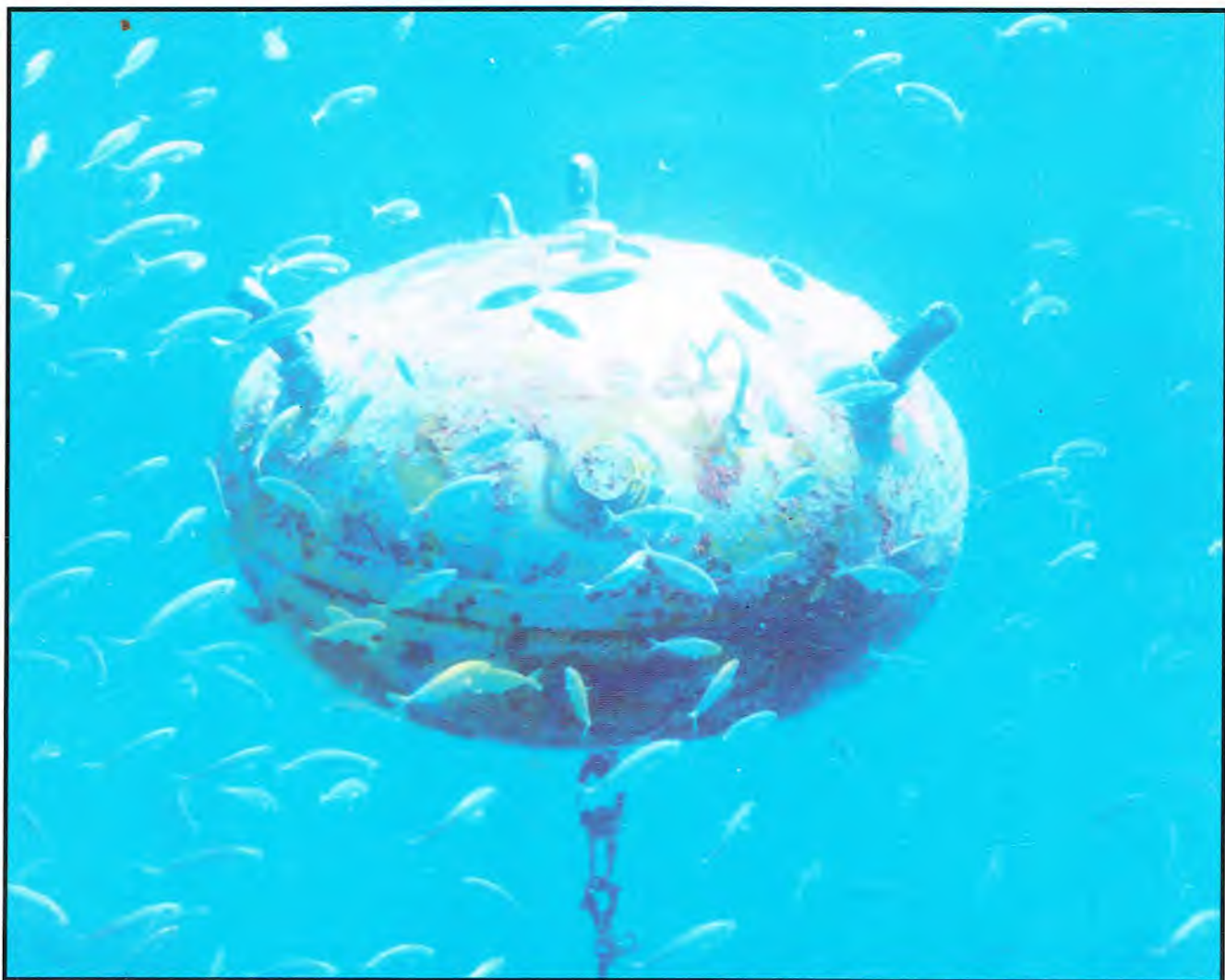


MINEWARFARE AND DIVING



VOLUME 2	NUMBER 1	1 JUNE 1991
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High Profile For MCM Operations In The Gulf - Page 14

MINEWARFARE AND DIVING



THE MAGAZINE OF THE
MINEWARFARE AND DIVING COMMUNITY

Front Cover: An underwater view, of an Iraqi LUGM 145 mine, taken by a diver from HMS CATTISTOCK. This target was hunted by sonar and cut from its mooring by one of the ship's RCMDs 1 vehicles.

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Foreword



By
Commodore C J S Craig, CB, DSC, Royal Navy
SENIOR NAVAL OFFICER MIDDLE EAST
DURING OPERATION GRANBY

As a specialist Naval Aviator, I have always been strongly influenced by the constant campaign for Flight Safety. The operational worlds of Minewarfare and Diving are potentially just as hazardous as flying and the requirement to maintain high standards of safety is no less demanding.

During my time as Senior Naval Officer Middle East, I was privileged to witness, often at close quarters, some of the most dangerous operations conducted by Officers and Men of the Minewarfare and Diving Sub-specialisations since Operation Corporate in 1982. The bravery and professionalism shown by such men during Operation Granby has been well recognised, as indicated by the number of gallantry medals awarded.

There are many lessons to be learned from the events that took place during the Gulf War: lessons that will affect our choice of tactics, our equipments and our training for years to come. This magazine is an excellent forum for promulgating the knowledge and experiences of those who took part in Operation Granby, thereby stimulating debate and even greater efficiency in our operations.

*Whatever your chosen specialisation may be, I would give the following encouragement: **do** heed the lessons learned from our more demanding operations, **do** gain from the experiences of others and, above all, **do** MAINTAIN YOUR HIGH STANDARDS OF SAFETY whilst not losing sight of the operational aim.*

MINEWARFARE AND DIVING EDITORIAL



A much-debated topic of late is that of media censorship, in particular, the controls exerted upon the media when covering Operation GRANBY. The ability of certain media members to "over-assess" events (and a few non-events in some cases); the dubious authenticity of certain so-called "military experts"; the confliction between making deadlines for copy and remaining within guidelines for military security; the provision of open communications facilities for reporting purposes; all these factors, and others, have been assessed. The "Lessons Learned" from GRANBY have been collated and are being reviewed by both the media authorities and by the Services themselves on a formal basis.

A magazine such as "Minewarfare And Diving" must, given the professional qualifications of the contributors and the subjects covered, remain within the specific guidelines set out in DCI Gen 103/91. The latter reference covers all aspects of post-GRANBY-related events and publications. MAD is published "For Official Use Only" and the Crown has a copyright on the contents - contents which are always sanitised in order to achieve the magazine's widespread international distribution. The Editorial Committee felt that the topicality of events in the Gulf warranted special reporting but readers will detect the absence of any authoritative comments or conclusions, in accordance with the stipulations listed in the DCI.

Controlled distribution and sanitised contents apart, recipients are asked to safeguard their copies in accordance with the caveat stated so as to protect MAD's reputation and to comply with the respective regulations.

Formal statements duly completed, it is with a particular pride that the Editorial Team put this edition together. Whilst some stories may never be told concerning the involvement of certain units in Operation GRANBY, minewarfare and diving operations - particularly those involving RN units - achieved a very high profile within a very short space of time. The task of "clearing up" still goes on and so the final score tallies have yet to be published. The articles that have been included in this edition are not an attempt to glorify any particular unit or team, nor to assess the performance of any specific equipment or

tactic - the Reports Of Proceedings and Lessons Learned will cover those aspects. The deciding factor was, in each case: "Does this give a different but relevant slant to the War and is it to do with Minewarfare or Diving?"

Doubtless there will be those persons reading this edition who will claim to have better photographs of specific events in the Gulf or to have better dits to spin (be they serious or humorous). The Staff answer is "Yes please!": there will be many readers of the 3000 copies per edition of MAD who have never served in the Gulf, let alone set foot in Kuwait, so to those who have done so, please put pen to paper for the next issue and have a rummage through the piles of piccies - even if they don't get published, the Editorial Team promise to copy the best ones for instructional purposes before returning the originals to their owner! Due to printing and cartoon contract delays on this edition it will not "hit the streets" until Xmas 91. The next edition of MAD will therefore be Vol. 3 No. 1 in June 1992.

On that note, life here in HMS NELSON (GUNWHARF) carried on despite various staffing and manning interruptions during GRANBY. Courses came and went, the New Management Strategy arrived with a free change of title from that of "MDDS Faculty" to "MDT Department" of SMOPS. Other prospective moves of interest to the majority of readers - of the Diving and Minewarfare Schools, of the Rosyth-based ships, of MCMVs between Squadrons and base ports - are all tied up in Options For Change and therefore not covered in this issue. Presumably when the long-awaited announcements are indeed made, there will be enough material upon which to comment and enough Letters To The Editor to fill several future issues of MAD.

Tugg continues to provide his unique cartoon talents to the pages and articles enclosed. This, coupled with the support of Maurice Pavay's team in the Phot Section of SMOPS and Rob Hoole's Line Scanner in the Saudi Training Section, ensures a professional level of input continuity for the magazine. The layout, style and fonts are now standardised so the time-consuming stages of production are kept to a minimum. For the Managing Editor, this is the Valedictory Edition - a statement made with some sense of pride and pleasure: pride that MAD has achieved its present circulation and status, and pleasure that it has all been done by a team of amateur enthusiasts, mainly in their own free time. We still totally rely on volunteers to provide articles and pictures for publication, and to date we have never been short of material - long may that support for Minewarfare And Diving magazine continue.



● *Dateline 5 November 1991 - Lt Cdr B J MANSBRIDGE MBE, RN seen outside Buckingham Palace with his newly-awarded MBE - for services rendered in the Gulf War. An account of his experiences is on page 20, and a copy of Jane's Fighting Ships goes to him as the prize for best article.*



● *CPO "Pinky" PRESTON, of HMS CATTISTOCK receives his prize from Lt Cdr Thompson (SOMW MDT SMOPS). One year's free subscription to Jane's Defence Weekly goes to CPO PRESTON for his photographic contribution to this edition (see pages 21-22)*

IS DIVING DAMAGING YOUR HEALTH?

Surgeon Lieutenant Commander A.W.MURRISON Royal Navy
Undersea Medicine Department Institute of Naval Medicine

Experience has shown that the immediate outcome in the two classic diving diseases, Decompression Sickness (DCS) and Cerebral Arterial Gas Embolism (CAGE), is generally good providing casualties receive treatment promptly. Widespread concern amongst the diving community has, however, been prompted by the suggestion that there may be an eventual price to pay in terms of health by those subjected to hyperbaric conditions in their youth, even in the absence of a history of DCS or CAGE. In this article I have attempted to present a 'Cook's Tour' of the multi-disciplinary research which has focused our attention on the possibility of the development of insidious brain and spinal cord damage as a result of diving.

PUNCH-DRUNK DIVERS

Diving folk lore presents, in vivid imagery, the 'punch-drunk' diver, a close cousin of the better known boxer suffering from 'dementia pugilistica'. This figure-of-fun had entered premature mental decline apparently as a result of his heroic diving activities. Certainly an Australian study on Abalone divers (these individuals habitually indulge in patently unsafe diving practises in their search for Abalone (a variety of clam) initially suggested that they were not quite as bright as their non-diving peers. This opinion was modified subsequently when it became apparent that the general, somewhat extreme, life-style of Abalone divers (incorporating smoking, drinking, head injuries and so on) had not been adequately allowed for. This might very well account for the differences seen when compared to other groups. Slightly more convincing was a study, published in 1959, which examined the health of caisson workers engaged in the construction of the Budapest metro. This suggested that persistent mental impairment occurred in workers who had suffered from decompression sickness and, furthermore, that there could be a deterioration over the course of months following recompression. The relevance of the health experiences of various impoverished Eastern European tunnel workers to those benefiting from modern safe diving practice is unclear. In 1977, Dr Bruce Peters of the University of

Texas performed a series of neurologic and neuropsychologic tests on commercial divers. He found that people with histories of central nervous system DCS (ranging from 1 day to 2 years previously) very often had abnormalities, according to his tests, which implicated multiple brain lesions where it had been previously felt that only the spine was affected. His work could be criticised on the grounds of it being small in scale and his failure to test a group of non-divers for comparison. More recently, investigators centred in Bergen, Norway, have concentrated on the use of mental tests to detect damage in divers and have concerned themselves particularly with deep diving operations. Of all investigative tools available, such 'psychometric' tests are the most difficult to use and interpret properly. Any claims made on the basis of the results of such studies are, therefore, often open to criticism and the Norwegians' work is no exception. The work, in summary, claimed to show, that there existed, apparently long-term, neuropsychological residua after dysbaric illness and also that saturation diving 'per se', particularly deep saturation diving, could cause significant mental impairment.

