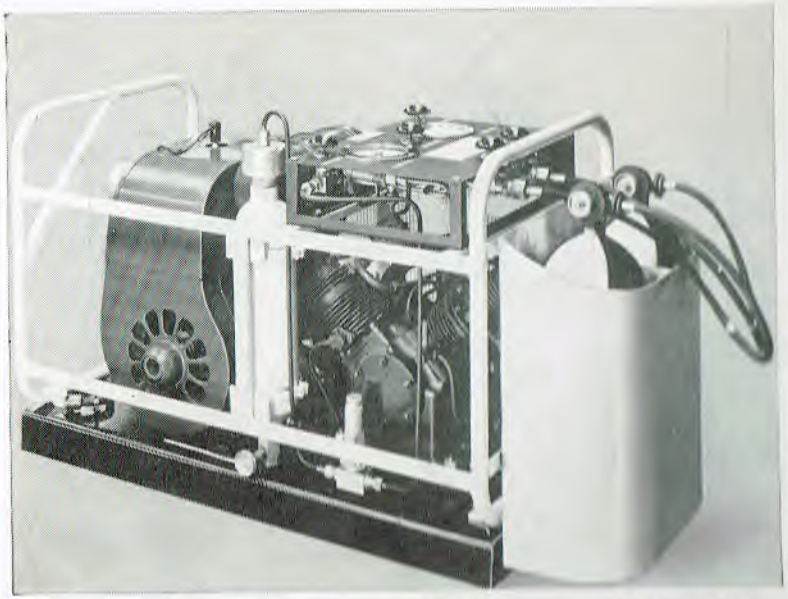

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ROYAL NAVAL DIVING magazine

Diving Launch, 1984 ?

Vol. 12 No. 2

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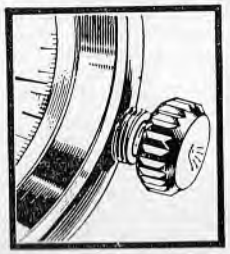

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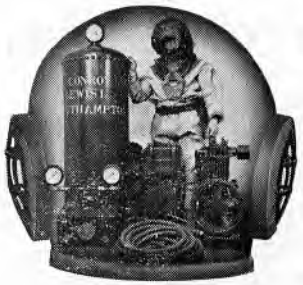

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Contents

R.N. Diving Magazine

Vol. 12 Summer 1965 No. 2

EDITOR'S NOTES

HAVING spent most of my time during the past couple of months cajoling and pleading with people to write articles for the Magazine, it has come at last, time, for me to do my bit, to introduce myself, and this edition of the Magazine.

During February, March, April and May, the Editorial Staff underwent a major reshuffle. Vern' Gibbons left to join the Deep Diving Trials' team. Jan Gardiner took over and stayed long enough to get Volume 12/1 out before he in turn left to go to school to try for some G.C.E. certificates. Jan Gardiner handed over to me, and, though it was a case of 'blind leading the blind' for a while, things, have settled down a bit since.

The Division has had a fairly successful summer term, sports wise. We won the swimming gala and though we tailed off a bit at cricket, we did pretty well by coming a close second to our old rivals Weapons/Radio Division in the athletics. We are now starting to think in terms of 'rugby', 'soccer' and 'hockey', so on behalf of our sports representative, to those who are in the division already, or are due to be drafted to the *Vernon*, if you want to have a game, please let the sports representative know, that you are willing to have a bash, and who you are.

'Navy Days' this year, are from the 28th August to 31st August. The Diving section will again be present, with a static display and also some demonstration runs. So, if you are not far away, (radius 500 miles) and the family have been pounding your ears to give them a day out, bring them down

and give the lads who are giving the display a 'chuck-up'. You never know, you may manage to lose the family in the crowd and find yourself a pint instead.

Next term also, before the winter edition of the Magazine will be out, the annual 'Divers' Dinner' will have been and gone (December 9th). So if you see your chum, a big drunken heap, don't drip because you missed it. Remember the date and book your place, for the Divers' Dinner — Thursday 9th December 1965.

Finally, I would ask our private subscribers and ship's diving officers, that if they would kindly let me know of changes in their postal address, and or when their ship is due to 'Pay Off' and recommission, in advance, it would save a great deal of clerical work for my secretary (my two fingers and an old 'Imperial' type-writer).

Cheers now.

EDITOR.

Living at Depth

ON June 30th 1900 at Great Stirrup Cay, 140 miles East of Miami, two divers descended to a depth of 400 feet and stayed there for two days. This operation was not an attempt to create a record, but one in a series of progressive dives planned by the American, Ed. Link in his 'Man in the Sea' programme. The utlimate aim of this project is to put men down to 1,000 feet for an extended period of time and subsequently to return them to the atmosphere with no ill after effects. The previous dive in this series was carried out at Villefranche in 1962 when one diver stayed at 200 feet for 24 hours. Now this was the second step at twice the depth for twice the time with twice the number of divers. A great deal of research and preparation had preceded the dive and the operation had been made as simple and as safe as practicable. A submersible Portable Inflatable Dwelling, S.P.I.D. for short, had been designed and was to be the diver's home when on the bottom. A cable from the S.P.I.D. to the parent ship provided the means for voice communication, closed circuit television and for the surface recording of gas analysis and pressure in the S.P.I.D. The actual dimensions of the S.P.I.D. are not available but from the pictures of it, it would appear to be when fully inflated about 9 feet long and four feet in diameter. The 'house' which is cylindrical, is secured to a metal frame which houses the gas bottles and also provides a lifting point for the unit. The frame is suspended by four corner chains from a ballast tray containing 5½ tons of ballast. When fully inflated the cylinder floats about 4 feet above the tray and entry into the cylinder is via shaft and ladder fitted to its underside. Inside the cylinder there are an air purifying machine, a gas analyser which directly records the percentage of $C.O._2$ present, pressure gauges, radiator and two bunks.

2. When all was ready for the operation, the S.P.I.D. was inflated at the surface, ballasted and lowered to its site on the seabed. The divers participating in the trial entered a Submersible Decompression Chamber (S.D.C.) at the surface and were slowly lowered to the S.P.I.D.; the descent took over two hours. During the descent the pressure and the mixture of the gases in the S.D.C. were controlled from the surface. On arrival at the bottom the divers left the S.D.C. and swam to the S.P.I.D., the S.D.C. remaining in situ so providing a second divers haven during the period of the dive. To minimise possible damage during the descent the instruments and equipment for fitting inside the S.P.I.D. were packed in containers and secured to the ballast tray. Thus the divers first task was to unpack and instal this gear. Unfortunately, the most important item, the air purifying machine, was found to be faulty, and the installation in the S.P.I.D. was delayed until a replacement was found. During this period the divers remained in the rather cramped quarters of the S.D.C. Finally, however, all was working well and some eight hours after leaving the surface the two men were enjoying a meal of corned beef and fruit salad in their underwater 'home'

3. During the two days spent underwater the divers were engaged on activities outside of the S.P.I.D. and this included photography, exploration of the seabed and the study of marine life. As far as is known no manual tasks were undertaken. These expeditions were achieved on a closed circuit 'hookah' system fed from the S.D.C. via two 50 foot pipes. This limitation restricted the divers area of activity yet, even so, much was seen, including large sponges, anenomes, octupuses, small florescent fish and fairly large groupers. The water temperature at the bottom was 72° F., the visibility was about 100 feet and the overall atmosphere is described as like a blue twilight. Coloured photographs taken at depth have a definite bluey green tinge, but the detail is good and items are easily indentifiable. For the ascent the divers returned to the S.D.C. and having 'locked in', were raised to the surface and transferred under pressure to a ship borne decompression chamber where they stayed for 92 hours. It is worth noting that, for the time spent at the depth, the divers had reached saturation point, and, had they stayed down longer, the decompression time would have been the same. The recorded depth of the dive was 432 feet, and the breathing gas was a mixture of 3·6% Oxygen, 5·6% Nitrogen and 90·8% Helium. The nitrogen was introduced into the mixture to help overcome the speech distortion due to the high percentage of helium. As many divers will know the effect of breathing in such an atmosphere results in a 'Donald Duck' speech effect. As was stated at the beginning of this article, the dive was not undertaken for publicity purposes but as part of a serious research project similar to that being concurrently conducted by Commander Cousteau. The progress of both these projects will be watched with interest.

G.A.F.

Heard at the Monaco Conference on 'Petroleum and the Sea'.

Questioner: You say that you have encountered deterioration in performance at arithmetic at depths of 800 feet on oxy-helium. Are you aware that the U.S.N. have carried out experiemnts with mice at depths of 3,000 feet and they appeared to be perfectly normal ?

Surgeon Lt.-Cdr. Barnard: The divers at 800 feet appeared to be normal and it is well known that mice are not very good at arithmetic.

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Let's Get On With It!

No. 1 — *Hovercraft*

THIS is the first in a series of articles, which, I hope, will give food for thought in high and divers places and may, eventually, produce results. However, at the time of writing, those thoughts may be considered as rather futuristic.

We shall start with the use of Hovercrafts for a clearance diving role.

Currently, we tend to find ourselves proceeding to an emergency diving operation, at a maximum speed of 7 knots in craft which sail, subject to weather conditions, and which, on arrival, are totally inadequate for accommodating the divers, or else unsuitable for the launching and recovery of the diver or diving craft. The problem of maintaining and finally returning the diver to base must also be taken into consideration. This is an archaic and steam diving mentality indeed!

Now let us have a look at our requirements. In these diving emergencies — we can count 'sub-sunk', crashed aircraft, a lost, expensive guided missile and in fact every operational diving requirement becomes an emergency to the originator — immediate results are required. The diver is required to get into and under the water as quickly and safely as possible and, more important, to be able to get out on completion of task. Enormous advances have taken place over the last few years with the introduction of the Gemini vehicle, which enables the diver to, at least, enter and get out of the water in weather conditions hither to considered prohibitive for diving safely. Remember that, unless diving occurs in very shallow depths, the weather has no effect on the dives at all.

This leaves us with the problem of getting the diver on the spot as quickly as possible, and, finally, operating a safe recovery.

In my opinion the Hovercraft could answer these requirements admirably — at least, there is sufficient justification for a thorough investigation of these possibilities. It can go over a beach, travel at speeds of up to 70 knots in weather conditions in which the diver can operate It has a large, spacious compartment, capable of taking a team and equipment and, who knows, the compressor which supplies the lift for the craft could possibly be used for S.D.D.E. In addition, in case of difficulties through a Bend or other diving hazard, the Hovercrcraft could either carry a one-man R.C.C. or quickly return to base, which would have the facilities of a recompression chamber. It is also anticipated that, when not running, the apron turns the Hovercraft into a raft, thus providing an ideal platform for the entry and return of the diver.

Who knows, one day we may see the C.D.O's and C.D1's of the future doing their two weeks Hovercraft pilots course!

So come on let's get on with it.

JAY REA.

BARKELEY FUND

THE total amount of the donations received on behalf of Mrs. Winifred Barkeley, wife of the late A./B. A. C. Berkeley, C.D. III, P/968027. Amounted to £247 15s. 0d.

Our thanks go to all personnel who contributed to this fund.

1 (B.R.) Corps Outward Bound Centre (Norway)

by Sgt. B. L. MERRITT

THIS Centre is situated about 15 miles N.E. of Kristiansand in Southern Norway. As the Centre's name suggests, our activities are mainly those on the lines of Outward Bound, i.e. climbing, canoeing and trekking. Courses are run for soldiers of B.A.O.R. and N.A.T.O. countries of Europe lasting twenty days and by most standards, courses are considered tough. As normal recreational hobbies are limited owing to the shortage of space, we have taken advantage of the abundance of water and as a result, we have formed a diving club from members of the Permanent Staff, who incidentally, are all serving members of the Army of the Rhine.

Our diving club has at present ten members of various grades. Major Peter Ormerod, R.A., the Commandant of the Centre, is the Diving Officer, and the Dive Marshall is Sgt. Keith Evans; both have had several years experience and are 2nd Class divers. There are three fairly experienced 3rd Class divers and the remainder are Novice divers. Although only a recreational activity, diving is taken very seriously and standards are high. In order to qualify for training, the potential diver must hold the Royal Life Saving Society's Bronze Medallion and the Amateur Swimming Association's Silver Award for Personal Survival, as a minimum.

The Fjord, which runs up to our doorstep, is often, during the evening, a scene of frenzied activity as some of the Permanent Staff are undergoing instruction in diving. Conditions are not ideal, the water is extremely cold (the first dive this season was in water temperature of 4° C.) and visibility underwater is usually 6 feet or less. This discourages the 'flash in the pan diver' and encourages the really keen man to try hard and graduate to the open sea where water visibility is usually 50 feet. The fjord is used rather like a swimming pool might be, for the training of Novice divers and for trying out new equipment and techniques.

