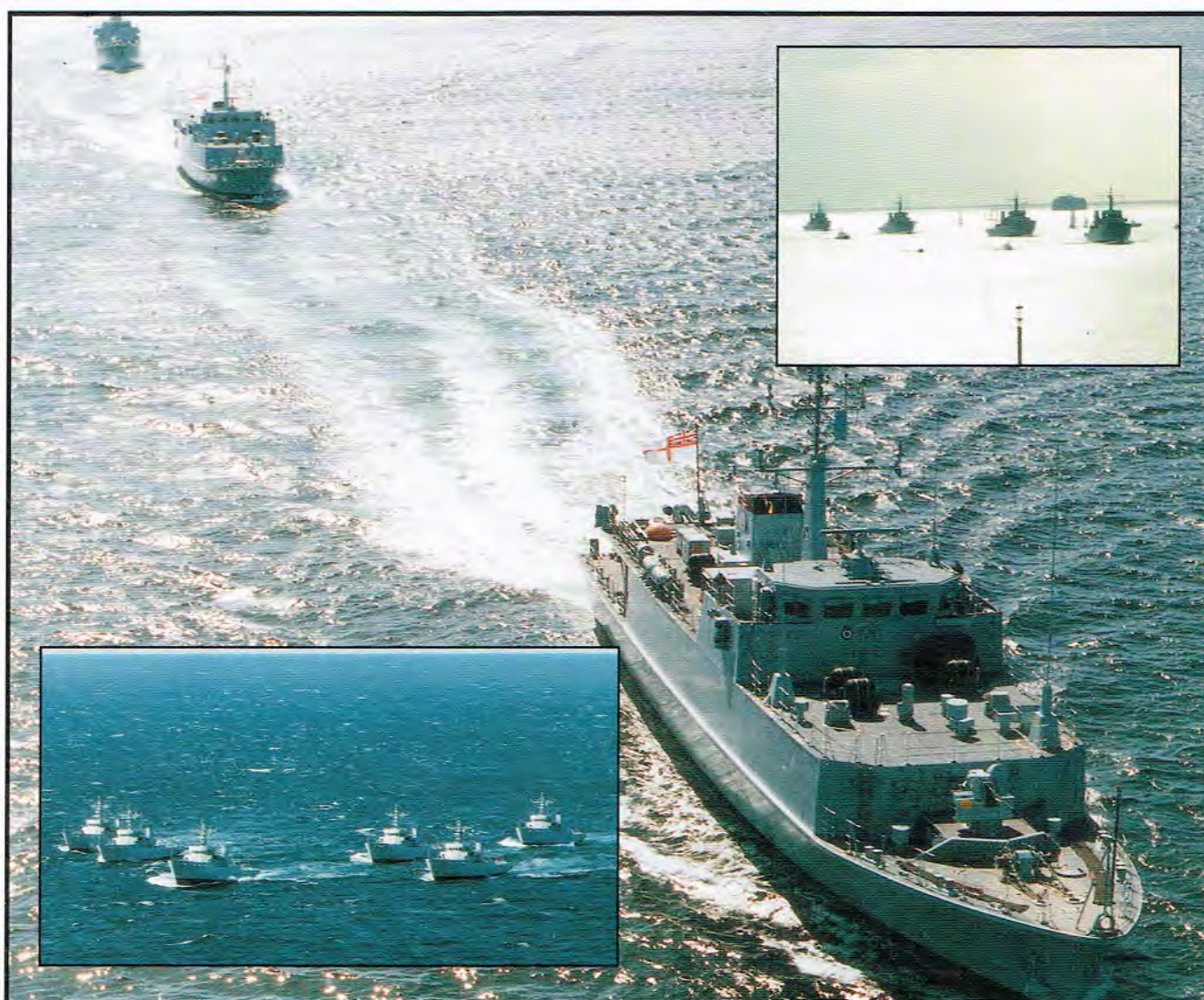


# MINEWARFARE AND DIVING



VOLUME 4	NUMBER 2	AUGUST 1994
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**OUT WITH THE OLD – IN WITH THE NEW**

# MINEWARFARE AND DIVING



THE MAGAZINE OF THE  
MINEWARFARE AND DIVING COMMUNITY

*Front Cover: The Operational Third MCM Squadron*

VOLUME 4 NUMBER 2

AUGUST 1994

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## *Foreword by*



### **HRH**

When I arrived to take command of HMS COTTESMORE the concepts of Minewarfare and Diving were completely alien in my naval experience. As an aviator the water was a place to be avoided because it usually involved some form of uncomfortable entry. But since taking up this appointment I have been struck with the similarities in working ethics with the aviation world.

It is all too easy for a particular branch or specialisation to become blinkered in its views on another part of the Royal Navy. Despite the shrinking nature of the Fleet it is beholden on all of us to remember that everyone has a vital job to do in whatever specialisation. We are lucky to have such loyal, dedicated and professional sailors. This has been demonstrated to me on more than one occasion in this appointment.

My experience in command has been made up of nearly continuous operating, starting with BOST and then as part of the MCM On Call Force, during which we were invited to find a crashed Tornado in the North Sea. It was found in only a few hours through the impressive calm professionalism of the minewarfare team on board.

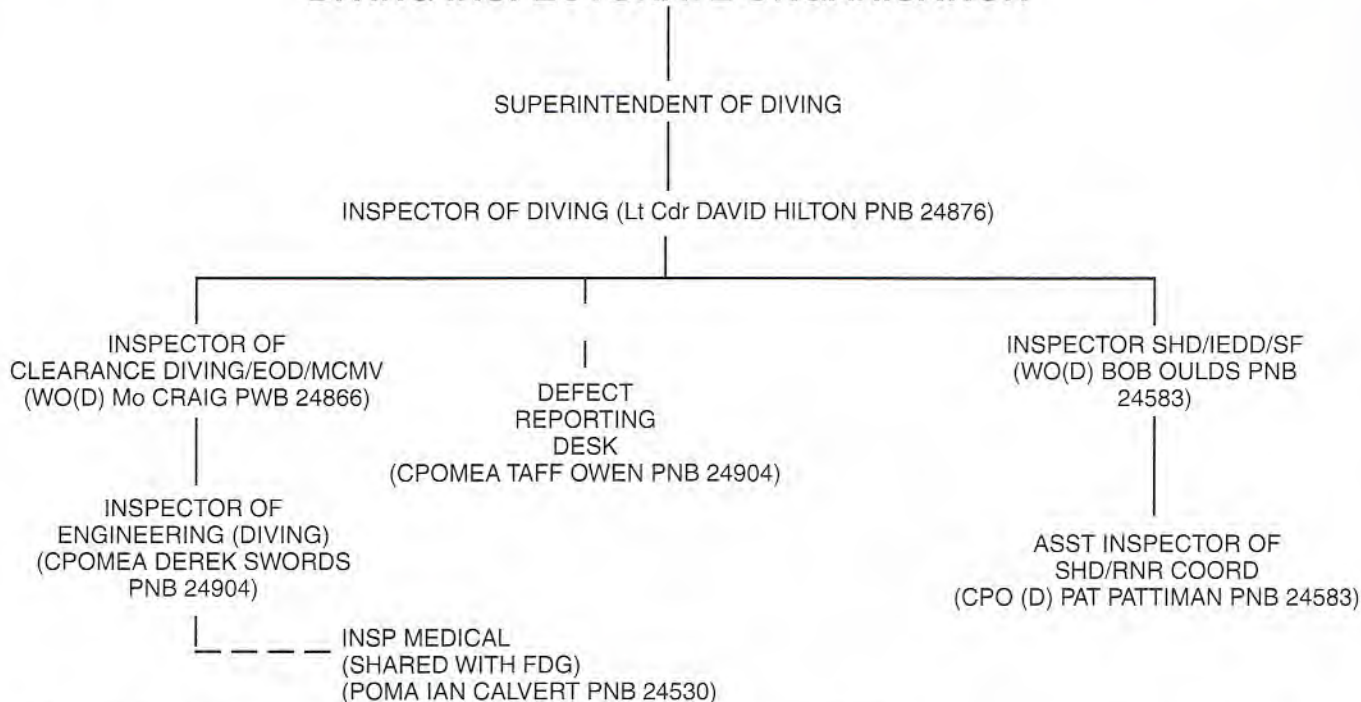
As I prepare to hand over command in the autumn, I have learnt that the specialisation you only know from legend or tales is as professional and dedicated as your own. I have been privileged to have had command of one of Her Majesty's ships and to have served with some of the men of legends and tales.

# Diving Inspectorate

From the Inspector of Diving  
Lieutenant Commander D. Hilton MNI Royal Navy

New Diving Inspectorate Line Diagram is:

## DIVING INSPECTORATE ORGANISATION



### The Inspector of Clearance Diving/EOD/SF

Insp CD continues to be the focal point for all career diving and EOD. This will include the new EOD Data Base and publications. He will also be the Trials Officer for the replacement EOD/MCM Life Support Equipment. Shortly NSP CD will assist CST work up staff, with Inspections in order to further enhance diving effectiveness in the MCM Flotilla.

### The Inspector of Ships Diving/IEDD/MCMV

Responsible for Ships Diving pre OST Inspections and Special Forces. Since the demise of the IEDD pre-amble exercises he will organise and conduct IEDD training for Area Units and be the link to assist units in re-licensing. Booking of IEDD courses will remain with Warrant Officer (Diver) Timms at the Fleet Diving Group. Insp Ships Diver, WO(D) Bob Oulds will be relieved by WO(D) Buck Taylor on 18 Oct 94.

### The Inspector of Engineering (Diving)

Provides the engineering expertise and is specialised in High Pressure air systems. CPOMEA Derek Swords will be relieved in Feb 95 by a Warrant Officer yet to be nominated.

### The Inspector Medical

Shared with the Fleet Diving Group he accompanies the Inspectorate on all inspections, providing the medical expertise.

### The CPOMEA (S2022) Defect Reporting Desk (ES123N2)

The CPO(S2022) is responsible for processing all diving related S2022s, ensuring the Inspectorate and the user are kept informed. He is part of the Naval Support Command, but will remain in the Inspectorate until the NSC reorganisation is complete.

### Assistant Inspector of Ships Diving/RNR Co-ordinator

With the reduction in RNR Diving Units, CINCNVHOME's CPO(D) from the 1 Oct 94 will be transferred to the Diving Inspectorate. He is the RNR co-ordinator and will assist the Inspector of Ships Diving, undertaking most pre-Operational Sea Training advisory inspections (Ship Divers).

### Diving Inspections

As a result of regular diving inspections, units have generally achieved a high level of HSE documentation and equipment standards. This will allow a more practical approach emphasising the operational capabilities of units detailed in BR 5063 (CD Ops).

### Diving Logs S1627

New formatted RN personal Diving Logs are now available with a diving crest on the front cover. The new logs contain all the information required by the Diving Operations at Work Act and are formatted to HSE and BR 2806 Vol 2 requirements. Newly qualified divers will be issued with the revised Log (S1627), old and bold and the not so bold the choice is yours!! However, those who wish to use their old logs must comply with the format detailed in BR 2806 Vol 1 Art 0406.

### Divers Protective Clothing

DCI RN 59/1994 has been issued promulgating the new arrangements for the scaling and issue of protective specialist clothing for RN Clearance Divers.

### S333 Forms (Diving Incident Report)

With the exception of the S333C (Witness Statement) which is in the 1988 issue, the remainder of forms were revised in May 92. Please remember a statement is required for EVERY person involved in the diving operation. Reports are to be made on all unusual diving incidents including those of a minor nature and those where the cause appears obvious.

### On site Diving Operations - Medical Equipment Sets

These will replace your Dive Boat First Aid Kits, conform to current HSE Regulations and be supplied in a Pelican Case which is both strong and waterproof. Your attention is drawn to BR 2806 Vol 2 Art 0955 j, which reminds you that the diving first aid kit includes an Oxygen Resuscitator. This kit is to be held at the site of diving operations ashore and afloat.

SAFE DIVING

# Minewarfare Reporter



CPO(MW)(O) W. A. "Pony" Moore

*Lt. Cdr. Frank Ward (SOMW) presents WO Norman Blick with his leaving gift from the Minewarfare Section on his retirement from the Royal Navy on 28 February 1994.*



*In recognition of his outstanding contribution to MCM2 as the Squadron CPO(MW) during a very busy operational period, CPO (MW) (O) D. M. SMITH was awarded a silver salver from the Herbert Lott fund. He is pictured receiving his award from Cdr. D.H.L. MACDONALD in the Main Conference Room, Creasy Building on 27 January 1994.*



*Recently returned from service with NP1042 in Cambodia, PO COOK is pictured receiving his LSGC mdeal. The presentation was made by CDR GALE in Creasy Building on 1 March 1994 before a star studded team of representatives from the Minewarfare section.*



# BIRTH OF A TOOL HUT

This has been a momentous year for the Diving School with approval finally being granted to build the new Joint Defence Diving School at Horsea Island. Other projects have been progressed with funds acquired through HMS *Excellent*. One such project was the complete refurbishment of the Tool Training Facility at Horsea Island. The new tool-hut was opened by CDR PJ GALE (CDR MDT) on the 1st June.

As can be seen from the insert photo panel the Hut was completely stripped down and remounted on a new pontoon. It is now fully insulated and heated which is a major step forward for those on winter career courses. The facility provides basic training in the use of hydraulic and pneumatic tools using surface demand diving equipment for all career courses. It is also used for teaching basic underwater photography techniques for both still and video camera.



Although this facility is for the main use of courses, it is available to other teams if there is no conflict of requirement and enough notice is given. It is an ideal place to practice underwater engineering skills that may be slightly rusty. To take advantage of this offer contact The Diving Planning Office on Portsmouth Naval Base, extension 24586.

(Under new management 'We aim to please')



# MISSION IMPOSSIBLE

## THE TEAM

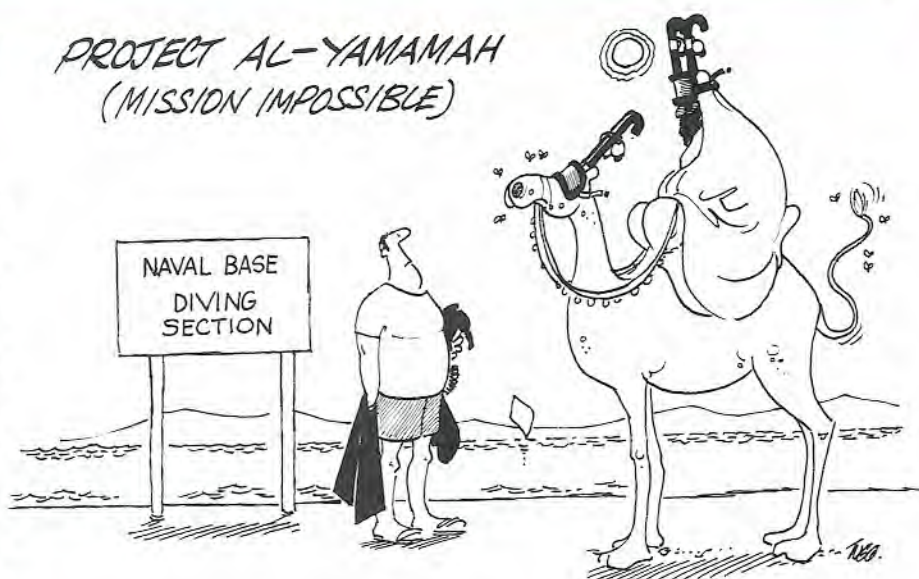
BOSS Lt. CDR. MARTYN HOLLOWAY  
 CHIEF CPO(D) TONY DEVITT  
 LS(D)s DAVE BREAREY  
 FROGGIE GRADIDGE  
 A/B(D) TONY WATTS

Those of you UNLUCKY people who have not been around lovely Horsea Island recently will have failed to hear some strange shouds of "AL-SALLAM ALLEKUM, YALLA SHABOB, BISOURA", and other Arabic niceties which echo round the sandy sun-bleached shores of the lake. To give you a little history and background, Project AL-YAMAMAH (no not Yamaha that's a motorbike) is a multi-billion pound project to supply Saudi Arabia with Tornado Jets, Tanks and other Pongo Tonka toys, and tagged on to the end is the contract to build three Single Role Minehunters.

HM's Government awarded the contract to British Aerospace as the prime contractor, who in turn subcontracted to Vickers for the Tonka toys and to Vospers for the Minehunters. Vospers duly started to build the ships and train the crews. They in turn decided to subcontract certain elements of the training to the Royal Navy, notably for us Minewarfare and Diving. It will not take a genius to see that the paper chase is already long and complicated. Studies and initial staff work began in the mid-eighties to establish the requirements and to decide the way forward. Certain staff officers accompanied by Steve Bielby (Allah bless him) set off in late 1990 (with gas masks packed) to visit Ras-Al Gar in Saudi Arabia, to see what was already in situ and assess potential diving recruits. Following that visit more paper flowed and eventually the ROYAL SAUDI NAVAL FORCES MINEWARFARE DIVING SECTION was established under the auspicious command of Lt. Martin Jenrick ably assisted by CPO(D) Stan Stanley with the remit to train three teams of six Minewarfare Divers (four divers and two diving supervisors). Things began to take shape during 1991 with a provisional start date for the first course of April 1992.

In October 1991 Stan decided that promotion in the Civil Service looked good and opted for redundancy, yours truly was dragged from the Theory section, straight jacket removed and offered the job. What a decision, the theory section (they had already removed all sharp objects including sharpened pencils just in case) or the Saudi Section with for starters a trip to Saudi in a few weeks. After long and difficult personal tussles!! I found myself packed and ready to fly (Club Class of course) to Dharan in mid-November. The morning of the flight we received a 'phone call to say that the Saudis were not ready for us and the trip had been delayed until December. December came (and went) with no news and January 1992 was muted

## PROJECT AL-YAMAMAH (MISSION IMPOSSIBLE)



as a possible date. January arrived as did L/S(D)s Dave Brearey and Shaun Teal who were subsequently sent to Toronto to assist the fleet group in Siva trials (many thanks Aussie). Then, Eureka, the aptitude team (1 x Cdr., 1 x Lt. Cdr., 1 x Lt. and 1 x CPO[D] ) actually boarded the plane for Saudi only three months late but assured that all the relevant paperwork had been completed and everything was set up.

So off we went to Sunny Saudi. Day one saw us in the office of Admiral Badr and after the obligatory arabic coffee and pleasantries he asked what we were there for (so much for the months of paperwork). However, a few 'phone calls later we were en-route for Ras Al-Gar, home of the Saudi special forces divers, to conduct aptitudes. On return to UK the team re-grouped and jetted off to the Kyles to conduct a deep work-up with the assistance of Steve Bielby's baby's course. March saw us at Shoeburyness conducting a range refresher and checking out the documentation against actual range work, a good week and I got my wallet back eventually with credit cards still inside (good run ashore). After Easter leave we awaited the decisions reached after our visit to Ras Al-Gar and continued to set the section up and put the finishing touches to the course design.

June saw Lt. Jenrick and myself off to Toronto to conduct a Siva Technicians course as part of the course requirements, and in hindsight an excellent investment as you certainly learn a lot more from the horse's mouth so to speak. Also an excellent run ashore but even on leaving, no news about our return to Saudi for more aptitudes. Pity about the flight back but standard RAF Washington flight (eight hours late). We were met on arrival with "Give us your passports you need Saudi visas ASAP", and subsequently found ourselves back in Jubail but this time at the Naval Base Diving Section run by WO Ahmed Basri an American trained diver

who seemed to understand our requirements and made us very welcome. One of the first things we had to overcome before we started conducting aptitudes was the heat, with midday temperatures around 130°F it made circuits a little sweaty!! Our first batch of aptitudes arrived and after initial screening we took our intrepid NON-VOLUNTEERS to the pool to start aptitudes. Our first task was to see how many could swim the required 100m. On asking, up went ten hands to say they could swim so off they went, Boss Jenrick then duly counted six doggy paddling up the pool and on looking down saw four shapes on the bottom of the pool. After a quick rescue we learned lesson one; never believe what the students say as they may not have understood what you said in the first place, and lesson two; when conducting the initial swim, START IN THE SHALLOW END!! Four weeks of heavy aptituding produced our first pass. A small milestone but a start.

6th August saw us flying home arriving in Heathrow at 0600 starving. Top of the breakfast menu on the plane was lambs brains masala which I couldn't really fancy at 0430 and straight to Gunwharf to sort out our return trip before proceeding on summer leave.

September saw us once again back in Jubail, the only change being Shaun Teal replaced by Andy Frowley who looked somewhat pale when compared to the rest of the team. Four weeks of aptituding followed, which by now were beginning to have a slightly monotonous ring to them, and we looked forward to flying home on 15th October.