MORTUARY MATTERS

Dr Ian Calder, a Pathologist at the London Hospital, on learning of the death of a diver, either directly as a result of diving or from an unrelated cause, is prepared to travel the length and breadth of the country to conduct a post mortem examination. He has shown spinal cord damage which could not have been anticipated by the deceased's dive history, his pre-mortem health or his last medical examination prior to death. This finding remains of no more than incidental interest unless it can be shown that the existence of such lesions in the living presage disability in later life.

EYE-EYE

In 1988 researchers at the National Eye Hospital in London, in collaboration with the Diving Diseases Research Centre at Fort Bovisand in Plymouth, used a fluorescein dye to image the vessels at the back of the



eye - a technique known as 'retinal fluorescein angiography'. They revealed changes, in relatively young men, which resembled those expected in more elderly subjects. This work was of particular concern in the context of the medical axiom which describes the eye as a 'window' giving onto the central nervous system. Perhaps, therefore, the National Eye Hospital's retinal findings could be markers of wider central nervous system damage. Once again, however, there was found to be no correlation between the findings described and functional impairment - eyesight in those with abnormal angiograms was perfectly normal. Nonetheless the possibility remains that functional decrements may start to appear only later in life as the natural redundancy of nervous tissue that we are all equipped with at birth declines as part of the normal ageing process.

Continued overleaf

Continued from previous page

FROM HOLES IN THE HEAD TO HOLES IN THE HEART

Scientists at Duke University in North Carolina demonstrated that people who had suffered from decompression sickness were more likely to have holes in the heart than a group of healthy volunteers. It was proposed that a hole in the heart ('patent foramen ovale' or 'PFO' in medical parlance), which may be very small and completely unproblematic under normal circumstances, might provide a means for venous gas bubbles to by-pass the filter mechanism provided by the lungs. In

HMPAO

Closer to home, in 1989, Commander Greg Adkisson, whilst United States Navy Exchange Officer at INM, used a brain scan technique with an unpronounceable name (abbreviated to 'HMPAO-SPET') to study the brains of divers who had sustained DCS or CAGE. His work suggested that dysbaric illness was a more diffuse, multifocal central nervous system disorder than had previously been supposed and that, furthermore, the brain, as opposed to spine, might be affected rather more than had previously been

without a history of DCS or CAGE. It is important at this point to state the obvious - individuals do not exist in a vacuum (particularly divers!) and we are all undoubtedly affected in one way or another by what we do and the environment in which we live. Divers surely are no exception to this but what remains unclear is whether they are significantly disadvantaged in terms of health, longevity or lifestyle as a result of exposure to hyperbaric environments. The challenge is, firstly, to corroborate the existence of damage suggested by earlier studies and, assuming we are able to do so, to quantify it in terms of long-term functional impairment that may result (if any). Having, hypothetically, both confirmed the existence of damage and found that it is functionally important the next step would be to decide what forms of diving are responsible and whether certain individuals are particularly susceptible (so that, for their safety, they may be filtered out at their initial diving medical or have diving limitations imposed upon them). A response to the question posed in this article's heading would, currently, be little more than conjecture. All that can be said at this stage is that there is fairly good evidence to suggest that diving, with or without DCS, may cause structural changes in the brain and spinal cord. What sort of diving is responsible and whether all or only certain individuals are at risk and why remains unclear. To assert from all of this that there is an ultimate price to pay for diving in terms of health, longevity or lifestyle is unwarranted.



THIS IS WHERE YOU COME IN

In an attempt to define more closely the health risks posed by diving, research proceeds apace with the Institute of Naval Medicine taking a leading role. Further advances in our understanding of diving and the possible risks posed by it is entirely contingent upon the continuing active participation of the diving community. INM plans an Investigation aimed at determining whether or not the results of the eye study previously mentioned are applicable to Servicemen. Furthermore, this study will attempt to tie in any structural damage shown with visual function and diving experience. The Health and Safety Executive is about to start a study of divers who have had incident-free diving careers in an attempt to determine whether insidious, sub-clinical damage is being caused by diving. This will use a broad range of investigative tools such as tests of mental performance and brain scans. Stand by for a call for volunteers!



this way, it was supposed, gas could enter the arterial system to lodge, perhaps, in the blood vessels supplying nervous tissue. Dr Peter Wilmshurst is developing this theme at St. Thomas' Hospital in London by investigating sports divers who have had DCS to see if, as a group, they have a surfeit of PFOs. On the subject of bubbles, the Canadians have been particularly active in the use of Doppler Ultrasound techniques to detect bubbling after experimental dives. They have demonstrated the presence of gas bubbles in the blood of divers after completion of even mild, everyday dive profiles. Bubble 'scores' have been used to test new dive tables as a refinement to having divers develop DCS in order to define which profiles are safe and which are not. Whether bubbling, thus demonstrated, in asymptomatic divers portends cumulative damage to nervous tissue is a matter for speculation.

recognised. This study was plagued by uncertainty as to what constituted normal and abnormal brain scans. Presented with all this data it comes as no surprise that the media have exploited the idea of insidiously brain damaged divers. There is little mileage in presenting a balanced view, particularly if a good story is emasculated in the process. The old and bold, will, no doubt, recall a similar state of affairs in the 1970's which arose in relation to concern over dysbaric osteonecrosis. Predictably, then as now, the popular press was moved to draw premature, sensationalist conclusions from research in the field which caused unnecessary concern to divers and their families before oil was judiciously poured on troubled waters. Nonetheless, in recent years, a number of quite separate studies have suggested that there may be occult damage occurring to nervous tissue as a result of diving even

DONE FOR DRINK-DIVING

The following article is a true account of a diving incident that took place early in 1991. The details of the Form S.333 (Report of Unusual Diving Incidents or Accidents) have been reviewed and comment has been passed to the individuals and unit concerned. The aim of this page and of future such reports is to bring malpractice or health and safety-orientated items to the attention of all divers.

No individual or unit names will ever be published. You may have a nagging conscience about some incident of long ago, or even wish to submit an article for publication along the lines of "I learned about diving from that..." If so, please write to I of D, FDG HQ, HMS NELSON (GUNWHARF), Portsmouth, Hants, PO1 3HH. Anymouse rules will be respected.

Situation

An RN warship was alongside a berth in a Naval Base. On a clear, dry spring morning the ship's diving team were carrying out underwater maintenance. There was no tide, nil visibility (grey water and raw sewage), water depth was 9m and the sea temperature was 9°C.

Pre-Dive Checks OK

Diving operations were being conducted from the stern of the vessel initially, whilst doing poker-gauge readings and then the dive site

Danny Dipstick (the dangerous diver) says:

"Yeah, well I've dived loads of times with a bit of a hangover . . . doesn't stop me from diving . . . nothing like a quick guff of neat oxygen to get me going in the morning . . . stuff yer eggs 'n bacon slushy—jest gimme a mug of coffee an' a bun . . . Where's may set gawn?"

was transferred to a suitable catamaran, moored midships, between the ship and the jetty. The second task was to fit 3 large blanking plates to specific hull inlets. All pre-dive checks had been correctly completed. The ships team consisted of experienced, qualified, in-date divers.

Cause for Concern

The condition of one of the diving team, Diver X, had been brought to the attention of the supervisor at 0830 that morning. The first dive commenced at 0700 but X, the individual concerned, having been reported as being "in a state", declared himself "fit to dive", admitting to "three or four pints the night before", and had consumed a hearty breakfast that morning.

The supervisor decided to put Diver X in the water on the next dive, despite the reservations of other experienced divers in the team.

The Dive Went Wrong

The buddied pair left surface at 1107, breathing compressed air on DSSCCA. Diver X surfaced three times—firstly to get a torch

By Inspector of Diving

(viz really was zilch), secondly to have a fin strap tightened, and thirdly to have a fin replaced (having lost one). Diver X's buddy equalised after 40 minutes into the dive, at 8m. 10 minutes later, whilst still struggling to get a large unwieldy blanking plate into position, Diver X tried to equalise but couldn't. He later claimed that his equalising valve was out of reach and was caught on the bilge keel. Using his suit inflation, but failing to ditch his weight-belt, Diver X, having run out of air, removed his mask and finned himself up to the surface. He gave no signals, pulled his buddy up with him, causing the latter's head to collide with the bilge keel en route.

Diver X was recovered from the water, conscious, vomiting yellow fluid, blue-faced and panting. His suit was cut off him and was placed in the recovery position and received medical attention shortly after.

Both Diver X and his buddy quickly recovered with no injuries. Diver X was described as a very strong, fit, experienced ships diver. He was also very lucky on this occasion.



Sidney Streetwise (the supersafe swimmer) says:

"BR 2806 Article 2361 rules that divers are not to dive within four hours of having consumed alcohol. This article is due to be amended in 1992 to read six hours because of incidents such as this.

Despite an individual diver claiming he is capable of diving, the final decision to allow a man to enter the water must always rest with the supervisor: "Is this man fit, in all respects to dive?" The diver must also know his equipment drills (BR 2806 Article 7402.2) Chapter 7 Article 24) and not breath his set right down before attempting to equalise (BR 2807 (1) (J) CAT V).

The use of a suit inflation bottle should be restricted to two purposes only: firstly, to reduce the effect of "squeeze" at depth, and secondly, to improve buoyancy when on the surface (BR 2806 Article 7412). The use of suit inflation to aid any ascent is discouraged.



HAS THE ABOVE ARTICLE MADE YOU CRINGE?

NOBODY IS PERFECT, BUT DO YOU KNOW A DANNY DIPSTICK? THE NEXT TIME YOU SNIFF HIS BREATH, WATCH HIM STAGGER AROUND THE DIVING STORE MAY BE, OR PERHAPS PEER AT YOU THROUGH BLOOD SHOT EYES . . . WHETHER YOU ARE HIS BUDDY, HIS ATTENDANT OR HIS SUPERVISOR, ASK YOURSELF THE QUESTION:

"IS THAT MAN FIT TO DIVE?"

AND IF THE ANSWER IS "NO" OR EVEN QUESTIONABLE, DON'T LET HIM RISK HIS OWN LIFE, OR MORE IMPORTANTLY, HAZARD SOMEONE ELSE'S.

Diving Equipment Review

THE REVIVAL OF THE ATMOSPHERIC DIVING SUIT - JIM

by Michael Borrow OBE

Mike Borrow retired in 1984 from Underwater and Marine Equipment Ltd (UMEL) which he had founded twenty five years previously.

He wrote this article in 1985 at the time of the recovery of the World War II Wellington bomber from Loch Ness as an account of how his company became involved in the revival and continued development of the Atmospheric Diving System - Jim.

Jim 22 was used in the salvage of the Tornado mentioned in the article on DMS in MAD Vol 1 Number 3.

Why is it called Jim? What is the connection between a London museum, the Lusitania, a pub in Brighton, a Research Establishment, and a garden in Surrey?

Mike Borrow's fascinating account is a testimony to the determination of diving equipment designers and manufacturers - and to the brave men who have taken such systems to the limits of science.

Joseph Salim Peress lived in the Persian Gulf area until he was eighteen when his father, a merchant, decided to bring the family to Europe in 1912. Peress had no formal education but possessed an intuitive flair for engineering design and in 1914 he joined De Havilland as a trainee-draughtsman.

During the First World War he also worked on the drawing board for Handley Page and Folland but continued in his spare time to work on another problem, that of the design of an atmospheric, articulated diving suit - diving armour which would enable the operator to remain dry underwater at great depths in an atmospheric environment yet

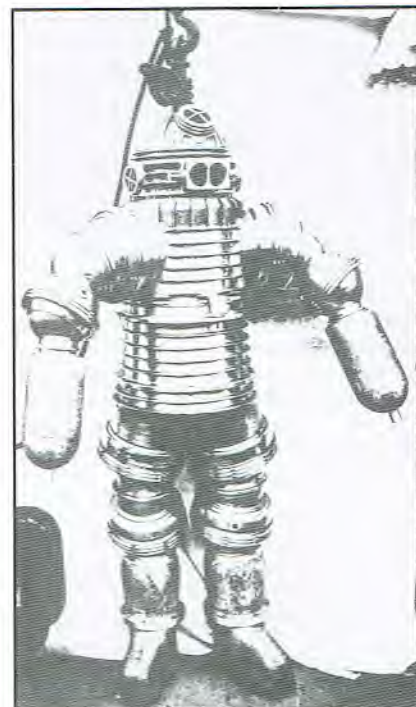
still being able to manoeuvre despite the external water pressure on the flexible metal joints.