As well as training our own divers, we run courses for men of B.O.A.R., who are potential Dive Marshalls. This year there will be at least two courses and two expeditions from B.A.O.R., which is in addition to our normal courses of Adventure Training. Our establishment is the only place in B.A.O.R. where we can pass out potential Dive Marshalls in any quantity — we hope to pass about twenty this year. We have all facilities for diving expeditions with the exception of a portable recompression chamber, although the Norwegian Navy in Kristiansand have a static chamber we can use in an emergency. Our Air Compressor is always in constant use and this is a great advantage when organising expeditions, as 'Air' becomes unlimited.

Perhaps our most publicised diving activity was back in 1963. Some 'locals' told us of a British Spitfire which was shot down during the German occupation of Norway in 1943. A series of dives were undertaken and several pieces of the Spitfire were found, including the number of the plane. By writing to the Air Ministry we were able to trace the pilot, now a school master in Scotland, and invited him to come over to us. The local Norwegians remembered him from the war and as a result of the hard work and enthusiasm put in by the divers from B.A.O.R. and the Centre, many old acquaintances were renewed.

Other working activities were undertaken and these included working in the Kristiansand harbour to examine the berth of the ferry which runs from Denmark to Kristiansand, and to unblock a pipe which ran down to 100 feet. We recovered one of our Army 3 tonners from the fjord, which had been accidently 'placed' there by a diver/driver.

We hope to contribute other small articles from time to time and we take this opportunity to extend our welcome to any divers who may be in our part of the world.

Royal Naval Oxy / Helium Deep Diving Experiments and Trials

by COMMANDER E. C. HANNEN

The Admiralty Experimental Diving Unit

THE continued progress in diving over the last few years has led to notable achievements being frequently reported. In all this activity it is now possible to detect an apparent difference of aim between groups working in various parts of the world, some workers seeking to extend diving to greater depths and the others to extend the time spent at depth to days and even weeks. It is certain that this second group will also wish to increase the depths of their dives and indeed this is already happening.

To some degree too, the Royal Navy, following at the moment a long tradition of aiming for greater depth, realises the need for more time spent at depth.

In 1956, a world record dive to 600 feet was carried out by the Royal Navy, but the so-called bottom time was only five minutes and nowadays we would not regard this as a very significant dive in the context of present day endeavour. For one thing, five minutes is too short a time in which to do much useful work and for another only one such dive was performed.

Our attempts to cover a wider spectrum of exposure for both depth and time had forced us to accept lengthy decompression times, partly on the grounds of safety, in that we are only satisfied after a number of repetitions of the dive by different individuals, and partly on the grounds of economy. This economy derives from the ratio of work time to the decompression time involved. As the length of work times increases, the ratio becomes more and more favourable, and can be made as large as one likes because the decompression time no longer increases as saturation is approached. This reasoning encouraged us to overcome our natural reluctance to accepting long decompression. We now find that it is only necessary to make this as comfortable as possible for the divers, for it to be treated as a matter of routine.

From our work so far, this saturation time for helium seems to be of the order of two to four hours. We have already carried out several successful simulated dives in a dry chamber to 600 feet for four hours, so that, if the Royal Navy wishes to carry out really long exposure times, it is well placed to do so. But the practical need has not yet arisen and we have chosen to concentrate on that part of the spectrum which gives a reasonable working time — believing that there is no point in leaping into the river if all you want is a drink.

Today, in continuation of our current programme, we are aiming for a work period of one hour at 600 feet in the sea to be repeated by at least ten different divers and it is this difference in time from the 5 minute — 1956 dive that has so altered both the equipment used and the whole technique of the diving operation.

In 1956, the diver wore the traditional 'hard hat' standard diving gear and was supplied by a hose pipe from the surface with his breathing mixture. His decompression time

was about eight hours, but this was not entirely successful. The limitations of the equipment — the weight and bulkiness of standard gear — the necessity for most of the decompression period to be spent in the sea, were realised even in the early fifties and designs were put in hand for a submersible compression chamber (S.C.C.) which could be closed at depth thereby retaining the pressure. The diver could then be hoisted out of the water in the chamber and transferred to a larger chamber in the ship for the whole of the decompression period.

For various reasons, deep diving was temporarily suspended in the Royal Navy at about this time and although the S.C.C. was built and installed in H.M.S. *Reclaim* it was not used for deep diving until 1962, when the trials we are now carrying out were begun. The existence of this transfer-under-pressure (T.U.P.) equipment was very fortunate for us in 1962, as it was not difficult to re-start diving trials using this equipment as a basis. However, far-sighted though it was at the time of its inception, we have already come to the limit of its capabilities. This may, in some measure, be an indication of the progress we have made, but the simple fact is that the maximum transfer depth of the equipment is only from 300 feet and, for some of our very deep dives, the diver is already carrying out the decompression stops at greater depths. For example, during a recent 800 feet simulated dive (in a dry chamber) the first stop was at 550 feet, and the notable fact here is that we are now carrying out decompression at depths that were, at one time, record dives, and for far longer times than those dives. So we are having to accept, for the moment, a small part of the decompression being done in the sea. This is kept to a minimum, for we would find it very difficult to render assistance to the diver in the event of any trouble.

As far as possible we take advantage of the use of oxygen to reduce decompression time by increasing the percentage of oxygen in the mixture, thereby reducing the partial pressure of the inert gas; but we have found that elevated oxygen tensions are not well tolerated by some men for long periods and we cannot, for example, maintain as high a partial pressure as two atmospheres absolute of oxygen. The inert gas for these deep dives is, of course, helium.

At the start of the present series of dives, we decided to adopt open-circuit breathing apparatus. This is much lighter and less bulky than the old standard gear and it is possible to accommodate two divers at a time in the S.C.C. in reasonable comfort. Also the divers have greater mobility. Whilst it is possible to develop a more economical semi-closed circuit breathing apparatus for use in deep diving, we have not done so because only with open circuit apparatus are we absolutely certain of the composition of the gas the diver is breathing. This is important because the partial pressure of the inert gas is one of the factors determining the decompression schedule and, for diving trials anyway, it is one variable we are happy to eliminate.

Although we were able to adapt some existing service breathing apparatus very easily in the early stages, as we got deeper the relatively small flow of gas given by conventional demand valves at depth became a limitation, and we have had to design new valves for use deeper than 500 feet. These valves are based on a servo principle, where the opening of a small valve on demand causes a much larger valve to deliver the required flow.

The S.C.C. is a veritable haven for our divers; it carries them down to the diving depth — much like an elevator, and provides a gas bubble into which they can retreat from the sea in the event of any trouble or malfunction of breathing apparatus — it being clear that they cannot surface without disastrous consequences from decompression sickness Whilst being lowered down to depth, gas mixture is passed into the S.C.C. via a pipe from the ship. This gas mixture is the appropriate one for the depth which, for 600 feet is 5% oxygen 95% helium, and the diver controls the flow rate with a simple stop valve inside the chamber so that gas is not wasted by excessive flow, and so that a level of about a foot of water enters the chamber to allow easy exit and entry.

Since the divers spend a few minutes in the S.C.C. on the surface before lowering we carry out a flushing operation with 20% oxygen in helium, thereby preventing contamination of the gas mixture with air. The mixture for depth cannot be used for this purpose since it contains too little oxygen to support life at the surface. It would, of course, be more economical in terms of money actually to use air for pressurising the chamber, but it would defeat the object of its being a refuge should the divers have to breathe its atmosphere for any reason at great depth.

In fact, with the appropriate breathing mixture in the chamber, our divers breathe the chamber atmosphere and only use their apparatus when actually in the sea. The gas for this purpose is carried in fourteen 150 cubic feet cylinders mounted round the chamber, and a pipe leads from these to a simple control panel inside, by means of which the divers can control the pressure for comfortable breathing. From this panel two flexible rubber hoses supply the gas to the breathing apparatus. We use fairly short lengths, only 30 feet or so, and this is therefore the divers' radius of movement, but there is no reason for their not being much longer; it is simply that we do not want our divers on these trails to be able to change their depth significantly; therefore, their movement is somewhat restricted.

On completion of the dive decompression is begun, the chamber being raised to the first stop. During this time the gas expanding in the chamber is allowed to escape via the bottom door. When 300 feet is reached, the bottom door is closed, and the chamber is raised inboard and coupled up to the main compression chamber into which the divers transfer when pressures are equalised. The rest of the decompression is carried out in relative comfort. This main compression chamber is also filled with the oxy-helium beathing mixture used at depth, but, near the 200 feet mark this is raised to 20% oxygen. This is done by simply blowing pure oxygen in a controlled manner into the chamber. The oxygen is fed via four venturi nozzles giving instantaneous mixing and, at the same time, gas is vented from the chamber to maintain the pressure constant. It is now our practice to raise the oxygen level above 20% for the reasons given before, except that, near the surface the divers breathe pure oxygen for the last hour or so from mouth piece demand valves.

In the earlier dives in this programme, the diver in the chamber had to have a mouthpiece in his mouth throughout the decompression.

This involved a total period of about five and a half hours for a short 500 feet dive, and it is a major improvement in the diver's comfort to fill the whole chamber with the gas he must breathe. Having got rid of the mouthpiece (except for the short periods when oxygen is breathed) the diver can eat, drink and sleep in relative comfort. The actual pressure seems to make little difference, though some divers report a deterioration in the taste of the food they eat. Cheese, bread, salads and strong lime-juice seem most popular, although a meal of sausage, egg, bacon and coffee passed into the chamber after about twenty-four hours goes down well. The divers spend a lot of time sleeping and, in general, the situation is little different from what it would be if they were shut up in a similar chamber, at atmospheric pressure, for the same period. The men adopt a philosophical attitude to their long incarceration and eat and drink only as much as one would expect in their rather lethargic existence.

In this way we have worked down to 500 feet in the sea, which was the culmination of the last series at Teneriffe in December 1963. Twelve divers swam quite happily for 10 minutes at that depth with no ill effects, and we have every expectation of significantly improving on this in terms of both depth and duration.

We have seen that the problems of useful diving to great depths are essentially two:

1. Supporting life under pressure for lengthy periods.
2. Determining decompression schedules for eventual safe return of the divers to atmospheric pressure.

To support life, appropriate gas mixtures of oxy-helium must be used; the helium replacing the nitrogen of the air because of the well known narcotic effects of nitrogen at elevated pressure. Efficient breathing apparatus of high performance and low reistance are required in the water. For comfort and safety a transfer-under-pressure system is required consisting of a submersible compression chamber capable of transferring the divers from the maximum depth to a compression chamber in the ship, and maintaining throughout breathable atmospheres in these compartments.

A further refinement, which we are considering, is to make the submersible compression chamber in effect, also an observation chamber, so that the divers would be lowered to depth at atmospheric pressure. Should they require to emerge, the chamber would then be filled with gas mixture to sea pressure. All this adds up to a considerable volume of helium, which would make deep diving very expensive (helium costs us about one shilling and sixpence a cubic foot at atmospheric pressure). However, in a specially designed installation, it would not be difficult to include means for recovery of most of the gas used. This would consist of some kind of gas holder to collect the gas vented from the chamber during decompression and, a suitable compressor for restoring it to a bank of storage cylinders. Even if some of the gas is oxygen-enriched during the later stages of decompression, plant exists which can remove this oxygen, restoring the mixture to its original composition for re-use. This is really a brief summary of our statement of requirements of equipment for a new deep diving ship for the Royal Navy and would enable us to carry out diving under trial conditions, to a

depth of possibly 1,200 feet, which laboratory work suggests may well be the limiting depth due to helium narcosis. The second problem, that of determining decompression schedules for the eventual safe return of the divers to atmospheric pressure, is dealt with by Surgeon Lieutenant Commander Barnard in another paper.

Other problems remain. One of these is voice distortion due to helium, and this gets worse as the depth increases. To the untrained ear speech is only about 50% intelligible (English anyway) at 400 feet under the best conditions, that is, provided there are no extraneous noises to confuse matters further. However, it is surprising how divers become accustomed to the distortion fairly soon and converse easily, to the amazement of outsiders, who would understand little of what was being said. It is probable that not even divers will be able to do much about the distortion at 800 feet, for at this depth speech is completely unintelligible. Attempts have been made with electronic frequency cutting devices to improve intelligibility, but so far it appears that the human brain does better after a period of acclimatisation — as witness our divers.