A few more successes resulted in a growing number of possible students for the first course and so many dits it would need two hard-back editions to publish them all. As the 15th slowly loomed, buzzes started to emanate from the hubble-bubble (Saudi equivalent to the galley range) not to put money on our flights home, a good buzz

# MISSION IMPOSSIBLE

which subsequently saw us continuing until the 5th November. Four very relieved divers duly arrived at Dharan International Airport (which is a little like Petersfield Bus Station but without a pub across the road) having had all our flights booked, checked, re-checked and confirmed by those very nice crabfats in Dharan. Dave and I were therefore not very amused at 2230 to be told that we had been booked onto the previous night's flight and told not very politely to go away and sort it out the next day (Saudi Sunday) with our travel agents. After a little gentle discussion, seats were found for us, economy class, but by that time we didn't care, we just wanted to get home.

As Christmas loomed Santa arrived early and the Siva sets finally arrived, isn't it amazing how popular you become when you have a new toy!! Sadly it was the parting of the ways for Boss Jenrick who was off to sea to a Jimmy's job, and to Andy Frowley who was more than a little shell-shocked to receive a draft to sea.

January 1993 saw the team, now being led by Lt. Cdr. Martyn Holloway and with Froggie Gradidge as Andy's relief once again jetting to Saudi to conduct yet more aptitudes, and guess what, it rains in January AND HOW. A damp four weeks saw yet a few more candidates netted and the first course preparing to fly to England to start Technical language training in Nelson. On return to UK we prepared to move up to Oban to conduct a deep work-up in Siva, as quite rightly you can't teach students to dive a set to 54m if you haven't dived it yourself. Quite a few lessons were learned and a lot of hands-on experience gained in two short weeks. The last few weeks before Easter leave saw frantic efforts to chase-up missing stores, finish off lesson plans and prepare for the arrival of the RSNF Diving Course 01. Meanwhile the Boss and Dave headed off to Canada to complete the Siva maintenance course in Toronto. (Not prudent to mention skiing

trips etc when you are supposed to be on a course and drawing subbies!!).

The first day of the Summer term saw seven students (eventually) ready to start course. We did have eight but the S/Lt. had returned to Saudi for leave and wasn't back. The first two weeks saw the numbers on course dropping alarmingly (all medical problems) and by the time we started mixture training, we had only three students remaining and were all wondering whether we would make Portland, never mind Oban. The S/Lt. finally returned some 16 days late and was re-instated onto the course. Sadly but not unexpectedly he did not make the end of the Horsea phase, as missing over 96 hours of diving and instruction was too much for him to make up. The final three continued to Portland, and then on to Oban where, to their credit, they conducted everything we threw at them in good heart. On return from Oban we visited HMS SHAQRA to conduct Duo-com chamber training and were very well looked after by the crew who even managed to outfeed Dave and Froggie!! Last hurdle was D.E.O.D.S. where again the students pleasantly surprised the staff and conducted the E.O.R. phase with little difficulty. The course finally finished on 6th August and we all departed for Summer leave.

Course 02 started on completion of summer leave and a lot of the lessons learned on the first course were implemented. September saw the divers complete the Horsea phase with reasonable results, and the start of October had us in Portland for the seabed search phase which produced the first blast of the winter weather to come and quite a few surprised Saudis. On completion we returned to Gunwharf to complete deep diving preps prior to our departure to Oban. Sadly the week resulted in the loss of two students, Yousef (probably one of our best students) who managed to perforate his eardrum in the

tank, and Rafa who despite his very best efforts was taken off course, as sadly he was unable, due to his VERY slight stature (about 5st wet!!) to competently complete companion diver drills.

After the absolute lousy weather in Oban during the first course we were not looking forward to late October and November in Sunny Scotland. However Oban once again surprised us with two weeks of quite glorious weather before reverting to type. Taf Morse (no Taf is not misspelt) arrived halfway through to start our handover, as it had been decided by then that as I was familiar with both the students and the naval Base in Jubail that I would be the best guy to take the new post out there. As we competed the last two weeks in Oban and the elements really started to turn a little nasty, it was very interesting to note student performance diminish in line with the weather, and if nothing re-enforced our views that winter courses were not a viable proposition.

Oban completed we returned south to complete the final modules, and even though the bulk of the course was over student enthusiasm was difficult to maintain as we headed into winter. DEODs proved a difficult time for the students, the winter weather coupled with a lower English comprehension by some of the students produced quite a few difficulties, but thanks to the time and efforts of the DOEDS staff that phase of the course was completed (Upnor lake in December is not fun for anybody!!).

Taf now has the reins and completed his first trip to Saudi in January, and with the rest of the team flying in tomorrow to continue aptitude tests. Even though we are nearly four years into the project some fundamental problems still remain mainly finding suitable students for course but we persevere.

As to life out here, well that's a whole new story to be put on paper ONE DAY!!!

## ROYAL SAUDI NAVAL FORCES MINEWARFARE TRAINING

By Lt. Cdr. J. S. Acton RN

As most of the readers will no doubt be aware the Royal Saudi Naval Forces have purchased three Sandown Class Single Role Minehunters from Vosper Thornycroft UK Ltd. One of the spin-offs from this purchase was that the Royal Navy would assume responsibility for training the Ships companies of these vessels. This training was to include every member of the ship's company — engineers, ops dept. etc. The design team for SRMH Minewarfare Training was set up in 1988 and consisted of Lt. Cdr. Robin JACK and CPO(MW) Jo GEORGE. They were initially responsible for course design and the writing of drills and procedures for the new weapon system. Once the Saudi Arabian government had decided to purchase three ships and that

the RN would be responsible for their training a Foreign Training Section was set up within the MW Section of the MDT Dept of SMOPS. This section was initially headed by Lt. Cdr. Rob HOOLE. As well as being responsible for the minewarfare training of RSNF personnel the team were also responsible for all aspects of RN Sandown Class training.

The training of RSNF personnel commences with a period of English Language Training for all members of the ship's company, although not all at the same time. The training programme for each ship is structured so that all personnel complete their training on the same date in order that they can take the ship over from the shipbuilder. As a result the different specialisations commence their training at different times, with the engineers

starting first with the longest training period. All Ops Dept offices complete a 17 week Minewarfare Officers Course. This includes the Commanding Officer. This MWO course is very much based on the RN LMCDO MW Module although the content is obviously biased very much towards the Sandown Class as opposed to the Hunt Class. Other RSNF minewarfare course run by the MDT Dept of SMOPS are the RSNF MHD Course which is equivalent to the PO(MW) career course and the RSNF MSO (Minehunting Sonar Operator) Course which is basically a S(MW) course. One of the strange things about RSNF training is that although the MSO course is the equivalent of our S(MW) course the lowest rate in the RSNF is Petty Officer!

RSNF minewarfare training commenced with



# MISSION IMPOSSIBLE

the MWO Course for officers from HMS AL JAWF in September 1990. MW training for personnel from this, the first of class, completed in March 1991 with the end of the RSNF MHD course. The second ship's company to receive MW training was that from HMS SHAQRA. The Minewarfare Officers commenced instruction in December 1991 and the MHD's completed in June 1992. The HMS SHAQRA MWO course was joined by the Squadron Commander and his SOO who followed the same timetable of instruction.

I took over from Lt. Cdr. Rob HOOLE in April 1993 and at the time of writing we are in the final stages of preparation for the final RSNF courses which commence with the MWO course for HMS AL KHARJ on 18 October 1993. HMS AL KHARJ's courses complete in April 1994 with the end of the MHD's course. Although the RSNF have an option with Vosper Thornycroft to purchase a further three vessels it appears at present that they will not take this up. As a result our commitment to RSNF training finishes next year. The intention is that the three RSNF

Instructors will move across to the RN Career courses to provide the Sandown Class stream training instructors. There are also a number of other countries presently interested in the possible purchase of Sandown Class MCMW's some of whom would also be interested in receiving training from the RN. This could well lead to the formulation of a Foreign Training Team within the MW Section in the future. Watch this space!

## HUNTER PROJECT — UK MOD (NAVY) TEAM IN THE KINGDOM OF SAUDI ARABIA

By G. P. Johnson MBE, Commander Royal Navy

### Background

The Hunter Project is the small Naval Element of the enormous Al Yamamah defence agreement between the UK Government and the Government of the Kingdom of Saudi Arabia (KSA). The UK Government have contracted British Aerospace to be the Prime contractor for the whole Al Yamamah contract (which is mostly concerned with Air defence — supply of Tornados and other aircraft etc.) and BAe have contracts with Vosper Thornycroft who are the major subcontractor for the Hunter Project.

The Al YAMAMAH Project is run from MODSAP in London and the DG is an Air Marshal. The Hunter Project comes under the Director of Projects and is directed by Deputy Director SHIPS (DD Ships) who is an RN Captain presently based in London with a small staff of one Cdr. MCD, two Lt. Cdrs. (S & WE), one SPTO, one Lt. (W) and a CPOWtr. There are also two Lt. Cdrs. MCD as liaison officers with the RSNF ships and a WO WEA with the overseers at Woolston.

The Hunter Project involves the supply of ships, support and services to the Royal Saudi Naval Forces (RSNF) as listed below:

1. Single Role Minehunters (Al JAWF class similar to SANDOWN class) — three ordered, two accepted in UK, third due for acceptance in 1994 — further orders may follow.
2. An FSU including contractor manpower. Commissioned at King Abdulaziz Naval Base (KANB) in Jubail, KSA in 1993.
3. An Integrated Logistic Support Computer System (ILSCS) including contractor manpower. Commissioned at KANB in August 1993.
4. Interim facilities for accommodating the FSU, ships and stores prior to completion of the permanent facilities. Accepted in early 1993.
5. Naval Training, which includes the following: General and specialist individual crew training, Technical Officer training, Technician training, Diver training, Squadron staff training, Preliminary Sea Safety training and Basic Operational Sea training. Ongoing.
6. Three years' supply of support stores for Al JAWF class ships in KSA. Supply

support contractor manpower and the establishment of an ongoing re-supply, maintenance and defect repair systems.

7. Construction of the following facilities at KANB Jubail:
  - A new Jetty and Wharf under construction now.
  - Specialist Workshop contract about to be placed.
  - Covered Dry Berth contract about to be placed.
  - Permanent Shelter for FSU contract about to be placed.
  - New Naval stores building contract about to be placed.
  - Further construction orders may follow.
8. Provision and construction of the following facilities at KANB, Jubail:
  - Underwater Acoustic and Magnetic ranges (Sea & Harbour entrance)
  - Land magnetic range and deperring facility
9. Supply of exercise mines (VEMS and A Mk 14s)

### UK MOD Team

The Saudi Armed Forces Project comprises of UK and KSA-based personnel.

The *UK MOD Team* is the title given to the KSA-based personnel. The Team is over 80-strong (not including families) and is made up of mainly RAF and MOD civil service personnel. Most Team personnel are based at Riyadh near to the Air Force and Naval Headquarters but there are also team representatives at the two major air bases, Dhahran and Khamis Mushayt, and of course at the Naval Base in Jubail. The Riyadh personnel live in a new, purpose-built, deluxe housing compound, and work with BAe and the Saudi Al Yamamah Project Personnel in a building designed as a shopping mall with glass lifts, fountains and an underground swimming pool, sauna, bowling alley etc. (a bit like Lochinvar Building!). On the RN side we have two Lt. Cdrs. (WE & S) in Riyadh and one Cdr. (MCD) in Jubail at the moment but this is about to change.

The role of the Team is to oversee and monitor progress of the project and to give specialist guidance when needed. This role may sound simple but is often extremely difficult due to the commercial nature of the project which is alien to most RN personnel

and the different work culture of Saudi Arabia.

### UK MOD (Navy) Team

The UK MOD (Navy) Team currently comprises a Cdr. MCD two Senior Works Advisors and an Admin Officer. It is expected to enhance this team during 1994 with the addition of a Lt. Cdr. MCD, a Lt. ME, a WOMW, a WOWEA, a CPO(D) and a CPOSA. The team live in a large compound in Dhahran but work 90 Km North in the Naval Base at Jubail where the Al JAWF class ships will be based.

Living in Dhahran is very pleasant the compound has a large pool, tennis and squash courts, a weight room and a very active social scene. It is more like a small village of 130 families even with its own village shop and snack bar than the rather austere image created by the word 'compound'. There are many cultural differences in Saudi Arabia and some Western women find it difficult to adapt to the strict Islamic rules (women cannot drive etc.) but generally the generous leave arrangements and additional pay compensate for the living restrictions and Bahrain is only an hour away if you need a break urgently. It is an ideal environment for young children you can buy most things in the local shops and supermarkets (Safeways, BHS, Bodyshop etc.).

The temperatures reach an oppressive 48°C in the summer but it is a cool 32°C at midday now (31 September). When it isn't humid the weather is very pleasant in spring and autumn, we do get some rain in winter but at least it's not cold! (Rarely less than 10°C in Dhahran but sometimes they have frost in Riyadh.)

The job in Jubail is evolving but involves providing Operational Support to the RSNF as well as monitoring the performance of the Prime and Subcontractor. The aim is to help the RSNF integrate the Al JAWF class into their Navy and to help them maintain the standards which the RN have taught them in the UK. They are keen to learn and have a high regard for RN training and operating procedures.

We get two visits from Armilla ships each year and much to the surprise of the ships' companies most people have an excellent run ashore even the WRENS.

# Director General Surface Ships The Project

## WHO BUYS THIS KIT ANYWAY?

By Lt. Paul Schillemore



### Introduction

Whilst passing away the time in the appointers waiting room and wondering where fate would send me next, I discovered amongst the pile of flight internationals, Janes Defence weekly and the supply officers monthly (a thrilling read), the first issue of the MAD magazine. Having developed more than a passing interest in all things Minelike I had a quick thumb through. Being a WE and an Officer to boot, several days later a brilliant idea came to me! An easy way for the project to pass information to the user. A quick discussion with the boss and the editor and it was agreed that the ramblings of a WE could grace the pages of this illustrious magazine providing the words Muppet and Bubblehead did not appear. So here goes the first attempt to explain who, what and where the elusive projects for NAUTIS M and CAAIS are.

- Concept
- Feasibility
- Project Definition
- Full Development
- Acceptance
- Production
- In Service
- Disposal

Whilst the above headings are mostly self-explanatory I will give a quick note on each.

**Concept** the emergence of the idea for a new equipment, in simplistic terms "the enemy has mines, we need minehunters".

**Feasibility** Can it be done technically, in time and at a cost we can afford?

**Project Definition** this section carried out with a contractor spells out exactly what we want and identifies how he will design it and refine the costs. He will also identify any problem areas.

**Development** at the end of this period we have a fully working and tested equipment.

**Acceptance** the process where the project ensures that the equipment does

what the sponsor asked for. It should be noted that this is what the user asked for at the concept and feasibility stages as opposed to what he wants now.

**Production** the period where the equipment required is built and installed, the purchase of spares are also made at this time.

**In Service** the bit where you get to use the kit.

**Disposal** The selling or scrapping of the kit. Not that easy if its a Nuclear Submarine.

Having detailed the correct method of procurement you will be surprised to hear that NAUTIS was procured under a different set of rules. A method called Cardinal Point Specification was employed, this basically means that we tell industry in broad terms what we want and they tell us what equipment they have to fulfil our requirement. This enables the Mod to take advantage of equipment designed by private venture.

### The Teams

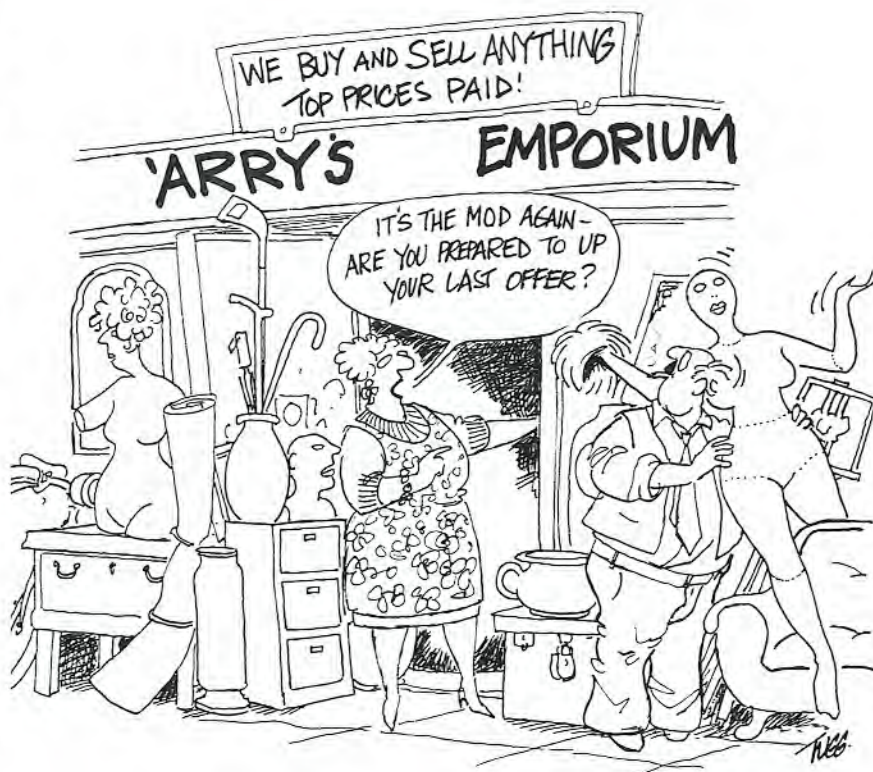
The who is easy as both projects are in politically correct language "numerically challenged".

The Project Manager for both is Mr JOHN FINCH short title SS632.

The NAUTIS M equipment manager is Mr JOHN REEVE (SS632C) and the CAAIS equipment manager is Mr JOHN STAFFERTON. I am the Trials and Application Officer and of course the only member of the team not called John. The teams are also ably assisted by MARK GILBERT who is the production chap, e.g. the chap that looks after the spares. The where is also easy we are situated in DRA PORTSDOWN in block 5B which is one of the old wooden huts tucked under the vast array of radar aerials, close enough in fact to necessitate screening for our PCs and for the author to contemplate a regular medical check-up at the appropriate department in Haslar. The what is more difficult to explain but bear with me and I will try anyway.

### Procurement for Beginners

There are seven phases to the procurement of any major equipment, these are:



# Director General Surface Ships The Project

## NAUTIS-M

The Naval Autonomous Tactical Information System-Minehunting (NAUTIS-M) procurement was started in 1984 as the command system for the SRMH. I do not intend to detail the system in this article, those interested should read BR8781 (2) vols 1, 2 & 3 the operating instructions, these books are a 'mine' of information for the budding NAUTIS user. Suffice to say that despite its critics the MHS A3 system represents the very latest in mine warfare technology actually in service in the world. The success of the NAUTIS system in sales to Foreign Navies, including the USN, is an indication of the capabilities of this system. Until the advent of the HUNT midlife upgrade NAUTIS will remain the most sophisticated minehunting command system in service. The current status of the system is that it has achieved provisional acceptance and HAT and SAT F have been successfully

operators will need to become fully conversant with all the functions available to them and the methods of achieving the desired results but with the Command Operator Trainer now under construction it is expected that a pool of expertise will rapidly develop and the benefits of the system will soon be apparent in the performance of the SRMH.

## The Future

The next batch of SRMH's is expected to be tendered for soon and the possibility of fitting a colour version of the current NAUTIS system is being investigated. It is also intended to introduce a version of software that provides a blind pilotage package. Other changes to the software

NAVPAC interface few changes will be made unless forced by obsolescence or an urgent tactical requirement. It is anticipated that the system will be replaced during the planned mid life update of the HUNT Class MCMV.

## Information

An important factor in the success of any equipment is the flow of information from the user to the project team. To this end the project produce BR's and other documentation such as the Program Assembly Information Document (PAID), which should be read by all users and maintainers of the equipment, as it contains not only the instructions on how to load the software but changes since the last issue



completed in HMS CROMER proving that the system and software achieve all the requirements of the original staff requirement.

NAUTIS provides many features for the discerning minehunter such as Position fixing (comparable to the soon to be trialed NAVPAC), Minehunting planning, Outputs to the Sonar and Ship Manoeuvring System, Storage and Display of contacts/reference points and other related data, Surface and Underwater Picture Compilation, Control of Radar type 1007 and provision of Auto-tracking.

NAUTIS is now at the stage whereby it fully meets the requirements laid down in the staff requirement in 1983. There will undoubtedly be a period during which the

will depend upon the experience gained by operational use of the system and any changes to the interfaces or tactical doctrine. As much as project would like to incorporate "good ideas" from the fleet they must first be agreed by COMMW and endorsed by the Director of Operational Requirements and then given a priority, having got this far any proposed change is assessed for feasibility and cost. In today's stringent financial climate it is obvious that a strong case for any change must be made.