Although the physiology of ambient pressure diving was understood, decompression was still very much a hit and miss affair and Peress had seen the effects of 'bends' on the Persian Gulf divers where the finest pearls from the shell *Margaritifera Vulgaris* were harvested. A successful design of a joint which would remain flexible had eluded inventors since man first tried to dive certainly since the beginning of the eighteenth century. The joints that had been made seized up once underwater and few inventors seemed to understand basic hydrostatics and mechanics.

The Tarrant Years

In 1918 he joined the design team of W.G. Tarrant in Byfleet to work on the "Tabor", the ill-fated monster triplane bomber which crashed on its first take off at the Royal Aircraft Establishment at Farnborough. Peress had a very high regard for Tarrant and it was obviously mutual because the older man took an interest in his ambitions for a diving suit and allowed him space for a drawing board and use of machine tools.

The first trial suit was machined in the main from solid stainless steel billets and photographs show the mechanical complexity and craftsmanship used in its construction when it was exhibited at an engineering exhibition at Olympia in 1925. Three years before, the P & O Liner "Egypt", had sunk after collision off Ushant in 400 feet of water with bullion worth today some £10 million. During this exhibition Peter Sanberg CBE and James Swinburne who had been instructed by the underwriters to salvage the cargo asked Peress if he would construct another suit to complete a salvage team. Perhaps a less cautious man would have agreed to do so and said 'yes' but Peress explained that the suit was untried. A prudent remark because the suit was a failure, far too heavy underwater for a man to handle yet he was inspired



● *The first Peress stainless steel suit at the Olympia Engineering Exhibition in 1925.*

instead to try again. He was encouraged this time by Sir Frederic Young, the man behind the salvage of the Zeebrugge wrecks after the war, to continue development and for the next three years he worked on the problem with the team of two or three craftsmen he had gathered around him. By 1929 he believed he had overcome the problem of weight by the use of magnesium for the main body and spacers and he had also improved the flexibility of the joints so that when he was approached by a Greek industrialist to make a 'deep diving armour' he had virtually everything drawn up and he was ready to cut metal.

The Lusitania

Peress's patron had a salvage concession on the wrecks of the Greek and Turkish ships sunk during the Battle of Navarino in 1827 so Peress was pushed to complete trials of the suit before the summer of 1930. In fact the complex spherical turning and milling of the joints, pattern making and casting of the magnesium components, fitting and assembly were completed in five months (many of the stainless fastenings, stainless bolts, were from the remains of the Triplane!). The suit was demonstrated publicly in a small tank at Byfleet on the 30th May 1930 and among those invited to witness the event were F.G. Nettlefold (later of G.K.N Ltd), Lord St. John of Bletso, Sir Edward Headlam, Mr. Yapp of Carreras and Kenelm Lee Guinness the racing driver (and KLG spark plugs). On 24th September the suit was taken into Loch Ness aboard S.S. "Recovery" from Leith and Jim Jarrett, Peress's assistant dived it successfully to 444 feet and found that he could flex the joints and manoeuvre with no more error than at a depth of forty feet.

The salvage job in Greece never came off and Peress spent the next seven years attempting to create interest and gain credibility for a deep diving system. In 1932 it was officially evaluated by the Admiralty who reported that it did all that was claimed of it but stated at that time they had no requirement for a deeper diving capability than 300 feet. Jim Jarrett completed one more deep dive, to locate the "Lusitania" in over 300 feet off the south coast of Ireland in 1935 followed up by a shallower dive to a 200 feet wreck in the Channel from the S.S. "Orphir" in 1937.

A Thirty Year Break

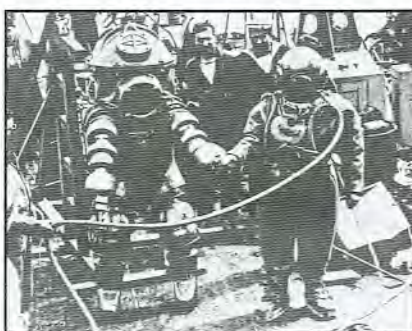
For thirty years Peress turned his back on diving and the salvage business, resolving never to think or talk about it again, and instead concentrated on pioneering plastic moulding and later forming an associate company which at one time was among the largest manufacturers of turbine blades for the aircraft industry in the world.

Very little serious work was done on deep diving until the beginning of the 1960s when it became obvious that the offshore oil and gas industry was going to need a lot of diver back up especially in the southern North Sea when it opened up in 1965. Diving suddenly came into the news and became increasingly expensive with high labour costs, expensive breathing gases (helium) and space-consuming hardware like diving bells, hoists and decompression chambers on the surface. About that time a handful of people in the world, a couple in the United States of America and a couple in the United Kingdom, considered that the problems of diving could not be solved by engineering the man physiologically to fit the environment but to tackle it from the space angle, putting him in a protective suit - deep diving armour - and let him exist normally - at atmospheric pressure.

Ironically, the Americans got very close to the solution but Litton Industries did not follow up their development; however the small UK firm who had been thinking along similar lines and considered that the solution lay in a simpler compensated joint took advantage of a lucky coincidence.

A Surrey Garden

In the summer of 1968 Peress, then seventy four and recently retired, drove over to Purley in Surrey to a family party to celebrate the twenty first birthday of a grandson. Late that evening he sat yarning with an old friend of the family, a scientist at the Royal Aircraft Establishment at Farnborough, and when he discovered that he dived as a hobby remarked



● *Jim on Trials with the Navy*

casually that many years previously he had been interested himself in diving and had in fact been involved in some of the deepest diving undertaken. This was the first the friend had known of Peress's connection with diving and a week later mentioned the conversation to the speaker at a diving lecture held one evening in Reading. The speaker, an underwater engineer also from Farnborough, introduced his partner and explained that not only had they heard of Peress but that for some time had considered that the Peress-type joint could be the solution. They admitted that just before leaving for Reading that evening they had actually been discussing the fate of the suit and Peress himself. Naturally they were very keen to meet Peress and asked if a meeting could be arranged.

A Brighton Pub Lunch

The old man at first refused but reluctantly agreed after family persuasion and the first meeting took place during an underwater conference at Brighton. After a pub snack they showed him various exhibits which illustrated the complexity and expense of current ambient pressure diving and the older man soon appreciated that the system he had developed in the '20s could play an important role in the development of an updated diving system. The following five years again saw 'Pop' Peress, as he soon became known, involved with the problems of atmospheric diving, this time as consultant with a younger

team at the company in Farnborough. The goal was the development and manufacture of two atmospheric suits adapting the basic Peress joint, modern materials and bio-engineering concepts used in the space suits. The test depth of the suits was to be 2000 feet (890 pounds per square inch) and a working depth of half that. A mutual respect and friendship soon developed between him and the design team and the engineers of the company and if any problems arose they were soon settled over a drink in the Queen's Hotel next door after work.

More Trials, More Records

After some searching the old 1930 suit was tracked down to a workshop in Glasgow where it had lain hidden for thirty years under rubbish. What impressed everybody involved was the lack of corrosion, especially on the magnesium parts. The fabricated rubber joint seals were as pliable as the day they had been installed and there was even oxygen still in the backpack cylinders. The suit was cleaned, painted, re-assembled and dived for the first time by Peress himself in the factory test tank. The first of the new generation Jim suits as they were called (after Jim Jarrett) was completed late October 1971 and in January 1972 a dive to nearly 500 feet was made from HMS "Reclaim" off the west coast of Scotland. This was followed by a series of sea trials and evaluation culminating in a record breaking dive by Mike Humphrey, the Farnborough designer, to 1000 feet in the massive test vessel in the Admiralty Underwater Weapons Establishment at Portland. By the early 1980s nearly twenty Jim diving systems were employed throughout the world, from 900 feet under the ice in the arctic Beaufort Sea to the oilfields off Western Australia. The Farnborough team had also developed Special Suits for the United States Navy with body shells constructed from carbon fibre reinforced plastic, a material first developed at the Royal Aircraft Establishment in Farnborough. 'Pop' Peress died in 1978 having seen an idea he conceived over sixty years previously become a highly successful diving system enabling men to work deeper and safer. He would have been very amused to have known that fifty years later two of his suit's descendants had gone back to Loch Ness to salvage a Vickers Wellington (made a stone's throw from where he had made the first suit) from a spot in that Loch where he had dived his first suit!

Museum Piece

Jim 1, the 1930s atmospheric Articulated Diving Suit (ADS), normally on display in the underwater section of the Science Museum in South Kensington, is presently on loan to "Treasures of the Deep" museum at Penbrey Country Park, Llanelli. If you look closely, you will see the stainless steel bolts reclaimed from the Tarrant Triplane "Tabor".



Minewarfare Reporter



● *Minewarfare Reporter*
Wally Vassie

Rare Photos Department

or... Why is it when you want to get lots of copies made of a special event piccy, it always comes out blurred?

Shown below is the Post-Granby Dinner, held on board HMS HECLA in March 1991. Those attending included Commodore Chris Craig (SNOE), Cdr John Scoles (MCM2) and a motley collection of Officers Qualified in Minewarfare, Bomb Disposal and Diving Duties.



FAREWELL TO CAPTAIN J C L WRIGHT OBE RN

By Captain Richard Moore
RN

Nearly a 'Full House'...14 MCD Commanders and 1 MCD Captain were hosts at the Royal Naval College Greenwich on Thursday 23 May 1991 to pay farewell to Captain John Wright OBE RN who retired in July this year.

At the dinner the Guest of Honour was presented with a Glassware Diver from the Branch in recognition of his long, successful and valuable service to the Minewarfare and Diving specialisation of the Royal Navy.

He was also presented with two Pewter Goblets as a memento of his formal dinner in a Royal Naval Wardroom.

On behalf of the whole MCD Branch we wish him well in his new career.



Fresh Soup At Horsea

On returning to Horsea Island in April of this year, after an absence of more than three years to take on that arduous role of ships diving instructor, I could not help but notice that the visibility was remarkably clear for the time of year. Eager to investigate this rare phenomenon, I approached our local amateur Marine Biologist, Dr Tempest, CPO (D), Chief of the Island and PhD in how to get lots of work done with only one (Sea) Diver. He very carefully explained to me the cause of the previous low visibility, ear infections and general distress to our trainee divers.

It was pollution from the Soup.

That pungent mass of slimy muck that trainee clearance divers have been asked, before the days of Health and Safety, to jump into by their instructors, the Soup was fed by the drainage system from the Fire-Fighting School. It then found its way back into the lake via a small sluice gate in the middle of the Lockgates.

Using his "Best Contacts," and the help of CPO Hadfield, our resident chippy, he had had a small coffer-dam built around the sluice gate. To put the "icing on the cake" he had added a bypass system, built around the soup, between the lake and the open sea, thus giving us clear sea water on each turn of the tide.

Another project that is being delicately managed by CPO(D) Tempest is that of the ever-expanding concrete structure in the S.E. corner of Horsea Island. His men have been accurately packing sand bags, filled with concrete, under and out from the jetty, in order to prevent it collapsing.

This problem has been caused by countless divers climbing out of the lake at the end of the short jackstays and eroding away the soil directly adjacent to the jetty. All unsuspecting newly qualified divers awaiting drafting, have been employed in building this concrete support.

So beware! The work involved can be compared to that of breaking up three metre high rocks into one centimetre square blocks using a rubber mallet and a plastic picnic knife.

P.S. Due to strict budget control, all divers must supply their own concrete.



● *New Diving Reporter:*
Ned Kelly

SAPPER DEMO MAKES A SPLASH

By Mike Whelan



As part of a display by the Falkland Islands Field Squadron RE for the local Andover newspaper - where the Squadron is based in the UK - the diving team carried out a demolitions exercise, dropping vertically from an RAF Sea King helicopter and doing a fast water drop-off from a gemini dinghy. The divers navigated to an old pier, placed the charges and once clear detonated and successfully demolished the pier.

The reporter was pleased with what he saw and got some good snaps for his article in the paper.



CONTINUATION TRAINING AT HORSEA ISLAND

This facility, used mainly by ships divers or divers in non-operational billets, has gradually been improved.