It is also not known how man will stand up to regular deep diving or how often a man could be expected to repeat these deep dives. Again psychometric tests have been carried out on divers using oxy-helium breathing mixtures at depths ranging between 45 feet and 800 feet. There is a definite but small impairment in performance at 500 feet and a much more pronounced finding at 600 feet in certain men. However, it has been found that at 600 feet the divers adapt to the new conditions and, after a short time at this depth, their performance is back to normal. At greater depths the impairment of performance may become serious in some men and it is not yet known whether a similar adaptation to pressure takes place as that demonstrated at 600 feet.

As to the future — one of the main difficulties we have found is the physical stationing and mooring of the diving vessel. At the present we are not using our divers to search for, or work on anything — just looking for a clear space of water in which we can try out our theories to prove that our laboratory tests and experiments in equipment and decompression techniques are in fact correct. We can foresee, as many other seamen will, the difficulties of positioning the diving platform on the surface and thus at the mercy of the whims of the weather. However, our aim at the moment is to prove, using the cheaper method of starting from the surface, that man can work efficiently at great depths and get back safely to atmospheric pressure. When this is completed we will have to turn our minds to the best methods of placing the diver at his work, and we sincerely believe that the answer may be to 'launch' him at his work from a form of submarine, thus cutting out the element of surface weather.

H.M.S. "GALATEA"— *Stop Press*

GALATEA commissioned at the Swan Hunters Yard, Wallsend on 24th April, 1964. Four S.A.B.A. sets were already onboard in a reasonably adequate diving store and diving annexe. I say reasonably adequate because the Charge and Test panel is in the store in the Tiller Flat and the sets suffer more knocks going to and from the store than they ever do underwater. Still we manage.

Our compliment of ships' divers was myself plus three at commissioning but volunteers were not lacking and we now have a complement of two officers and eight Ships Divers, including a Tiffy Diver, comprising the following:—

Lt.-Cdr. A. G. Hall,
Sqd. Diving Officer;
S.-Lt. (S.D.) (T.A.S.) E. D. Roe,
Ship's Diving Officer;
R.S. Whitcher, Ships Diver;
E.R.A.2 Millis, Ships Diver;
L.M.(E.) Sewell, Ships Diver;
A.B. Naylor, Ships Diver;
A.B. Davies, Ships Diver;
A.B. Baker, Ships Diver;
A.B. Lord, Ships Diver;
R.O.2 Hackett, Ships Diver.

Some time after commissioning and with a lot of pushing we got our two sets of S.D.D.E. A thing we have found most useful when away in a boat is the use of the 150 cubic feet cylinders for charging our S.A.B.A. To be quite honest, on normal hull surveys and maintenance we find it much more convenient to use S.A.B.A., topping up in the boat from the 150 cu ft. bottles. I'd be interested to hear other ships views on the relative usefulness of S.A.B.A. /S.D.D.E.

Some jobs of interest apart from hull inspections and Awkward training have been as follows:—

1. Blocking of the salt water suction of *Blue Ranger* to facilitate cleaning out from inboard. Three buckets of mussels were the cause of blocking.
2. Removing / refitting wood fairing blocks on hull outfit, with S.-Lt. Carr and P.O. Holland of Malta F.D.C. as advisers. Fortunately I know Dutchy of old, so I recovered my diving knife before he got away !

We arrange the odd Expedition dive when the ships programme permits, but no fish has as yet graced our larders.

For the future we have A.B. Naylor and A.B. Baker as volunteers for C.D. They have both done a couple of days with the Malta team and won recommends, so we wish them luck.

Regards to all rubber suited, web-footed gentlemen.

SUB.-LT. E. D. ROE.

R.N. DIVING MAGAZINE

MANY thanks again to those of our readers, who sent us copies of the back numbers of the Magazine. However we are still down on the undermentioned copies and I would be very grateful to anyone who can help us to bring our library up to full strength.

EDITOR.

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5	1	1	4
3	2	1	1
2	3		

Microphones? We've had 'em!

by LT.-CDR. HORACE TAYLOR, G.C., R.N.R.

ONCE again the Editor has been onto my track for another anecdote of early R.M.S. during the Blitzkrieg, so, in case reader of the DIVING MAGAZINE can take it, here we go:—

This time the situation was Portsmouth, in Kirby Road I seem to remember. At any rate, the Type C Paramine was two thirds of its length buried in the back garden of a small terraced house and the only access to the garden was through the house itself per the front door and a narrow passage through to the back-door.

The all important bomb-fuse was buried and we were uncertain as to what effects our digging operations in the hard sticky Portsmouth clay could have on its sensitive clockwork mechanism.

There were half a dozen of us on the job and our pre-determined route of escape — in case we heard that we had started the fatal 17 second ticking — was through the house and to a surface air-raid shelter a little way up the road.

As the fuse was at least two feet underground how were we to hear this ticking, anyway? A brain-wave and subsequent brief experiments convinced us that a microphone would be the answer.

One was, therefore, attached to the tail of the mine and connected to its listening amplifier in the surface air-raid shelter where one of our men was then stationed. He wore ear-phones and was furnished with a whistle which he was to blow as a warning for us to clear out if he heard the 'tick' This would not be so easy to distinguish, in fact, with all the background static, especially when the amplification was turned up.

However, full of confidence in this safety device, we set to work on the mine with speed and deliberate care. We had not made very much progress with our hand-trowels (we trusted ourselves with nothing bigger!) when we heard the whistle.

The job was abandoned forthwith but the exodus was brought to an abrupt stop by a jamb of human bodies in the narrow back doorway of the house. This managed to sort itself out into an essential single file through the passage-way, and then developed into a mad scramble towards the surface shelter, around the hard rough corners of its brick-work and, finally, into it.

Scratched and bruised, we re-gained our breath to be confronted by our acoustic watchman looking somewhat non-plussed and wonder-ing what all the fuss was about — he hadn't blown no perishing whistle!

We ignored his protestations and said that if anyone was entitled to have a 'fit of nerves' it would be us and not him. (Perhaps that was what he thought we had got but dare not say!)

We returned to the job in some-what chastened mood and resumed digging — very microphone con-scious.

After a little while, the whistle blew again. We did not stop to argue as to who was having nerves but we did see to it that there was less congestion at the house back-door when we reached it. We went through the house like a dose of salts and, once more, scraped ourselves

round the hard rough brick corners of the shelters while negotiating its entrance, only to find that we were the victims of another false alarm.

This was too much and we upbraided our man for being too nervous for this sort of R.M.S. work. As we were considering his replacement, the whistle, to our great consternation, blew yet again!

It turned out to be a little boy who, by a freak of the evacuation, was still 'in residence' and was playing trains a couple of streets away. Our watchman, wearing his head-phones, of course, had never heard it.

That was the end of microphones — not only on that job, which was happily finished in due course — but on any other!

Diving in Eastbourne

17th F.S.

AS a ship's diving team, we've been lucky in having the opportunity to dive in a variety of different conditions, ranging from Portland during 'work-up', to Takoradi, where the sea temperature was 84 degrees. This term we've had our first experience of fresh water diving, in the St. Lawrence, we found that half the normal number of weights were needed.

Most of our diving has been done on the ship's bottom, examining the propellors and underwater fittings. Last October in Malta we found a split in the wooden fairing to the hull outfit, some 3 feet long by 2 inches at the widest point. This was repaired using 'Fondu' rapid drying cement (D.C. Stores). The cement was mixed in a tin on deck and then lowered down to the diver who pushed the cement into the split with a knife. A lot was lost en-route but eventually a satisfactory result was achieved and a piece of plywood nailed over the split to keep the cement in place. The plywood was removed the following day and the repair lasted until the ship docked four months later.

On other occasions we've cleared inlets and a rope from another ship's screws and recovered various items from the bottom. In Gibraltar we had a field day finding a watch (lost that morning), the tiller flat keys, a pusser's bicycle, a thermometer, a couple of buckets, a ship's crest and so on. Perhaps the most interesting dive so far has been on a wreck of a British gunboat sunk some 150 years ago in the Richelieu River, about 50 miles south of Montreal. Only a small section of the hull remains but a cannon and ship's rudder lying on a bank reminded us of what we might find. We saw some good sized fish but the only object recovered was a piece of chine which the diving officer insists came from the wreck.

The diving equipment has generally been satisfactory, and the divers underwater communications set is a great asset and works very well, provided the connections are kept completely dry. Having a properly fitted out diving store has helped enormously to keep the gear well maintained. Each complete set of gear is numbered with a different colour of paint and this has also helped to maintain order.

In August we shall be off to Morgat, on the West coast of France. Last year's conditions were ideal. Visibility was 20 feet, there was a blue sky and hot sun. We're hoping we shall be as lucky this year.

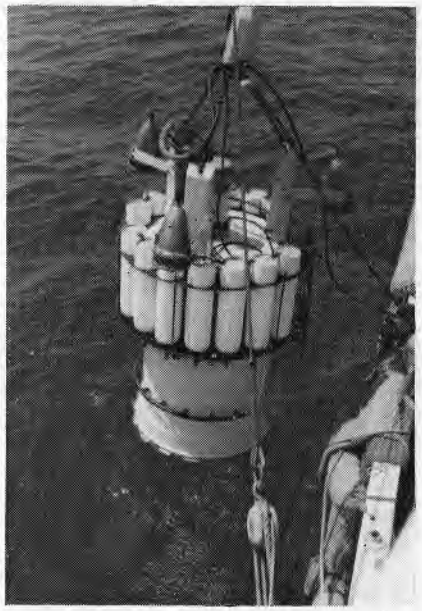
J. B. CRICK, LT.-CDR.,
Diving Officer.

Deep Diving – Part 2

IN THE WET

IN the last magazine we wrote of the Deep Diving trials carried out during the past twelve months at R.N.P.L. Alverstoke. This article describes some of our experiences aboard H.M.S. *Reclaim* whilst proving that these 'Dry' simulated dives at R.N.P.L. were operable in the sea. The site chosen for these dives was on the South coast of France, east of Toulon, at Le Lavandou, barely within binocular distance of the renowned 'Ile de Levant.'

We joined *Reclaim* on Tuesday 20th April, loading the S.C.C. (submersible compression chamber), television, air hoses and personal gear. At this point I would like to mention an enormous wooden box which mysteriously appeared in the diving flat, 'Sarge' immediately took possession and it was rumoured that he had a caravan complete with his family stowed inside. The voyage was fairly uneventful although C.P.O. Ginger Bryant managed to get his pound of flesh in taking advantage of the fair weather and extra divers. We had a short stay at Gibraltar for fuel and provisions before starting on the second leg of the trip which was to take us to Toulon, arriving on Friday 30th April. The first week saw us off Le Lavandou in a four point moor, testing the S.C.C. and equipment in depths of 500 feet, also carrying out and completing work-up dives of 50 and 180 feet. We returned to Toulon on Friday to embark the Oxygen and Helium bottles, some of these we compressed into the ships bank, but a number had to be lashed down on the well deck. Monday 10th May we commenced 300 feet work-up dives, during these we were only 10 feet from the ocean floor and even with over 30 feet visibility no marine life was seen, in fact there was very little of interest on the sandy bottom. One 'niggle' was reported, this was Ted Shennon who was treated on theraputic table 5a. During these initial dives the small snags that were found were rectified, usually by Bungy Williams and his ever handy reel of masking tape, or by Ginger with his coloured lasso tape. At one stage even the main purchase wire was lashed with tape. One real labour saving device we had was an accurate wire measuring machine, this cut out the old method of marking the wire with seizing wire prior to each dive. It worked on the principle of the wire passing through



"S.C.C. being lowered, the bottles around the outside contain helium which the divers breathe."

three pairs of rollers, connected to a gauge which read in feet.

After another short stay in Toulon embarking more gas, the ship moored in deep water ready to start the trials proper, beginning with the 450 foot dives. For each dive every member of the team had a specific job which ran in a roster system and the procedure for a deep dive was as follows: The two divers after being seen by the Medical Officer and briefed by Lt. Cdr. Drummond, appeared in white painted suits (for ease of vision on the closed-circuit television screens), climbing into the S.C.C., which was immediately flushed through with a mixture of oxy/helium, they were hoisted over the side to water level. Television and communications were tested, divers donned diving sets (charged with oxy/helium), the customary five bells were given, with mallet on casing, to denote that all was well and that the divers were ready to go. 'Start the dive' came from the Officer in Charge and the S.C.C. was lowered into the sea and continued down at a rate of 100 feet per minute. Inside the chamber, Number One diver controlled the level of water, by opening the control valve which allowed more gas in, thus forcing the water out. At the prescribed depth Number 2 diver lowered himself out of the bottom door to carry out his task, this was usually hacksawing. The recorder on the surface kept note of all times etc., and after a set period told the divers to change round, this ensured that at least one diver remained in the S.C.C. all through the dive. 'Call the diver in, you have two minutes to go,' at this order over the speaker both divers prepared for their ascent. Depending on the depth of the dive, there were one or two stops in the water. At 300 feet the divers shut the bottom door and the S.C.C. was hoisted inboard and locked onto the T.U.P. (transfer under pressure) chamber. The divers transferred to the R.C.C. and did the remainder of their stops in comfort, (once they had found space among Mr. Williams's labyrinth of pipes and CO2 scrubber and panel.)