## CAAIS

The CAAIS system is well-known within the minehunting fraternity and with the exception of the new edition to accept the

and any noteworthy features or errors. Communication from the user is best received in the form of a S2022, yes operators can use this mystic engineering form and its correct use will ensure that your query is investigated and answered. However the author is more than willing to answer any questions, his number is in the PAID.

## Summary

It is hoped that this article has been of some interest in informing the reader of the existence and purpose of the project. It is intended, editor permitting, to provide a regular feature in this magazine containing information on the use and maintenance of the NAUTIS and CAAIS systems.

By Ed  
Delighted!



## Southwell

# THE VIEW FROM SOUTHWELL

By Lt. Cdr. Rob Hoole

## Changing Views

From the window of my office in DRA(S), the Defence Research Agency at Southwell on Portland Bill, I have a glorious view out over the English Channel. On Thursday mornings, I can watch ships bound for the weekly war as they complete their departure leadthrough via the swept channel while being attacked by low-flying Hunters.

Although this view has been enjoyed by many MCD Officers before me, things are changing and I may be the last to look through this window as the Naval Minewarfare Applicator to the Minecountermeasures and Diving (MCMD) Group of the Director General Underwater Weapons (Naval) — DGUW(N). The titles of the organisation (as one of the tenants) and the establishment (as the landlord) have changed occasionally through the years and, before DGUW(N) existed, people will remember DUWP(N) at AUWE, ARE and now DRA Southwell. To add more ingredients to this alphabet soup, my line authority rises via AD/MCMD, DTW, DGUW(N) and DGSM to C of N who sits on the Admiralty Board. A diagram may help: (See page 12).

## No More Cradle to Grave

The SSC (Sea Systems Controllerate) of the MOD's Procurement Executive (PE) has traditionally embraced the "Cradle to Grave" philosophy for naval equipments. This has involved the same organisation in the development and procurement of new equipment and the provision of in-service support until a replacement is required when the cycle starts again. Such a philosophy has had benefits in maintaining critical expertise throughout the life of a piece of equipment which can then be re-invested in the development and procurement of a suitable replacement. On the other hand, it has made life difficult for the accountants by blurring the distinction between funds

spent on the development of new equipment and funds spent on the support of in-service equipment. To some people (including the Minewarfare community — remember DREAMT?), this blurring has at times given project managers the funding "flexibility" to provide a quick and obvious solution to a niggly problem which would otherwise have dragged on unresolved. Unfortunately, this usually meant that no provision was made for support which led to grief when a repair or replacement was eventually required.

## Naval Support Command

The advent of the NSC (Naval Support Command) means that all this is changing. Personnel are now required to complement the newly-formed NSC to manage "in-service support" activities in equipment areas mirroring those of the SSC. Since no additional resources are available, staff are being taken from the present SSC to fill the new posts in the NSC. Suffice it to say that this is a subject of local concern. The problem of how to "salami slice" a person who is the only expert in his field is having to be faced here as elsewhere. Exceptionally, MCMD Group is recognised as having reached critical mass and will therefore continue to procure equipment and provide in-service support for the time being. It is not planned to create a MCMD section of the NSC until at least 1995 so we will reap the benefits of having the current team staying together to develop HUNT Midlife Update (HMLU).

## Closures and Moves

The most dramatic local changes involve the closure of DRA Southwell and the Naval Base at Portland combined with the move to sea training to Plymouth. It is intended that all MOD PE staff be co-located in a purpose-built establishment at Abbey Wood near Bristol by mid-1996.

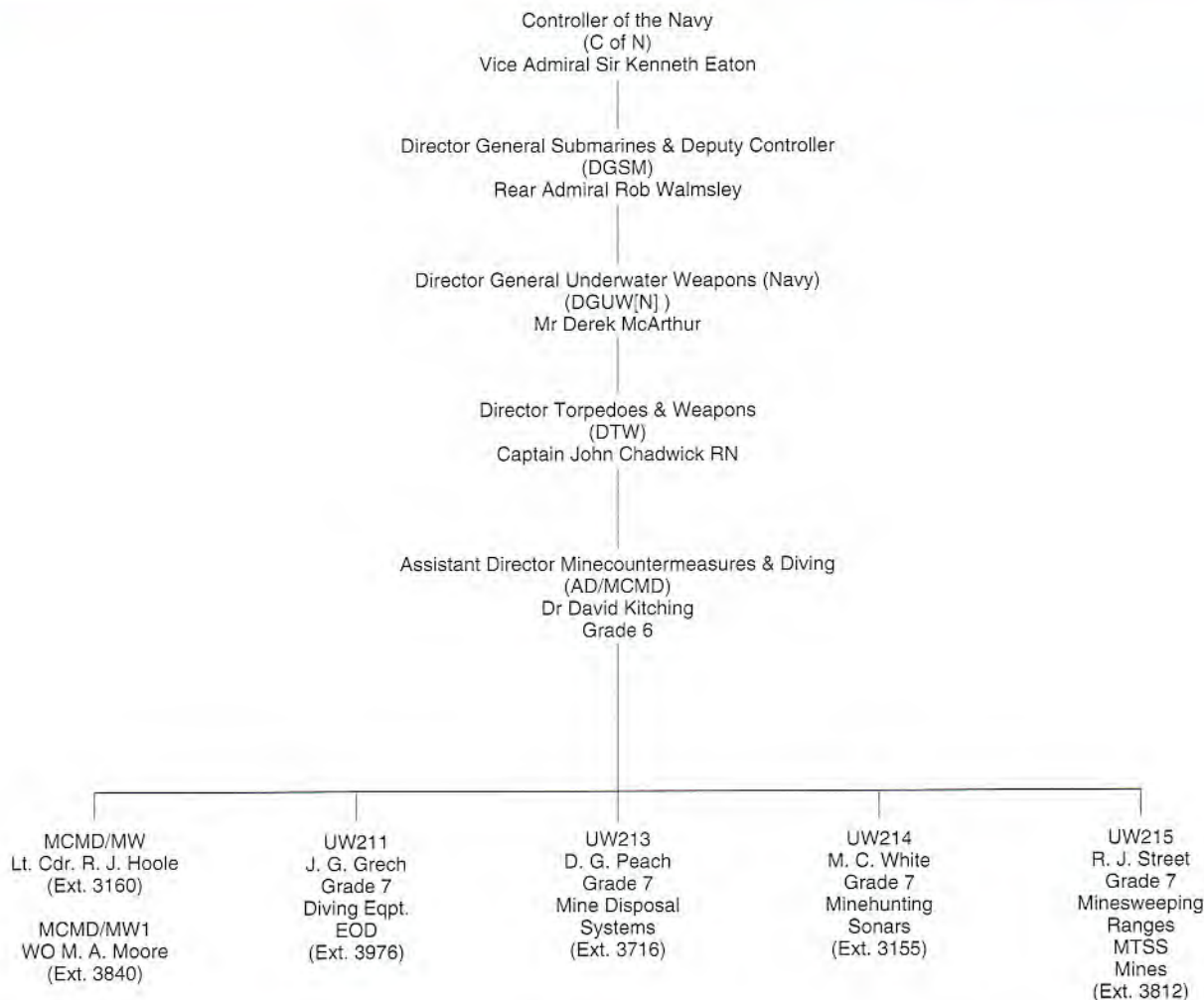
It is also planned to co-locate NSC staff in the Bath area at some time in the future. Portland's DRA staff, except for those at DRA Bincleaves which is remaining open, are expected to move to occupy the old Atomic Energy Establishment at Winfrith a few miles east of Weymouth.

## MCMD Naval Personnel

Notwithstanding pending reorganisation, life in MCMD Group goes on. Lt. Cdr. Peter Robinson is the Group's Diving Applicator and can be seen on the golf course when not in the water. He recently tested a mine lifting bag at Bincleaves where I believe he correctly *identified* his deputy, CPO(D) "Harry" Harrison, *recovered* him to shore, then successfully *exploited* him in the "King's" by claiming his own pockets were designed for holding hydrostats, not money. I must ask him to provide the whole story for the parish magazine. To our delight, Warrant Officer (Minewarfare) "Pony" Moore, the Group's Minewarfare Trials Coordinator, was recently awarded the Meritorious Service Medal. He is heavily involved with the SANDOWN Class ships and spends much of his time at BUTEC where his knowledgeable assistance is in great demand.

## SANDOWN Class

Sonar 2093 is meeting its Agreed Characteristics and has achieved some spectacular ranges against a variety of targets in varying depths and conditions. RTPME is providing particularly accurate predictions and, if anything, is slightly underestimating the sonar's actual detection and classification performance. Furthermore, it has been agreed that RTPME predictions will be used as the basis for acceptable sonar performance during SAT(F) which is to commence early next year. Problems associated with Towed body gremlins have dried up since production was moved from the USA to GEC Marconi at Templecombe. The first



factory-issue MOD 'O' Towed Body (incorporating all of the development modifications) should be installed in a SANDOWN Class ship by the New Year with other MOD 'O' Towed Bodies following at four-week intervals. Work continues in order to refine overall weapons system performance for Fleet Weapon Acceptance and improve the RCMS2 launch and recovery system but otherwise, the SANDOWN Class is starting to show its true potential. More attention is now being focussed on upkeep and support aspects.

## HUNT Midlife Update

Industry has been invited to tender for the integration of HUNT Midlife Update Feasibility Studies. Whatever form HMLU equipment takes (and most options remain open) there will then be a single Integration Contractor responsible for co-ordinating the entire package. The project is being managed by DGSS MCM Platform Group at Bath but 60-70% of expenditure will be on MCM systems. In the meantime, countless studies are

involved in balancing the cost and operational effectiveness of different equipment fits for HMLU. Included in these studies are various systems for minehunting, minesweeping, mine disposal, AIO, propulsion and ship control. Particular use is being made of computer models. Even habitability will be studied although most of the money is quite properly committed to increased weapon capability. The results of all these studies are aimed towards achieving an in-service date of 2001.

## MTSS

I have seen the prototype Minewarfare Tactical Support System (MTSS) flashed up in its purpose-built ISO container at Computing Devices Eastbourne and it certainly looks impressive. In its different configurations, MTSS provides a full suite of tools for MCM planning and evaluation at all levels from the MCMTA in a MHQ down to an individual MCMV. It incorporates the ability to calculate MCM parameters prior to operations then read and display operational data from MCMVs for analysis on completion. Other features include facilities to help with operational

programming, display relevant tote information, record and replay MCM operations on a big screen, perform and display risk calculations, and provide word-processing and signal message drafting. Fleet Weapon Acceptance is due in 1994.

## Liaison with the Flotilla

There are many other MCM projects, old and new, but those I have described are consuming most of MCMD's resources at the moment. On a personal note, I take every opportunity to visit MCMVs when they come to Portland. This enables me to update myself and provide a sounding board for the concerns of those I meet. The single most important part of my job is to liaise, interpreting where necessary, between the MCM Flotilla and the civilian project staff at Southwell. Help keep the information flowing by good use of S2022s and the occasional visit, memo or 'phone call on Southwell Ext. 3160. Drop in for coffee and share my view sometime (while I still have one).



# Trials

## WEAPON TRIALS AND ACCEPTANCE

By WO Pete Hitchcock

Would you believe two years have passed since my last article in Vol 2 No 1 dated June 1991, so I'm taking this opportunity to update you on what has been achieved so far and, in particular, those Trials completed in our five Sandown Class Minehunters. I did ask Tony Sheaf to write a Dit since he has now acquired the required grade in GCSE (England), I thought it might have given him the opportunity to test it out, but as always with Shoots Sheaf, there is always some excuse to back-out!

As you see from the "Completed Trials" MATRIX (below) we are gradually getting there. Hopefully by Christmas a few more of those blank spaces will be filled. Obviously for security and political reasons I cannot include Trials results, but it is suffice to say that they are encouraging with only a few niggling problems on Sonar 2093 to overcome. NAUTIS M has given us the least trouble, and I think that those of you who have had hands on experience will agree with me that it's a really user-friendly system (pity it's not in glorious technicolor).

RCMDS Mk 2 also has had very few problems and a successful Project development Remote Control Cutter and deep MDC Trial, was carried out by HMS Inverness on the BUTEC range last February. However, the only major headache is the method of vehicle recovery, but these problems are being addressed, and will culminate in a Trial in the Autumn to decide the safest and most efficient way ahead. I am only sorry to say at this point that such an important factor such as Vehicle deployment and recovery was not given the best SRMH design consideration. (Batch 2 Designers take note.)

Since relieving WO Pony Moore in January 1988 I have been involved with the Acceptance into service of VEMS, FEMS, GMU (in and out), Sonar 193M Mod 1, RCMDS Mk 1 and recently Sonar 2059. Sadly there is one Acoustic Minesweeping system that remains outstanding from Fleet Weapon Acceptance and there are no prizes for guessing which one. However, I'm pleased to say that the system has painstakingly been brought up-to-date and

made much more Operator-friendly by our familiar and friendly Minesweeping Wizard, Jock Fraser. The introduction of the Combined Influence Sweep Control Unit utilises the functions of both the Magnetic and Acoustic sweeps and therefore simplifying the whole process. However, please note that Post Refit Trials of the individual systems is a pre-requisite for CIS and the Towed Acoustic Monitor must be embarked to conduct both Naval Weapon Harbour and Sea Trials (NWHT/NWST).

Currently I'm Acting Local Diving Trials Officer, filling in the gap between the departure of Lt. Cdr. Clive (The Dive) Rogerson or Redders as he is affectionately known in the Kyles of Lochalsh and his relief Lt. Graham Collins, the author of that extremely interesting article, "Personal Finance" (or was it called "Don't count your chickens") in the last MAD Mag. However, I'm proud to say that despite conducting Post Refit Diving Inspections and Trials to HMS Atherstone, I have declined to accept any offers of Diving pay.



**SANDOWN CLASS MCD TRIALS COMPLETED (TO DATE SEPTEMBER 1993)  
EQUIPMENTS**

SHIP	TRIALS	SONAR 2093	RCMDS Mk 2	NAUTIS M	SPCS
SANDOWN	INSTALLATION INSPECTION (II)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON HARBOUR TRIAL (NWHT)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON SEA TRIAL (NWST)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
INVERNESS	INSTALLATION INSPECTION (II)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON HARBOUR TRIAL (NWHT)		COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON SEA TRIAL (NWST)				COMPLETED
CROMER	INSTALLATION INSPECTION (II)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON HARBOUR TRIAL (NWHT)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON SEA TRIAL (NWST)	COMPLETED		COMPLETED	COMPLETED
WALNEY	INSTALLATION INSPECTION (II)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON HARBOUR TRIALS (NWHT)				
	NAVAL WEAPON (NWST)				
BRIDPORT	INSTALLATION INSPECTION (II)	COMPLETED	COMPLETED	COMPLETED	COMPLETED
	NAVAL WEAPON HARBOUR TRIALS (NWHT)				COMPLETED
	NAVAL WEAPON SEA TRIALS (NWST)				

## NAVAL CONDITIONS OF SERVICE AND NAVAL PERSONAL AND FAMILY SERVICES

By The Director of Naval Service Conditions

Given the scope of the changes that the Naval Service has had to confront since Options for Change broke upon us in 1990. It has become fashionable in some quarters to question the Navy's commitment to "the most important single factor". I thought it timely to explain what is going on behind the scenes to ensure that, in our headlong charge to create an affordable post cold war Navy, we do not create a Service so busy it cannot care for its people and so lean that there is no one left to care for!

services. In particular we work closely with DPer (RN) in the MoD Central Staff, who with their Pay and Allowance expertise and links with the AFPRB, have particular responsibility for matters which directly affect our financial well being and comparability with the civil sector.

However, remuneration is far from being our only personnel concern. The Conditions of Service staffs are working in tandem in their respective fields to ensure that the concerns of people are properly addressed and that the human dimension is understood and given

minorities etc) in addition to the handling of Representations and Complaints, Sea and Shore conditions of service, Naval Charities, Discipline policy and the day to day management, including standards and practices in the Regulating Branch. I make it my business to stay in tune with the views of the individual and am able to back these views with Navy wide statistics from CENTURION, and the Continuous Attitude and other surveys. Basically anything which affects people, apart from work, is of concern to DNSC. 2SL's PLT who work to me, ensure people and I also collate the feedback on PFS for 2SL. This scope of activity gives me the clearest possible view of the personnel factors affecting the Royal Navy.

While everything around us seems to be changing, we need some framework within which we can manage our conditions of employment. This is provided by the Second Sea Lord's Personnel Functional Standards (PFS), which set down the standards and guidelines for the management of our people in the Royal Navy. Initially maligned as a Sailors Charter, PFS are proving a very useful measure of and a degree of protection against the corrosive effects of reducing resources on conditions of service. No one, least of all me, will claim that conditions of employment are not changing, they are throughout the country. Redundancy, pay limits, reduced resources and the ever increasing demands for improved efficiency, inevitably increase stress and stretch. The services are in a difficult phase of restructuring too and with Defence Cost Studies into every aspect of our business, the Pensions Review and the Independent Review of Pay, Allowances and Conditions of Service, life will remain uncertain for some time to come. But at least with PFS we know what Conditions of Service best practice is. We have a goal.

The Navy Board are aware of the



*However, remuneration is far from being our only personnel concern.*

As the Director of Naval Service Conditions I am charged with ensuring that the Navy maintains employment conditions which are competitive enough to attract and retain sufficient quality people to do its business. In addition, my department either advises on, or directly manages, many important aspects of our personnel support services. To achieve this task, DNSC staff have extensive links throughout the Navy, the central staff and other

sufficient visibility. It is important that the nature of maritime service is clearly understood by our terrestrial colleagues in the other services and it is important that the RN retains its own conditions of service focus.

Under the reorganisation of 2SL/CNH my responsibilities have widened to encompass Naval personal and Family Services, RN Married Quarters provision and management and Equal Opportunities (female issues, ethnic

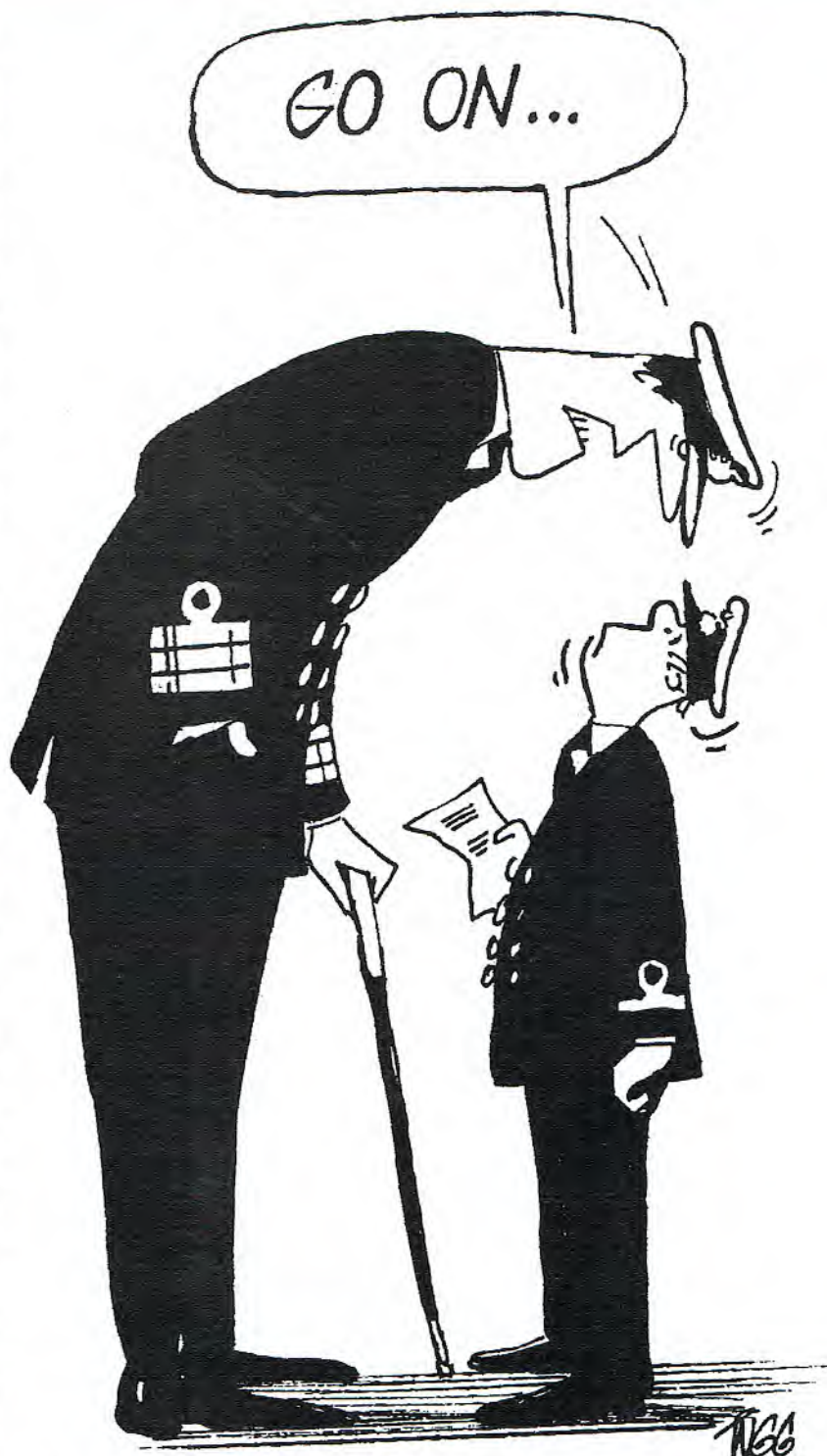
# Conditions

frustrations that “not knowing” bring. Improving internal communications is a very high priority, but as much of the change has to be approved by Ministers and announced in the House of Commons first, inevitably the press are often able to broadcast the information before we can. However, we are pressing hard to ensure that the Navy is kept abreast of developments. **Navy Life**, which is published in house by DNSC, is targeted at Senior Rates and Divisional Officers. It aims to keep our middle managers abreast of developments from a personnel perspective.