All divers, regardless of rank or rate, are given a written test which includes: signals, drills, definitions and regulations. In addition, divers no longer have to wander aimlessly around a square jackstay in the murky depths of Horsea Lake, achieving little and getting paid good money for doing so. They now have to carry out companion diver drill before being tasked to build various constructions using the scaffolding provided.

The mine lifting bag is used extensively, and wherever possible, the hydro cleaning brush, rope guard removal and poker-gauge readings.

All divers who have booked to use this service must ensure that they have not forgotten the contents of BR 2806.



REACTIONS TO WREN DIVERS?

Earlier this year three wrens, one officer and two junior rates, completed the ships diving aptitude test.

One of the wrens proved beyond any doubt that she was physically strong enough and had the aptitude to pass a ships diving course. She led most of the men during circuits and completed a first endurance dive of over 60 minutes.

Three others will be taking the same aptitude test soon. I do know that one of these wrens has ambitions of becoming a fully fledged clearance diver.

Wrens are succeeding in many other branches that were once closed to them. I have no doubt that they will do the same in the diving world if given the opportunity.

Comments on the above will be greatly appreciated.

Trial Report

COMPLETED - STANDARDS ACHIEVED

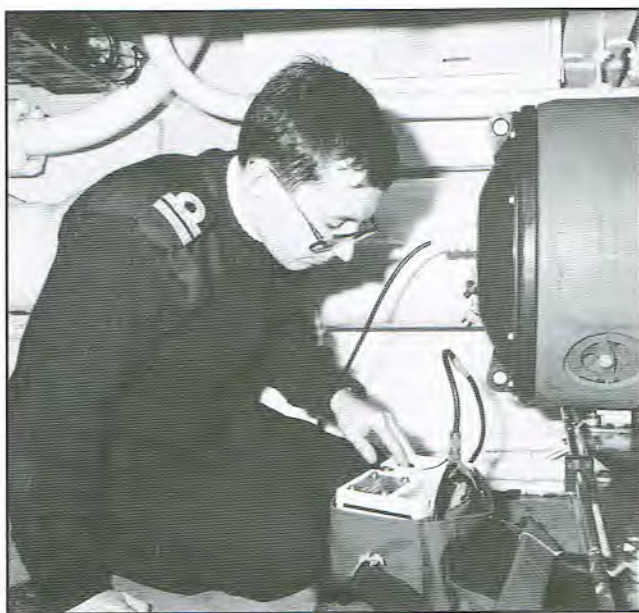
by Pete Hitchcock

The Title

The statement in the title is one that most of us are familiar with and is one that is certainly music to the ears of any Commanding Officer whose mighty vessel is currently undergoing Post Refit Trials and eager to get to sea and get on with the job. However, it is how we get to this stage with recently installed or refitted Weapon systems that I hope to enlighten you, with an introduction to Captain Weapon Trials and Assessment (CWTA), an organisation within the Sea System Controllerate of the Ministry of Defence Procurement Executive and explain some of the trials (and tribulations) of which I have encountered during my relatively short time at CWTA.

The Team

Primarily I am a member of the Minor War Vessels group under the intrepid Leadership of Lieutenant Commander Bruce Mackay RN. Other members of the Minewarfare fraternity include Lt Cdr Pincher Martin MCD and CPO(MW) Tony Sheaf. The remaining members of the group hail from the Greenie Empire and are specialist in their own fields ie: Radio, Radar, AIO, Sonar, Gunnery, Comms, Gyros and Compasses, MCM equipment and Mining. We also diversify into other areas such as Wind Flow (no, not that type) and Shock Trials. By the way the next Shock Trials will be conducted against a Single Role Minehunter off the Society Bank opposite Rosyth Naval Base. No doubt this will test the foundations of those beautiful homes overlooking the Forth and the Bridges.



● *"eeny, meeny, ...which button do I press Chief...?"*



● *"Ready to go" - An M Mk 5 Mod 1 ready to lay from the stern of an RMAS Trials Vessel.*

The Task

The general bread and butter work of the Minor War Vessel Group includes conducting Post refit and Part III and IV Trials of new build ships and on equipments undergoing FLEET WEAPON ACCEPTANCE (FWA). For example MSSA Mk1, Sonar 2093, RCMD5 Mk2 and Ground Mine Update.

You will be interested to know that since I have been with CWTA, Sonar 193M Mod 1, VEMS and RCMD5 Mk1 have all been accepted into service (a celebration will be called for when MSSA Mk1 is accepted - Jock Fraser take note). However I won't delve fully into the acceptance procedures as it is a subject on its own. Suffice it to say at this stage that equipments undergoing FWA undergo Naval Weapon Harbour Trials (NWHT) and Naval Weapon Sea Trials (NWST) as well as Fleet trials.

Equipments already accepted into Service undergo Harbour Acceptance Trials (HAT) and Sea Acceptance Trials (SAT). These trials are normally carried out towards the end of a ships refit to ascertain that the refitting Contractor has fulfilled his obligations and that all Weapon Systems are 100% fit for use.

The Successes

As the Mining Trials Warrant Officer at CWTA I've naturally been fully involved with the Fleet Weapon Acceptance Trials of the updated Ground mines MMk5 Mod 1 and A Mk12 Mod 2. In general, these trials have been successful with only relatively minor defects. Completed trials of the GMU FWA programme so far include: Surface lay of both Ground mines, Long Term Immersion, Mine Field Spacing at St Thomas' Head, Weston Super Mud and Submarine Trials in an SSN and and SSK. The latter was conducted by PO Jan Takel who was sent to Guz because he could speak Jannerese.

For security reasons the content of these trials cannot be divulged, however, as a user, I can say that the weapons have shown that they are both reliable and user friendly. Those of you out there who have assisted with the trials can, I'm sure, verify this. Because of the



● *Fun in the mud - Switching off an A Mk 12 Mod2.*

delayed because of late development Trials and unforeseen quality defects with the Sonar 2093 project.

However, I am pleased to say that the results from other equipments in the programme are encouraging and it is with great excitement that I look forward to the remaining Sea Trials in SANDOWN starting in June at Falmouth and progressing through the Autumn with MHSA Mk3 System Trials. Hopefully in a year's time I can report to you that NWST of MHSA Mk3 and FWA of GMU have been completed and that standards have been achieved. In the meantime I look forward to hearing from anyone who has any questions regarding the planning of Trials or details of the Trials themselves.

The Office

My extension is PNB 24722, Lt Cdr Bruce Mackay is on Ext 24728 or if you want to speak with the Trials Planning Office WO WEA Dave Hawkes can be contacted on PNB Ext 24717. BR4050 (normally held by the WEO) is also a worthwhile read for Buffers, Bosuns, Jimmys and Ops Officers alike and can put your mind at rest over many of those nagging questions when planning and preparing for Installation Inspections, HATS and SATS.

The Plea

Finally, we at CWTA are here to help you get the best out of the equipment installed in your ships, however sometimes we do need some support and it does help if Ships raise either S.2022s or Defect Reports to substantiate any shortcomings with equipment, especially where safety is concerned so please help us to help you.



● *... and can he get the plug to fit in under a minute - YOU BET!*

unavailability of a suitable Boat, further trials of the M Mark 5 in a modern SSN remain outstanding. It seems that submarines really are elusive.

The Frustrations.... and The Future

During the past two years I've assisted with installation inspections and trials of the MHSA Mk 3 equipment in SANDOWN, INVERNESS, CROMER and the first Saudi SRMH, AL JAWF. Unfortunately, as you are already aware, sea trials in SANDOWN have been seriously



● *"This could spoil your whole day"—Mine Field Spacing Trial, Weston Super Mare.*

Gulf Operations

CLEARANCE OPERATIONS IN THE GULF

NO ONE HAD TOLD THE MINES THE WAR WAS OVER!

by Paul Guiver

Having arrived in Theatre the second week in March 1991, and although an unofficial ceasefire had been announced, work for the 3 Hunts: BROCKLESBY, BRECON and BICESTER had only just begun.....

Oil Slicks and Smoke

As we approached the coast of Kuwait, evidence of the aftermath of war was clearly visible. Thick oil slicks spread for miles, billowing clouds of smoke blanketed the skyline of what was once a renowned, well maintained environment. At night, celebratory tracer from gunfire of various calibre, could be seen weaving it's way through the crimson layer of 500 oilwells, ignited by the retreating Iraqi army. Brocklesby's first task was to clear the unswept channels leading to Shuwaikh, Kuwait city's main harbour and she established a historic first, since the liberation, by berthing alongside. After a long period of hunting unknown waters in and around the coast and finding nothing other than oil drums, empty ammunition boxes and fuel cans, we were tasked to one of the Mine Danger Areas some 40 miles to the east. The eerie silence offshore was a contrast to the enemy lurking below



the surface, whose presence was yet to be discovered. Although existence of the fields had been admitted to MCM forces, the exact location of the mine lines was to prove a daunting task.

Our first mine

On 11 April, the professional, tedious and concentrated efforts by both the Minewarfare and Diving teams were soon to be rewarded with the location of our first live mine. The mine, a LUGM 145, was to be the first of a total of 53 confirmed mines found (to date) by Brocklesby. As the days went by, the continuous hunting around the clock began to take it's toll on exhausting equipment. Complications such as MDC misfires, FTU failures and defective bobbins hampered the fluent elimination of mines by RCMDS, which resulted in a total of 28 mines (once identified by RCMDS or mine lookout) to be dived on and destroyed by Diver placed charge - the 4lb P.E. pack! On one occasion, our misfired MDC was found lying near the failed married unit, along with 2 other misfired MDCs, previously laid by another hunter? In all, Brocklesby's proportion of MDC misfires, out of the total laid, proved to be a frustrating hindrance.

Expensive bang

The reality of the seriousness of our task was highlighted when RCMDS vehicle 326, upon identifying a further failed married unit, released the armed MDC too close to the mine, setting it off probably on impact and totally destroying the submersible, producing a rather substantial C.126! Whilst in the Persian Gulf, sharks (up to 15ft long) and sea snakes posed a worrying factor amongst divers. On more than one occasion a diver had to leave surface and place charges, knowing he wasn't the only one circling the mine....

Oil was everywhere

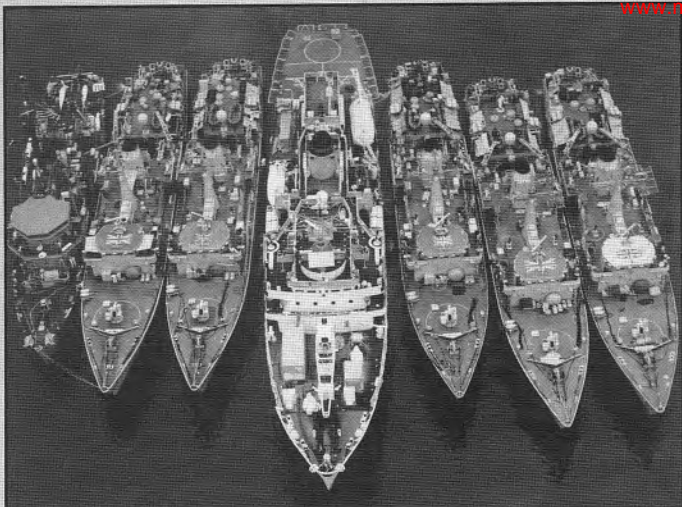
Washing up liquid was used to form a pool on the oily surface into which divers made entry and exit. Although this sounds effective, we were still faced with the problem of climbing over the unctuous matter that had coated buoyancy chambers of the gemini. Following each dive, equipment had to be scrubbed with 'Citrikleen' oil dispersant, prior to stripping and recharging. Care also had to be taken to ensure a cooler environment for stowage on completion of pre-dive checks. Achieving maintenance schedules on all equipment was an important role for the on-watch divers, especially with the newly introduced Oxygen cleaning procedures received prior to sailing from the UK.

Success scores

As this article is being produced we are nearing the end of our four month period of clearance operations. With a total of 133 RCMDS runs and 51 minehunting dives to our credit, we feel that a successful chapter in Minewarfare history has been written; one in which BROCKLESBY is proud to have played a major part.-

MINE TYPE	NUMBER DESTROYED AND MEANS		TOTAL
	RCMDS	DIVER	
LUGM 145	14	24	38
UDM	7	4	11
MYAM	2	-	2
UNIDENTIFIED	2	-	2





RAFTING UP...