The trials continued in weather not quite as one expects on the Riviera. The 'Mistral' wind blew from time to time but did not prevent progress.

A few bends occurred—the most inconvenient one required Charlwood and Bauckham to be un-T.U.P.-ed and put back into the sea in the middle of the night. The longest 'therapy' was Martin's, who spent 96 hours trying to get back to the surface. All together five 1 hour descents to 450 feet and nine to 600 feet, two for an hour and the rest for 30 minutes on the bottom, took place. The temperature varied little with depth, about 57 degrees F. The water was beautifully clear, there was umpteen feet of visibility, and enough daylight at 600 feet to have worked by. The electric lights had not been too efficient by day, though they came in useful during the few night dives we did.

During the next week the S.C.C. was lowered and hoisted quite regularly, giving dives to some of the members of the ships company and the Canadian and U.S. observers. One special dive was organised for Mr. Williams, this was to take photographs of the S.C.C. at 60 feet. All went perfectly and 'General' Booth who had been using A.E.D.U.'s still camera returned inboard saying how he had taken some fabulous 'shots' it was later discovered there had been no film in the camera.

On Monday 14th June the B.B.C. arrived to film part of 'Tomorrow's World', a scientific programme on Deep Diving. This took the best

part of two days, one sketch whilst the Chief Diver's voice was being recorded giving orders of 'lower purchase' 'up topping' 'haul over starb'd check port'—the buzz ran round the ship that the divers had mutinied, for Ginger was seen to be shouting orders at the top of his voice but nobody moved.

We sailed for U.K. after unloading all gas bottles at Toulon on Thursday 17th, stopping at Gibraltar for a couple of days en route. During our absence the wives of the team had been busy, three of the eight had given birth to youngsters, Mrs. L/Sea Dadd (daughter), Mrs. L/Sea Moss (daughter) and Mrs. Yours truly (son).

We were drafted back into *Vernon* on Monday 21st which really brings an end to our little yarn, except to say that much was learnt during these wet trials both by divers and the scientists, which will assist in the future trials to deeper and longer diving.

V.G.

The divers aboard *Reclaim* during these trials were:—

Lt. Cdr. Drummond (i/c)
Lt. Cdr. Parker
Lt. Lafferty

C.P.O. Bryant	P.O. Shennan
P.O. Lott	L.S. Culpin
P.O. Gibbons	L.S. Cassidy
P.O. Charlwood	L.S. Bauckham
P.O. Fraser	L.S. Moss
P.O. Hodge	L.S. Dadd
P.O. Booth	A.B. Tonks
P.O. Wilkes	A.B. Martin

M.O.'s
Surg. Lt. Cdr. Barnard
Surg. Lt. Cdr. Elliot

R.N.P.L. Scientists and Assistants

Mr. Hempleman	Mr. Eaton
Mr. Trotter	Mr. Sarginson

A.E.D.U. Scientists and Assistants

Mr. Williams	Mr. Kettle
Mr. Noad	Mr. MacInnes

"The Deep Diving and *Reclaim* Teams"

H.M.S. "Vernon" Sports Day

WEDNESDAY 23rd JUNE 1965

At the Victory Sports Stadium, Pitt Street

DUE to the winter-like conditions of the previous week, and even on the Morning of the *Vernon* Sports Day itself, the rig for the meeting for spectators and competitors looked like being double wools, sea-boots and oilskins. However, the Sun, knowing how righteous the divers are, decided to shine and the conditions turned out to be A.1.

The events got underway fairly promptly at 1400 and it was not long before the points began to accumulate. However due to someone misplacing their abavis, there was an error of some ten points owing on the divers score. Needless to say, this fact was soon brought to the notice of the officials and the R.N. patrol was not required to intercede.

One of the star attractions in the track events was 'the over 35's race' which was contested over 100 yards. The competitors included such celebrities as Capt. D. M. Stobie, Commanding Officer of H.M.S. *Vernon*, Surg.-Cdr. Hanson, P.M.O., and the Chief P.T.I., who is reported to have come out of active retirement to run this race. However, the result was that the Surg.-Cdr. won by a clear six yards from his nearest rival, and, though complaints were lodged with the stewards that he must have been on the purple hearts and a dope test requested, the result was upheld.

The team representing the diving section proved to be stronger in the field events than the track, but, without either section, we could never have got so near to winning as we did. In the 'high jump' event Shipwright Kirby and L.O. Baldry jumped us into 2nd and 3rd positions and these points helped us in no small part to make up for our lack of competitors in the 'long jump'.

In the 'javelin' we recorded our one and only outright win with A.B. Limberick taking the honours and his team-mate A.B. Cockayne holding down 4th position.

In the 'discus throwing' event L.S. G. Denton was 3rd to Shipwright Kirby's 2nd place, and he also featured in the 100 yards fast rush in which he finished 5th in a blanket finish.

L.S. Pastides upheld the divisions prestige in the shot putting by gaining 2nd place in a tight finish.

The final field event was the 'hop, skip and jump' in which our competitor was L.S. Denton who came 2nd.

Our fortunes in the track event were more varied. In the 1 mile P.O. Fisher and L.S. Setchell ran in what proved to be a very fast race and finished 7th and 4th respectively. Congratulations to whoever managed to winkle Len Fisher out of his office chair. It was suggested he was getting heat practice for his sojourn to the Persian Gulf. In the 3 miles L.S. Setchell again ran for the division, with A.B. Kinsella as a worthy partner. They fininshed 4th and 7th respectively in what looked to be a gruelling race under hot conditions.

The shorter track events included the 440 yards, in which A.B. Thorton was placed 3rd and the 220 yards, in which Surg. Lt. Rowton-Lee was placed 6th. In the 110 yards hurdles L.O. Baldry came a good 2nd and his team mate P.O. Maher came

home 5th after having had a little battle with the last hurdle.

In the medley relay race, the division entered the following team:

1st 220 Surg. Lt. Rowton-Lee
2nd 220 L.S. Hewitt
440 A.B. Thorton
880 L.S. Setchell.

The Team managed to finish 4th.

The last contest of the day was the 'Tug of War' event in which the diving division was drawn against Pound division. The latter were unable to field a side so the divers were conceded the shield. However, just so that the event could take place, a miscellaneous team was made up from other divisional spectators, and the divers managed to win on three pulls.

Finally, congratulations to all who took part in representing the division. It was a very good effort, coming second, and, but for a few more points, we could have been first.

Deepwater **Team**:

Field and Track—

Shipt. Kirby, P.O. Fisher, L.O. Baldry, L.S. Setchell, A.B. Kinsella, L.S. Denton, A.B. Limberick, A.B. Cockayne, A.B. Thornton, Surg.-Lt. Rowton-Lee, L.S. Pastides, P.O. Maher, S.Lt. Driscol, L.S. Hewitt, P.O. Pilling.

Tug of War —

L.S. Pastides, L.S. Flyn, P.O. King, P.O. Burrows, P.O. Harrison, P.O. Neave, P.O. Slingsby, P.O. Maynard, P.O. Smith, L. (Coach).

Winsor to Chiswick Annual Marathon Race

Our congratulations to L.S. Ted Setchell for being the 1st Navy runner home in this year's race. He was the second of the inter-service runners to complete, in a time of 2 hours, 44 minutes, 36 seconds.

"Kent" Dives Again

ALTHOUGH we are not at the end of H.M.S. *Kent*'s first commission I am taking this opportunity to pen a few lines on the activities of our diving team as I have a feeling in my fins that our forthcoming cruise East about from Singapore will not leave much time for diving, let alone writing about diving.

We have been lucky enough to have a strong team, in terms of both divers and equipment, since the early days of testing, tuning and trials back in Portsmouth. Our first non-routine task was to carry out cold weather trials of various items of diving gear. One frosty morning, three hundred miles north of the Arctic Circle the first eskimo diver was lowered over the side into deep water looking like the proverbial Michelin man (clothes not air) and well girt about with trial mits, depth gauges, hoods, telephones, etc. It was only when our man surfaced again some minutes later, sweating profusely, that we were finally convinced that the water was in fact a good 12 degrees warmer than Horsea Lake in February, 1963! However we pretended it was cold. Then on to Portland, where we dived on one thing or another, though we had no success with lobsters or crabs.

Our stint at Portland over, we sailed for Chatham, where we were to remain for a further six weeks.

They say at Chatham that any contact with the basin water involves a two-week sterilisation course at the sick-bay!

At last we sailed for the Far East, diving at Gibraltar and Gan on the way. What a change from Fountain Lake, this was luxury diving indeed.

On our arrival at Singapore we soon became involved in the routine Fleet commitments. Besides the odd fishing dip, swimming around the *Terror* jack-stay and repairing the copper sheathing on an M.F.V., in which some skilled ban-yan mariner had assulted Lan Tau, we did spend about eight hours searching for a 12 foot derrick, which the quarter-deckmen tossed over the side with gay abandon in Singapore. In spite of the fact that the splash point was fixed within five yards . . . well, the mud is very thick in the Stores Basin! In Hong Kong we have the, sometimes twice weekly, duty of cleaning the plastic bags and other less salubrious debris from the inlets.

It's all been good clean fun and last month we completed our 11,000 minute below during the commission; however we still eagerly await a real job. Maybe the Pacific will yield something — a giant salvage, perhaps a demolition with boatloads of explosives or even a pitched battle with a one-ton lobster, who knows ?

In spite of departures to civvy street, D.Q's and other such alluring alternatives to diving we still have a strong and enthusiastic band, namely:—

Lt. R. J. Brooke, F.D.O.
P.O. P. Maver, S.D.O.
L.S. J. S. Kirby, F.D.
L.S. A. E. Wakefield, F.D.
M.(E) F. W. Crowley, F.D.
A.B. A. Eades, F.D.
A.B. P. Graham, F.D.
M.(E) F. P. Grange, F.D.
A.B. J. Smith
S.-Lt. R. N. E. Payne, S.D.O.
Mech. R. K. Townsend, S.D.
L.S. M. S. Stones, S.D.
L.S. T. Fox, S.D.
M.(E) D. E. Boarer, S.D.
M.(E) D. Curtis, S.D.
Ord. A. N. Dalton, S.D.
E.M. A. Robertson, S.D.
E.M. F. P. Sinclair, S.D.

Promotions and Advancements

Our congratulations to all concerned.

To C.D. I

P.O. Norton
P.O. Smith
P.O. Slingsby
P.O. Handford
P.O. Wilson
P.O. Vrey (South African Navy)
L.S. Smith, B.

To C.D. II

P.O. Jones, W. D.
P.O. Jones, W.
P.O. Williams, D.
P.O. Primrose, W.
L.S. Bichard
L.S. Meakin
L.S. Quinn

To C.D. III

A.B. Higginson
A.B. Allen
A.B. Cockayne
A.B. Deakin

Notes from B.M.D., Portsmouth

(OR REA'S RAIDERS)

ON the rare occasion that we have a five minute break, 'Sir' mentioned the fact that it was many moons since our last contribution to the Magazine.

Casting a beady optic around the gathered assembly, it eventually landed on yours truely.

'Ah,' says Sir 'you were on the Magazine once, so you are the best chap to write an article' (or words to that effect). Not being in a position to argue the toss — here goes.

Over this period of time quite a few of the lads have come and gone through the mighty portals of *Triton* building, and at the moment the fraternity embodies:—

Lt.Cdr. Rea, C.D.O.
Sub.-Lt. Churcher, C.D.O.
C.P.O. White, C.D.1.
Shipt. Kirby, Art. Diver.
P.O. Smith, C.D.1.
P.O. Radford, C.D.2.
P.O. Vaughan, C.D.2.
L.S. Ford, C.D.2.
L.S. North, C.D.2.
L.S. Pastides, C.D.3.
L.S. Neville, C.D.3.
A.B. Altoft, C.D.3.
A.B. Hodgins, C.D.3.
A.B. Horlock, C.D.3.

Before the sands of time run out much more, there will be a few more changes in the structure, but, there you are, that is the way the confectionery disintegrates (that's how cookie crumbles).

To regular readers of our noble periodical it will be observed that the name of A.B. 'Jan' Gardiner is absent. Well, the answer is quite simple, although you must steady yourselves for the shock, for Jan has actually got a draft, and to a Ship to cap matters (this will no doubt go down in the annals of naval history). Still Jan had a good run for his money down here — his draft order is framed and hung in the office. It is a pity really, as he was on top line for his B.E.M. (Barracks Endurance Medal).