I would be the first to admit that quality of life is not as good as I would like. Inability to plan, separation, promotion prospects and frustration with the command chain over our apparent inability to manage people as well as we would wish, are the major causes of dissatisfaction. I use this information to persuade the central policy makers to modify their less palatable “efficiency” initiatives. However, I have to say that at the moment RN conditions of service are competitive. In the medium term pay, allowances and quality of life will have to be closely watched, a sense of stability regained, stretch checked and promotion prospects improved if PVR is not to rise to unsustainable levels again.

My staff are working hard to deliver what we believe you want and the Navy can afford. You can also help, PFS were designed as a statement of the Navy's commitment to its people, if you are an Officer or Senior Rate you should be aware of the “standards” of personnel support which are set out in PFS and which the Navy resources. If the standard set out is not being met, I encourage you to report that fact upwards. It is only through your vigilance that we can protect what the Navy Board considers to be the minimum service conditions requirements and therefore quality of life.

It is my job to represent your interests to 2SL, and ensure with my colleagues, that as the Navy changes we maintain a service which can recruit and retain sufficient quality people. It is the Service Conditions staffs, Commands, Commanding and Divisional Officers duty to ensure that within the resources



*If the standard set out is not being met, I encourage you to report that fact upwards*

allocated we provide a worthwhile, challenging and rewarding career, in which we can all make a positive contribution. People remain the most important single factor.





## “The Tenth is dead . . . Long live the ITS”

By Lt. S.M. Elliman R.N.

On 31 March the 10MCM Squadron was disbanded. Originally formed after World War II as the 101 Minesweeping Squadron manned by the RNVR, the Squadron was renamed the 10 MCM Squadron in the early sixties. In 1963 ships of the squadron participated in Operation CABLE WAY and in 1968 cleared Q routes in Operation NEW BROOM off the coast of North West Europe. In 1979 the organisation was restructured in its present form, operating a mix of TON Class MSC and MHCs with an RN Commander as Senior Officer. These vessels regularly carried out Granada patrols and Pikes during the 70s and early 80s.

From 1984 the RIVER Class MSF was introduced into the Squadron, finally replacing all the TONs in 1985/86. This ship had the unique capability of conducting EDATS to the depth of 200 metres. The main war role of the MSF was to operate in the Clyde areas at a time of conflict clearing safe channels for NATO submarines transiting in or out of Faslane.

The last Commander, 10MCM Squadron was Cdr R. A. MARSHALL, the seventh Squadron Commander to be appointed since the restructuring in 1979. Of the six previous MCM10s, two are still serving with the RN, Cdr G. R. BARTLETT OBE and Cdr S. F. M. McCASKILL. Cdr MARSHALL headed a staff of twelve RN and RNR personnel, based at Rosyth. The Squadron consisted of nine MSFs and eight ARCHER Class vessels, which were based around the UK. The MSFs were manned solely by approximately 1800 seagoers from the RNR, who participated throughout the year in major NATO exercises and SQUADEXs. Last year the squadron took part in Exercise LINKED SEAS in May and SOLID STANCE in October. On each occasion six ships were actively involved. Due to the re-organisation of reserve forces and the present MCM requirement, the RIVER Class MSF's no longer have an MCM role. HMS HELFORD, CARRON, WAVENEY, DOVEY and HUMBER paid off to disposal in November last year. The

assisted by a CPO. The Officer in Charge is also the CO of the ARCHER Class Vessel. The day to day running of the boat is carried by a CPO (OPS) any, CMEA(M) and two Junior Rates. In addition to URNU responsibilities the Inshore Training Squadron will act as a focus for the co-ordination of RNR training within the Minor War Vessel Flotilla on behalf of COMMW.

This is the ideal opportunity to thank and commend the Taxmen, Bank Clerks, Taxi Drivers and Accountants, to name just some of their civilian jobs, who make up the RNR and have put 100% into the weekends and two week deployments carried out over the years. However, new



*The Final Home-coming last entry into Portsmouth of the MSF's with RNR's at the helm.*



four remaining ships departed from the Squadron in February on completion of a final two week training period. HMS ORWELL will become the Dartmouth Navigational Training Ship whilst HMS ARUN, SPEY and ITCHEN will join the Northern Ireland Squadron, after completing DEDs. Of the 1800 RNR seagoers, about 500 will be retained. Of those, some 175 officers and men will train in ships of the Minor War Vessel Flotilla. Approximately 2 officers and 5 ratings will be attached to each ship. Additionally RNR officers and ratings will augment MCMTA's and MCM Cells in HQ's.

On the 1 April the Inshore Training Squadron Staff was formed comprising former members from MCM 10 Staff. This organisation will control the existing eight ARCHER Class and gain possession of a further 6 ships from the disbanding RNXS. These vessels will be used to provide basic naval training to university students throughout the UK. This gives the RN a good opportunity to heighten its profile throughout the country. Six more universities; Oxford, Cambridge, Newcastle, Hull, Birmingham and Cardiff have set up RN units. Each university will recruit up to 50 students. This task is headed by a Senior Lt or Lt Cdr,

challenges now lie ahead especially for the officers and ratings selected to be affiliated to minor war vessels. Their tasks will include employment aboard both HUNT and SANDOWN Class MCMVs and OPVs. However, it is believed due to Options for Change many characters who formed the hard core of RNR personnel will be sadly missed for their philosophy of minesweeping ie: "I cant find that bit of equipment down the sweep store Chief" and when the equipment was found, would embarrassingly say "Well, its only a hobby". However the best quote heard to date was "what no stand-easy?". But seriously it has been noted throughout the years that personnel have sacrificed their own time to the benefit of their reservist careers.

RN personnel based at the RNR units (not all are on lodgers!), should also be thanked for their work on keeping the MSFs operational throughout the year, as should present and previous members of 10 Staff.

By Ed: Congratulations to Lieutenant Elliman on his selection for promotion to Lieutenant Commander. WMP 1 October 1994!

## MCM 3

# THE SANDOWN CLASS — A WORLD BEATER

By N. D. B. Williams

Squadron Commander of the Third MCM Squadron

Now that the first of the Class, HMS SANDOWN has achieved Operational Date Material Assessment (ODMA) soon to be followed by HMS INVERNESS and CROMER, it was considered high time to submit a comprehensive set of articles on the class. Hopefully these will explode a few myths and give the reader a clearer understanding both of the ships and their capabilities, but also of the reasons for some of the delays in achieving operational status.

The wait has been worthwhile, the SANDOWNS have already proved that they can locate and classify contacts at deeper depths and longer ranges than achieved hitherto by any MCMV.

Squadron ships have produced the following articles covering the period from Build to Operations, and include details on the very capable RCMDV II. Hopefully, these will enable readers to become more aware of the problems which the ships have had to overcome and the world-beating capabilities that they already have.

## Sandown Class Caps and Lims — HMS Walney

Moves to develop the 'Sandown' class first commenced in 1980 when it was realised that, despite great advances in naval and medical science, the 'Tons' would be unable to minehunt AND minesweep AND sustain human life in the next millennium. The class were designed to complement the broad range of capabilities found in the 'Hunt' class through provision of a greatly improved minehunting performance; the recent formal acceptance of HMS SANDOWN into the MWV Flotilla means that operational units of the class will soon be appearing on a Q Route near you . . .

The vessels that presently comprise the 'Sandown' class — SANDOWN, INVERNESS, CROMER, WALNEY and BRIDPORT — are assigned to the Third Mine Countermeasures Squadron based at Rosyth. Their vital statistics are:

Complement:	5 Officers 7 Senior Rates 22 Junior Rates
Displacement:	484 tonnes
Length:	52.5 metres
Beam:	10.5 metres
Draught:	2.2 metres

Statistics aside, the key to the ships' capability lies in the MHS 3 minehunting system of which the principal components are the 2093 sonar, the NAUTIS AIO and RCMDS MK2. Each system represents a major advance on past technology. The 2093 is a variable depth sonar which utilises a selection of four frequencies to detect and classify ground and

in-volume mines on the continental shelf at ranges far in excess of those being achieved by present RN and rival systems. 2093 permits the tactical flexibility to conduct simultaneous detection and classification of separate contacts or simultaneous route survey and search. The use of VOS/RTPME facilitates deployment of the towed body to an optimum depth for the appropriate sonar conditions and target mine. Obviously, the presence of a large box of very expensive electronics dangling far below the ship's hull has a focusing effect upon the concentration of COs, MWOs and MHDs alike, but thus far sonar/sea bed interactions have been few and the temptation for one 'Sandown' to challenge another at underwater conkers has been successfully resisted!

Prosecution of the mine is conducted by RCMDS 2 (PAP Mk 5); this is a flexible and capable system with significant improvements over the combat-proven vehicles operated by the 'Hunts'. It can operate at twice the depth of its predecessor, using B/W and colour TV and an on-board sonar to assist in contact location. Mid-water capability is conferred by vertical thrusters and cable cutters whilst ground mines are dealt with by MDC. A diving team is carried to perform the 1001 tasks that are beyond the capabilities of ROVs.

Binding the whole system together is the NAUTIS AIO which has proved free of the vices associated with the Mk 20 plotting table of MHS 1 ("WEO, I think we've got some sector error . . .") or CAAIS/MHSA2 ("Fetch me an axe someone, fetch me an axe . . ."). Quite simply, NAUTIS is very good.

However, despite the immense potential of these systems, progress towards full operational capability has not been easy and the following paragraphs will outline the story so far . . .

## Build to PST's — HMS Bridport

HMS BRIDPORT, the fifth and (at present) latest SANDOWN Class Minehunter, was launched by Lady Deborah Hill on 30 July 1992 at the Southampton Yard of Vosper Thornycroft (UK) Ltd. Earlier that month the first of the 34 Ship's Company joined, namely the MEO and the WEO in order to monitor the installation and setting to work of the multitude of technical equipment found in the most advanced minehunter. October saw the next new joiner with the arrival of the First Lieutenant to take up base in the allocated portcabins and begin to unravel CENTURION's manpower allocation; with 22 junior ratings, not a great problem I hear you say!


By Christmas, the Captain, the Wardroom and all the Senior Ratings had arrived, some just in time for the festive celebrations and to collect a warrant for two weeks' leave. The ship was also beginning to resemble a minehunter as opposed to a plastic mould of a hull and scaffolding was disappearing overnight as

quickly as piping and cabling was appearing during the day.

It was after the New Year that the tempo began to rise, almost imperceptibly at first, then gathering pace as more of the Ship's Company were drafted in and Contractor Sea Trials (CSTs) drew nearer. Typically, when there was plenty of time earlier on in the year, the workload was manageable but now that a deadline was this side of the horizon an organised increase in pace ensued to get the ship ready for sea. However, this did stand us in good stead for the two unprogrammed periods of CSTs due to some difficulty with the machinery. Easter leave was a welcome break. The true meaning of standing by a ship in build was realised after leave, especially at the end of the month with the arrival of lodging allowance (or not as was the unplanned case of 50% for the Ship's Company). At the time of writing this article I can safely say that five months on everyone's pay has recovered, just! With this added bonus of living in luxury in Southampton and five minutes from the ship, office hours and the work rate increased proportionally. That final couple of months in build was incredibly busy, systems and procedures unlike any other ship had to be perfected, routines and departments set up ready for the move on board, chacons full of stores of every description waiting on the jetty and a forest worth of logs compiled for ammunition down to the ship's bikes. May came and went impossibly fast and then suddenly 15 June was upon us; Acceptance Day had arrived.

The ceremony of accepting HMS BRIDPORT into the service of the Royal Navy was carried out in the presence of Lady Hill, the ship's sponsor and Captain Ship and Submarine Acceptance (CSSA). It was followed by a two day period of organised mayhem. The fact that the stores down to the last bread roll and washer were fully embarked, not to mention personal gear, routines were set into motion, fast cruising achieved and the ship ready for sea within 48 hours is no mean feat and a reflection on the dedication and time put in by the Ship's Company. Sod's law dictated that the very first passage of HMS BRIDPORT round to Portsmouth would be spent in low visibility surrounded by the majority of the south coast yellow welly brigade; every navigator's dream!

The next major hurdle was the successful completion of PST's in four weeks time, three days of purely safety work-up to achieve a rating of safe or unsafe. Unlike HMS BRIDPORT's four sister ships who passed up to Rosyth straight away for Staff Covered Weapon Training with Squadron Staff, the canteen boat went west via Portland and Dartmouth picking up the Squadron CPO(MW) en route before turning right and heading north up the Irish Sea. This was a period of exercise following exercise, each slowly improving on the last, eventually reaching fleet



standards. Douglas, Isle of Man, provided an extremely welcome break if only to collate the lessons learnt over the last few days and prepare for the next period of weapon training, running out of that well-known Scottish holiday resort, Campbeltown. A week of Squadron Staff Covered Weapon Training during their Operation PIKE, interspersed with the occasional social event and acquisition of the Squadron Cock (Squadron Sports Trophy now proudly displayed on the bridge roof) saw us heading north again and encountering the first rough sea since leaving Woolston — you can teach securing for sea until you are blue in the face but there is only one real lesson! The rest of the trip over the top, with the exception of losing both main engines for five hours due to fuel starvation, was uneventful and the arrival in Rosyth was the beginning of the end.

It was around this time that the Ship's Company were hit by a strange phenomenon, already one AB down since build the ship quickly lost another, then a CK and an LH and ended with the departure of the Coxswain half way through the Staff Sea Check. Such rotten luck that they all went just before work-up! This class of ship not being noted for its excessive manpower, HMS BRIDPORT had to find some hands pretty quickly and thanks to numerous ships alongside at the time the ship's company was back up to reasonable figures. PST came and went not without its usual ups and downs and HMS BRIDPORT emerged the other end with a Safe assessment and cleared to continue with the Part IV programme.

With another run ashore on the horizon, the ship sailed for a three day visit to London and summer leave in Portsmouth, sure in the knowledge that we in 33 days have circumnavigated the British Isles quicker than any other new ship — unless, of course, you know otherwise!

#### Part IV Trials — HMS Cromer

The period after build and up to Operational Date Material Assessment (ODMA) is known as Part IV Trials, during this period the platform and its equipment is thoroughly checked to ensure the ship is ready in all respects for operational service. In theory, an MCMV's Part IV Trials period should be approximately six months in length. However, as most readers will be aware, the Trials for the SANDOWN class have had to be somewhat extended to cope with several problems, more of which later.

# MCM 3

HMS SANDOWN achieved ODMA after three years. At the time of writing HMS INVERNESS will achieve ODMA after two and a half years, HMS CROMER after two years, HMS WALNEY after one and a half years and HMS BRIDPORT after one year. Assuming this trend continues BATCH TWO of the class may achieve the six month aim.

Much of the Part IV trials period has been committed to continued development of sonar 2093, which for the Ship's Company has required watching the ODMA date shift incessantly right and living with constant uncertainty about the ship's programme. It is now a standing joke that the HODs, and the Ops in particular, only write in their diaries in pencil. It is a sad fact of life, that as a Part IV trials ship, your programme is inevitably subject to regular and quite dramatic change.

All the prime contractors are based in the South, Marconi (sonar and combat system) are in Templecombe and Addlestone respectively and the yard that built the Ship is in Woolston. As a result the ships still in Part IV Trials, tend to spend a fair amount of time on the south coast for DRCN/modifications. Less than ideal, you might think, for a Rosyth-based ship. Indeed, this view is often expressed (strongly) by the Scottish Natives onboard.

When considering the reasons for the extended Part IV Trials of these vessels it must be remembered that the SANDOWNs represent a quantum leap, in both technological and design terms from their HUNT predecessors. The 2093 Sonar in particular, is unique, with its much advanced capabilities in comparison to the 193m and indeed other Minehunting Sonars available throughout the world. In addition, the NAUTIS(M) AIO system, the RCMDS II and the Ship Position Control system (SPCS) as well as the employment of Voith Shneider propulsors, to name but a few, are all quite radical departures from previous MCMV design concepts. It is, therefore, not surprising that there have been teething problems, but these are now being solved.

A large proportion of Trials time is spent at BUTEC in the Kyles of Loch Aish, where the sonar and associated equipment is tested against underwater targets at varying depths. The divers amongst you will know this area well, it is certainly not renowned for its sophisticated entertainment facilities, unless you count walking, cycling and Jock Jumping. However, the trials require long working hours, normally eight 'til eight so there is little time for leisure activities. Perhaps its just as well; the Chip shop shuts at nine and there are only three Pubs. When not at BUTEC the time is taken up by other trials including DG ranging, noise ranging, Tempest Trials and log calibrations. In addition, there are development trials on recovery methods for the RCMDV II, which currently comprise a beefed-up crane, quarterdeck extension platforms, CCTV and a reel to recover the fibre optic cable (MARPOL requirements). Much time has also been committed to the investigation and reduction of the EMC problems the class suffers. Currently the fitting of an HF Loop aerial seems to be one of the answers to these problems.

Everyone involved with the SRMH project has had to learn a great deal, to operate and evaluate the system and the Ship. At first, obviously mistakes were made, but they are now becoming fewer and the work done by the earlier hulls will smooth the progress of later ones through their Part IV trials which should be a lot less traumatic and more compact. However, if you find yourself

embarked on Part IV Trials in one of these ships just remember to be patient, stay flexible, and plan no further ahead than, say, two days.

## IBOST and Programme to Operational Status — HMS Sandown

HMS SANDOWN was accepted into the Royal Navy on 17 March 1989. After build She embarked on what was to become a very prolonged series of Part IV trials. Numerous unforeseen difficulties, especially with the sonar, were encountered and delays to the operational acceptance date followed. However, on 9 December 1992 HMS SANDOWN finally became the first fully operational ship of the class, passing her Operational Date for Material Assessment (ODMA), albeit with a number of minor reservations.

Following a much needed DED (by this time the ship had steamed nearly 30,000 miles since build), in May 1993 HMS SANDOWN emerged to embark on a further series of trials to prove the work in DED had not affected performance. In July the ship commenced an Initial Basic Operational Sea Training period (IBOST).

The IBOST was designed to be a full work-up of the ship, but not including Mine warfare detailed drills. This is because the MHSA3 tactical operating procedures are still under development. IBOST proved to be a testing time for all. Having been preoccupied by trials since build, with whole-ship evolutions such as NBCD training and armed boarding normally taking second place to the Ship's most immediate problem of ensuring MHSA3 worked, an almost vertical learning curve greeted the Ship's Company, as well as Commander Sea Training Staff who had rarely worked with SANDOWN class ships. Many exercises were completed during an intensive two and a half week period and new procedures developed as the result of the numerous lessons learnt. Overall SANDOWN achieved a "GOOD" assessment and proved more than ready for her first operational task (Operation PIKE) in August 1993.

The future programme consists of a further series of harbour and sea trials to fully evaluate the numerous manufacturer modifications still being incorporated into MHSA3 (to bring the system to MOD state 0). Before the pre-FWA trials currently scheduled for early 1994. If this is successful then full FWA trials will commence in the latter half of 1994 when HMS CROMER will assume the role of FWA lead trials ship. This will allow HMS SANDOWN to take part in various operational Exercises.

Following full FWA, OPEVAL trials will be programmed to establish the best tactical procedures to be followed and a series of MOTIs and FLOMs are in course of production to give a baseline from which development can take place. In spite of a chequered and dark past with MHSA3 system problems, the SANDOWN class is now probably the most capable Minehunter in the world, able to hunt in far deeper waters in worse weather conditions and with a sonar system capable of detecting mines at much greater ranges than was ever possible in previous MCMVs.