... JOINT OPERATIONS



... AND WELCOME HOME TO POMPEY

Main Feature - Operation GRANBY

FLEET DIVING GROUP

by Mike Leaney

Many articles have been written and oh so many TV interviews given, regarding the exploits of the Fleet Diving Group in the Northern Arabian Gulf during Op GRANBY.

This particular article is not intended to be a regurgitation of the material of these interviews but rather a slightly more in-depth piece, as classification allows, to "those in the know", to give an insight in to the problems that the Group faced and some of the new equipment that was procured to help operations. A certain amount of narrative is required to keep track of events but it is hoped to keep that to a minimum. For those who wish to read the full unexpurgated story, warts and all, the official ROP is available for reading in Reclaim Building.

A total of 32 personnel made up of elements from FDU1, 2, and 3 were deployed to theatre in early January and became NP 1007 A, B, and C Dets respectively. Initial operations centred around Jebel Ali where FDU 2 embarked in SIR GALAHAD, for MCM support; FDU 3 in DILIGENCE for Engineering support; and where FDU 1 took on the Anti-terrorist role. As 5 of the vessels they were responsible for had fibreglass hulls, the conventional LMDE had its limitations and although a variation with straps went some way to alleviating the problem, the difficulties of attaching it to the hull remained. This never was resolved during GRANBY.

As the Task Force headed North, with a new out of work FDU 1 embarking in SIR GALAHAD to swell numbers, much emphasis was given to preparing for the wide variety of plans that were put forward. Small arms shoots were held to increase familiarity with the SA80 that FDU 1 and 2 had been issued with (not ideally suited to spending time in the bottom of a gemini in inches of water) and abseiling was practiced in case there was the need to rope into a ship's hold or down a ship's side to gain entry through a bomb entry hole. As much planning was being put towards an Amphibious Landing, various new equipments were obtained to cope with the perceived task. Portable GPS Navstar Trimble sets were among the first new

equipment to arrive. These allowed precise navigation by the geminis and because the same system was being used by all units in theatre, both aircraft and ships, it allowed contacts reported to be relocated with pinpoint accuracy. It was a pleasant surprise to everyone initially to travel 3 - 4 miles in a gemini to a reported mine lay position and then be able to drop a diver straight down on to it.

Hand held sonars were loaned to the Fleet Diving Group for GRANBY. These were used to locate sinkers and buoyant mine cases if reported positions were slightly inaccurate as well as being included in the

to their lightweight and compact size. They fitted close to the body and made the task of jumping that much easier as well as easing minds when swimming in against floating contact mines to place charges. Due to the cumbersome nature of Hazardous Duty and Assault Troop Lifejackets, aircrew style life preserver waistcoats were sent out from the UK for the divers as were comms headsets as it was extremely difficult to brief the diver entering the water over the noise of the aircraft. There was even the thought of trying to claim for flying pay as well. Communications from the diver in the water by a contact to the Supervisor in the aircraft were also a problem



● Disposal of Free Floating Mine

search schemes planned for beach approaches when sensitive ground mines were expected. It avoided the normal diver search technique of finding a mine by bumping in to it in reduced visibility!

A great deal of time was spent practising with the Seakings of 826 Squadron who had one cab embarked in SIR GALAHAD and the other in ARGUS. This proved to be time well spent for it became the major modus operandi for FDU 1 and 2 during the actual conflict. An EOD element of 3 (one Supervisor and two) was airborne throughout daylight hours whilst the aircraft conducted mine search ahead of the minehunters or prosecuted reported contacts. AGA Divator air sets (see article in MW and D Mag Vol 1 No. 3) were used by the Unit and proved ideal for use in the helo due

and again was one that was unable to be resolved during the conflict. The ever recurring problem of misfires with in-water demolitions was one that took on new meaning when you were tying up an aircraft as well as sitting in hostile airspace. To reduce the possibility of misfires electronic timers were sent out from the UK and with them came endless possibilities for their use with their long delay capability.

With the cessation of hostilities the priority became the re-opening of Kuwait to shipping to allow supplies to enter the country. FDU 1 and 2 and an element from FDU 3 moved ashore into luxury accommodation (liberated ISO containers) on the dockside in Shuaybah. Working with Royal Australian Navy CD's and American EOD Dets, the task was one of

covering every inch of the seabed in the ports that were not accessible to the minehunters. This was coupled with the rendering safe or countermining of 30 or so beached contact mines and the removal to safe holding area of tons of unexploded surface ordnance. The problem of the oil pollution was one that was well publicised and one that really had not been anticipated. FCDG HQ responded quickly and forwarded extra DSSCCD harnesses and Lightweight drybags to cope with a possible high attrition rate. D Type hoods and marigold/NBC gloves were also available to provide total cover to the diver. The USN and RAN divers were still diving in wetsuits and with free mouthpieces! As an extra layer of protection for the FDU's, white disposable overalls were worn over the top of the diving suit to keep the majority of the oil off. Immediate detergent wash-offs on completion of the dive prevented the sets from perishing. Even though the dives were conducted when the oil was at its thinnest levels, it still reduced visibility on the seabed and kept the supervisors on their toes when they had to surface a search clear of the slicks. Conditions and visibility ashore were not helped by the continual layer of thick black smoke from the burning oil wells that remained suspended in the atmosphere blocking out light and heat.

In comparison with the mixture diving sets used by the other two nations (High tech Mk 18 by the USN and FGT 1A by the RAN) the DSSCCD performed extremely well in this particular scenario. It was light, easy to transport, quickly prepared for a dive and relatively free of maintenance. In amongst the rubble of demolished dockyards, rain that fell as oil, and the resident oil pollution anyway, the problem of an O2 clean environment



● LUGM 145—after Render Safe Procedure (RSP)

basis during GRANBY, the permanent use of ISO containers by the FDG must be considered. The ease of transportation of equipment, the availability of a ready workshop and ops room facility are just some of their benefits.

In harbour clearance the search techniques of the FDG and the RAN (the RN has taught them all they need to know over the years!) proved themselves. The American EOD Dets had no search equipment other than hand held sonars and indeed were swimming light jacksays laid by the other teams for

training and the arrival of new Fuel suits, the FDU's felt happy to tackle any incident should it arise. The new suits have an umbilical supplying air to the suit for both cooling and breathing, essential when working in the high temperatures of the Gulf. Here again the AGA divator set proved its flexibility for its small size ensured it fitted easily inside the suit, an AGR canister could be attached to the front, and it had a positive pressure mode in case of emergency.

The requirement to render safe a number of the beached mines showed up the inadequacies of the EOD tool sets used by the RN EOD teams. Designed for use against British and old German mines, they were of limited use against the new mine types found in theatre! American EOD tool sets were far superior and were adaptable to suit each incident. Recognition publications also showed their impracticality for use in the field. Trying to work with numerous classified books, and the security implications inherent with them, proved cumbersome and there was a definite need for quick reaction flip cards or even better, a computerised data base.

A final major problem for the group was suitable clothing for use when ashore. Ill equipped for operating ashore, the FDU's had to barter with the Americans (and Beer is such a good bartering commodity when dealing with them!) to kit themselves out with sufficient combats and protective clothing. Throughout the time ashore there was a request for Desert combat clothing however sufficient supplies of suitable sizes did not actually arrive with the FDU until after the first group had returned to the UK. All further requirements once again had to be obtained through bartering - and this was with the Brit forces!



● *More burning oil wells*

reared its head. In an effort to try and keep the sets clean, periodic maintenance was kept to a minimum with pre-use daily tests being the authority that the set was safe to dive. Eventually, as further ISO containers were liberated, one became a workshop for the sets. Although only done on an adhoc

them. They also realised that having small Dets of 6 to 8 divers was not practical and that they needed a Unit of at least 18 before even starting a Clearance Operation.

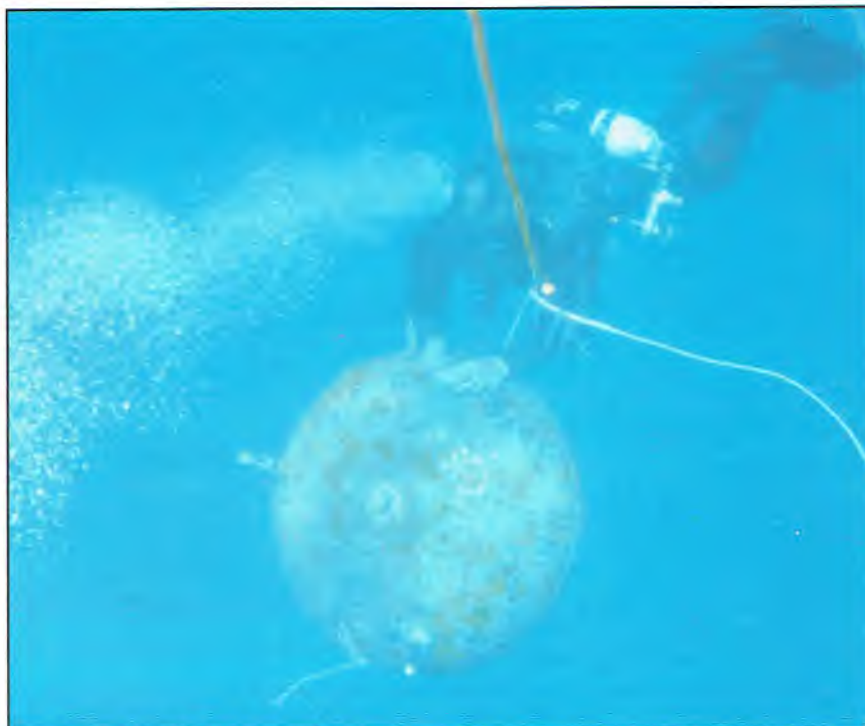
One threat that did not present itself but had worried people continually was that of Chemical warfare. With pre-deployment

Continued overleaf

Main Feature (continued)

Continued from previous page

In anticipation of a continual requirement for an RN CD Unit in theatre a major turn around of personnel took place at the beginning of April. Personnel from FDG, PCDU, PACDU, CSBCDU, and SNICDU made up the new Unit after having been on short notice standby to travel to the Gulf from the outset. They completed the clearances of the Port of Dohah and the Oil terminals at Al Ahmadi, as well as countermining large quantities of ordnance recovered. According to one team (one Lt and 2 SR's who shall remain nameless) 4 Silkworm and 1 Styx missile make an excellent demo shot when blown together - going back onto the UK Ranges with a 2lb limit is going to seem very strange! With the Ports of Shuyabah, Shuwaikh and Dohah, and the Oil terminals at Al Ahmadi clear, no further tasking remained for the FDU and it returned to the UK on 23 April 1991.



● *Clear water helped disposal operations*

On returning to the UK the total number of mines destroyed by the FDU totalled:

Buoyant mines countermined - 17 at sea, 5 ashore
 Buoyant mines rendered safe - 17
 Ground mines rendered safe - 1

The quantity of ordnance destroyed was in the tons but as an indication of the sort of quantities being handled, the following list details those items removed from Dohah alone.

100mm Tank/howitzer Rds-	320	RPG Rds-	180	82mm Mortar-	340
14.5mm Anti A/C Rds-	48000	Hand Grenades-	65	38mm Illuminants-	9
7.62mm Ak47 Rds-	47000	Rifle Grenades-	20	Plastic Explosives 8oz sticks-	60
SAM 7 Hand Launched missiles-	29	60mm Mortar-	180	Chinese Explosives in 25kg boxes-	2

● *PO(D) Dez Fuller, spending another afternoon on the beach*



BACK TO THE GULF

by Rob Hoole

As so many of these stories begin, I was sitting in my office at Gunwharf one Monday forenoon in January planning the next phase of Saudi Minewarfare training when the phone rang. It was the Appointer. SNOOME needed a MW advisor quickly so could I go to the Gulf?; not entirely unexpected as I was earmarked to relieve the incumbent anyway, but since he was now closely involved with the Americans my services were required earlier. "When do I go?" "Well, sooner rather than later...how about Friday?"

Having completed the fastest turnover ever and put my domestics in order, I spent Tuesday being briefed at Portland and Wednesday at Northwood. Thursday found me at RAF INNSWORTH for the standard "day before departure" kit issue and briefings only to be turned away because the previous evening, the Allies had started the air offensive against Iraq and all troop flights were postponed UFN. "Could be weeks. We'll call you," they said. I returned home to a somewhat surprised family and, having heard nothing, rang RAF INNSWORTH from work the following day. "Your flight has been reinstated and leaves in two hours," they said. "But if you get the authority, we can put you on the next one tomorrow."