Browsing through the old work box it is rather difficult to itemise the vast array of jobs that have occured. A few interesting tasks taken at random can be roughly tabulated in this order.

Last September is a good time to start with a little job up at Woolwich sorting out some Hedge Row bombs —this was not a very savoury task as they were situated in a cess pit. Actually the R.A.F. started the job, collected 10 and said that there were only two left. The final score turned out to be 89. This was followed by a search job off Great Yarmouth for a light-weight aircraft. On this occasion the team worked in conjunction with the *Shoulton* and *Dingley* crews.

The next item on the agenda was a spot of demolition work at Thorney Island, in order to help in the preparation of a slip-way for Hovercraft. On the same subject, a jaunt to Newhaven in November was called for to sort out a torpedo warhead.

January got off to a good start with a Dome exchange on H.M.S. *Relentless*, followed by disposal of some submarine cable at Lulworth Cove. Folkestone was the next port of call to attend to some 'B'-type C's., they keep turning up, like a bad penny. More Dome exchange work cropped up, this time on H.M.S. *Lynx* — nothing spectacular hap-

H_2.Mk2. Found at Southend

pened; in fact trying not to adopt too much of a cocky attitude, this work is becoming an everyday occurence.

A surprise turn-up for the book was a mine, which was caught up in a fisherman's net. Not unusual, you may think, but this particular little joker turned out to be an H_2, Mk. 2 — truely a mediaeval contraption.

Britain's Nuclear Submarine *Dreadnought* also found it necessary to call on our services. This was in connection with the fitting of blanks to enable a compartment to be pumped out. While we were on this job, they asked if a grating could be removed and replaced by another. They passed remarks to the effect that it couldn't be done, the grating weighed 150 lbs. Naturally, this got our backs up and we proved them wrong. As you know, submarines are awkward at the best of times, but this black bulbous beast presented a few more problems than usual.

We did not miss out on screw changes either, for we soon found ourselves down at Southampton doing a C.M.S. screw change on H.M.S. *Warsash*. It was on this occasion that P.O. Bray had his 'coup de grace' with the team; his last big job prior to departing to the land of the 'Oggies'. In the evening we availed ourselves of the hospitality of the R.N.R. Mess and I am pleased to say that 'Donkey' was given a send-off in the true manner, typical of the upstanding tradition of all divers (hic.) The following morning we were aroused by a series of unprintable adjectives and, as we raised our erupting craniums, we observed 'Sir' fully adorned in his 'midnight-rompers' — that was all very well, but not when they are fire-engine RED!

This only gives a brief outline of what we have been getting up to. Naturally enough, there has been heaps of other work, such as demolition of beach obstructions, the inevitable jobs over at *Dolphin*, and, of course, the numerous call-outs in the wagon — from Bournemouth to Cromer (happy hunting grounds).

The old R.A.F. bombing range at Burnham-on-Crouch (Dengie Flats) is also one of our regular haunts, with a mile and a half mud crawl to boot. Those of you who have dripped about the Horsea Island mud crawls have no cause, because, after all, you have not got any explosives to drag with you. Come to think of it, there is a purpose for the mud crawls on course, so next time you are plodding across them just think to yourself 'Maybe I will be doing this one day with B. and M.D.'!

A particularly amusing incident occured at Kings Lynn at 5 a.m. one morning — the team having travelled overnight — when the Boss plus two found themselves walking around lost on a river bank in reeds 12 feet high, looking for a river mine. The Boss was heard to say 'This is b ! ! ! ! ! ridiculous!' I am informed that buddy lines will be used on any future occasion!

We must not forget some of the individual achievements of the team. L.S. Dudley North kept the side up by assisting in ejector seat trials. L.S. Pastides and 'Chippy' Kirby put in a good effort at Sports Day, representing the divers in 'Put the Shot' and Discus respectively. They did not walk away with all the cups, but put up a good performance. Prior to Sports Day, 'Chippy' Kirby was having some practice when a rather amusing incident occurred. As 'Chippy' hurled the Discus, it soared high into the air and its trajectory carried it far over a hedge. Later, a

conversation between 'Chippy' and an officer ran like this:—

Chippy: 'Could I have my Discus please ?'

Officer: 'Certainly, where is it ?'

Chippy: 'In your car on the back seat.'

Officer: 'How did it get there ? My car is locked'.

Chippy: 'Through your windscreen, Sir'.

There are still a few more weeks to Summer leave and, no doubt, many more events will occur within the walls of the funny little building on the edge of the heliport. So on behalf of us, the shootin', fightin', dynamitin', demolitioneers we wish you all the very best.

Incidentally, our title 'Rea's Raiders' came from the rare occasions that we forage and poach over the borders into other Commands. Whenever this happens, registration numbers and signs are blanked out and stockings are worn over the heads — phew!

Tatty bye, diddy people, tatty bye — there's a G.D. at Whitstable to see to.

DICKIE.

H.M.S. "Vernon"

Swimming Gala

WEDNESDAY 7TH JULY at the Pitt Street Swimming Baths. The Division again had a very convincing win in the *Vernon* Swimming Gala. At the end we were ahead of our nearest rival, Weapons/Radio Division, by 42 points. A just reversal of positions on the *Vernon* Sports Day.

Three of last year's records were broken by our Divisional swimmers — they were, 100 Yards Free Style — L.S. Black, in a time of 56·5 seconds, clipping 6·5 off of the old record. 1 Length Butterfly — L.S. Black in a time of 14·10 seconds, clipping 0·9 from the old record. 2 Lengths Back Stroke — A.B. Kinsella, in a time of 33·5 seconds, bettering the old time by 2·1 seconds. Congratulations to them both and to the rest of the team representing the Division, who were:

S.-Lt. Park
P.O. Fisher
P.O. Blaylock
P.O. Wilson (*Coach*)
L.S. Black
L.S. Turner
L.S. Quinn
A.B. Kinsella
A.B. Trotter
A.B. Chapman
A.B. Revals
A.B. Grainger

After the swimming events, the Division played a team from the 'rest' of *Vernon* at Water Polo, and much to the chargrin of the very partisan diving spectators, we lost 4—2.

Our congratulations also to all of the spectators who managed to get off to come along and give their team support. A creditable turn out.

Time in "Aisne"

"Being an account of the travels of Her Majesty's Ship *Aisne* since her present Commissioning in January in the year of Our Lord One Thousand Nine Hundred and Sixty-Four, where in are told divers wonders and things peculiar to interest all."

'YOU'LL love the Med.' they said. 'Warm water, always clear, no snakes or sharks. Lucky beggar'. I had visions of returning home, laden with remains of ancient Greece and Rome, having made one brilliant under-water archeological find after the other. The lone seashell on my shelf (collected from the beach) bears mute witness to a fascinating but not all that productive (souvenir-wise) year of diving whilst in *Aisne*.

By the time I arrived at the beginning of September last year, the ship had already been in commission since January, and had spent the last three months at Malta, with visits to Venice, Bari, Villefranche and Argostoli, in between getting in lots of diving off the Maltese reefs (the divers, that is, not the ship). I spent only two short days in Malta before the 30th E.S. were ordered 'at speed' to join the F.E.F., so at speed we joined, on average 21 knots most of the way. With no air conditioning, we felt the full blast of the Red Sea (with, of course, a following wind), and, because of our speed, lower deck scuttles were almost permanently closed. However, we survived, as have many others before, and arrived at Singapore, via Aden and several replenishments at sea, ready to savour the delights of the East. With an average Ships Company age of under 21, many savouries were delighted in notwithstanding a fair amount of time spent on patrol around Singapore. Needless to say, the divers on board were under a rigorous training programme, which we occasionally broke to go diving.

Full advantage could not be taken of the weekends and odd hours spent at the island of Pulau Tioman, as the ship was liable to sail at any moment, and so a ship's boat could not be allowed to go round the coast to the coral reefs, where there was excellent diving. We had left Malta in such a hurry that we were unable to return our four Mistrals, and so these were often used by people wanting to have a try at diving. One of our most eager applicants had a rapid change of mind when he put out his hand to pick up a lump of coral, and found a water snake wrapped round it. He at present holds the unofficial Far East underwater 100 yards record!

With ten divers (eight ships) and three ships diving officers, it would appear an easy task to get in plenty of practice, but as everyone knows, nothing could be that straightforward. Invariably there are some near the end of the quarter with minutes left, and so a trip to the local school and dives off their jetty becomes necessary. *Terror* welcomed us with the usual film of oil on the water, and although we managed to keep most of it off the sets, the whaler performed a rapid colour change, much to the First Lieutenant's anger and my sorrow. Diving off Pulau Seletor, in the Johore Straits, was not very interesting, as the bottom was mud, and the visibility poor, but the beach was perfect for sunbathing.

Five days in Hong Kong left our pockets lightened, and the ship that

much heavier with 'rabbits'. Although we were not due back in U.K. until the New Year, everyone took the opportunity of loading up with Christmas presents, and the ship resounded to the clatter of electric trains, the whine of remote controlled cars, dogs, rabbits, etc, and the rattle of space guns and the like, firing everything from peas to potatoes.

There were few sad hearts as we headed back for Malta and Christmas where we spent three weeks maintenance before the return to U.K. A dive in St. Julians Bay on Christmas Eve was spoilt by the very poor visability and leaking suits, which had suffered badly from the heat out East, and final minutes were gained in the relatively warm waters off Manoel Island before we returned to the lower temperatures of England. An extra large wave on the trip to Gibraltar not only completely squashed the upper deck diving locker, but washed away most of the boats and life-rafts on the port side. For several days afterwards reports were coming in of 'Life-rafts sighted — no survivors'.

After leave and maintenance in 'Pompey', we headed north for a Natoex (including another awkward to add to our collection) and Invergordon. The coldest day of the century, with howling winds and thick snow, found us diving on the prop shafts with suspected rope foulage, which in fact turned out to be turbine trouble. We spent the next three months in Chatham mending it, and apart from trying to recover a couple of shells dropped overboard during de-ammunitioning, diving in the area was nil.

We did however make a most enjoyable expedition to Lulworth Cove, where we stayed with the R.A.C. Gunnery School, who were most kind and helpful. They have a semi-private beach called Mupe's Bay, which can only be reached by road through the camp, so there are seldom any gawpers. The water is clear, plenty of rocks, and judging by the number of lobster pots, plenty of underwater life, though we had little success. The U.K.A.E.E. at Winfrith Heath very willingly recharged the sets by prior appointment with the Chief Fire Officer, Mr. Turner. Lulworth is well recommended for expeditions or weekend, though transport is essential.

Apart from a day's diving at Portland during our 'work up', that's it, and we look forward to pastures old and new as we return to Singapore via Gibraltar, Malta, Aden and Gan.

The Crowd at the moment consists of: Lt. J. F. Corkill, Lt. J. S. Coggins, Mid. A. D. F. Dalton, P.O. R. R. Chadwick, L.S. F. B. Morley, L.S. J. D. Lewis, A.B. R. Collinson, A.B. G. F. Jolly, A.B. M. Williams, M.E. W. Bunting, O.S. C. Loughrey, O.S. A. P. Hibbert, O.S. M. A. Gleave.

A.D.F.-D.

The Township of Laugharne

FIVE miles to the eastward of Pendine and just a wee bit east of the eastermost of the Proof and Experimental Establishment's ranges lies the ancient township of Laugharne (Welsh Lacharn) pronounced Larne. (Sort that out amongst yourselves ye Burntisland Sassenachs). To the layman like myself, Laugharne at first sight seems a nice wee village, but to call it a village in the presence of a local is to place yourself in dire danger of being filled in. The township of Laugharne, received its charter in the reign of Edward the I (The Hammer of the Scots). (1272-1307) The exact date of the charter is not known but is thought to be 1307. It was granted to the burgesses by Sir Gwydo de Brian, whose son became Lord High Admiral under Edward the III. It is a known fact that more than a hundred archers from Laugherne were killed in the battle of Agincourt. To sum up, the Corporation of Laugharne is one of the most ancient and most democratic of any corporation in Britain. The head of the Corporation is known as the Portreeve; this corresponds to the Mayor in more modern towns. In fact, the word Mayor derives from an abbreviation of Major Portreeve, who looked after the town and the word Sheriff from the Shire Portreeve who looked after the shire. Each year, in October, when the Portreeve is installed, officers at the Proof and Experimental Establishment at Pendine are invited to attend the Portreeve's Breakfast, which takes place on Sunday morning at 0900. I was privileged and fortunate enough to be asked to attend this last year and a most impressive and instructive ceremony it proved to be. I think what impressed me most was that females were not allowed to attend unless in the capacity of waiting on table and seeing that their lords and masters were well attended to. This is a refreshing change in these turbulent sixties. In more recent years Laugharne has gained renown as the home of Dylan Thomas, the great Welsh poet and prose writer, whose best known work is 'Under Milk Wood', a play for voices which has been televised. Dylan Thomas, although he lived in Laugharne, was born in Swansea on 27th October, 1914 and died in New York on the 9th November, 1953. He is buried in the cemetery of the ancient parish church St. Martin of Laugharne (circa 13th century), his grave being marked by a simple white cross (a prophet is not without honour save in his own country). Well, divers, this completes my history and culture lecture and if you are wandering what connection it has with diving you must carry on wondering. However, I do my best for the sake of the Editor. Anyway, there is a good pub in Laugharne called the Corporation Arms and mine host used to work in Siebe Gorman's, so if you are passing, call in.