## RCMDS Mk II — HMS Inverness

First, there was "HUNT with the Yellow October". Now read the sequel:

### RCMDS Mk II

The first contact is at Green 45 range 600m, in 190m of water. The MWO, standing behind the

MHD, selects the 100m range scale on the vehicle sonar while the MHD flies the vehicle down the graphics "tunnel" on the other display. The vehicle's depth-sensor indicates that it has just passed 90m and, sure enough, the sea-bed paints a bright red return. TBL indicates that the vehicle is 300m from the ship and the MHD's NAUTIS tote continually updates course to steer and distance to go to the contact. As the vehicle closes the target, the MWO selects different ranges and fields of view on the vehicle sonar. The vehicle is now 30m from the bottom and the MWO tells the MHD to stop thrusting down (stop giggling!) and selects low light TV on the other monitor. As the MHD selects auto-depth and drives the vehicle forward in mid water, a cormorant flashes across the TV monitors in the glare of the searchlights (gen dit — Captain Cousteau and David Attenborough, eat your hearts out). Now the MHD, directed and assisted by the MWO, uses the gamelike graphics to manoeuvre delicately towards the contact. As the ROV approaches the contact, now at 5m on the vehicle sonar, the searchlights are switched on again and lo and behold there is the RVM. The MWO selects colour TV on the monitor previously used to display the sonar and all the cyrillics can be recorded on tape for posterity. Initial int-gathering complete, the manipulator arm is gingerly extended and a pinger attached to the base of the mine, just in case there is no self-destruct system and the case surfaces intact. The vehicle is driven down a couple of metres and makes a close pass on the mooring wire, detaching one of the explosive cutters, and then moves swiftly on to the next contact 200m away to attach the second cutter. The draperope is released and the vehicle ascent is assisted with the thrusters but it still seems an age before the OOW reports vehicle sighted on the surface, in reality about five minutes from 200m. Finally the crane deck crew bring it inboard and the MWO gets to do his thing. From the depths come two loud thuds followed by larger explosions and half a dozen bewildered fish. There goes another pinger.

Of course the above is a Tom Clancy-style précis of what would actually happen, and it seldom goes completely smoothly. Written with a little artistic license (for example, bagging a "left and a right" with cable cutters has been achieved during trials, but would probably not be a valid tactic in live operations) to highlight the differences between RCMDS I and II, it shows that both the new vehicle and the inboard systems are much more capable. As well as the mid-water capability, there is a conventional drag-rope, but this can be winched up and down to adjust height above the sea-bed. There is also an Exercise variant of the MDC which simulates all aspects of the disposal system except that instead of going bang, it inflates a long red flotation cylinder which brings it to the surface and then waves rudely in the air with a flashing light on the end. The Achilles heel of the system remains the recovery system. The crane performance is unsatisfactory, and hooking on to the vehicle at the design position, i.e. on the stern, causes problems in any well. However, HMS CROMER has just successfully completed trials on a range of improvements to the recovery system so a solution is on its way — standby for "RCMDS II — The Recovery". Overall, then, the vehicles only look similar: RCMDS MK II represents an enormous step forward in the RN's mine identification and disposal capability, which will hopefully be part of the HUNT MLU.



# Sandown Class RCMDS Mark 2 Recovery Trials

## Background

The original Vosper's SRMH design sported two quarterdeck cranes. A cost saving measure during procurement led to reduction to one crane centrally placed on the quarterdeck with the aim of recovering vehicles over the stern. The first Italian crane in SANDOWN was ultimately replaced with a Swedish HIAB unit. This looks like any lorry crane and had such desirable features as low magnetic signature, constant height for purchase wire and a mobile remote control facility. However the reach with a fully loaded RCMDS 2 demanded launch and recovery over the stern and the softer boom material meant no sideways loads could be applied. What, you may ask, is the problem with conducting vehicle operations over the stern — in short, the Voith Schneider propulsors.

Water flow in and around the voiths led to a design draft on the transom of about one foot, so any ship pitching motion over about one degree immediately exposed the vehicles to constantly rotating vehicle gobbling voiths. The high freeboard on the



*Various hooking on devices were trialed*

quarters and transom necessitated bringing the vehicle to within 0.5-1 metre to enable hooking on; an evolution made all the more demanding by an 11 Kg ponders ball. Bringing the vehicle that close to the ship with the complex waterfall in the vicinity is an evolution fraught with hazards to both men and vehicle.

As an interim solution some wag

introduced a yachties device known as a "happy hooker" which used a carbon fibre pole to attach a light line to the vehicle and hence haul a recovery hook, ponders ball and purchase wire onto the vehicle. There were mixed feelings with this device, although an improvement it was not 'Jack' proof and often failed or snagged up and led to further risk to the vehicle with delayed recovery. It took the destruction of a vehicle by HMS . . . (fill in the gap if you wish) and repeated berating by the operators to agree that there was sufficient of a problem to get some action out of the Procurement Executive — after four years or SRMH operations.

## Trial objectives

This "action" was to conduct sea trials in CROMER during October 1993 in the Portsmouth areas following a schedule provided by Vospers and called for by Bath constructors. The trials dealt specifically with the recovery problems the Sandown class is experiencing as a result of removing the original two crane design. After a number of refinements the trial centred on a direct comparison of a 'Hero' platform with various hooking on devices and an arrester boom combined with a revised HIAB crane. Other minor equipments were also trialed and remain fitted for longer term evaluation



*New Fibre Optic Restrictor*

in CROMER. The basis of the trials was to move the hooking-on process further from the quarter or Ship's side to provide safe and expeditious RCMDS recovery in up to sea state 5.

## Modifications prior to trial

The existing HIAB Sea Crane was the first modification. At present, it cannot lift a vehicle when opened out to full extension, so the vehicle always has to come close to the quarter before being lifted. Replacement crane booms, giving the same reach of 8.2 metres but due to greater rigidity and strength the vehicle could be launched and recovered with full extension. The sacrifice for rigidity is an increased magnetic signature, but overall it should make little difference, we await a ranging. The crane was an essential element in the success of either recovery method but it still lacked the capability to dip the head near the water-line on the quarters.

The crane was fitted with a lighter purchase wire and a removable Ponders Ball, something the ships have been asking for since SANDOWN was first accepted from the builders. The absence of the ponders ball is essential for successful conventional hooking onto the vehicle.

A carbon fibre pole, replacing the conventional aluminium was found to be light, but too flexible, so a standard pole was used for the trials. The alloy pole will suffice unless alternative material can achieve substantial weight savings without sacrificing rigidity. Ship's staff also introduced a 10mm lanyard which was held by the operator at his end of the pole. This held the recovery hook in the pole until the hook was attached to the vehicle.

A number of different hooks, stainless steel rings and wire strops were trialed with the recovery pole but a titanium version of the current RCMDS Mark 1 recovery hook was the best weight and shape. Despite the success of the titanium hook it is considered that a 'stabbing' action hook with a slightly larger vehicle hooking on point will increase the probability of hooking onto the vehicle but this will require further design effort.

CCTV was fitted on 01 deck looking onto the port quarter. It was a most

# Recovery Trials

useful means of improving OOW awareness of operations on the quarterdeck. The SRMH design leaves the OOW totally unsighted to the vehicle until it is well outboard on the quarter. A single wide angled camera overlooking the entire QD and the quarters with a monitor on the bridge was recommended.

The RCMDS Mark I Fibre Optic Restrictors never worked in the SRMH, again due to their very close proximity to the voiths. All too often the FO restrictor was destroyed and fibre optic wound onto the voith! To overcome this problem two trumpet shaped devices which clamped to guard-rail stanchions were provided for the trials and proved most successful. They replaced the ad-hoc arrangement of tying the fibre to the stern roller fairleads. Hopefully after CROMER's NWST MHS3, these restrictors will be issued to the entire Class.

## Recovery (Hero) Platform

A single platform was fitted on the port quarter, about one metre below deck level and one metre forward from the stern. This moved the vehicle hooking position to over two metres from the Ship's side and was most successful. The platform was at the right height but



*Port quarter view of 'Hero' platform*



*PO(MW) (O) Rab Darge on the Hero (!!!) Platform*

some improvements are being considered; firstly, extending the platform a further 0.5m outboard. This was considered the maximum sensible extension and will enable hooking onto the vehicle some 2.5 metres from the Ship.

Ideally the final design will enable the platform to be folded up flush with the Ship's side when not in use as frequent rigging and unrigging of the structure will increase the risk of failure. It will also reduce the obvious berthing difficulties. It has to be robust so the man feels absolutely secure while leaning outboard to hook onto the vehicle in up to sea state 5.

A proposed forward platform position could not be fitted prior to the sea trials and will be evaluated during NWST MHS3. It is fitted on the starboard side, just flush with the hangar door, taking the vehicle away from the trouble area aft. It is, however, considered highly unlikely that this position will be successful. Firstly, handling of the recovery pole is awkward due to proximity of the hangar sides and overheads. It also directly interferes with gemini operations and the crane will have further to drag the vehicle aft for recovery in the higher sea states.

## Arrester Boom

At first sight the arrester boom principle appeared to have considerable promise, offering a remote 'hands off' vehicle capture and recovery facility. In simple terms, this required a vehicle fitted with a special forward facing hook to be driven through a gate on the

outboard end of the boom, across the gate was stretched a rope loop which was attached to the crane purchase wire; the idea being to snag the vehicle hook on the loop. Although the boom was eventually discarded in favour of the 'hero' platforms, the principle of remote capture may still be pursued as part of the long term solution. The boom was first trialled in position at 45 frame just level with the hangar door.



*Arrester Boom Inboard to cock recovery mechanism*

The vehicle approach had to be from forward because of the boom's arrester loop design. With the capture gate at one-to-two metres from the Ship's side, a fine vehicle approach was required

# Recovery Trials



*Arrester Boom*

which increased the risk of close interaction with the Ship and left no room for escape if the vehicle had to overshoot. It was later decided to fit the boom to the transom, off the quarter, angled at 15 degrees abaft the beam. A forward or aft approach was now possible, away from the Ship's side and with room for a vehicle escape manoeuvre. This was not a success as the after guy could not restrain the boom leading to excessive movement,



*'Mandraulic' Fibre Optic Recovery Winch*

snagged the fibre optic and broke the control link; a forward facing spring hook on the vehicle is unacceptable. The potential for snagging underwater obstruction is obviously greatly increased.

## CONCLUSION

The arrester boom principle initially showed some promise but ultimately the disadvantages with this unwieldy prototype system far outweighed the few advantages. The principle of remote vehicle capture will not be dismissed, for either the medium or long term solution of SRMH RCMDS recovery. The alternative, conventional and relatively simple lightweight hooking on equipment, combined with the 'Hero' platform and extended crane reach was an instant success and it is hoped will be adopted as an interim solution for RCMDS recovery in SRMH Batch one. It is probable that unless remote vehicle capture considerably improves the recovery process, economics will dictate the adoption of two cranes with "hero's" platforms for the long term solution. This will give some system redundancy and enable dipping the crane head closer to the water-line. The fibre optic restrictors were successful, as were many other modifications and gizmos tried during the 10 days at sea. It was an interesting, if slightly frustrating time for the Ship. Being at the mercy of a bunch of civvies with all their bright ideas was an amusing management problem and the trials went off without any major hitches. ADMCM from Bath and COMMW came to sea with us to personally evaluate the trials with a view to the longer term for Batch two, and provided the Coxswain with our only casualty of the period; (it wasn't the Commodore!) well, it was rough!



*Vehicle passing through the gate and snagging the rope lasso (Note Vehicle Mod Recovery Hook)*

damaging the boom and more importantly further complicating the LCO's job.

The one metre wide gate presented by the strop was at the optimum, just large enough to drive the vehicle through and ensure the recovery strop was not too long. With the boom hinged at the deck edge the boom's gate moved in and out from the Ship's side 1 to 1.5 metres in a sea state 3-4. This further complicated the LCO's problem of trying

to manoeuvre the vehicle through the gate for recovery. The lasso shape started off as triangular, but this resulted in only one third of the gate width being usable for vehicle recovery. A square shape would be needed to provide a greater gate width for snagging the vehicle.

Instead of a single float on the outer boom leg, floats would be required on both inner and outer legs of the gate to assist in funnelling the vehicle through the gate.

It was necessary to recover the strop and therefore the boom, to cock the recovery mechanism. This was not good in principle but easily achieved in practice with a tackle to the SOW gantry. On several occasions the vehicle knocked the recovery strop off the cocking mechanism without actually hooking on, resulting in obvious delays. Vehicle approach always had to be from forward to aft which with the Ship in the best orientation for weather and sea invariably required a down sea run into the gate. As can be expected it was

extremely difficult to control the vehicle, especially in radio control and no MDC or drag rope, compared with running into sea.

Gemini operations would have been a problem with the boom deployed, not insurmountable if the boom were only deployed immediately prior to vehicle recovery.

The special arrester hook on the vehicle, accepting it was a prototype, was clearly unsuitable. The hook frequently



# Diving Reporter

## SUDAFED: ARE DECONGESTANTS SAFE?

(This article is condensed from a report by Tom Mount in the International Association of Nitrox and Technical Divers (US) journal)

Many of us over the years have evolved into decongestion junkies. We begin our dives with a mixture of coffee, aspirin and Sudafed. In recent months, several accidents and near misses have produced concern as to the affects of Sudafed and other decongestants on divers, especially while deep diving and/or mixed gas diving. However, the same concerns have also been observed on more shallow dives.

The opening point of concern occurred in summer 92. When an EANx cave diver died on a dive whilst well within PPO2 limits at 1.4 bar, a PPO2 level commonly exceeded on air dives (air = 56m). It was noted that the diver's blood gases contained a high level of pseudoephedrine, a major ingredient in Sudafed and associated generics. We wondered whether this might have contributed to, or even caused, the accident.

A diver using air died while cave diving in Missouri recently. According to his buddy, he called off the dive and then bolted for the surface! he had taken Sudafed prior to the dive. On one other occasion he had exhibited the same behaviour and survived. Before that particular dive he had again used Sudafed.

Early last summer, a diver accustomed to diving to 50 metres went almost comatose on a dive. His two buddies had to maintain his regulator and assist him into shallow water. The only thing he had done different to normal was to take Sudafed prior to the dive.

In the seventies, while on a saturation dive in Hydrolab, one of the divers developed a cold. The diving medic gave the diver Actifed and he went into a coma for two days, finally coming out once they were well into decompression. Oceaneering International, a large commercial dive company, banned Sudafed over 10 years ago due to its adverse affects on their divers.

Whilst the above instances and incidents are not conclusive proof as to the adverse effects of Sudafed and/or other decongestants while diving, they do represent grounds for concern, and do warrant further investigation.

In a 1991 PDR description of pseudoephedrine hydrochloride, Sudafed's active ingredient, it states:

"Adverse reactions include nausea, cardiac palpitations, headache, dizziness, tachycardia, diarrhoea, drowsiness, stomach pain, SEIZURES, slow heart rate, shortness of breath and/or trouble breathing, and with an overdose, and anxiety, tenseness and respiratory difficulty."

Treatment for adverse reactions includes the statement: "If convulsions or marked CNS excitement occurs, Diazepam may be used".

If you or anyone you know has had adverse reactions following a Sudafed or other decongestant dive, please forward the information to us at Nelson (Gunwharf). We will pass all the information on to Institute of Naval Medicine who have also received a copy of this report. If more information is forthcoming, we will publish it in future editions of MAD.

AB(D) Taylor

## CONGRATULATIONS

Congratulations to PO(D) Guiver who left for Dartmouth in January, hoping to pass his course and get promotion to the Special Duties Officer list. The last news back from Dartmouth was that he was doing very well, although he wasn't very happy with the sun beds at Dartmouth and the NAAFI didn't sell his brand of hair gel. Good luck for the future from all of us at Deep Water.



Also congratulations to CPO(D) McDermott not only for gaining his Chiefs rate but also for gaining a place at Dartmouth starting in April. After meeting Mac, in Deep Water, he asked me to mention that he was the good looking bas\*\*\*d and all round snappy dress, "NOT". Again good luck from all of us.

**STOP PRESS:**  
Both Paul and Mac have now completed BRNC coming top on their respective courses BZ.



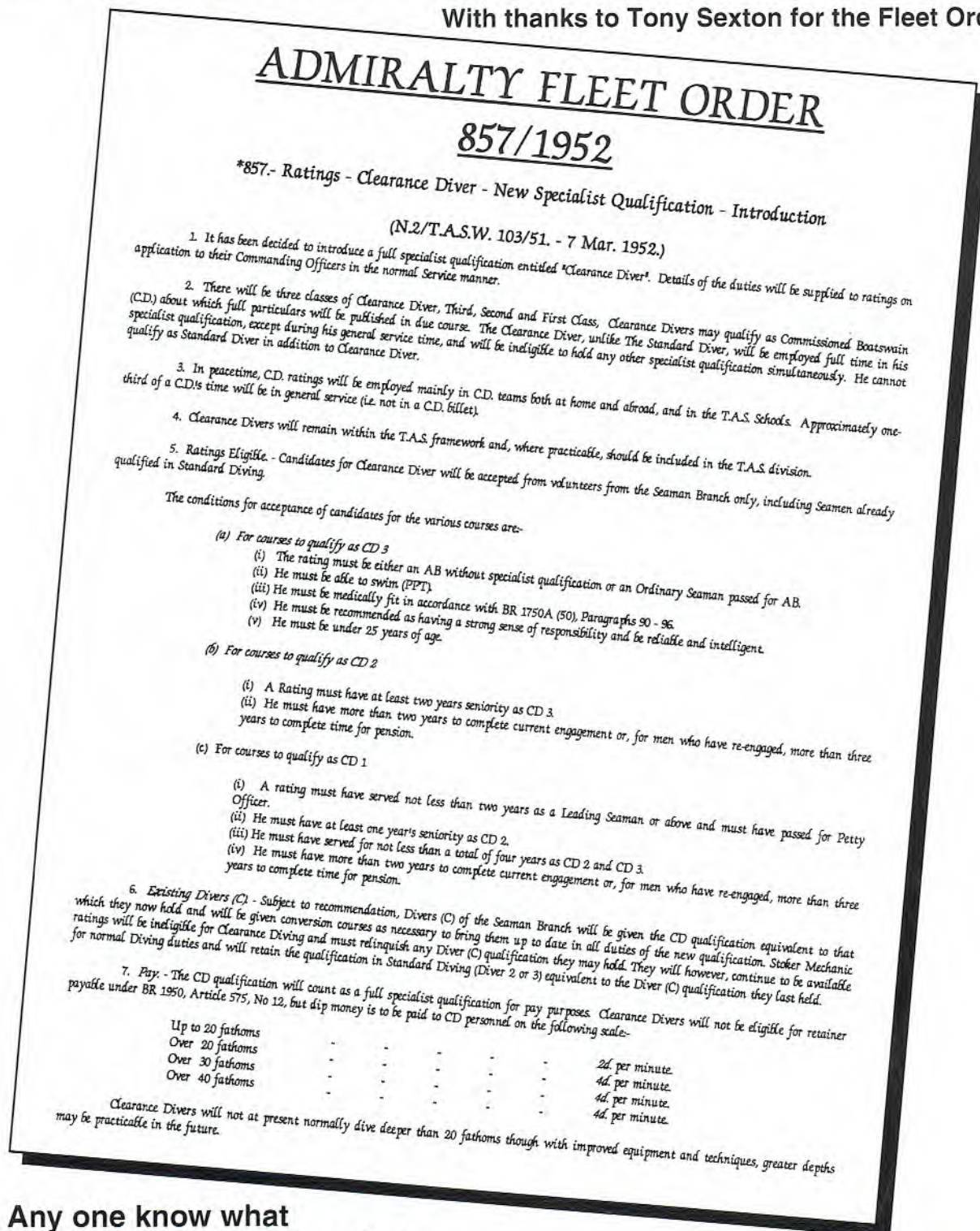
*PO(D) now ALCPO(D) Taff Morse receiving his LSGC Medal (for undetected crime)*





## THE BIRTH OF THE CLEARANCE DIVING BRANCH

With thanks to Tony Sexton for the Fleet Order



**Q. Any one know what Eddy Kerr did for the Fleet Order.**

Wanted dits and stitches for the diving section of M.A.D. Magazine. If you have any information etc. that you wish to share with the rest of the branch, please send them in for the forthcoming editions. Remember you don't have to put your name to your masterpieces. I look forward to receiving your forthcoming letters.

**AB(D) Taylor, Deep-water, H.M.S. Nelson Gunwharf, Portsmouth, Hants**

# Training

## SHIPS DIVER CONTINUATION TRAINING

From the Horsea Island garden shed (home of Ships Diver continuation training) the sound of finely tuned violins can be heard on a regular basis these days. The sob stories vary in content, but the cure remains constant. "I need to get 120 minutes before the end of the quarter but I haven't had a chance until now."