Back to INNSWORTH where I was issued with kit and sidearm ("You'll get the ammunition the other end") and after a night at RAF BRIZE NORTON in the company of several Scandinavian medical staff, I found

myself sharing a Tristar bound for Riyadh with a hundred nurses armed to the teeth who were disembarking at RAF AKROTIRI in Cyprus. At Riyadh, and later in Bahrain, I saw the enormity of the Allied logistical capability including the US 'Cookie Mountain'. This had reached embarrassing proportions because so many of the folks back home had responded to a plea for troop comforts. I spent the night in a RAF-run terminal building with the ship's company of HMS QUORN who were flying home after carrying out ship-keeping duties in the CIMNEL ships over the Christmas/New Year leave break. We caught up on each other's news in between donning "Noddy Suits". (False alarms but Riyadh was targeted by Scuds for the first time during the following night). In the morning, I caught a C130 down to Dubai where things were very much more relaxed and my party's appearance in desert camouflage and weaponry caused consternation to the Embassy staff who greeted us in shorts, tee-shirts and sandals.

I finally joined SNOOME's staff in HMS LONDON after several helo flights and nights in Dubai, RFA FORT GRANGE, RFA ARGUS and HMS HERALD. My last 'big ship' had been dear old HMS JAGUAR in 1975 so my introduction to life in a Type 22 in war was both stimulating and perplexing. Over a dozen staff officers shared a Command Planning Room little bigger than a HUNT Ops Room. Our OPCON, ASMA, JOTS and other links provided us with reliable, instantaneous and non-ambiguous communication with ships and authorities all over the world with the notable exception of the MCM Commander in HMS HERALD and his forces.

I accompanied SNOOME to various American planning conferences with the MCM Commander (Cdr John Scoles) and his SOO (Lt Cdr Mike Croome-Carroll). At these high-level meetings, Commodore Craig always described the HUNTS as the highest value units afloat in the Gulf and was never contradicted. After intentions were agreed, several changes to the OPORDs were accepted and UK approval was received to change the MCM Directive, TACON of UK MCMVs (with our own MCM Commander as Tasking Authority) was delegated to COMUSMCMGRU in the AMCM platform USS TRIPOLI where Lt Cdr Brian Mansbridge RN was helping to run the show. Before the main operation commenced, I was fortunate in being able to visit HMS HERALD and the HUNTS in Bahrain during their only standoff (and that less than 24 hrs) in two months.

Our joint Task Group approached the Kuwait coast, deliberately attracting the attention of the Iraqis in the process, and cleared the way for several operations in the course of which USS PRINCETON and USS TRIPOLI were mined. The war was won ashore before the need for any full scale amphibious assault.



Apart from the continuing clearing-up operation, the rest, as they say, is history and better described by those closer to the action. My lasting impressions include the detonation of a mine by EOD divers less than a cable off the port beam; the sheer might of Allied forces including the continuous streams of 'friendly' aircraft on the AIO display by night and day heading into the KTO; the letters addressed to "A serviceman/sailor/commodore! serving in the Gulf" many of which were quite spicy but all welcome reading; the sights of USS MISSOURI and USS WISCONSIN opening fire (probably for the last time in anger) on Iraqi positions at night; the work-up like countdown of an EXOCET-carrying Mirage and escorts approaching the force before being splashed by a swarm of CAP; and last but not least, just before the end of hostilities, being woken by main broadcast alarm in HMS GLOUCESTER's Sick Bay (my quarters) at 0450 then hearing the double whoosh of Seadarts launched against the incoming Silkworms. Permeating everything however, was the professional confidence of our ships' companies throughout it all.

This seven week stint in the Gulf was much shorter than my previous deployment in HMS BERKELEY during CIMNEL but certainly more eventful. As for the pre-eminence of RN minewarfare and diving during GRANBY, the record speaks for itself.



Underground Report #1

GRANBY IN A HOLE OR TWO

THE NORTHWOOD STORY



By Sian Pope

One hot day last August I returned from a day spent interrogating the good citizens of Plymouth about their sexual habits (that's another story) to a message to call the appointer. Since it had just been announced that a UK MCM group was to deploy to the Gulf and I am one of the eight Plot(MCM) officers remaining in the RNR, it was not difficult to guess what was required. Thus I came to spend seven months undertaking what was designated "war role training" in the Northwood Command Centre with occasional sorties to the Joint Headquarters at High Wycombe. SO COMMW, Lt Cdr David Hosking and his assistant L/WREN Jo Buckley have a spacious spread in the rabbit warren that is the NCC. It is much envied by very grand NATO and FLEET officers for being cool and quiet (rather like the branch!). However, to cope with the extra workload, it was augmented by Lt Cdr Steve Gobey from COMMW and Lt Cdr Keith Riches, CO of MIDDLETON.

Thus when I joined and settled down to produce the Opord it became distinctly crowded. Soon Steve and Keith were able to head back North to their proper jobs while the three of us looked after the shop with occasional help from Lt Cdrs Robin Baxendale and Sam Briddes from HMS NORTHWOOD RNR Unit. Nothing in the UK Granby Command and Control organisation remained the same for long and when it was decided to run the operation from JHQ High Wycombe I became SO1 J3 Navy Ops(MCM). The title was, in fact, longer than the desk space allocated so, like gaining an Oxbridge degree, I liaised when necessary and ate a few lunches, but the Northwood MW cell continued to advise, brief and draft signals via the telephone and OPCON message handling system.

Once it became obvious that Amphibious Operations depended upon the MCM force, the Joint Commander required continuous MW manning at High Wycombe and more space was found for the team. As books, charts and signal logs could not be accommodated at JHQ and CINCFLEET still needed to be briefed, a duplicate MW organisation was maintained in Northwood. I expect this edition of MINEWARFARE and DIVING includes exciting accounts of live operations and the race against time to produce new techniques and equipment to counter the developing threat, and you might well ask what we troglodytes in the London suburbs did in the war. In a nutshell, we kept the command informed of the minethreat and watched the interests of all CIMNEL forces. Ah yes, you say, but what did you do? Well I would hate to have to produce performance indicators for our activities but I think an account of a typical day might give some idea.

0400-Read down the signals on the OPCON VDU and print as necessary

0600-Check with engineers which OPDEFS they will brief. (Senior Officers become deeply fascinated by odd OPDEFS and ATHERSTONE's TAG and winch became an albatross about my neck)

0700-Plot and update the mine tote (exchange of views with JHQ as to whether a mine sighted by an RFA but destroyed by US EOD can count as a UK mine find)

0600-Agree briefing line with JHQ

0845-0930-Brief Chief of Staff and CinC

0930-'O' Group where anything may be aired, be it leave policy, the location of a piece of kit lost between Jebel Ali and Sir Galahad or the MCM Directive

1030-Call JHQ and COMMW and update on each others activities

1100-Liaise with Riyadh/ACO Slough and COMMW to ensure that the RACAL engineer is in the same place as his equipment

1130-Answer a "Hey, Flower can you.....?" query from DNW. (Cdr Tony Rose) after the latest news from in theatre)

1200-Contact the experts at ARE, FCDG, INM and COMMW for information about operations in oil polluted water. (thanks to all who answered patiently on many subjects often while Sunday dinner went cold)

1300-Discussions with Netherlands SOMW about Gulf MCM and if the NL might join us

1400-Start drafting paper about operations in oil polluted water

1600-Give MW brief to an officer joining SNAME's staff

1700-Another 'O' group to cover the day's activities



Overnight catch up on the signals, the narrative and the plotting. That gives something of the flavour, but no day here was the same and the job was never dull, unlike the MCDs and MWOs who were itching to be out where the action is, we RNRs were happy to be part of the operation, even in a hole.



Underground Report #2

THERE IS NO SAND IN THIS BUNKER

THE HIGH WYCOMBE STORY



By David Hosking

As I sit here in the Naval Ops cell (aptly named) of the Primary War Head Headquarters (PWHG) bunker deep below National Trust woodland near High Wycombe in Buckinghamshire, I thought I would share my experiences with the readership of this fine magazine. The move of elements of the MW cell to High Wycombe arose as Rear Admiral AP Woodhead (FOF1) assumed the role as the Naval Deputy to the Joint Commander, Air Chief Marshal Sir Patrick Hine, in early February. The need for 24hr on the spot MW advice was considered a vital requirement as Allied Maritime plans were formulated for Northern Persian Gulf operations.

Whilst at High Wycombe I have been augmented by the following officers! Cdr Chris Massie-Taylor (long weekend), Lt Cdr Steve Gobey (2 weeks), Lt Peter Dearling (3 weeks), Lt Tony Silva (2 weeks), Lt Jim Tyrwhitt-Drake (2 weeks) and, last but not least, Lt Jim Nisbet (a few days but who's counting!). For all their help and assistance I offer my heartfelt thanks. That's the background. What about this place? Well, it is the largest and most modern bunker in Europe and is about the size of the Post House Hotel. It was funded by NATO and is the SACEUR's static alternative HQ - that is the bunker not the hotel! The bunker can withstand an 8 "G" instantaneous shock load (5000kg bomb direct hit), and this is nowhere more apparent than in the heads which are worth a visit just to see the 12" steel pipes feeding each urinal. These in my humble opinion are capable of withstanding a 10 megaton nuclear bomb direct hit! There is accommodation for 450 people, but not a shower (crabs excepted!) to be found, and at the height of the war the daytime staff was 700. The Navy forms a very small section of the Purple organisation, having only 2 of the 24 specialist role cells. These cells all feed information on "ASMA" totes or closed circuit TV systems into the Battle Management Group (BMG) which is led by a 2-Star Director of Operations (DOPS). The role of the BMG is one of resource management and forward planning, as well as the identification of issues which warrant the attention of the Command Group which is chaired by the Commander in Chief. At this level the Big Picture (large TV Screen) is assessed, decisions reached and directives passed down to the BMG who in turn translate them into detailed tasks for the individual battle staff cells. Thus for example to change the MCM Directive to allow divers to dive on mines needed a request from in-theatre. Perhaps started by AB(D) Boyd who asked LS(D) Fitzjohn "Fitzy how come the Rag Heads and the Yanks can dive on these floaters and we can't?"

LS Fitzjohn "Dunnnow but what's the difference between a Yankee diver and a yoghurt?"

AB Boyd "I don't know but be serious for once"

LS Fitzjohn "A yoghurt's got culture.. and before you ask again I will find out the answer on the diving."

"LS Fitzjohn in turn asked PO(D) Peake if he could put a charge on the next Lugm 145 floater found.

The PO(D) unable to say yes without topcover asked CPO(D) Hammond who in turn asked Lt Marshall.

Steve, like TSB, normally likes to say Yes, but on this occasion had to ask Cdr Scoles who in turn asked Commodore Craig.

SNOME requested a Directive change to allow Boyd and all his oppos to dive on live mines in accordance with CTF 321 Opord 1/90.

The request was passed up through the command chain to HQBFME Riyadh and then onto CTF 321.

Once at High Wycombe the signalled request came to the MW desk for action.

Calls to COMMW and SofD confirmed the party line and consent for the request.

Next a call to the MOD tied up policy for Directive changes.

An extensive written brief was prepared to back the operational requirement for Boyd to dive on a live mine.

Once the brief was complete the paper was staffed by Cdr Goodwin (Duty Naval Cell Commander) before he submitted it to ACOS(Navy) Capt Canter, who in turn briefed the BMG.

From here the Naval Deputy raised the matter with the Joint Commander at the command group and permission for AB Boyd to earn his SSP was obtained.

This story is not so very far from the truth.

I cannot give you a typical day in the life of "a toad in the hole" since every day was different. Some like today (My last here) are similar to the Carlsberg complaints department with no papers, letters or phone calls. However, other days were very busy with briefs for Joint Cdr, Naval Deputy and Duty Capt followed by visits from the Queen, Prime Minister and even SofD, followed by papers to staff, signals to write, etc. Given that I had to remain in the UK rather than a job at the sharp end, this was a very educational, interesting and at times demanding appointment.