Yours Aye,

MAC TAFF.

Help! Shark

BEN CROPP is probably Australia's most experienced shark hunter. He has hunted with spear, shot gun and camera and his experiences have resulted in much valuable information about shark behaviour and habits. Thus, when I read in his book 'Shark Hunters', of his advice to those who may be confronted by a shark, I thought it worthy of reprint, so that Naval divers will know what action to take when they 'flip' into one of these razor teethed beasts.

Quote:— Keep very still and avoid kicking your legs. When the shark is close, make a sudden movement towards it and at the same time thump the water with an open hand to create a noise. When the shark moves away, don't panic, but quietly swim to the boat or shore moving your legs as little as possible and cross your fingers. *Unquote*. G.F.

H.M.S. "Manxman" Diving

THE Diving team of H.M.S. *Manxman* over the past two years has been somewhat unusual for a ship in several respects. The Diving Officer for this period has been the ship's Medical Officer, Surgeon Lt.-Cdr. R. J. Carmichael, a rather unusual combination of jobs. The list of divers in the team at the end of this article may seem rather long for a ship with a compliment of about 210, this is due to the trickle drafting system in a ship on Local Foreign Service with many of the married men R.A. in Singapore. With *Manxman* doing a lot of sea-time, spending more time in Borneo waters than any other ship ,exercises in Singapore outside working hours have not been too popular with the married man keen to get off home for a bit of time with his family. The occasional night bottom searches have been done in Singapore, including twice in earnest, when possible divers were reported by other ships, nothing was found on either occasion.

The bread and butter diving has been the surveys of Coastal Minesweepers' sheathing and propellers, both of which have been regularly damaged by submerged logs in Borneo waters. Since *Manxman* is the Forward Support Ship to the Inshore Flotilla (Far East), her diving officer has been responsible for the diving organisation throughout the Flotilla. A large number of divers from the C.M.S's and H.M.S. *Mull of Kintyre* have dived with the team but their names are too numerous to mention here.

One tends to recall the many unsuccessful searches carried out for objects lost on the sea's bottom. Amongst these failures are included a long days search in tropical rain and sun for a partly burnt-out 60 foot boat full of arms sunk in 60 feet of water off Snadakan. The possible area for this boat was initially given as within 1 mile, but a later comment was 'It could have been about 2 miles over there'! Snag line searches were used on this operation. This was on a one day's visit to Sandakan with the rest of the ship's company enjoying themselves ashore.

On another occasion a Royal Marine Captain guaranteed that the S.L.R. rifle, dropped one month previously and wanted by his Colonel was marked on the surface within 10 feet. This was at Sammendalen in the jungle river complex above Tawau in Sabah. On arrival at the spot some doubts were expressed as to which protuding log the boat carrying the rifle had actually hit. On diving under the selected log, a soft mud bottom sloping at at least 45 degrees from 10 feet down to below 60 feet was found. Using Ships Divers with S.A.B.A. we never did reach the bottom of this slope or find the rifle. The surface visability was less than 6 inches in this river less than 100 yards wide. At nearby Wallace Bay, Sebatik Island (50% Indonesian owned) the search for the anchor and cable of a requisitioned local motor yacht was abandoned after the third witness said 'Oh, it wasn't here it was over there'!

Amongst the more successful was the clearing by A.B. Hendry of a rope around the propeller of a C.M.S. off Kuching in the N.E. Monsoon in nil visability, a 3 knot tide and the stern of the C.M.S. smacking down in the swell. The salvaging of a large Kumpit found awash 10 miles off Tawau with the crew having clung to empty oil drums for 24 hours in these shark

infested waters. Interesting diving! A dive down the coral reef at Si Anil Island was popular, as also was 400 feet horizontal visibility at 20 feet in which *Manxman*'s propellers could be seen from the bows looking along the keel, when at anchor in a bay near Hong Kong.

Members of the team have included:—

Surg. Lt.-Cdr. R. J. Carmichael, S.D.O.
Midshipman N. J. Davies, S.D.
C.P.O. E. R. Harris, F.D.
E.R.A. J. Quayle, Art.D.
E.R.A., A. Nurse, S.D.
E.R.A. Chan, Royal Malayan Navy
P.O.M.(E) J. Burley, S.D.
L.M.(E) J. L. Francis, S.D.
L.M.(E) B. Brooks, S.D.
A.B. J. Hendry, F.D.
M.(E)1 B. W. Jennings, F.D.
M.(E)1 V. N. Wick, F.D.
R.O.2 T. R. Rusbridge, F.D.
M.(E)1 K. Elvin, S.D.
A.B. S. D. Lockett, S.D.
A.B. G. Miles, S.W.D.

Golden Rules for Mine Disposal No. 4: "*No unnecessary stripping*"

The A.E.D.U. Deep Trials Unit

By 'B.F.'

When I rashly stated in the Summer 1963 issue of the magazine that this project was rapidly taking shape I had no idea of the pitfalls and snags, both material and human, that lay ahead. Sufficient to say however that we have survived agonising delays and frustrations and became operational by the issue of our birth certificate in the form of D.C.I. 609/65. To make up for delay in launching we lost no time in proving our worth and almost before the contractors had left the site we were embarked on trials commitments.

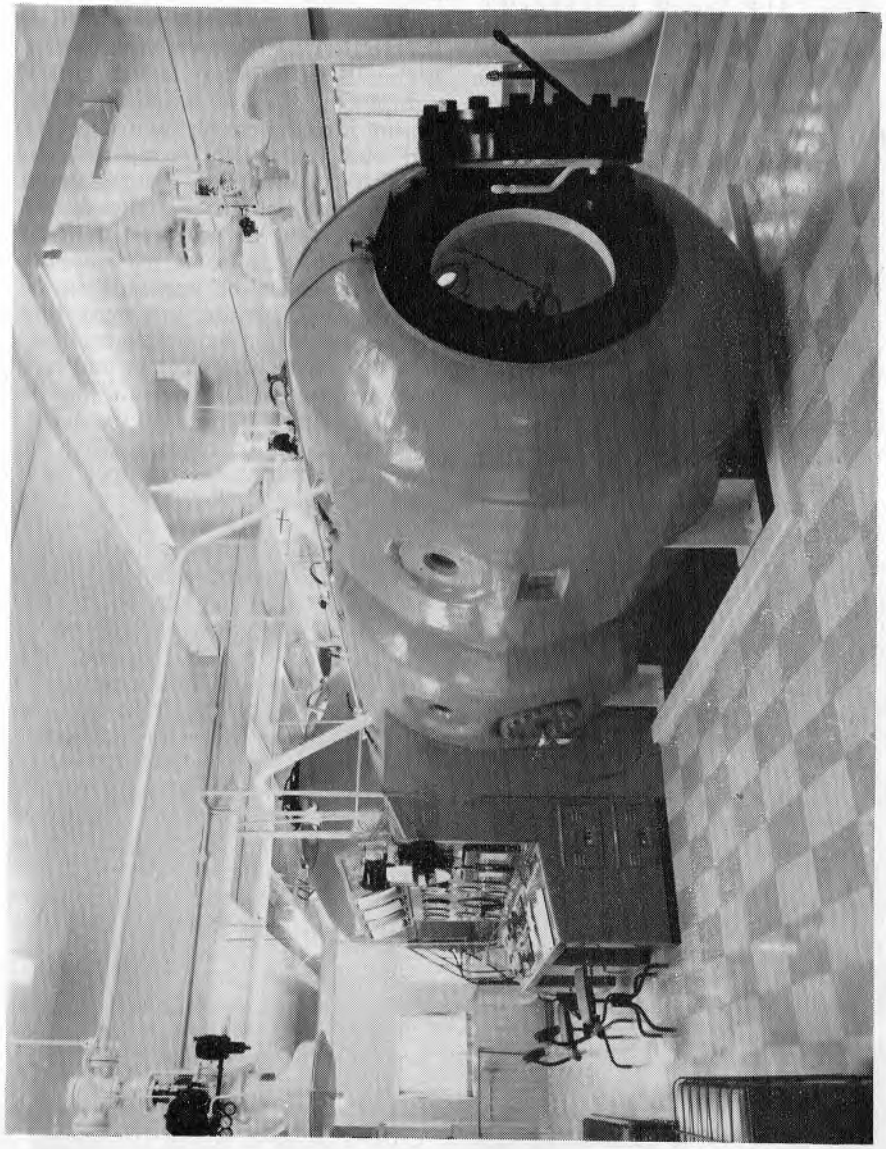
The first two trials, undertaken on behalf of A.E.W. Haslar and Flag Officer Air (Home), were pure equipment tests and nothing to do with diving, nevertheless our customers appeared delighted with the results and were extremely gratified at being able to see and photograph their 'toys' underwater at considerable depths. Reference to Volume 10 No. 2 of the magazine gives the vital statistics of this Unit and an appreciation of how such useful research work can be achieved.

Following closely on the heels of the scientists came Lt. Majendie and C.P.O. Christmas with the Plymouth Emergency Deep Diving Team. Their objectives were (*a*) to exercise themselves at their maximum depth of 250 feet and (*b*) to determine why their air supply had failed on a recent operation in the Moray Firth. We had the swim machine rigged to provide the exercise and the water was chilled to 36°F. to encourage icing up of their S.D.D.E. equipment as it was thought freezing might be the reason for their equipment failure. After a week of intensive diving there was no defect in the equipment so we did not discover the reason for its previous failure but we did observe marked manifestations of nitrogen narcosis. One diver in fact reported an overwhelming impulse to take the swim machine to pieces and to those of us watching the T.V. screen he appeared to be carrying out a render safe procedure in preference to a swimming exercise. Another diver who had swum very well for most of his dive said that he suddenly found himself off the machine and couldn't explain why, we thought he had merely stopped for a breather.

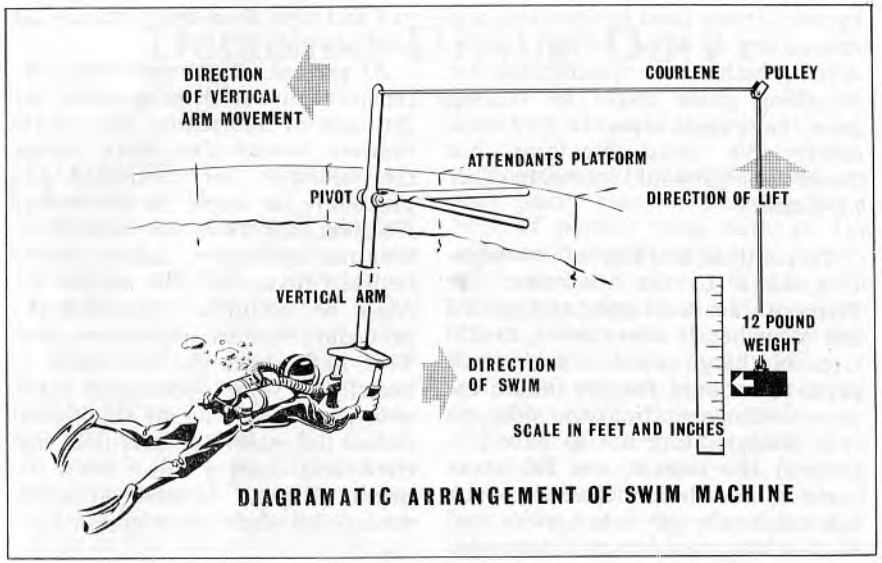
The swim machine by the way is a yoke which the diver holds or puts his shoulders into attached to a long vertical arm pivoted at the centre. As the diver swims the arm moves in the vertical plane about the pivot, the top of the arm moving in the opposite direction to the diver and taking with it a line which passes from the top of the arm over a pulley and down the side of the diving vessel where it is attached to a 12lb. weight. The weight is lifted by the divers' thrust which is measured by reading the opsition of the weight relative to a scale painted on the side of the diving vessel. The diver and the weight movement up the scale are viewed on the T.V. monitors and a record kept of the thrust achieved.