With the advent of F.O.S.T. Divers closing last March, and with it the continuation diving facility, Horsea now finds itself accommodating not only Ship's Divers from the Portsmouth area, but also Portland and Yeovilton. The end result is that bookings for Horsea are now full every day without exception, and usually up to three weeks in advance. The message is simple, book early to avoid disappointment.



*The sob stories vary in content*

We have the capacity to provide services for 16 divers, divided into two sessions, 8 in the forenoon and 8 in the afternoon on a Monday, Wednesday and Friday (am only). Dog Watch diving is also available on a Thursday between 1600-1800 Hours for those personnel on courses etc., that cannot spare time off during normal working hours.

We would like to provide a more interesting and varied service other than just jackstay swims, but unfortunately the bottom line is that people require time in the water as their main aim. The only way of achieving around 60 minutes per session for eight divers in the time allowed, is regrettably by jackstay swims. One way to amend this would be to accept less personnel for each session but that would result in an even longer queue than Nelson's dental department.

Ships must bear most of the responsibility to ensure that their divers achieve as much time in the water as possible, and as soon as possible. Although our facility is for shore based units, sea going ships often ring up with the excuse that they do not have a qualified supervisor on board. This is, I'm afraid, not our problem. It is felt, however, there is a lack of incentive for qualified Senior Rate Ships' Divers to take on the added responsibility of supervisor status. This is highlighted by the fact that three out of the four planned Supervisors courses had to be cancelled last year due to lack of volunteers. Perhaps some sort of financial reward is long overdue, which may go to help alleviate this situation.

### APTITUDES

Contrary to popular belief, the training staff do not shut up shop and take time off on a Tuesday and Thursday. This time is spent conducting Ships Diver Aptitude Tests. The test is currently undergoing a major re-vamp as far as physical fitness is concerned. Over the years different instructors have administered varying methods of physical motivation (as we're not allowed to use the term beasting) to ascertain candidates physical ability. It is now felt that this must be standardized, and in consultation with Chief PTI Mike Williams, a standard divers fitness test has been devised based on the American Marines physical fitness test.

In the future candidates will be required to carry out the following exercises.

MAXIMUM NUMBER OF SIT UPS IN 2 MINUTES  
 MAXIMUM NUMBER OF BURPEES IN 1 MINUTE  
 MAXIMUM NUMBER OF PRESS UP'S  
 MAXIMUM NUMBER OF PULL UP'S  
 30 Kg LOAD CARRY FOR 100m  
 300m SHUTTLE RUN (5 x 60m TIMED)  
 1.5 MILE RUN AT 15 MINUTE PACE  
 1.5 MILE TIMED RUN

Candidates results are at present being collated to obtain an average pass mark, which will be used as a pass or fail in future tests. This simple, effective assessment should be the answer to students commencing course ill prepared for the physical aspects it demands. A repeat test will be conducted on day one of the course to ensure that standards have not slipped.



*The answer to students commencing course ill prepared for the physical aspects it demands!*

All in all the road ahead looks to be a very busy one for the Continuation Training Staff. So please bear this final thought in mind, "We can only take bookings if vacancies are available, so get into the habit of treating the first week of the quarter, as if it were the last. That way you won't miss out on the crystal clear waters of Horsea Lake and the SSP(D) that goes with it".



# UNDERWATER SKF COUPLING REPAIR HABITAT

**In order to reduce ships' maintenance costs and 'down time' caused by dry-docking RN vessels, FDU 3, in conjunction with FOSF(ME) are continuing to develop underwater repair techniques. The most recent of these is the use of lightweight habitats to permit controlled re-coating of the shaft SKF coupling on Type 21 and Type 42 ships.**

The SKF coupling is located between the Main and Intermediate 'A' Brackets on both classes of vessel. In simple terms it is a semi-flexible joint between two lengths of shaft which has then been fitted with a multi-part fairing. The fairing and associated fittings are made up of several dissimilar metals including: carbon steel; mild steel; gunmetal and aluminium. The whole shaft couplings are coated at build with an epoxy gel coat, reinforced by two layers of glass fibre tape. The coating often breaks down at the SKF coupling, perhaps due to flexing and/or traumatic impact damage. Once the protective barrier is lost oxidation swiftly follows, thus threatening the shaft structure itself.



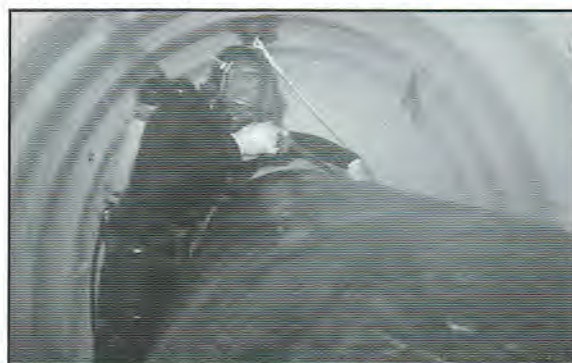
The replacement coatings required a dry, stable environment for successful application. In areas such as Portsmouth and Plymouth the tidal stream can be severe and the underwater visibility poor. Both problems needed to be resolved if divers were to effectively repair the couplings. FOSF(ME), in conjunction with Norwest Diving of Birkenhead devised a prototype habitat to be mounted on the shaft to achieve these aims.

An initial trial was conducted by FDU 3 in Portsmouth on a Type 42 Destroyer, this confirmed the viability of the habitat idea which was further refined prior to the Type 21 trial. The Type 21 trial was completed in Plymouth in September this year, the following is a brief account of that trial:

From the out-set the trial in Plymouth bore all the hallmarks of a potential success story — working away from base (and own support), tides 'belting' two days after Springs, weekend task — ship deploys overseas on Monday. At the very beginning, before I blew the FDU 3 trumpet, all the problems above were greatly reduced by the unflinching support and co-operation of the resident diving unit, PCDU.

A visual survey of the coupling ascertained that the coating damage was limited to the aft 'cone' section only, around 25% of the whole coupling. All marine growth was removed prior to rigging the habitat, a hydraulically-powered wire brush was ideal for this. 'Down lines' were established across the damaged shaft and then secured to the other shaft. Once hauled taut these lines were used to guide the 3m x 2m Habitat Frame into a position slung beneath the damaged shaft. The Habitat itself is an inflatable bag design, made from material similar to that of commercial Lifting Bags. The bag is open at the base and is retained in place by shackles attached to the Habitat Frame

which braces against the underside of the shaft as the bag is inflated. Sleeves or cuffs fit around the shaft at the fwd and aft end of the Habitat, these have a re-sealable slit in them to allow them to be passed over the shaft. The slit extends to the lower skirt of the bag, this allows the divers to maintain the air pocket well below the lowest point of the shaft. The interior was fitted with two low voltage, compact U/W lights provided by the Habitat manufacturer.



All divers working in the Habitat were dressed in white fuel suits, gloves and AGA positive pressure dive sets (courtesy of PCDU). Applying the resin coats and glass fibre tape was relatively simple. All compounds were mixed in approximately 1kg batches and passed to the divers in re-sealed old proto containers, brushes and rags were sent in sealed bags. The new coating finally received the much-coveted seal of approval of the resident Chief Diver, cheers Chris, and the habitat and frame were removed after a further 12 hours to permit full curing.

The habitat trial was considered a success by FDU 3 and FOSF(ME). The final decision regarding procurement is due imminently. The repair technique for coating is still being refined to improve durability and simplify application.

The trial has highlighted other points for future consideration:

1. The requirement for a recognised, approved in-service Enclosed Space diving Set (ESDS), based on a positive pressure breathing system. The set must maximise diver mobility in a confined space yet still meet current HSE requirements.
2. Compliance with COSSH regulations and awareness of Hazardous Compounds within the RN. Initially FDU 3 was presented with coating compounds to 'just slap on', with no information offered as to the hazardous nature of them. There are over eight different compounds used to carry out the repair, some of which are toxic, all are listed in JSP 395 Hazardous Compounds. There is no 'get out' clause, *all* supervisors are legally responsible for the safety of personnel under their control using such products.

I would like to thank PCDU for all their support throughout the trial and also to Fred McNally of Norwest Diving whose tolerance of initial scepticism, knowledge of habitats and even better jokes assured the success of the trial. I apologise to everyone that the only photos available to date are of the inside of the Habitat, the external view has been the limiting factor on that score. Please note that these shots were purely for the record and no compounds were in use at that time, hence fuel suits were not worn. Thanks to my own team too, even though they did go to Bermuda and Miami without me! Anyone interested in more detailed information on the Habitat Trial please get in touch with me at FDU 3.

All the best for now — Buck.



# SNICDU

## THE SCOTLAND AND NORTHERN IRELAND CLEARANCE DIVING UNIT'S DIVING TRIAL ON THE KMB17(D) 'HEADS UP DISPLAY' HELMET AT THE BRITISH GAS ENGINEERING RESEARCH FACILITY BLYTH

By D. P. Ince, Lieutenant Royal Navy

### Background

There have been a number of developments in recent years which have been aimed at providing divers with helmet mounted display systems. In general these developments have been based around bulky add-on hardware to existing helmets and as such they have not been accepted on ergonomic grounds. British Gas initiated the feasibility of designing a visual display system for a diver's helmet which would overcome ergonomic restrictions. The prototype system designed is an integrated visual display based around a modification to the KMB17 Supalite diver's helmet.



### System descriptions

The integrated diver display system comprises four main elements:

- A miniature video camera — 200mm x 45mm
- A miniature light — 165mm x 50mm
- A miniature black and white CRT monitor — 150mm x 45mm
- KMB17 Supalite helmet

The acquisition of the miniature video camera and light were relatively straightforward and were selected from commercial products already available to the offshore industry, namely from Osprey Electronics. The CRT monitor and KMB17 were separate detailed feasibility studies which were awarded to Osprey Electronics and MARA Engineering respectively. The net result is the helmet shown in the diagram at 1 and 1b.

### USES FOR THE DIVER DISPLAY SYSTEM

The helmet has primarily been designed with Non Destructive Test techniques in mind. At the present time NDT inspections are normally undertaken by divers in conjunction with topside co-ordination and direction. In these instances it would be beneficial for the diver to have a subsea display of the topside display relayed during the inspection. Another benefit would be gained if divers had a direct access to written instructions from the surface, engineering drawings appertaining to a particular task or some on-line interaction between the diver and supervisor in the form of visual prompts. Ultimately in nil visibility conditions a virtual reality environment could be generated for the diver with image enhancement displays where appropriate via a suitable communications package.

British Gas Engineering Research Station at Blyth consists of three large docks and various support buildings. The largest of the docks

was employed for the trial. Prior to the Units' arrival the water had been super-chlorinated and cleaned and had obtained an underwater visibility of ten metres! Equipped with an array of cameras and an ROV it was here that the SNICDU put the system through its paces.

### Underwater navigation

Equipped with a small hand-held sonar a diver received raw sonar data via his heads-up display and was able to pick out and walk to various metallic targets on the dock bottom. At this stage it is worth noting that bottom sediment had reduced the visibility to one metre. To be able to use the sonar effectively, the diver had to know how to interpret a sonar PPI; something that only three of the divers were able to do with ease. Despite the short distances the diver was travelling, he would quickly become disorientated and had to rely on the sonar information to move around the dock bottom, in some instances assisted from the supervisor who was also seeing the sonar picture.

During this exercise image enhancement was also passed down to the diver when he neared his sonar targets. Standing two metres from an object the diver was unable to see it with his own eyes or through his own head-mounted camera's relayed image. With enhancement the targets showed up very clearly.

The sonar had very limited application in such an enclosed environment. It is a very compact instrument, about the size of a Dacor UL750 diving torch, that had been designed for the offshore industry to enable a diver to locate a large underwater structure (midwater) when exiting a diving bell in poor visibility or darkness. However, at a range of 25m (with a max of 100m) an experienced operator could pick out a metallic object approximately the size of an office chair. It showed promise for use in underwater searches.

In this rather false environment a diver not equipped with the sonar and helmet camera fared little worse than the diver equipped. However, it did prove that a complicated graphic picture could be easily seen and understood by a diver with the heads-up display.

### Small and Large Mechanical Assembly Tests

In the small mechanical test the diver was required to assemble a collection of small pipes and unions into a re-determined structure; first without the helmet display but with instructions from the surface and then with reference to relayed diagrams via the HU display and instructions from the surface.

The test was not particularly mechanically challenging to the divers, though it was quite obvious that the diver who was able to refer to the diagrams of the pipe structure was less prone to confusion and completed the task marginally quicker.

The large mechanical assembly test was a little more difficult and required a diver to mate a large pipe spool piece (3m x 25cm) to two flange pieces on the dock bottom. The spool piece was connected to a crane which was controlled by the supervisor on advice from the diver. The diver working without the display had to constantly walk back and forth between the flange pieces to reference the working end. The diver with the heads-up display had the opposite end of the pipe relayed to him via the ROV/video diver's camera. This enabled him to line up the structure without the need to travel between the two flanges. There was an obvious advantage here with the HU system.

### Non-Destructive Testing Techniques

The HU helmet system was primarily designed with NDT in mind, as in a number of the techniques it was considered an advantage if a diver could see the NDT instrument oscilloscope. Despite a total lack of experience amongst the divers with these techniques, they quickly became competent in the underwater use of some of the equipment. Normally in these kinds of engineering tasks the diver's every move with an NDT instrument is closely directed from the surface in order that readings from the equipment can be optimised, and cracks/

damage can be pinpointed. Even with a good communication link to the diver (without voice scramblers) the talk-through can take a considerable time as the instrument is finely tuned to isolate a fault; inaccurate readings would cause expensive nugatory work. Obviously this constant adjustment of the tool can lead to considerable frustration for all parties. Despite their inexperience in a relatively short time divers with the HU system were able to accurately identify faults in pipes and welds with little surface direction.

These tests were the most significant for British Gas Trials Team. Despite surmountable problems with the imaging of some of the oscilloscopes, it proved that the HU system could be employed successfully in its primary design role and significantly improved the efficiency in some of the time-consuming NDT techniques, namely flooded member detection, ligament thickness probing and weld inspection.

Throughout the trial the divers were changed around and water visibility adjusted in order to get a good cross-section of opinions and conditions.

On day five of the trial, the British Gas Trials team had an open day and invited members of the Off Shore Industry and the press to the site. The SNICDU took the opportunity to invite DRA and DGUW(N). The day's diving consisted of repeats of the key parts of the previous tests and aptly demonstrated the system's potential application to the audience. They were able to watch the proceedings through the task diver's camera, the video diver's helmet mounted camera, a hand-held camera and the ROV camera. The day went extremely well and the BG Team were obviously very happy with the results. The DGUW(N) and the DRA representatives seemed to be struggling to think of naval diving applications for the HU helmet system, although considerable interest was shown in the hand-held sonar.

#### Conclusion

The SNICDU spent a total of 2,297 minutes diving the prototype helmet. The HU system more than proved its worth as an enhancement to the successful and efficient completion of underwater engineering tasks from its simplest projected use, that of underwater navigation, to



its more complicated use in NDT. The prototype helmet is ergonomically designed and very comfortable to wear in the water. In the majority of the dives the HU display was easy to see and interpret, bold text could be plainly read. Poor contrast was experienced in low visibility conditions where the diver was being relayed a helmet/hand camera information, and some divers had problems with the display misting up. The former was partially overcome by the incorporation of a contrast control which the diver could optimise (via surface). The latter was solved by changing the oral nasal seal in the helmet so a full seal was achieved around the diver's nose and mouth.

The trial appeared to be a resounding success for British Gas who were more than happy with the results. For the RN's part the SNICDU divers have had a very professionally satisfying trial and the opportunity to use diving equipment at the leading edge of technology. On completion of the trial the British Gas Principal Engineer on the project, Mr Nigel WRIGHT BSc, MSc, CEng, MIGasE said the SNICDU divers were as good as, if not better than their commercial counterparts. Presumably they were very cost-effective too!

## Underwater Photography

By LS(D) R. Edwards

Photography has come a long way since the first box Brownie came out. These days cameras come in all sorts of shapes, sizes and colour, and they do just about everything except make tea. In some ways the technology has come full circle in their evolution since the early days of basic cameras, they now incorporate the most advanced focusing systems, exposure controls, and automatic circuitry. As a result all the operator has to do is point and shoot.



Taking a photograph on the land is fairly straightforward, but as soon as you 'leave surface' it becomes a whole new ball game. With all those known perils of finding your way to the dive site, seeing the job and being able to hold your position in the water.

Currently all diving units carry the NIKONOS V underwater camera. Now until recently, the most up-to-date camera on the market but even then it is not exactly user-friendly. As the operator you had to estimate the camera to subject distance — allowing for the refraction, you also have to select an aperture that is going to give an accurate exposure for the prevailing conditions. Then fingers crossed you get something like a usable image. In this day and age everything has to be quantified, people are not happy for the diver to say that 'the jobs done'. They need accurate information relating to the job including correct assessment of any damage or wear or cause, along with correct records kept as the task is completed stage by stage.

Using underwater photography to accurately record and catalogue events you not only provide the required information but at the same time you are selling your own skills to outside agencies. So this gives a two-fold effect of showing off your Divers skills and also helping to generate more work. And in this present climate of monetarism it can only be to our benefit to save money and jobs. Along with the benefits of ships down-time and disruption to operational readiness being kept to a minimum.

Recently NIKON have introduced the NIKON RS auto focus underwater camera. For all intents and purpose this is a NIKON F4 in a waterproof housing. It's features include auto focus in four different programme modes, matrix metering, spot metering, auto load and rewind, and shutter priority speeds. Now this all sounds very technical and it is, but what it means in reality to us, the diver, is a point-and-shoot camera. Most image failures currently occur through poor aperture and shutter selection, along with incorrect focusing. The new RS takes all the guesswork out of the equation, it is a lot more user-friendly, even doing away with the current close-up outfit and having a macro 50mm lens that will give focusing down to 1:1. To me and you that's life size! It is also the first u/w camera to offer a zoom lens of 20-35mm. The cost, depending on our flexible pound, around \$10,000 for a complete kit. This may sound like a lot of money, but to a professional organisation spending millions hoping to save considerable amounts it is small change. Especially considering the potential savings by getting a diver into the water with a camera so that assessments can be made prior to expensive contracts being lodged or ships being taken into dry dock.

We all have to sell ourselves to get the recognition that we deserve and be as professional as we can be. No-one else will do it for us. So keep taking photo's, as they say 'A picture tells a thousand stories'. (By Ed: Or something like that!)

## Potholing

# LS(MW) 64 — Potholing in the Mendips

By George Turnbull

You are probably all aware that one of the requirements of completing a career course is that all course members are to participate in a certain amount of Naval General Training (NGT) more commonly known as "Exped". Past excursions have included trips to the Black Museum, a guided tour of HMS BELFAST, visits to the army tank range, etc., etc. All of which are very good but nothing out of the ordinary. As the course officer for LS(MW) 64 I resolved that these particular students would indeed experience the unusual. With this in mind I explored the possibilities of various exploits which would suitably meet the aim.

The first "good idea" came from PO(MW) Pete Cooling who had recently taken part in a Bungy (Suicide) Jumping effort. Having first viewed a copy of the video which he bravely made whilst hurtling from the upwardly extended jib of a very high mobile crane, attached to it by what appeared to be nothing more substantial than a length of Short Scope Buoy rubber cord and very mindful of the fact that as the course officer, I might be expected to lead by example, declined that particular offer!

The second and much more acceptable "good idea" came from CPO(MW) Jim Hawkins (forever to be known as the Minewarfare fraternity Troglodyte) who suggested a "Potholing Exped" in the Mendips. Recalling previous employment in my early youth as coalminer in one of Her Majesty's pits of the Durham coalfields I considered this to be unusual enough and something that the course and I could probably cope with.

Jim Hawkins, who is a qualified Troglodyte potholer agreed to lead the Exped and along with the course instructor PO(MW) Simmo Simmonds proceeded to make the necessary arrangements at minimum expense to the crown (as always). A mini-bus was hired from the Leisure and Amenities fund (LAF) HMS NELSON, suitable exped gear was drawn from the Exped store and 24-hour victuals were issued by the caterers department. Suitably kitted up we left for the Mendips at the end of the normal day's instruction. The journey to Somerset was picturesque but uneventful. On arrival at the place which was to be our home for the next 24 hours aptly named "THE BELFRY" the course were pleasantly surprised to find that as far as Exped accommodation was concerned the place that Trog Hawkins had brought them to was relatively



*Bunks Three High – with live mattresses*

luxurious. Despite that fact that the bunks were three high and the mattresses were capable of movement under their own steam, for £3 per head per night who can complain. Located in an isolated spot of the Mendip hills and within easy trekking distance of numerous interesting caves it proved to be a most suitable base from which to conduct our activities. Infinitely better than sleeping in a tent.