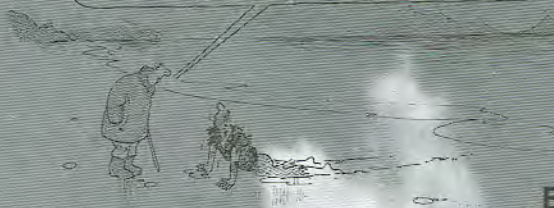
The highlight for me was the opportunity to assist in supporting the MW/Diving efforts and to push the value of both MCMVs and Divers to all the visiting VIPs and high ranking officers from all 3 Services. To all of you who were at the sharp end I offer my congratulations on a job very well done.



Personal GRANBY Report

WHAT IT'S LIKE TO BE MINED!

WHAT'S IT LIKE TO BE MINED?



By Brian Mansbridge

Wossittlike?

Since my return from the Gulf War one of the most frequent questions I am asked is, "What is it like to be mined?" I could say, "Not as exciting as being shot at, or watching how a Battleship conducts a shore bombardment with her sixteen inch armament," but as the latter may appeal more to the old and bold Gunners, let me try and relate something of the events which happened to USS TRIPOLI in the early hours of the 18th February 1991.

USS TRIPOLI

Firstly, let me bring USS TRIPOLI into perspective. TRIPOLI is one of the United States' single-screw carriers of the mid-sixties, now an LPH, but nevertheless built very sturdily, as the Americans had not forgotten the lessons of Pacific Air War. Her ship's side is robust half-inch plate with substantial framing and the flight deck is quite able to handle the 36 tons all-up-weight of the MH53E MCM helicopter without the additional strengthening often necessary in more modern platforms.

A Sharp Bang

All this was just as well, for at 0436, contact with an Iraqi LUGM 100 mine was to split the ship's side, burst up through an internal deck and allow the sudden influx of about 1000 tons of seawater.

Sturdy though the ship was, meeting a contact mine with about 100 kgs of explosive has a pronounced effect!

The most obvious effect was the explosive shock; not the resonating hull-thumping reverberations I hope most of the readers have 'safely' experienced. But a sharp, unmistakable, crashing bang, something I had been expecting would befall one of us in those Northern Gulf waters (even if the mine densities and the probability of contact were still a lot less than the psychological effect that the floating mines had been stirring over the previous two months!).

Shock Effect

Yes, I was able to think of all this before the shock effects reached my cabin, some two thirds of the way aft on two deck (below the flight deck). The shock effects which soon followed seemed to support my first theory of a floating mine. The ship whipped so violently

from side to side that I had to hang on to retain my footing.

Never Assume, Check

It was at this time I expected the ship would be rejoining the explored channel for the return to the forward operating area, or Battleship Fire Support Area (BBFSA for short). What I did not realise at the time was that during the night it was decided to take a short cut to the BBFSA assuming the original US intelligence on the extent of enemy mining was correct. This would save time by steaming direct for the BBFSA rather than spending extra time retracing our steps via the full length of the previously explored route.

Well, that is how to find a minefield!

Although it was equally true we had missed mines in the approach route they were probably maldeployed; the one TRIPOLI found was neither maldeployed nor floating but part of the Iraqi 3 mineline defensive barrier.

Back In TRIPOLI

As the General Alarm sounded I was already on my way to the MCM Ops Room, the Command Centre of the Commander US MCM Group and CTG of the combined Gulf MCM forces.

Not surprisingly, those on watch were concerned with the state of TRIPOLI. Although shut down into watertight areas, SPMs and Defence Watches are not as well disciplined as in RN ships. However, the damage control teams, a specialist USN category in its own right, were right at hand and damage control reaction was swift. The forward section was quick to evacuate the forward lower compartments, including a messdeck which was underwater in just a few minutes and fire and flooding boundaries were quickly established.

No Fire

Mercifully we were spared fire as the explosion had dispersed the contents of the paint store up through two decks and the smell of white spirit filled the whole forward section.

One of the first pipes confirmed the "Smoking Lamp is out throughout the Ship."

More surprising was the absence of serious injury. Quite a few were bruised and shaken from being thrown out of their lower forward bunks and some crew were badly contaminated with paint and white spirit, but

fortunately all escaped broken bones or incarceration in flooded compartments. Undoubtedly, the fact that full power and lighting remained on for quite a while helped the evacuation. Ventilation was soon stopped and then, as the flooding took hold, more and more lighting was lost.

How Do We Get Out Of This Minefield?

The ship settled slightly by the bow but as reports of the flooding and damage came in it soon became apparent that the greatest danger was not TRIPOLI sinking from the first minestrike but how to get out of the minefield without meeting another LUGM.

That is when the interest turned on the MCM Ops Room, this time not how to direct the MCM campaign, more how do we get out of this minefield?

A lot of the success of that operation goes to the skill of USS LEADER and USS ILLUSIVE who formed an instant leadout team and gave us our first plot of the three minelines as we struggled to find a way out of a tight spot. Why didn't we anchor? Possible damage to the cable lockers was one reason, but eventually we did, at about at about midday when clear of the minelines.

Certainly from the benefit of hindsight another minestrike would probably have sunk the ship, and had we anchored in the first minestrike position we would also have swung across the adjacent mineline.

Being Mined Wasn't In My Plan

Rather surprisingly the responsibility for all this, and the sudden urgent requests for MCMV lead vessels from all the other ships in company fell to myself and Lt Cdr Jim Hewitt, (Ex RN and onboard as a visiting Canadian). At the same time I was also writing a lot of signals to delegate control. Being mined was not included in my original warplan. Fortunately, delegation wasn't necessary. TRIPOLI stayed forward at anchor for three days before retreating for repairs.

Meanwhile, I found another Command Ship, the Mighty MISSOURI, bigger than most MCMVs however, at that stage of the war she only had room for the Commodore, myself and one RO, but that's another story... and I am still looking for another serving RN Officer who's been in a Battleship in action!



A MINEWARFARE FIRST

By "Pinky" Preston

Mine Find

During our recent fun in the sun, operating in the Gulf on the evening of the 9th of March, CATTISTOCK located a moored mine in 29 metres of water. As it was then dark, the mine was merely plotted with the intention of disposing of it at daybreak. We continued to hunt overnight. It had been arranged with HMS HERALD, our support ship, to raft up on her at 0700 the next morning for fuel and water. All went according to plan.

Relocation

We then proceeded back to the minefield to relocate the mine. On the way we prepared a new-style explosive cutter which was to be fitted to the RCMDS vehicle whilst in its pre-launch stowage on the port side. This package had arrived for each Hunt the previous week, along with the well-tanned WO(MW) John DOCHERTY, (who had been living in luxury onboard the RFA SIR GALAHAD), to instruct each ship in turn. (Happy to report that John's IT was well up to scratch and he should be in the school).

We then transited back to the Minefield and proceeded to relocate the mine. As it was expertly plotted originally it didn't take long to relocate. The standard procedures were then carried out and the ship went into the hover position.

The pipe was made "Action Vehicle Port". This was the signal for the ships company to

come into the Ops Room in order to watch the small TV in the far corner. The situation was reminiscent of any High Street Rumbelows or Curry's on a Saturday afternoon with the crowd outside watching Grandstand through the window.

In keeping with the mood, my opposite number, PO(MW) Phil SEBRIGHT went round and sold tickets (money going towards S/Lt George TURNBULL's elocution lessons) while I prepared the vehicle for launch.

Revised Run Routine

The vehicle was launched in the normal way, taking care on the upper scupper not to get in front of the cutter. Anyway the vehicle went into the sonar beam and to the seabed.

From this position a good TV picture was received. My first impression was how well the vehicle sat in the water. I was expecting the nose of the vehicle to be depressed with the extra weight of the cutter.

On the TV monitor, the bar of the cutter could be seen across the screen. The aim is to put the mine mooring wire on the bar with the inner edges of the cutter up each side of the screen. It was now back to the sonar screen to locate the mine and it wasn't long before I had it in my sights. I selected MDC, armed as ordered by the MWO, and drove the vehicle towards the mooring wire.

Manoeuvring the vehicle to put the mooring wire against the bar was relatively easy. I then pressed the two red buttons on top of my

motor controls clasp the cutter (and so releasing it from the cutter arm) around the mooring wire.

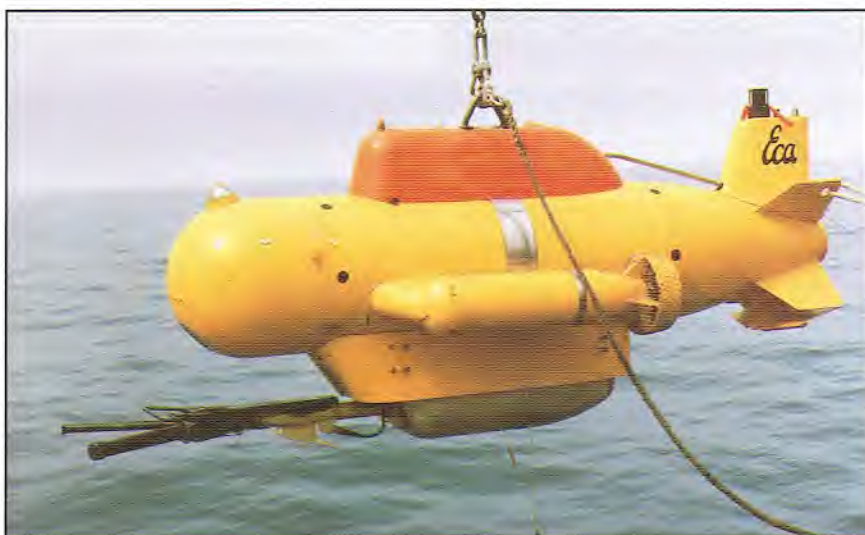
The vehicle was then free to rise to the surface and the cutter was clamped around the mooring wire which fell down to the sinker. The vehicle was recovered as normal. There was then a 20 minute delay before the 1lb 6oz charge in the cutter fired severing the mooring wire (just time for us to nip to the heads).

Success

The ship backed off to over 300 yards, while we all waited with cameras in hand for the 20 minutes to tick by. The time soon passed. A large thud was heard and this was followed by the arrival on the surface of a LUGM 145 Iraqi contact buoyant mine to great cheers from the crew. A first, I think, for the CATTISTOCK.

It was then over to the divers CPO(D) Pat PATTINSON and his boys. The job of packing the mine was given to AB(D) Blood REID who didn't even get his hair wet! That should please the rest of you divers. Minutes later, after the safety fuse had been lit and the divers had retired to a safe distance, the sea erupted with a large explosion - operation successfully completed.

Having now used the new explosive cutter I recommend that each Hunt be issued with it as part of their outfit.



- *The photograph depicts a Linear Charge Cutter fitted to an RCMDS Mk 1. Its purpose is to sever the mooring wire of a moored mine. They were fitted as an enhancement to op GRANBY ships and initial reports are that they were very effective. 25 were purchased from the French Navy, however, no formal decision has been made to add them to the permanent outfit of operational ships.*

MCMV GRANBY Report

Bezzy Piccies from the Cattistock Albums . . .



● *CLOSE UP AND CLEAR AWAY*
CPO (MW) Phil Preston and LS (MW) Geoff Palmer demonstrate the operating procedures of an IRAQI defence gun, which they captured single handed. (So the story goes!)

● *HMS CATTISTOCK stalks a floating mine, recently severed from its mooring by the Linear Charge Cutter.*



● *USS LA SALLE safely enters KUWAIT Harbour following the successful clearance of a route through the mine fields by units of the MCM Flotilla.*

● *A swimmer-placed explosive charge is the surest way of removing this hazard.*



"IT'S IN THE CAN!"

- Or, if someone asks you to be Technical advisor, don't do it !

by Phil Burrell

"Oh, by the way, you're also the technical advisor for new training videos. I think there's one coming up - the producer will be in touch" my predecessor cried out as he drove away from Gunwharf. "Finance ? "I queried optimistically. "Sorry can't help you there Oh! - and they want to start in about 3 weeks - bye".

A Deadline To Meet

The SSVC producer and his team were indeed anxious to start filming - and there was I, with zero budget, with a deadline of 3 weeks, with no script, no location, no cast, no boat, no transport, no accommodation and no diving equipment!

I sent for CPO(D) Steve Bielby who promptly "volunteered" to be Assistant Technical Advisor. He rose to the challenge magnificently, armed only with a pussers phone book and his stack of "you owe me one" chits.

Our location had to have "good viz" & calm conditions; there had to be access to a diving tender and it had to cost us nothing! So we decided on Falmouth, with accommodation at Culdrose ("What! No subbies?"). Obtaining a cast of eight was difficult. "Press-ganging" provided CPO(D) Graham Petrie, LS(D)'s Roy New and Toby Simmonds from the Diving School and AB(D) George McCarthy from Culdrose. Pure inspiration found the final two budding film stars in SANDOWN: Lt. Nigel Hill and LS(D) "Fritz" German.

