signalled that he was not in trouble and on surfacing reported that he had moved into a dark area on the harbour bottom which gave way under him. The whole area rose up around him and went gurgling up to the surface.

Marine vegetation had collected in the area and settled in a shallow hollow on the harbour bottom. During decomposition the gases had collected under the matted weed. The painters had evidently seen the first signs of the mass breaking up and the diver had triggered off the rest by walking on it. ED.

DIVERS'



Analysis of the Creature known as Woman as seen through the eyes of a Chemist

Accepted Atomic Weight — 120.

Physical Properties — Boils at nothing and freezes at any minute. Melts when properly treated, very bitter if not well used.

Occurence — Found wherever man exists.

Chemical Properties — possesses great affinity for gold, silver, platinum and precious stones. Violent reaction if left alone, able to absorb great amount of food matter. Turns green when placed beside a better-looking specimen.

Uses — Highly ornamental, useful as a tonic in acceleration of low spirits and an equalizer of the distribution of wealth. Is probably the most effective income-reducing agent known. *Bernards Bulletin.*

CROSSWORD

ACROSS

1. With a leaning to E.C.O.V. ? (15)
9. Now is the time for this gift (7)
10. Big Fish — but gregarious (7)
11. Weigh well before taking ! (4)
12. Skeleton Framework (5)
13. It's nothing — after a parental mix-up (4)
16. Young officers — all of a flutter (7)
17. A "reet lad" for footwork (7)
18. Essential fitting for a dry ship (7)
21. In which the bowler may be capped ! (7)
23. Lively Scots measure ? (4)
24. Good site for a bird's eye view (5)
25. You'll try anything — ! (4)
28. Is it perhaps, the last ? (3, 4)
29. All by itself ! (7)
30. MRS. Vernon's war winner !(4, 8, 3)

DOWN

1. Old hands at the game ! (11, 4)
2. Delightful P.S. about the land contract (7)
3. Knotty point (4)
4. More than one way for moderns to act (7)
5. Sin of omission (7)
6. Go ga from the other end (4)
7. A little devil to start and completely hindered (7)
8. Rum way to end an apple pasty ! (8, 4, 3)
14. Change from going to sea (5)
15. Occupational hazard for those in the deep (5)
19. The last thing to do to a ship (7)
20. Carved on a gem (7)
21. The clock's way to indicate a Roman tea time (5, 2)
22. Doghouses (7)
26. What 21 struck (4)
27. Nice — but could be expensive too ! (4)

15 shillings will go to the first correct entry to be opened in the Magazine Office on October 21st.

Home Air Command Sub-Aqua Club

THE Home Air Command Sub-Aqua Club, now well into its second year, was formed in order that there should be closer co-operation amongst the many hundreds of underwater enthusiasts in the Fleet Air Arm — and that a standard training programme be adopted.

Diving is not a sport for the individual, and records of underwater accidents amongst sport divers shows that the cause of the greatest number of accidents was directly due to diving alone, or with an inexperienced 'buddy', followed very closely by a lack of safety precautions in the way of life jackets, surface cover or tender, etc.

Therefore the aim of the H.A.C.-S.A.C. is to 'educate' its divers in diving safety, in order to prevent accidents. To have a common safety code, and a common training programme goes a long way to achieving this — as the training methods used by some sub-aqua clubs leaves a lot to be desired. There is also a certain amount of uncertainty and apprehension in the service still regarding the activity — and our second aim is to prove to the authorities concerned that sport diving is safe, and as much a sporting activity as football or cricket.

At present the following naval establishments are members of the H.A.C.-S.A.C., and it is hoped in the not too distant future that more general service sub-aqua clubs will be formed and join us in order that the Royal Naval Sub-Aqua Club can be formed.

H.M.S. *Ariel*
H.M.S. *Heron*
H.M.S. *Seahawk*
H.M.S. *Goldcrest*
H.M.S. *Bulwark*
H.M.S. *Albion*
H.M.S. *Sanderling*
H.M.S. *Fulmar*
H.M.S. *Condor*
H.M.S. *Falcon*
H.M.S. *Hermes*

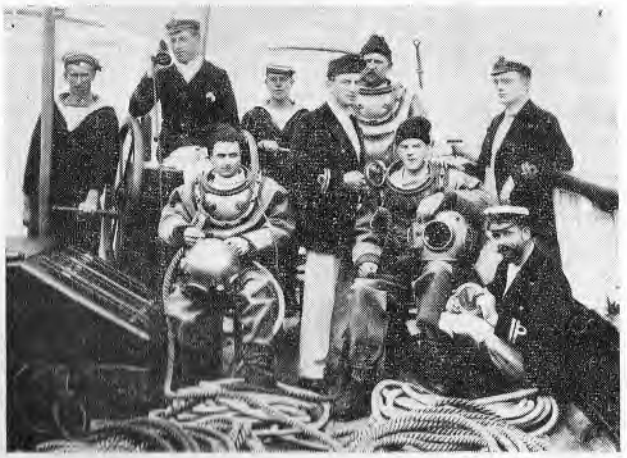
The running of the club in general is left to the Chairman (Lt. R. Graham, R.N.) and the Secretary (C.P.O. R. Larn), although a larger Committee will soon be needed to assist in the large amount of work involved. Meetings are held twice a year, before and after the summer at which a representative from every club is invited — in order that policy can be decided and progress recorded etc.

The H.A.C.-S.A.C. now has its own magazine called *Nepton*, a definition of which can be found in any good book on marine biology, namely 'Nepton — small marine life that is capable of swimming against a tide or current. Plankton can only drift with tides and currents'.