No sooner had we arrived and unloaded the mini-bus than Trog Hawkins whipped us all into "Caving Gear" and ushered us unceremoniously down what he flippantly referred to as the "nursery" cave, more formally known as Goatchurch Cavern. For personnel more used to the vast expanses of open sea to be suddenly thrust into the claustrophobic, dark, uncommonly quietness of a space which seems to be endless but in fact one in which you can, for the most part only see as far as the rock face in front of you proved to be quite trepidatious. By Ed: Interesting word. Still scouring the OE Dictionary for it! Even for roughly, toughy mariners such as we. In fact it was acutely noticeable that the hitherto noisy banter had dropped to a nervous "bloody hell". However as we descended further and further into the bowels of the earth it soon became obvious that there was nothing down there, other than ourselves which could actually do us harm. We quickly grew in bravado and actually began to enjoy the experience. Particularly when you drew your body from an unusually tight fissure which you were sure was going to keep you trapped forever resulting in all sorts of rescue attempts, to break into a cavernous space, in which you

could easily hold a ship's company dance, filled with lots of unusual rock formations. We then passed through this and contorted our bodies to fit into yet another space in which they were not designed to panic because if you did your body will swell and you will get stuck. No statement could have been more qualified to make you panic. Nevertheless at approximately 2030 we all safely blinkered our way out of the exit hole with a mixed sense of relief and achievement accompanied with enthusiastic exclamations of "that was easy"!

It was then back to the BELFRY for a hot



*LS(MW) Wellings & Gemmel – viewing the rock formation*

shower and the standard Pussers pot mess. Trog Hawkins then led us to a nearby cavers pub where the course were able to impress the locals and other cavers with their grossly over-exaggerated caving exploits and enjoy a couple of well-earned pints.

The next day saw us up bright and early and having consumed a hearty breakfast set off for what was to be the real caver's challenge known as Swildons 1 which was reported to be deeper, longer and wetter than that which we had hitherto seen and had numerous sumps, boreholes, ledges and a myriad of other horrors which Trog Hawkins could dream up to keep us in a state of pure terror.

On arrival at the entrance to Swildons 1 we were greeted by what can only be described as a small hole in the ground which looked something like a manhole with the cover missing. We were all confident that nothing as complex as that previously depicted by the Trog could lie beyond such a small hole. How wrong we were.

# Potholing

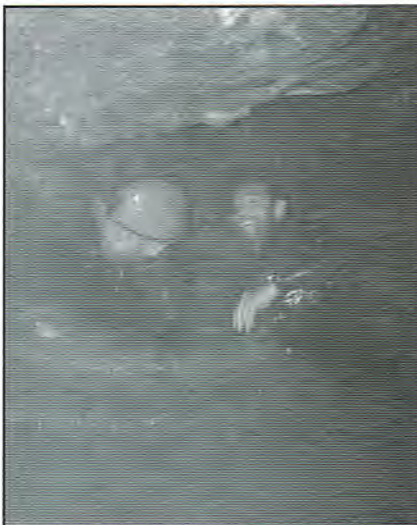
Trog Hawkins went first ably demonstrating that a human body could fit through such a small space without becoming stuck. I have to say at this stage that the team were joined by PO(MW) Simon Chapman, whose parents lived locally, had spent his youth cavorting around these caverns, continues caving as a hobby, was on leave and had volunteered to come along and act as second guide and safety number for the day. Simon did a first class job in actually stopping the course from absconding once the Trog had disappeared down the hole and he continued to give an excellent service throughout a very hard day.

On first entering the hole we were greeted by a relatively large space which seemed to belie what we had been told of Swildons 1. However as we moved off from the entrance and commenced the downward descent we soon became aware of just how hard the day's activities were going to be.

The first real encounter was a rather precarious ledge which was approximately 10 metres long, 1 metre wide and 0.5 of a metre high it was extremely wet and slippery and had what appeared to be an endless drop on one side. (The trog confidently informed us that it was in fact only a 10 metre drop.) The only way to traverse this ledge was on your stomach pulling yourself along using your elbows and flexing your toes. There was no space in which to draw your knees and give yourself a good push. The previous advice of not panicking in case you "swell up" constantly flicked across one's mind.

Safely out of this little squeeze we progressed downward on a tough but relatively spacious descent to the next little hurdle. This proved to be a steep drop of 15 metres which could only be negotiated by the use of a small wire ladder. The climb down was not too difficult but the continual running of ice cold water over your body was less than comfortable. Thank goodness for pussers multi fabs. The next milestone was quite fun and indeed some of the team climbed back up to repeat the experience. It consisted of a steep sloping limestone buttress which was constantly covered with running water. It was approximately 4 metres long and broke off abruptly giving a 2 metre drop into a "double pot" hole with just over a metre of water in it. Thoroughly soaked by this time anyway, we spent some time sliding around and taking great delight in seeing each respective course member enjoy a refreshing ducking.

Ever downward, negotiating various obstacles as we went, we finally arrived at what was the end of our journey and by far the most challenging aspect of the day. We came up to what appeared to be



*Coming through the sump*

a solid stone wall with a small pool at the base of it. The Trog informed us that the cave went on beyond this wall but access could only be gained by entering the pool dipping ones head below the surface feeling for a submerged tunnel and pulling your body through until you emerged safely at the other side some 2 metres away. 2 metres doesn't sound very far but when your shoulders are touching either side of the tunnel and there is little room to use your legs you get the distinct feeling that it is considerably longer. Nevertheless the whole course met the challenge and wondered at all the fuss these divers make at going underwater. At this point the Trog told us that we were as far as we could go bearing in mind the time factor. Tired, wet and hungry we were delighted to hear this and immediately looked round for the exit.

"The exit" cried the Trog "Oh that's back the way we came in" — so we had to do it all again in reverse only this time we were climbing uphill.

The team emerged from the cave at 1500 on a bright summer's day, tired but happy to have had the chance to experience something different. Then it was back to the BELFRY for a hot meal, a clean up and prepare to transit back to Portsmouth. The stories to follow will no doubt grow in size and fill many a "Good dit" session, hopefully earning each individual narrator oodles of free beer. Personally I thoroughly enjoyed the experience and judging by the comments from the course get the



*LS(MW) Wells emerges into the sunlight*

impression that they did too. My thanks to the team of CPO(MW) "Trog" Hawkins, Nick Smith, PO(MW) Simmo Simmonds and Simon Chapman for their sterling efforts in arranging the whole Exped and for ensuring that a most enjoyable and fulfilling day was had by all.



*The Team – tired but happy*



# Letters to the Editor



“Minewarfare and Diving” welcomes letters from readers. Letters should be addressed to the Editor and should include a daytime telephone number. Please cite page reference and edition for any article mentioned. Letters may be faxed to: 0705-822351-24705.

Letters not intended for publication should be clearly marked as such. Where possible authorities or Units involved in correspondence will be given the automatic right of reply in the same edition.

## Dear Editor

I have read every edition from cover to cover and I think it's the best magazine the branch has ever had — keep it up! I found Alan Padwick's report on his shallow-water diving course most nostalgic — it sent me scurrying into the roof for my journal for a report on a similar experience ten years earlier. What a difference ten years does make!

'HMS Glory in Admiralty Floating Dock 35, Grand Harbour, Malta. Monday 30th to Sunday 5th November, 1950.

'Every day this week we were taken by Dockyard Transport to HMS Forth for a short diving course under the supervision of Mr Hall, Senior Commissioned Gunner TAS and CPO Payne, Diver 2 and spare submarine coxwain.

'On Monday we were instructed in the use of the salvus breathing apparatus with the DSEA mouthpiece. The set consists of an oxygen bottle containing 6 1/2 cubic feet of O<sub>2</sub>. This passes through a reducer valve which allows two litres of O<sub>2</sub> a minute to flow into a rubber lung which can be breathed through a protosorb container. This absorbs the excess CO<sub>2</sub> and the rubber lung allows for normal breathing. We then went down in bathing costumes to 30 feet.

'The next day we went down in the Admiralty shallow water diving dress but this time to do some work — similarly in Wednesday. This dress is fairly comfortable below the water but some restriction on movement. Above the surface, the suit is cumbersome and very uncomfortable.

'On Thursday, we went down in the standard Siebe Gorman diving dress which is fed by an air pump. This dress is very liable to leak and takes a long time to put on but it is very comfortable and has a telephone. Also the method of using it is simple and there is no need for any worry. When we had got the feel of it down below, some of us blew ourselves up by closing the outlet valve. We then became incapable of movement and had to be towed to the boat. We continued standard diving on the Friday forenoon and in the afternoon took a shallow water diving exam. The whole course was exceptionally interesting and I am very glad that I have been able to take it.'

That was my first encounter with 'clammy death' and qualified me to dive and supervise diving up until my long CD course, five years later!

I well understand that another report, less literate than Alan's, is unlikely to be suitable for publication, but you might be able to extract a few paragraphs as a letter to the editor. One day I will do you a couple of pages on something a bit more interesting like the start of the Iranian Naval Diving branch, lifting the Johore Strait ammunition dump or beach clearance with Paddy Ashdown — when I have more time.

Yours sincerely  
Michael G Gillam

## Dear “Whoever sends the Minewarfare and Diving”

Thank you for sending these lovely magazines to the above address. They have given my husband “Cyril Henry Cooper” many hours of pleasure and happy memories of his life in the Royal Navy during the war when he worked on Minesweepers. Sad to say he has died of lung cancer and will need them no longer.

Thank you for your kindness.

God Bless  
Mrs Eileen Cooper

## Dear Sir

I retired from the Navy in August 1983 where I had served in HMS VERNON many times both on the chalk face and in the old 21 building and the new section when we moved. I have been on the telephone with Norman, Joe and Cass, but please pass on my regards to all the old school with whom I had great pleasure in serving. I would be extremely interested in a reunion and would be happy to attend with my wife, wherever it may be held.

Just as a footnote since I left the Navy, a quick précis of my time in Civvy Street. I joined Marconi Underwater Systems Ltd as a planning administrator organising Torpedo trials and liaising with the MOD. I was then invited to join the Marconi Minewarfare Section. I worked on the design and build of the “Minnow” a “PAP” replacement ROV. I still have some of the pictures and videos if anyone is interested. However, our bid failed through cost (too much fudge factor). I then moved to the “Stingray” trials group as a trials engineer spending a lot of time in BUTEC and AUTECH testing batches and inserting mods into Stingray. During my time at Marconi I also worked for a firm called UDI based in Aberdeen. They were a subsidiary of MUSL. We worked mainly out of Holland burying pipes and cables on the sea bed. For this we used a 44-ton Hydraulic powered ROV, hard but very rewarding work.

Finally when times got hard Marconi started chopping the engineers and closing units. My turn came in December 1991 and I was made redundant. After spending three months on the dole and applying for countless jobs I decided to play it safe and joined the Ministry of Defence Guard Service where I have worked since March 1992. If anyone wants information on what it is like please let me know.

Well I shall close now but I sincerely wish all my contemporaries great success and good luck in the future and when you see Tony ask why he was nicknamed “Tremendous Tracy”.

My best regards  
Mick Lawford



# Letters to the Editor

### Dear Editor

If you will accept an attempt from a mere civvy I would like to offer the following suggestion for the Big Ship Challenge VII.

I believe the ship to be HMS Nightingale. Built at Portsmouth 1931, sold 1957, and broken up at Southampton in 1958. Along with her sister ship HMS Vesuvius (ex Vernon, ex Skylark) she was a Mining Tender for HMS Vernon. Well, that is the who and what. The where and when is more difficult.

She is well decked out with bunting, the church is represented, and I suspect the captain's (or a senior officer's) wife is also present, so I would suggest that she is being recommissioned. I doubt whether it is the original commissioning ceremony as the bow looks a bit "distressed" and the cover over the canvas screening above the bridge was not I think original but added later. As the background looks serene and there is little activity it must be before 1940. Around 1935/6? And could the where be Portsmouth Harbour, HMS Vernon?

If I am wrong no doubt you will tell me, eh.

**Yours sincerely**  
**Steve Millin**

### SKY DIVERS WANTED

Looking for two more members to make up a 4-way sky diving team, (from the diving branch). Must be qualified, or son to be category 8, 'C' licence or above. We aim to enter the joint services free fall competitions throughout the 1995 season. At the moment we are applying for grant from the Navy sports fund. If you are interested in competing or can offer any information on funding please contact us. Also if you are looking for information on sky diving in general contact:

**LS(D) Fullen, FDU 1., H.M.S. Nelson (Gunwharf), Portsmouth, Hants. or AB(D) Taylor, DEEPWATER, H.M.S. Nelson (Gunwharf), Portsmouth, Hants.**



### Dear Editor

Following Cdr Ouvry's obituary in the June 1993 edition of Minewarfare & Diving, I thought you may be interested in the enclosed photograph.

The original hangs in Room 462 at DRA Southwell and has done for many years. I believe it may have belonged to Lt. Cdr. Brian Braidwood who worked in this office until his retirement in 1989.

Cdr. Ouvry is seated in the second row back, 4th from the right. A full "cast list" is attached.

**G. Reynolds**



Back row: Lt. Mould RANVR; Lt. Wadsley RNVR; Lt. Ellis RCNVR; Mr Leadbetter, Clerk; Mr Preston, Gunner (T); Lt. Clayton RNVR; Mr Bell, Gunner (T); Mr Martin, Gunner (T); Mr Brown, Gunner (T); Lt. Hight RNVR; Mr Cook, Gunner (T)

Second from back: Mr Pearson, Clerk; Lt. Nicholson RNVR; Lt. Jennings RN; Lt. Cdr. Elliot RN; Lt. Syme RANVR; Lt. Cdr. Armitage RNVR; Lt. Griffiths RN; Lt. Rowlandson RN; Lt. Hodges RNVR; Lt. Cleverley RN; Mr Williams, Draughtsman

Second from front: Mr Wood, Clerical Officer; Lt. Cdr. Glenny RN; Lt. Cdr. Morley RN; Lt. Cdr. Macdonald RN; Cdr. Thistleton-Smith RN; Cdr. Ouvry RN; Lt. Cdr. Harper RN; Lt. Cdr. McVittie RN; Lt. Frary RN

Front row: Wren Newman, Writer; Wren McElroy MT; 3rd Officer Noble WRNS; Ldg Wren Cook, Writer; Wren Seymour MT; Miss Voke, Shorthand Typist

### BALLROOM DANCERS WANTED

Looking for two more couples to make up an 8 - way dancing team (from the diving branch). No previous experience necessary, just good co-ordination and a poor dress sense. Come on don't be a closet dancer, send us a line. For more information please contact:

**CPO(D) Mc Dermott or PO(D) Tatt both at: Deep-water, H.M.S. Nelson (Gunwharf), Portsmouth, Hants.**

### Dear Sirs, BIG MINE CHALLENGE VIII

The only thing I can come up with in that the mine was laid in the Solent as a controlled mine and was placed with others to be detonated in the event of enemy shipping seen entering the Solent, has me foxed though as it is nowhere like the ones laid in Loch Ryan during the last war, an ariel photograph showed that all but about three had not detonated calling for "P" Party 1571 early in 1945 to investigate only found some casings split open.

We put down the untried Grid Search and used the M.R.S. suits.

**J.E. Payne Ex A.B. Diver, 1571**

# More Letters to the Editor

Dear Ed.,

A strange occurrence happened this morning as we prepared to sail from Kyles of Lochalsh which I feel should come to your attention.

Three strange men dressed in Royal Navy uniform appeared on our gangway claiming to be God Mine-Warfares (Warrant Officers) who were going to sea to assist and to observe our trials.

Shock and horror you might say, but it is true, they were not premonitions or after effects of the previous nights merriment in this very lively abode.

To save any name dropping one has the surname of famous Welsh footballer who played for Wrexham, the other a nickname of a small horse, and the other has the surname of thriller story writer.

It must be said however because of their ages and senility they each came with a warrant officer groupie connected to their respective jobs namely an officer extremely younger than themselves!!

So beware the 40% of warrant officer (MW) who never came to sea with us "Sea Time" still beckons albeit the dits aren't what they used to be.

It must also be said that they were very brave men as they decided to depart from the wall despite the fact that their paramedic backup team had not arrived with their pacemakers and oxygen.

Yours Aye  
Polly P.

**P.S. For Where are they now PO(MW) (O) Billy Brebner and I are still on the Walney.**

**Our ops department says a big hello and consist of:**

Lt Tony Griffiths	1st Lt.
Lt Keith Broughton	Ops Officer
PO(MW) (O) Polly Porter	Bosun
PO(MW) (O) Billy Brebner	ORS.
L/S (MW) Sharkey Ward	CBM.
L/S (MW) Stu Esplin	NBCDQ Runner
AB (MW) Scotty Hibberd	
AB (MW) Dougie Bowman	
AB (MW) Alex Groves	Good luck goes to him on his release to civvy street
AB (MW) Scouse Rippon	
OM2 (MW) Gill	When he joins in June.

## A CLEARANCE DIVER AS SEEN BY:



### CINCFLEET

A drunken, brawling, Landrover (or dumper truck) stealing, woman corrupting liar with a Rolex watch, diving knife, black woolly hat and combat jacket.



### HIS CO

A fine specimen of a drunken, brawling, Landrover (or dumper truck) stealing, woman corrupting liar with a fantastically accurate watch, diving knife, woolly hat and a combat jacket.



### WIFE/GIRLFRIEND

A stinking, gross, foul-mouthed bum who arrives home every 3 or 4 months with a bag of dirty undersuits, a huge ugly watch, a filthy old hat and a hard on.



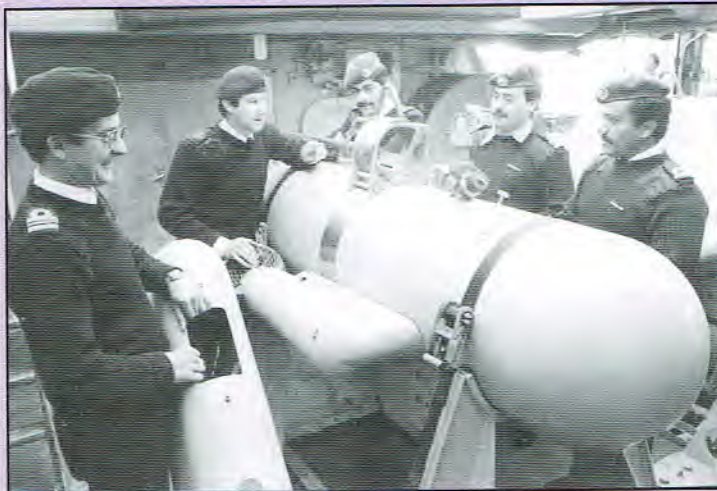
### HIMSELF

A smart, handsome, highly trained, professional killer and female idol who wears a tailored, non regulation combat jacket, carries a finely honed diving knife, is covered by a smart woolly hat and is always on time due to the reliability of his Rolex watch.



### MOD

An overpaid, overrated tax burden who is indispensable since he will go anywhere so long as he can drink, brawl, steal Landrovers (or dumper trucks), corrupt woman, kick dogs, lie, sing dirty songs, wear dirty undersuits, unofficial combat jackets, diving knives, a Rolex watch and unauthorised hats.



## BRAIN TEASER

1. Name the Nationality of the three students to the right of the picture.
2. What rank does the Gentleman student in the centre hold?
3. Name the Course Officer and state his Nationality.
4. What deliberate infringement of safety procedures is the young good looking Chief breaking?
5. What is the Capital of the country represented by the three Students?

WO(MW)(0) Pete Hitchcock

# A First for CSBCDU

By PO(D) Buster Brown, CSBCDU

## Introduction

It is not very often that you hear from this part of the country, but here is a dit I thought to be worthy of mention. It involves that great black thing called HMS VANGUARD, the first of the Trident class SSBN's, accepted into service last September.

Built at the VSEL yard at Barrow in Furness, HMS VANGUARD's sisters, HM Submarines VICTORIOUS and VIGILANT are well on the way with one of the hulls already in the water. Unfortunately, there is one small snag. The draught of the boats is greater than the water available at the lock sill to the basin. However, all is not lost. The offending article, the rudder tip (skeg) can be removed reducing the draught at the deepest point from 13.5 metres to 12.5 metres.

VSEL approached CSBCDU to see if refitting the rudder tip under water was feasible. "Course it is/no problems/easy". Oh when have I heard all that before.

The VSEL lads had the fitting of the tip down to a fine art and could hoist it into position within 30 minutes. We even sent a team to watch. Plans were drawn up, photographs of the evolution (on the surface) despatched, a date set, and T3s (job cards) raised resulting in one day to fit the beast. Oh, and we had a spare day too if we really needed it. The day

chose, or should I say was inflicted upon us. The night before (as a conscientious supervisor) I sat down to plan the task. Would anyone do me a sub? Did we have enough flasks and when could I fit in washing and waxing my car. But seriously, the largest problem that I had was the depth of 13 metres or so that would only give a diver 85 minutes at 15 metres with no stops. With only five lads I was rather limited on personnel. I introduced myself to the VSEL boffins and tried to glean as much information as possible from them. "Where are the rudder tip and fittings?" "Mmmmh, good question." We eventually traced the bits down in a car park. Good luck prevailed, it had not been clamped. I was assured that it would be delivered first thing in the morning. Isn't it amazing what "first thing" can mean to different people. JUPITER our work boat, along with all the gear had already been taken through the defence boom and into the Northern Development Area. To save on manpower, we used DSSCCA.