The designer of this toil device was 'Sarge' and I must say it works extremely well.

The average maintained thrust is 6—ft.9lbs. but some are as low as 3, and the maximum achieved so far is 24ft.lbs. for 25 minutes.



The Deep Trials Unit Ops. Room



DIAGRAMATIC ARRANGEMENT OF SWIM MACHINE

Our next customer was Lt. Cdr. Grubb who came to dive S.D.D.E. to 250 feet as part of his pre-Commissioning training prior to taking over the Plymouth team from Lt. Majendie. He left saying he would be back for more so we felt he must have thought it well worth while.

We in A.E.D.U. wished to investigate further the S.D.D.E. problem experienced by the Plymouth team, still with the accent on the possibility of a freeze up. The S.D.D.E. panel and all the hose that would be used operationally was sited inside the diving vessel and the supply taken from 150 cu.ft. cyclinders to which had been added a pint of distilled water, to encourage the system to freeze. 27 dives performed with this set up, down to 180 feet with only one suspected case of equipment failure and even the diver himself now wonders whether his air supply actually failed, or whether it was just so cold that the shock of the water on his system paralysed his breathing mechanism. We now had the water at 34°F. and the air temperature of the dry section fell to 13°F. at the first stop. As the first step to combat the cold on these dives I wore a wetsuit under a dry one. This was a very chilly experience as too late I remembered that the wet suit compresses to almost wafer thickness under pressure and hence gives very little protection against the cold. The clothing we ultimately wore to see us comfortably through these cold dives consisted of the pussers cotton underwear, double wool combination and brush nylon Norwegian type suit, two pairs of mitts. Although we wore a larger suit to accommodate this lot we were quite comfortable and not restricted in swimming. We might possibly have been better off just using a wet suit but having found a comfortable rig we were not anxious to change it.

The air from the 150 cu.ft. storage cyclinders absorbed some of the distilled water and came through to the diver as cool and refreshing as an iced shandy after a hard game of

squash. It was most invigorating and stimulating of effort, in fact I wondered whether our specification for breathing gases might be relaxed from the dryness aspect to give more comfortable moist breathing but doubtless this would promote other problems.

To continue this line of investigation down to the maximum the Plymouth Team returned and carried out a further 18 dives down to 250 feet. Nothing occurred during these dives to account for the failure experienced on operations and although it is disappointing not to have discovered the reason, we did make some minor design changes which will eventually get into service and we feel that confidence in the equipment has been restored. This last set of dives by the Plymouth team were performed in pairs, whilst one diver swam on the machine the other had sums to do to check his mental state. Lt. Cdr. Grubb kept the records of this latter activity! and the need for a surface control run became evident when one of the team remarked 'Cor! I couldn't even do those on the surface.'

Immediately prior to the visit of our Plymouth brethren an ex Royal Marine Swimmer Dr. Flemming and his team of Archaeological divers from Cambridge University were with us to gain experience with the self contained oxy-helium breathing apparatus which we in A.E.D.U. have produced for them. They used oxy-nitrogen mixture on this first occasion but Dr. Flemming returned later to complete his education with oxy-helium. We hope we shall have contributed to their important researches into nitrogen narcosis combined with a sea bottom geology survey expedition to the Mediterranean and wish them every success anp good diving.

At present we are embarked on a repetitive dive trials programme with the aim of shortening the interval between consecutive dives without the necessity for combined dive procedure for stops. At the moment if a diver makes two dives over 30 feet with not less than a 12 hour interval between dives then the second dive must be accorded combined dive procedure for decompression stops. This is frustratingly restrictive, especially to some operational teams, and we are hoping to significantly reduce this interval as a result of these trials and thereby allow more frequent diving, without additional precaution when decompressing.

The next task in line is to do some confirmatory trials on oxy-helium with the Admiralty Experimental Diving Team, to tie in with the deep diving programme. It will be a pleasure to welcome this team back to the Unit fresh from their successful series of trials with H.M.S. *Reclaim* in the Mediterranean.

In conclusion I would just like to remind all those concerned with underwater research and development that this is a unique facility that can help you solve your problems. You have to apply officially and you may have to take your place in the queue but you can always be assured of a welcome and good results at the end of your trials. One warning, though—the word is research, not training. We may be able to fit someone in for a deep dip now and then but this is not our reason for existence. Our programme is made up at six-monthly intervals at a joint meeting between S of D and the Superintendent of R.N.P.L., and there are plenty of bids for time.

Detached Diving Duty

by J.W.

OCCASIONALLY one has a duty which stands out from the general 'run of the mill' jobs and, even more occasionally, one thoroughly enjoys it. Such was a recent duty that took me over 17,000 miles in under three weeks. For reasons of security it is enough to say that I was a member of a group of Naval Officers and Scientists who participated in a joint U.K., U.S.A. and Canada Ordnance Disposal and Diving meeting. At one time it was suggested that it be called a symposium but, as the Oxford Dictionary describes symposium as:— 'a convival drinking party with singing, revelry and intelligent conversation', we decided that perhaps it might be too near the truth.

My trip started on Monday 15th March, which was a dull misty day with perhaps a touch of long awaited spring in the air. I participated in the not unusual routine of a drive by my wife to the station, fond farewells and off once again on the not infrequent journeys away from home. However, this trip, on paper at least, appeared to have more attractions than the routine trials in Portland or the West Country. It even appeared more attractive than those only too infrequent visits to Alderney.

The rail journey from Portsmouth to London never varies — the same pasty faced passengers, holding up their papers as a barrier around the commuter's little world, the same draughty old carriages and the same old sandwich papers tucked under the seat, probably left there from last summer.

The train actually arrived on time at Waterloo and the usual pantomime took place. One was inspected by a host of porters who, with all the inherent knowledge that B.R. porters have, decided that, as you have a lot of luggage, they had business elsewhere. There was then a scramble for a taxi and the usual raising of eyebrows because you only tipped the driver 20% of the fare.

The reception at the airport centre was brief and efficient and, with an absolute minimum of formalities. I was in the bus on the way to London Airport. It is at this stage of a flight, where the bus is fighting with London traffic, that one cannot help reciting the comparatively new saying 'time to spare, go by air'.

After arrival at London Airport there was no delay, not even time to have a quick pint of beer. Within ten minutes we were in the aircraft, a B.O.A.C. *Cunard Boeing* 707. There was a quick demonstration of the lifebelt drill because we were to fly over water and then at 1230 we taxied to the end of the runway. To the traveller, like myself, who had not flown in a pure jet before, there was a distinct lack of warming up — no revving up, noise and vibration before moving from the end of the runway; the plane just started moving. It was then that I remembered that old American saying that the 707 just rolls and rolls and rolls and rolls, and there is no doubt that they do require some considerable run for their take-off. However, when they do eventually become air-borne the rate of climb is remarkable. Having cleared the ground, one realises how quiet everything is, compared with the normal propeller driven aircraft.

This is emphasised by a crash and a clank as the undercarriage is retracted.

The cheerful attention of the pretty hostess soon makes one feel at home and forget the slightly cramped conditions of economy travel. Thoughts of economy soon disappear, however, when one receives the menu. If canapes Choisis, Fillet of Beef in red wine sauce, buttered garden peas, new potatoes rissoles, glazed carrots, fruit gateau, cheese, biscuits and coffee represents economy, who was I to spoil it by failing to wash it down with a bottle of wine and some delicious Brandy at Duty Free prices?

A quick appreciation of the difference in U.K. — U.S.A. time reminded me that it was going to be a long day, and at 1500 Eastern Standard Time we landed at Kennedy Airport, New York. This airport is an absolute hive of activity with huge jets taking off and landing every few minutes. No problems were encountered with either immigration or customs officials; however it did appear to be that it was a point of honour with the Customs Officers to open every single case or bag, although they made no efforts to search the contents. A bus journey toan other part of the airport prepared us for the next part of our journey, which was the flight to Washington D.C. There was just time for a glass of beer before the next flight, and it was here that I received my first shock at the cost of living. I had to pay the equivalent of 7/- for my first half pint of American Beer and pretty anaemic beer it was too.

A quick hop in a D.C. 6 soon took us to Washington D.C., the seat of government in the U.S. Like London, many of the large buildings are government offices or departments of some sort or other. Also, like London, there is a large commuting population. There is an ever increasing 'colour' population in London but there are many more 'coloureds' in Washington, as I was to see next day when I had the opportunity to carry out a 'culture' tour of the city, which included a visit to the White House. We were met at the airport by our R.N. representative on the B.J.S.M. Staff and I must say at this stage how very much we all appreciated the most helpful and kindly attentions of Cdr. Vicary. His advice and hospitality were second to none, especially the production of liquor at a price we could afford.

There are many pit-falls for the un-initiated traveller in both Canada and the U.S.A. For example, one never checks into a hotel for bed and breakfast. One checks into a hotel room and all meals are extras. If one is sensible, breakfast is taken at a drug store or delicatessen. This is more economical in both time and money. With the help of 'Embassy' nourishment, one does all ones entertaining in ones rooms, where, of course, room service is excellent, and, in fact, within a very short time we organised a constant supply of ice. I soon found that Burbon or Rye, with water and ice, was a very palatable drink. Whilst on the subject of hotel rooms, I must say the general amenities provided leave our hotels standing. One always has a bath and/or shower, toilet, wash-basin, telephone, radio T.V. and central heating. The T.V., as far as I could see, was anything up to nine channels of almost continuous commercials. If one concentrates, one can, with difficulty, follow a programme in between 'snap, crackle and pop' and the 'all way stretches'. The central heating is always too hot and I am sure, that throughout our visit, we were considered mad

because we always opened our bedroom windows, although with some difficulty.

To get back to our itinary — our first fore-noon in Washington was taken up by a visit to the Navy Office, where we met our opposite number in the U.S.N. to finalise the detailed routines for our visit. As the remainder of the day was free, it was suggested that we visited such places of interest as the White House, the Senate, the Lincoln and Jefferson Memorials, the Lake of Sighs and the Kennedy Memorial Flame. Full of good intentions and, remembering that the 'Road to Hell' is Paved with Good Intentions', we visited the White House, taking care not to tread on the Negroes sitting all over the pavement. We also inspected the Washington Memorial. By that time, feeling a little dry, we wondered back to our hotel, where a quick snort mproved matters. I then phoned up an old friend of mine in the U.S.N. Diving School and suggested a quick grog before we finished our 'culture tour'. Within ten minutes he had joined us. Needless to say we had no culture visits that afternoon, but we did sort out most of the World's problems! It was from him that I received the finest description I have heard of the unfortunate attitude of some Americans towards their colour problem. He said that there were only two things that he detested in this world today; one was 'any suggestion of colour prejudice or apartheid' and the other was 'Goddam Bloody Niggers'.

The following two days were taken up by visits to the U.S.N. Explosive Ordnance Facility at Stump Neck and the E.O.D. School at Indian Head, both of which are situated on the Pontomac River about thirty miles from Washington. We were shown the render safe routines and techniques under development for new and old weapons. We also saw their training organisation and their training aids. Nobody could be unimpressed at the magnitude of the effort that is being put into this facet of military warfare in the U.S. I think that the U.K. delegation were all a little jealous of the vast amount of space, effort and money that was obviously available to our American (as apposed to Canadian) opposite numbers. However, I think that it is true to say that they are having many of the same problems in their professional field as we are, and I like to think that work of the Tripartite Conference goes a long way towards helping solve these problems and certainly towards making the process more economical.

Our next visit required an early start from our hotel to catch the 'Shuttle' flight to Newark airport. The term 'shuttle flight' really describes an air bus service. One arrives at the airport, walks aboard the plane and pays the fare. It is as simple as that. At Newark we were met by representatives of the U.S. Army and driven to Picatiny Arsenal. This is certainly one of the oldest, and probably one of the biggest arsenals in the U.S. It was here, in the 1920's that one of the biggest ever accidental explosions took place. Because of the security barrier I can only say that we spent a most enjoyable day amongst a mass of weapons and explosive machines. Eventually we were driven all the way to our New York hotels in time for an evening around town. If we give the impression that New York is not all that it is made out to be it is probably because our stay was in the middle of a blizzard and it was bitterly cold. However, the hotel was comfortable, the ice cold and plentiful, even though the rooms were too hot.

After a very pleasant meal with our Army opposite numbers, we aimed to do a night club. The first one we tried had a cover charge of nine Dollars per head (about £3) to sit down, so we decided the best routine was to stand at the bar and watch the floor show. This was not to be, as unattached men were not allowed. One had to have female company. This was the first time ever that I was not allowed to drink because I didn't have a woman! Further reconnaissance of clubs soon indicated that we couldn't really afford to woop it up in New York night clubs and we eventually settled for a couple of expensive beers and our usual little session in the hotel room. You might say that a Clearance diver should be able to do better, but it is a fact that the mighty Dollar is a very necessary pre-requisite to hitting the high-spots of New York.