This magazine is, at present printed by the clubs in turn, and rather than let the side down, each new number always seems to outshine the previous one. However, it may soon find a permanent home at H.M.S. *Seahawk*, when the present policy of distribution free of charge may have to be changed. It is however a very good magazine, and it is planned that the June/July magazine will contain sketches and photographs for the first time.

The general policy of the H.A.C.-S.A.C. Committee is to distribute its magazine, free of charge, to any naval sub-aqua club who wishes to join the organisation. However, the club must satisfy the H.A.C.-S.A.C. member clubs that it has a sound training policy, in keeping with the standards adopted by the H.A.C.-S.A.C. Any naval clubs interested are requested to contact the Chairman at H.M.S. *Ariel*, who will be pleased to outline the whole business to you.

C.P.O. LARN,
Secretary,
H.A.C.-S.A.C.



A Diving Class of 1892.

Recognise any Chiefs?

We can now offer the R.N. Diving Association Blazer Badge as shown, for 25/-, including P. & P. This is the official badge of the Association and can be purchased by all serving and Ex-R.N. and R.M. divers including the Commonwealth Navies.

The Association Ties are again available at 12/6 P. & P. 6d. extra. They are available in Blue or Maroon Terelyne and have an alternate motif of an underwater swimmer and a diving helmet embroidered in yellow silk. They are for sale to all serving and Ex-R.N. and R.M. divers including the Commonwealth Navies.

* * *

If you wish to become a subscriber to this Magazine, it is sent to you post free. Any amount can be sent to start on account, i.e. 6/- will cover the next three issues. Send P.O. or Cheque to:—

The Treasurer, R.N. DIVING MAGAGINE, H.M.S. *Vernon*, Portsmouth, and include Name and Address with details of the last magazine that you purchased.

* * *

We regret to announce that all back issues up to the Christmas 1961 Edition have been sold and we can no longer take such orders.

Royal Naval and Royal Marine Children's Home

THE R.N. and R.M. Children's Home, South Africa Lodge, Stakes Hill Road, Waterlooville can accommodate about 30 children, ranging in age from 2 to 15 years. They can take temporary cases, although the original function was to care for the children who had lost one or both parents.

All the children live at South Africa Lodge, a completely modern building, built as a Home. The children attend schools in Waterlooville and, if able to pass to Grammar Schools, remain until 18 years of age, and are found jobs suitable to their ability and taste. Those who have no family, spend holidays at the Home, and continue to keep in touch.

The admission of a child of serving or ex-serving personnel below Officer rank in the R.N., R.M., W.R.N.S. or Auxiliary Services is governed solely by the need of the child. A parent is assessed for a maintenance payment on his circumstances.

Any enquiries with regard to the admission of children should be forwarded through the normal welfare channels.

The Editor wishes to thank those of our readers who have so generously contributed to the H.M.S. *Vernon* collection to provide a vehicle for the Home to enable the children to be taken to the sea front and on other outings. These outings have, in the past, been limited by the high cost, etc., of hiring coaches.

Contributions can be received at this address:

The Editor,
R.N. DIVING MAGAZINE.
or
The Treasurer,
Children's Vehicle Fund,
c/o The Chaplain,
H.M.S. *Vernon*,
Portsmouth.

Temporary receipts will be issued pending the presentation of the money to the Home.

The Survey Ships—a Five-Year Plan

WITH man's excursion into space, it might be thought that our own world is now so well explored that there is little left to be discovered. This is very far from being the case, as the recent return of the Survey Ships H.M.S. *Owen* and H.M.S. *Dalrymple* was amply demonstrated. These two ships have been engaged on a series of surveys in the Indian Ocean and Persian Gulf respectively, and amongst other far-reaching results, it has been discovered that the East African Continent may extend underwater almost as far as the Seychelles, nearly 1,000 miles from the existing coastline. Geologists have long suspected that the eastward tilted continent might continue beneath the deep waters of the Indian Ocean and the findings of H.M.S. *Owen*, which sailed in September last year for the first of five seasons in the Indian Ocean, appear to confirm this.

This work has been part of the British contribution to the International Indian Ocean Expedition, of which U.N.E.S.C.O. is one of the joint sponsors. It has for its object not only the scientific exploration of all aspects of the Indian Ocean, but the encouragement of Marine Sciences in neighbouring countries, whose rising populations may soon compel them to turn to the sea for food: 'harvesting of the sea' is thus no empty dream. The Expedition

will occupy almost all of the world's larger research vessels during the coming years; H.M.S. *Owen* was amongst the first ships in the field. She returns later in the year to the Indian Ocean and early next year will be joined by the new Royal Research Ship *Discovery*.

Apart from oceanographical work of this kind, the day to day work of the Navy's survey ships must always continue. The coasts of all continents are constantly changing, due to erosion or to silting up. In the tropics new coral reefs are often discovered and the position of known reefs on the older charts is frequently open to doubt. In some districts volcanic action throws up new islands and wipes out old ones. Then there are the wrecks and derelicts dangerous to navigation which have to be known to the Hydrographic Department of the Admiralty, which promulates news of dangers by 'Notices to Mariners' and amendments to existing charts. The work of the Survey ships is, for the most part, silent and in the background, but it earns the gratitude of the whole maritime world.

HEARD AT HORSEA

Instructor: (First day on course) 'Why didn't you answer the four bells?'

Wet and Miserable Dipchick. 'I didn't hear them Chief!'