## Friday

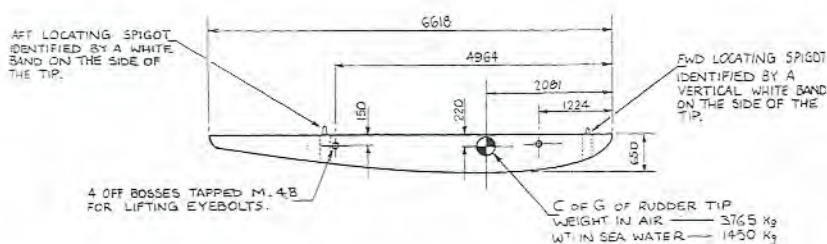
Up bright and early and it was a beautiful day (yes, we do occasionally have the odd nice day up here). I was keen to start, so a few 'phone calls to check everyone was ready for us, time for a cup of tea and brief the lads.

"Persevere" I said, "but don't damage any threads." Meanwhile the rudder tip was still in the car park. We tried drilling, easy-outs anything but to no avail. The plugs were not shifting. The tip had started moving and Pete had turned up with his diving gear. (I still have not found out where he borrowed it from). I decided to stop work on the plugs and task Scotty and Pete to the pad eyes and chain hoists. Chain hoists fitted, two fwd, two aft, makes sense! Scotty was dived out so Pete cracked on with the plugs. He's a good lad managing three plugs in 20 minutes. Things start looking up. As you can guess that last little half inch plug was not going to budge. That little blighter was about to do wonders for morale.

Meanwhile one of the lads collected the bolts. Eight in all, they were numbered as they varied in length and had been proof trialled. Except, there were 16! Easy, a spare for each! Wrong! The spares were of different lengths. Although the plans had the bolt lengths, only two or three matched up. It was important to have the correct lengths, not only for obvious reasons but because bolts that were too long would come up against an end stop, i.e. they would either not reach or we would be unable to tighten them up. Time to call the VSEL boys. "They can sort it out." I was introduced to Jimmy and Rab the fitters who had trialled the task on the surface back at Barrow. We saw quite a bit of those two. Bolts sorted! Pete dived out, still that little blighter remaining. It was early afternoon, lunch out the window but coffee in abundance. Cue the endless trail of people wandering how much longer we would be. Not a welcome event.

Next in, George Mossop our resident stoker, a ship's diver about to go on baby's course. We tested all the bolts in their respective holes and cracked on with the plug. Two hours later the plug was winning and George was emitting the type of language only heard in his part of the country. After a supervisor's debrief, again it was short and simple: "pond life . . ." Plan foxtrot! Plan Bravo was still buzzing around between my ears. The plug must go, full stop, otherwise no rudder tip. With their jobs to do and George still mumbling, Charlie Chapman went in. Most of the protruding plastic had gone. Great care was in order as we could not afford to damage the thread. I decided to leave it for the time being (it might fall out).

The chain blocks had 1.5 metre webbing strops fitted to their ends and these had to be lowered to three metres below the rudder base. Charlie cracked this but I was wondering about those strops. They were on the plans but not in the photos of the trial fitting. The night before it had crossed my mind that there might not be enough room to allow the tip to seat properly before the chain blocks closed on each other. Had anyone tried it



of reckoning loomed, and of course it goes without saying that it was a Friday. So it was that the duty watch and I tackled fitting the rudder tip, a first for the branch.

Before we go any further, let me give you some information on the rudder tip itself:

Length: 6.6 metres  
 Width: 1.3 metres  
 Depth: 0.6 metres  
 Weight: 3764 Kg in air (1500 Kg in water)  
 Securing: 8 bolts  
 Location: 2 spigots

So it was rather large, but a good challenge.

## The Plan

Quite simple, crane the tip into position under the rudder base, transfer the weight to the chain hoists, hoist up and bolt to the base, derig and have a quiet weekend.

Alternatively there was plan II which we

"Right lads, job on, we are going to fit the rudder tip to VANGUARD, any questions? No! Good! Let's go!" Nothing like a short simple brief, eh. I took an extra couple of lads, Scotty and Pete Clare to do the donkey work for me in the morning. "Don't forget Buster we'd like to secure at ---- on Friday." We were up and running ready by 0930. Scotty dived first, initially for a visual inspection. Then he located four chain block pad eyes, and identified the bolt/spigot holes on the underside of the rudder. I will come back to those later. After locating everything, Scotty told me that the bolt hole bungs were plastic, flush with the base and fitted with a flat screw head recess. You know the type. These were to become a major headache for us. They had swollen up and broke easily making removal extremely difficult. Scotty armed with a screwdriver tackled the plugs and managed to remove four out of the eight. The others were a little more difficult.

# CSBCDU

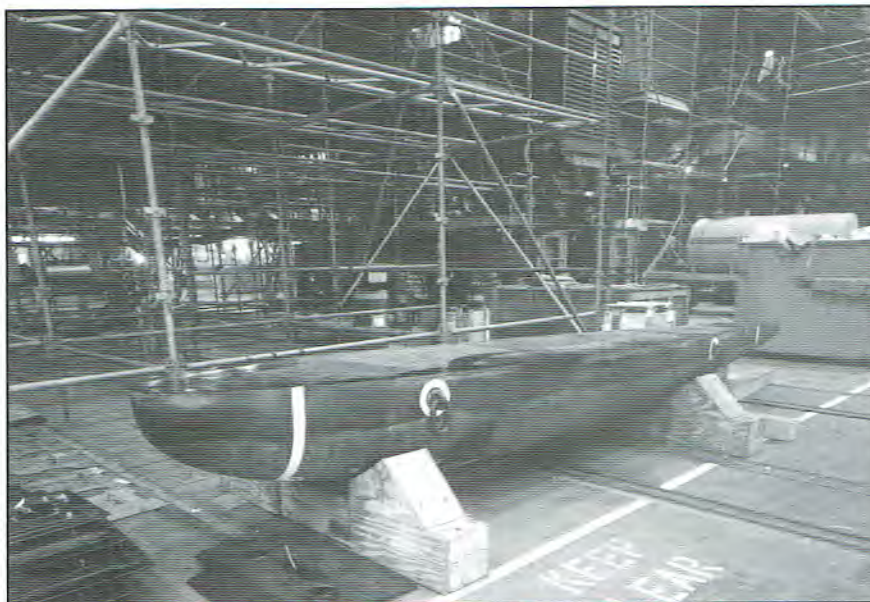
with the strops? Oh why had I not asked! There was a rubber guard to be fitted to the trailing edge of the starboard hydroplane. This was purely to protect the hydroplane from the crane purchase. Done. Back to the plug and then time for dinner. On completion the next task was to sling the rudder tip into the water. At this point we had to stop as the boat had to do a rudder/hydroplane trial. I

had stretched. Groans all round. Quick solution, transfer the weight to an extra pair of hoists and remove the strops. Tony Bean and Akkers the YoYo's COB in next, and on to the bolts. "Buster, its in position but doesn't look right." "Mmmm!" We checked it out. Satisfied, Andy Main got the first four bolts in working Aft to Fwd. No matter what we tried the rest would not go. Alignment? We

like, it can only have poured into the three holes, preventing the bolt heads from travelling far enough up the counter sink. None of the bolts fitted. After consultation with VSEL, the only option was to modify the extension bars, fit a nut, hacksaw the bar flush with the tip and tighten up the nut. Not ideal, but it would work and VSEL clearly wanted rid of us. 9.30 p.m. secure.

## Monday

The first rod was not ready until midday, it worked. The second worked when ready in the afternoon. I only had clearance to dive until 8 p.m. and Sod's Law dictated that the third would not be ready. It finally came with only an hour to complete the job. Paddy



believe at this point VSEL drew up a roster of "how long will you be?" people. "Be polite Buster" is what someone must have told me at some time. I am pretty sure though that it was not an old onesy. We rigged the tip for slinging. Ultimately the purchase wire was going to be between the hydroplane and the propulser shroud, a space of about six inches. I decide on one of the divers sitting on the hydroplane talking the wire into position through DUCS. Off to see the driver to tell him of my intentions. I remembered why I hated heights. Oh well all in the line of duty. Briefing complete, we lowered the tip into position, marked with cyalumes. Charlie's talk through was like something from the golden shot. Midnight passed. Andy Main's turn to connect the chain hoists to the tip and transfer the weight and level it up, albeit with a few snags. 5 a.m. and time to secure. That plastic plug is still there!

## Saturday

9 a.m. start, refreshed. Boss Il Dougie Bell came to lend a hand. First job: I want the tip raised so that it can be used as a platform to work on that plug. The Boss and George dive first and raise the tip, but George declines to work on his old friend. You have guessed it, the Boss made short work of moving him. Momentum gathered as the tip was eased up to the rudder on the four hoists. The Aft spigot must be lined up first. The spigots were really not man enough for the job and lining them up was a nightmare. Job done, we took the chain hoist up to the stops. Guess what, those strops were too long and

readjusted but always ended up with the same situation of apparent misalignment. Evening arrived and bingo. "Start afresh with extension bars." Well suggested Andy. At 1 a.m. we secured for the night and saw the VSEL foreman about having three extension bars manufactured overnight.

## Sunday

Started at 8 a.m., lowered the tip and fitted the bars. Location onto the bars was a fiddle, but it was eventually achieved. We were optimistic, it had to work. Five bolts in, all Aft. The Fwd three would not fit, yet the extension bars popped in and out without any bother. "Ah ha," said VSEL, "after the trial it was painted in anechoic rubber paint." Bitumen-

Heald went in and took an age, but he came up without the rod. Success at last! A good feeling but still the final tightening up, filling and derigging to do. Terry returned with the boys the next day to finish off. This was a simple job you say? On paper at least, but it does prove that you can not always predict all of the snags that you may encounter on a job. However, a bit of perseverance can overcome them. That is what makes CSBCDU such a good team. The work rate is high, but there is the knowledge, experience and determination to carry out that work. Finally a bit pat on the back to all the lads who were involved. Well done! I hope I never have to do that again!



## View from the Warfare Office

By John Murphie

It is easy to look on a whole office and think 'so what do they do?'. As the new boy I'll try and explain and give you a flavour of current issues. Headed by the boss, Commander Bertie Armstrong, the aim of the Warfare team is to maintain and develop the fighting ability of the Flotilla, this encompasses all disciplines but with the emphasis squarely on Minewarfare and Diving. To start there, both myself and my deputy Lieutenant Tony Welch are responsible for the use of in service equipments and how their effectiveness can be improved. Obviously our input is with an operator's eye and it sometimes helps when we can bring a cold touch of reality to a proposed trial or idea. Ongoing projects at the

moment are, the HUNT Class weapons system update, improvements in signature control of MH systems and CAPES. Viewed against an ongoing background of inputs to JMCs, exercise mining, defining the shortcomings of equipment for the LTC process and the ever present revision of publications, time doesn't hang heavy on our hands!

Lieutenant Commander John Staveley has now assumed the duties of MW Development Officer so he is keeping a watchful eye on the SANDOWN operational evaluation, how MW fits into amphibious operations as well as being the COMMW link into various NATO committees and working parties. He also oversees the

Weapons Performance Assessment process which Lieutenant Lindsay Palfrey analyses.

On the hydrographer's side of the office things are studious and quiet, not because he is weekending again, but instead Lieutenant Commander Andy Holt is trying to get us to navigate more precisely! Navpac is a major project and he is also exploring the options for improvements in the navigational equipment fitted to the SANDOWN class.

I hope that gives a flavour of what we do and where we fit in to the COMMW Headquarters. If you have any ideas on how to further improve the Flotilla effectiveness then let us know.

## EDITORIAL

Most of you will have noticed that there has been a delay in the publishing of Volume 4 Number 2. Apologies for that but I hope, having read the magazine, you will agree that it has been worth the wait!

Once again our readership's response to calls for articles has been very encouraging. From our centrefold feature, highlighting the extensive progress being made by the Sandown Class towards their forthcoming OPEVAL, to CSBCDU's entertaining account of a 'weekend break' in Barrow in Furness all contributions have been of the highest quality.

Thanks are due to His Royal Highness The Duke of York for agreeing to write the foreword and share with us his impressions of life in the 'Tupperware Navy'. Our best wishes to him when he moves on shortly to a new appointment at RNAS Portland.

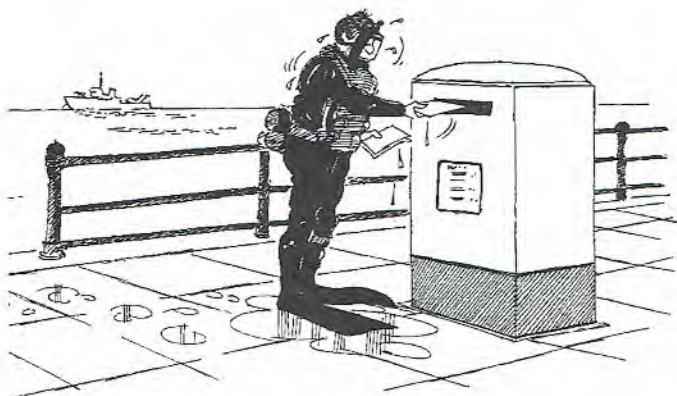
This issue reaches you at a time in which we are witnessing major changes in both the Minewarfare and Diving branches. The Warfare branch is now a reality and our first OMs are well established at sea within the flotilla. In March 1995 the Minewarfare School finally says farewell to the old HMS VERNON when training is relocated to HMS Dryad. Shortly afterwards the new Joint Defence Diving School will be established at Horsea Island thus clearing the way for the closure of the old 'Alma Mater'. Further north COMMW and the ships of the First and Third MCM Squadrons will also be on the move. The recent Defence Costs Study called for the relocation of COMMW and the First MCM Squadron to Portsmouth whilst the Third MCM Squadron will cross to the West Coast of Scotland to a new home at Faslane.

It is intended that the next issue will

cover these changes in greater detail focusing on the implications for us all both operationally and administratively. As ever your contributions are both welcome and essential if we are to cover the topics fully. Despite the late publication of this issue every effort will be made to get the January 1995 issue out on time. To that end, please get your articles to us as soon as possible and in any event no later than 30 November. Much has been done behind the scenes over the past few months to secure funding for future issues; let's do all we can to maintain the standards already set.



# Readers Response Page



Your Name .....

Your Rank/Rate .....

Your Job Title .....

Your Unit .....

Your Address .....

.....

.....

Your Tel No .....

Your FAX No .....

The Editor  
"Minewarfare and Diving" Magazine  
MDT Department of SMOPS  
HMS NELSON (GUNWHARF)  
Portsmouth  
Hants  
PO1 3HH  
FAX: 0705 822351 Ext 24705

Dear Editor,

1. I have read this edition from cover to cover and I think:

- (a) It's terrific—keep up the good work
- (b) It's OK—but you need more
- (c) It's no good—because

2. Please find attached my contribution towards the continued success of "Minewarfare And Diving" Magazine. It is:

- (a) a written article/Letter To The Editor, typed, double spaced and word-counted.
- (b) a photograph  /slide  /diagram  No. of items:   
of .....
- (c) less than RESTRICTED in classification

3. I realise that the Magazine publication dates are 1 Jan/1 Jul of each year, and that by sending my article in today it will arrive at least six weeks before the next edition is due.

4. I would/would not like my material/contribution returned on completion of printing.

5. I understand that inclusion of my contribution, in whole or in part, is at the discretion of the Editorial Committee, but that if I am to be considered for either of the prizes associated with each edition, I must be prepared to have a "grip and grin" mugshot taken and published.

Yours.....

Signed.....

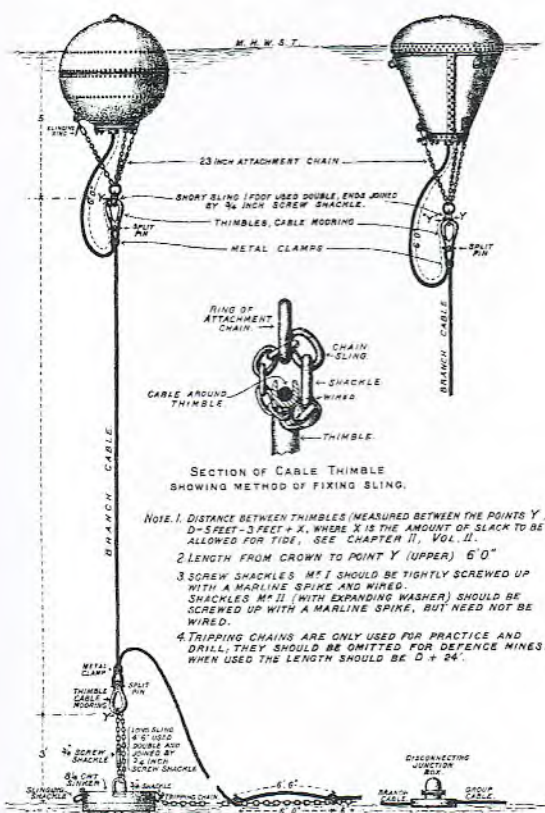


# Challenge And Reply

## BIG MINE CHALLENGE

### ANSWER TO THE BIG MINE CHALLENGE VIII

DIAGRAM SHOWING 100 LB. E. C. MINE, CONNECTED UP AND LAID OUT ON FORK SYSTEM.

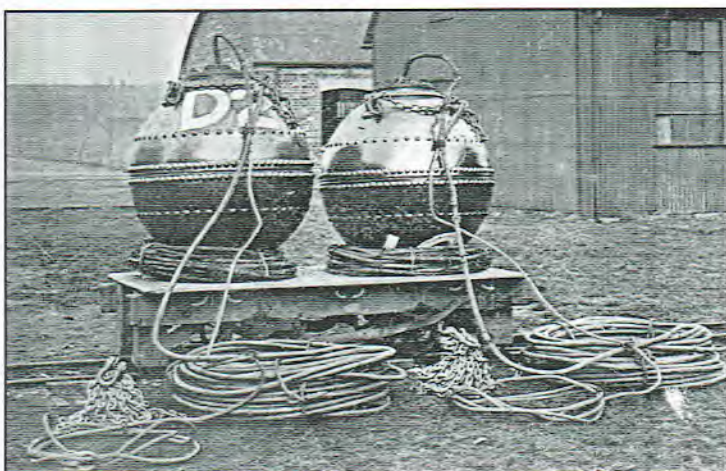


Dear Editor

As an ex 'Pongo', an avid reader of MAD and one who was taught by the Royal Navy to dive in the warm waters of the Indian Ocean I should like to take up your 'Big Mine Challenge VIII'.

It is perhaps a little unfair since it is one of the EODTIC tasks to identify such objects, but should you publish this letter it will let the clearance divers know that we can on occasions be of assistance to them.

The mine in question is a British 100lb Spherical EC (Electro-contact) Mine designed for the defence of harbours, estuaries and other navigable waterways at the turn of this century. I enclose a photograph and a drawing showing the mines mode of action as shown in a 1904 Manual of Submarine Mining published by the War Office.



## MCDO ASSOCIATION TIES

Minerwarfare and Clearance Diving Officers' Association ties have been manufactured and are now ready for purchase. They are to a design agreed by the committee and are good value for money. The cost has yet to be determined but will be in the region of £5.00. These most desirable items of personal attire can be purchased from either: Lt Cdr (Frank) Ward, COMMW, Lochinvar Block, HM Naval Base, Royston, KY11 2YA. (Ext 62496) or OIC, FDU1, HMS NELSON (GUNWHARF) Portsmouth, Hants, PO1 3HH (24577).



## BIG BADGE CHALLENGE IX

The framed flag is mounted in the wardroom of HMAS WATERHEN, the home of the Australian Minewarfare School.

The only information that I have is from a plaque that is mounted above the flag. It reads:

Inshore Flotilla Far East

Fleet 1963-67

The home Flag of Captain Inshore Flotilla was flown in HMS MANXMAN during the period of KRONFRONTASIA in the Malaysian area 1963-1969.

The field of the flag of Saint George is defaced by the crest of the Isle of Man representing the Commonwealth MCM Squadrons of the flotilla as follows:

Upper inner canton – 6th MCM RN

Lower inner canton – 16th MCM RAN

Upper outer canton – 11th MCM RNZN

Lower outer canton – 11th MCM RN

All replies to the Editor, MAD Magazine.

Any badges/objects considered suitable for inclusion in future challenges would be gratefully received and will of course be returned.