The next morning the blizzard was still raging and I think we all had doubts as to whether we would make our next flight to Montreal on time. We arrived at the airport and, in spite of the fact that one could hardly see the nose of the plane from the tail, we took off on time and had quite a comfortable flight. We arrived in Montreal in time to meet up with the main party attending the Conference, which was to take place over a period of seven days in Victoria. Thus the whole of the next day was taken up in flying across Canada. I must admit I had no idea how vast a country Canada is. Somehow I have always considered the distance across Canada — if I really thought about it — as about the same as that across the Atlantic. In fact it is just about twice that distance. The flight by R.C.A.F. was up to V.I.P. standard but the refuelling stop at Winnipeg produced a sudden shock — the temperature

was 10 degrees below zero, and believe me that is cold.

Our arrival at Victoria was just the prelude to six days fairly concentrated work, in which almost every aspect of diving and bomb and mine disposal were discussed. This was, of course, injected with some excellent Canadian hospitality every evening. In fact, had it not been for this very generous hospitality, we would all have returned to U.K. very much in the red.

On two occasions I had the pleasure of some salmon fishing and, between six of us, our total bag was one 25 pounder and ten 10 pounders. It was generally considered by the natives that the 10 pounders were hardly worth keeping! I was able to bring home some smoked salmon as evidence of our efforts. Another sea food that abounds in this area is the oyster, and they are enormous. There was none of the one swallow, one oyster routine — these were definitely the three bite variety. One evening about twenty members of the various delegations almost cleared seven sacks during a single session. There were oysters always — raw, fried, boiled, barbecued — and still more oysters, and every one was delicious (the oysters I mean).

One evening I was taken to see an Ice Hockey game. As far as I could understand, this is a game where just about anything goes. It appeared that the more one bashed one's opponent with one's stick the better player one was. There is no doubt that as a spectacle of pure physical fitness and toughness there is nothing to beat it. I couldn't help feeling a pang of disgust when I thought of the, hugging loving, and kissing that goes on in our national game.

It was a great pleasure for the U.K. divers to meet up with our R.C.N. opposite numbers. Their esprit de corps is second to none and they have somehow retained that wonderful versatility that used to prevail, and I hope still does, in the R.N. C.D. teams. They have established the principle that whatever the task, they will have a go. This means that the C.D's handle any unusual job, which the R.C.N. is not geared to cope with. Just prior to our visit the 'West Coast Team' played nursemaid to a killer Whale which was captured, more by accident than intention, by the local University boffins. Incidently, if you mention 'Killer Whales' anywhere within a mile of the C.D's they are all out of the water, inboard and, preferably, on dry land within seconds. Having heard the evidence against these whales, which are just about the most ferocious and intelligent inhabitants of the sea, I fully subscribe to the respect that the R.C.N. divers pay them.

During our stay the team were occupied in building a roadway and helicopter landing square on a remote island. They were also carrying out a considerable amount of very advanced ship husbandry on ship's afloat. The end of our visit came all to quickly and the many hours of flying during our return journey were occupied in good sound sleep.

Finally, I feel that I should try and sum up the outstanding impressions I gained during this very brief tour. First of all, I was disappointed in the appearance of American girls. I thought that as a general rule they were a pretty mixed bunch without very much colour or dress sense. The average British girl is neater, smarter and prettier than those I saw in the U.S.A. The Canadian girls are different again, with the clean outdoor look prevailing.

I hardly think that I am qualified

to discuss men, but one thing, or, lack of one thing, was very apparent throughout the States and Canada. No where did I see the long-haired, effeminate looking youths that seem to abound in this country. The youngsters over there appeared to be healthy, strong and clean lads one could feel proud of. Whenever this problem was discussed I felt acutely embarrassed not only because of the peculiar males that we are turning out, but also because of the embarrassment our hosts felt for us. They found it impossible to understand and I found it just as impossible to explain. Pop music does not hold so much interest for the teenager as in this country but the 'goggle box' is possibly a bigger drug than here.

Traffic and traffic sense was something else that one can hardly fail to notice. The quantity of traffic in the large cities is something that has to be seen to be believed but the general traffic sense and discipline, both of drivers and pedestrians, is way ahead of that in the U.K.

In Canada one could not help feeling the vastness and the freedom. There is more than enough room for every one. In this country it is difficult to find shooting, fishing or camping, which is not private, but the reverse applies in Canada. One thing, which I did not appreciate, was their slightly economic use of the vast amount of wood pulp that the country provides. There is no doubt that paper is employed as a disposable item in almost every form, i.e. towels, table-cloths, napkins, cups, saucers, plates, etc., and jolly good they are too, but why do they produce the smallest sheets of toilet paper in the world ?

J.W.

"Vidal" Statistics

January — August 1965

AS forecast, we found ourselves back in the land of steel band and calypso towards the end of January this year, the ship again being employed on oceanography in the Atlantic, with detached hydrographic surveys in Jamaica, Trinidad and British Guiana. Our first port of call, however, was Barbados for two days relaxation after three weeks at sea. Here, we had a small job on the chernikeef log, after which we re-charged the sets and proceeded by boat to investigate a wreck marked on the chart as lying in 6 fathoms. One of the many uses of divers in surveying is determining the least depth over obstructions, their dimensions and if, in fact, these objects still exist. With time, wrecks disintegrate and, as many surveys are very old, we try and examine as many as possible in the course of our travels to see if they are still dangerous to navigation. On this particular wreck we carried out an extensive search, having anchored and fixed the boat by horizontal sextant angles, and we found nothing but signficant sheets of rusty metal, hardly dangerous to shipping.

On to Jamaica, where our first job was a survey of Kingston Harbour and Port Royal; the latter was purely a 'rabbit' job, since a deep water pier is due to be built here. The diving team had the task of determining the exact contours, least depths and nature of the 'De Horsey' shoal, which was the only obstruction in the path of the proposed pier. The fact that we used D.U.C.S. on this investigation to guide the divers probably halved the time of the operation and now it has become an invaluable part of our equipment, without which our improvised survey search would be impossible. It is interesting to note that the least depth by diver was 3 feet shallower than that by echo sounder. This is because the boat obviously did not pass directly over the peak when running sounding lines. Regarding the nature of the shoal, we were able to inform the local engineers that it was dead coral, and thus easy to blast away, but dredging, as they had originally planned, was out of the question.

After five days in Kingston the ship moved on round the South of Jamaica, where we had surveying commitments at Portland Bight and Port Kaiser at both of which the Diving Team were used. At the former we investigated a shelf in about 50 feet and at the latter we merely cleaned inlets on the ship's hull. Moving on round the coast, we found ourselves at the millionaires paradise of Montego Bay, where we established our detached party, including part of the diving team. The ship then left for seven weeks oceanography in the Atlantic, with Trinidad carnival and the Cape Verde Islands thrown in.

Meanwhile, those of us left in 'Mo-bay' were working really very hard at one thing and another. Regarding diving, never have I come across conditions so perfect. We averaged 600 minutes per diver per month during this spell, undertaking jobs ranging from yacht salvage to working with the local sub-aqua club, and from discovering the most glorious underwater caves to normal surveying diving tasks. The Caribbean between Jamaica and Cuba drops to 2,800 fathoms in the space

of 25 miles. In certain areas where we dived we could swim along coral embankments in about 100 feet of water and look vertically downwards into the clear deep blue water, where, because it shelved so steeply, we obtained no trace on the echo-sounder. It was wonderful swimming along these coral gulleys, the enormous dimensions being comparable, perhaps, to swimming down the Fifth Avenue in New York City if it were full of water. Mooring the boat was our biggest problem. On one memorable occasion, off the 'Bogue' reef, we had about 35 feet on the echo and, thinking this suitable, we let go the anchor. Almost immediately the trace dropped to over 90 feet. The anchor and chain ran on and on until snubbed by the deck clench. It took three of us 20 minutes to get it back up inch by inch. We were more careful after that.

That was Montego Bay, where seven unforgettable weeks were spent and, on the ships return, we did guardship for the Miami — Montego Bay yacht race before moving on round to Kingston for Easter week-end. Here there was another task lined up for us but, since it was Easter and many of the team had previous engagements, we declined.

From Jamaica we went south and east to British Guiana, where we spent two months on a 'Lambda' controlled survey. As this was interspersed with only fleeting week-end visits to Trinidad and Tobago, diving was seriously curtailed. However the latter provided us with an opportunity to spend the whole of one Sunday afternoon scraping inch thick barnacles off the screws. Having spent 155 days at sea in the last 220 one might wonder how they got in that state! It was during this operation that we were joined by our first shark of the season. It was very friendly and took little, if any, notice of us in our work.

At the time of writing we are on passage to Barbados, our final job before returning to U.K. for the Fleet Review and paying off in early September. It has been a commission providing considerable variety in diving and, specially in this final season, we have all learnt a great deal towards improving survey diving techniques. The D.U.C.S. has been of untold value in controlling the searching diver and, with the advent of S.D.D.E. during the coming refit, we look forward to extending our investigations into deeper water.

We have had 12 different divers during the commission. Several volunteers will be doing courses on return to U.K. and seven 'die-hards' now remain until the final paying-off.

These are:—

Sub.-Lt. C. S. Gobey, Sh.D.O.

L.S. Howe, Sh.D.

A.B. Birkett, Sh.D.

A.B. Goodland, ShD.

A.B. Arbuckle, Sh.D.

N.A. Tushby, Sh.D.

A.B. Bowler, S.W.D.

C. S. GOBEY,
Sub-Lieutenant.

Is It Possible . . . ?

Ever since Man first discovered that he could exist for short periods under water he has asked himself the question, 'Can it be done ?' The problem has remained unsolved for Centuries, and even in Kama-Sutra we find the unforgettable words, 'Don't forget the diver.'

Now, everyone knows that fish can do it, a few know that scallops can and do, but what about Man ? This problem has been investigated extensively at R.N.P.L. (Recompress Now Pay Later) and after hundreds of trials and errors, it has been found that goats can, with some persuasion, achieve perfection.

However, in view of the differences in diet, it was decided that these results would not necessarily be applicable to Man.

Recently a serious effort has been made on H.M.S. *Reclaim* in conjunction with R.N.P.L., who provided the un-bent, de-narcotised divers. These had been brainwashed and worked up in a series of experiments to see how far they could be worked up, then embarked for passage to the Mediterranean. One interesting side-effect of these experiments was the aggravation of the divers' normal aggressive tendencies. This was countered by issuing each subject with a chipping hammer and releasing him on the well-deck, where

he proceeded to knock hell out of everything in sight. After this phase had passed, the subjects began to display their latent affection for our kindly old Chief, by painting over the damage they had done, so that he wouldn't notice.

As soon as we arrived in the Mediterranean, work started in earnest. The subjects were split (painlessly) into two groups of compatible pairs who were enclosed, in turn, inside a tastefully decorated metal cyclinder and, to ensure privacy, were lowered over the side to depths up to 600 feet, and told to get on with it. The results varied, of course, with personality and Observed Graduated Gradients Of Inclination (O.G.G.I.'s) some subjects, notably the C.D.2's, complained that the rubber suits diminished sensation, while the 'General' was heard to remark, 'Mona and I are just good friends.' One or two, as a result, so 'Sarge' informs me, of the cramped space of the chamber, came up 'bent' and the attendant doctor was required to straighten them out. The general opinion soon became obvious that the goats could keep it anyway, and the rest of our time was spent researching into the effect of Ultra-Violet radiation on Vitamin D production in the superficial layers of the epidermis, or, as 'Jock' Fraser so elegantly put it, 'A wee touch of the sunburn.' Incidentally, this phase of our experiments produced our major casualty, 'Ted' Shennon, who tried to make a hatch coaming disappear by ignoring it. He woke up in the Sick Bay, having broken the odd bone here and there, but thanks to the magnificent efforts of Doc's Cameron and Finlay, 'Man, yon was a muckle sonsie Sassenach,' he was able to stagger back to the mess just in time to save his tot from his mates who were keen to drink his health.

In conclusion, therefore, it would seem that it is possible, but a lot more research with selected volunteers will be necessary, before we can compete with the goats, in this field.

Personally, I'll keep up my subscription to 'Playboy.'

SURG. LT. W. ABBOTT.

POST SCRIPT

Answer in Final Diving exam paper of a lend-lease Diver.

Q What does 'four bells' on signal life line mean ?

A You've held me too tight, or, take off my slacks.

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