Transport gave us a few headaches: DAEDALUS MT Section, initially reluctant to provide us with a self-drive box wagon and a tilly, responded to some smooth talking. The catch: the box wagon had it's MOT due on the Friday before we wanted it! We were, nonetheless, committed.

Friday Morning Blues

0900 - The gear was ready to be loaded - except for the Tool and Test kits "lost in transit" somewhere between Portland and Portsmouth.
1130 - DAEDALUS rang, the wagon had passed its MOT!
1131 - The Tool and Test kits arrived - we were in business.
1132 - The Coxswain of DATCHET phoned: the anchor windlass was broken - we were stumped. Plymouth FMG agreed to work over that weekend to try and effect repairs.
1600 - We were still in business (but only just!).
0200 Sunday - Steve's phone rang at home: DATCHET was fixed. We were going to make a movie.

On Location in Falmouth.

The weather forecast for the week looked particularly good for October. 1100 Sunday: The film crew arrived: Producer, Director, Surface Cameraman, Underwater Cameraman, Lighting Specialist, Sound Specialist etc etc: I could see where the film's budget had gone! Steve and I had prepared a "shooting plan" in which personnel, equipment and rig for every conceivable shot were scheduled. We duly presented it to the Director, hoping he would be suitably impressed..... it disappeared into his back pocket never to be seen again!
1500 Sunday: DATCHET arrived in Falmouth and we met W.O. "PK" Pitkeathly, her coxswain. Our programme meant filming until Friday evening with Saturday as "spare day" if necessary.

0800 Monday: we started work in earnest.

We had a lot of surface shots to film while the weather was good. One scene followed another: "...re-rig the KMB 10 gear that we had just stowed 5 minutes earlier?" If the Director was following a plan it was a mystery to me! Every shot had to be filmed from a number of angles with close-ups, full frames and reverse angles. All went well until we were filming a low angle shot from the gemini, when the

cameraman turned very pale and started shaking. It turned out that he was terrified of water! Exit, stage left, one cameraman.....

Casting proved easy: Graham became The Supervisor (well he **did** he have the smartest 8's and it **was** his BR 2806 anyway!); Steve doubled up as Underwater Cameraman's Assistant and Standby Diver's Attendant; Fritz seemed to appear in most shots (a disturbingly common trait amongst killick divers), while Roy and George swapped roles between Diver and Diver's Attendant; Toby had the biggest ears so he was used for the close-ups of "Valsalva movements" (The finished product may prove this to have been a mistake as 5 years of 2nd row rugby damage doesn't look pretty on film!); Nigel was brought on for all the shots that required coherent dialogue.

Underwater shots initially proved difficult

The cameraman certainly earned his money - he had only anticipated about 20 minutes a day in the water. Continuity problems ranged from ensuring that everyone consistently used the same knives to wondering whether Toby had reported a "bend" in his left arm or his right arm. Filming the effects of narcosis proved difficult: we tried spinning the camera underwater - much to the cameraman's horror - but settled for a "Smith and Jones" type discussion between two divers on the sensations experienced.

We had been incredibly lucky with the weather and underwater viz and we had been very successful, despite the actors' tantrums, the cameraman's reluctance to get in the water and the director's continual cries of "Can we just try that again from this angle?".

Coming soon...

After the filming came the SSVC Cutting Room where Surgeon Commander James Francis added his valuable advice on the medical sequences.

The film is now available from MDT SMOPS as an extremely useful teaching aid for Career and Ships Diver Courses.

We are very grateful to all concerned, especially the film crew, the crew of DATCHET and the units that provided us with stores, equipment and assistance, particularly at such short notice. Thank you all.

If you want to know what "IN DEEP" is all about, you'll have to watch it: Hopefully you'll enjoy it as much as we enjoyed making it - roll on the next one !



National Exchange Report

CANADIAN MCM

by "Dan" Nicholson

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Major Project

Gentlemen (and still surviving, remaining members of LMCDO 69), as promised, here is the second instalment with an intentionally more light-hearted theme to cover the recreational as well as the professional side of life and work in Ottawa. Since May when I last forwarded my news and views a great deal has happened. At work the major project in which I am involved - the new Canadian Maritime Coastal Defence Vessel (MCDV) has reached the end of the 12 month Project Definition phase and, along with a large team of experts, I have just spent what would normally be the Summer leave month - August, evaluating reams of paperwork submitted by the 2 companies contending for the prime Contractorship. The results of the evaluation will reward one company with a contract to build and equip the MCDVs.

The results of this evaluation will not be known until early 1991 and the contract for project implementation will be awarded to the winning competitor in March 1991.

Gulf War Preparations

Meanwhile, the everyday chores of a DNR desk officer continue - Ministerial Enquiries, Briefing notes for senior officers and a host of other diverse activities - mostly involved with Minewarfare. The most recent distraction from the day to day MOD bureaucracy was the equipping of three Canadian Navy ships to deploy to the Gulf. Yours truly and Lt Cdr Jim Hewitt another MCD (ex-Brit, ex-CO HMS WILTON), found ourselves part of a team tasked to update two of the older Canadian ships and a support oiler (Navy crewed) to meet the various maritime threats posed by the Gulf situation. It does not take the brains of an archbishop (or a WOMW) to work out what area of weaponry I was involved with, but that's about all I can say on that matter. Suffice it to say that, yet again, our favourite underwater weapon became the primary threat to our ships in that area.

It was an extremely busy few weeks of long, but exciting days (and weekends!) at the office and travelling around. No doubt those of you who have been similarly involved in the last Gulf preparations and the Falklands Task Force will know what I mean. In the business of buying equipment it's just amazing how the usually bureaucratic procedures can be minimized by a tense international situation. The necessary equipment was bought and fitted in less than a week and as I sit here writing to you the updated ships are on station in the Gulf.

Family on Safari

Anyway, before either the Gulf or the NRMP evaluation arose, I'm happy to say that the family Nicholson planned ahead and took leave in July - immediately after our two boarding school teenagers arrived here for the Summer. The 1990 safari was to the 'Maritimes'. We visited and camped in the provinces of Nova Scotia, New Brunswick, Prince Edward Isle and, on the way back, Quebec and the New England States of the US (Maine, New Hampshire, Vermont, and New York). Towing a 'tent-trailer' enabled us to stop anywhere there was a campsite vacancy and with a canoe and wind-surfer on

"... it's amazing how bureaucratic procedures can be minimized by the tense international situation..."

the car top we took our own activities too. In 14 days we covered about 8000Km (2400 miles-or-so). So to make time to stop for a few days at various places, the daily average mileage was quite high. It was a great adventure and made us all very much more aware of how huge and empty this amazing country is. (Next Easter's plan is Florida). We then returned to Ottawa for the remainder of the Summer. Ottawa and its environs offers outstanding facilities for most outdoor pursuits - year round. There is good lake sailing on the Ottawa River - about a mile wide near where we live. There are downhill ski slopes less than 30 minutes drive north of the city centre and the locality has a very good complex of cycle paths which double as cross-country ski trails in the winter.



● *Our Intrepid Foreign Correspondent . . .*

Sailing Competition

The sailing conditions are roughly comparable with the Solent but with the added bonus of no tidal stream problems and no need for a wet suit between May and October. The winds were unusually good this Summer but the best time (which is now all but over) is October - November when winds are steadier and easier to cope with for geriatric board sailors like me. The real sailing haven is Kingston. The Royal Military College is located there and the city was chosen for its sailing facilities as the site of the 1976 Olympics.

Every year for the last 27 there has been held a sailing competition between a team of British Military personnel in Canada and their Canadian counterparts. We compete for the Steiner Trophy. Those of you who have been at Kingston, Ontario in late August will know how hard both teams fight for this trophy but it was never more competitive than this year. Admiral Otto Steiner himself, the sponsor of the original competition and the trophy, was flown over from UK by the Canadians to attend. He is RN retired and for the first time was able to visit and take an active part. He coxed to victory in 2 whaler sailing, presented his trophy to the overall competition winners and introduced a new Junior Steiner Trophy, the 'Steiner Mk 2', for which the youths and children competed.

It was a splendid and hard fought weekend of sailing 14 Albacore dinghies and various other nautical trials of strength! Despite the fact that an RAF officer was first across the finishing line in all six dinghy races the Brits came a very close second. More effort required next year from yours truly (the sailing captain) and the remainder of the team. It was, for everyone and their families, a most memorable weekend. Admiral Steiner also thoroughly enjoyed himself and we look forward to his return to Kingston another year.

Hunting 'n Fishing

Although the 'Fall' evenings are now drawing in and we are thinking about when to light the first log fire, there are still weekend opportunities to get away from it all to one of the many local National or provincial Parks. Although they nominally close on Labour Day (first weekend in September) camping and canoeing as well as back-packing through the grand countryside are still worthwhile activities. There is also some excellent fresh water fishing to be enjoyed. I have yet to catch my first salmon but have had lots of fun with a few good sized bass and pike.

By November all but the most hardy outdoor explorers will have put away their Summer equipment and will be sharpening their skis in preparation for the opening of the first downhill slopes and cross-country trails. Right now is the time when Canada's scenery is at its most impressive. The trees turn very quickly, almost over one particular weekend. The display of colours is quite spectacular and, provided you are well wrapped up, photographic trips to out of town areas can be most rewarding.

But, lest I paint a picture of all fun and no work, I should return to the office for a paragraph or two.

Busy Season

The Summer months, and the long Canadian school holidays (mid June to early September) produce many new faces and organizational changes at National Defence Headquarters (NDHQ). The long, harsh Winters preclude family moves so drafts and appointments are kept to an absolute minimum. This year has been no exception. The Naval Requirements Department, with roughly 30 Officers and support staff has seen 9 changes, 3 of which are at section head (Cdr) level. The Autumn, Winter and spring are traditionally the busiest work times in NDHQ. Now that the new personnel are settling down the heavy work season starts in earnest and, like any Ministerial Department, office lights will burn long and late. Nor will paper-pushing activities at work be necessarily restricted just to weekdays.

New Class of MCMV's

One of the major work tasks for this Winter is to finalise the plans for training all the Naval Reserve personnel. The first of the new class of ships (MCDV's) arrive in 1993 and a new hull will roll off the production line every year. The Reserve crews will need specific engineering, electrical and, of course, MCM training before they are ready to crew their ships. Much of this training can be done in Canada. But, as I mentioned in my last 'dit' to the mag, history has deprived the Canadian Navy of any deep MCM expertise.

Canada is currently looking to the RN to provide training for the crews of the MSA's HMCS ANTICOSTI and MORESBY in WS Mk 9 and WSME. So if current plans work out there could be Canadian Naval Reservist in Gunwharf on Minesweeping courses next year. It is also hoped that these two training vessels will come across to UK at some stage for consolidated sea training with the Scottish

Navy. I am now in a quandary - as a Pompey native do I volunteer to go back to Rosyth? I would hate to set a precedent! Anyway, all these plans are far from being set in concrete yet so I may not be forced to make this decision.

Minute-grabbing

To keep up my diving qualification I dive on weekends, and whenever I am called out, as a fully integrated member of the local Canadian Naval Reserve Port Inspection Diving Team. There are 24 Naval Reserve Divisions across Canada. Fortunately there is one in Ottawa which is the only service diving facility within 100 miles. The nearest regular Navy diving team with open water facilities is the Fleet Diving Unit (Atlantic) on the East Coast in Halifax, Nova Scotia —950 miles away. The DCIEM complex is at Toronto - a five hour drive away. I visited there in February and was allowed to try out the Canadian CDDBA. I shall leave all formal comment on that to Lt Cdr Jon Chapple, who is on exchange there, but as an MCDO steeped in the tradition of DSSCCD for more than a score of years I can honestly say that I was very impressed with the Canadian

"...For those of you who have not experienced through-ice diving, it is 'different'..."

set. The great attraction to me was its simplicity. I hope to be going down there again next year for some trials work.

Interesting Dives

The HMCS CARLETON diving team, based in Ottawa, has provided some very interesting dives for their team and their foreign member. We have dived in many of the local sites such as disused quarries, the Ottawa River, a small boating lake (lost outboard engine search) and an old quartz mine. Last year saw Reserve divers deploy operationally to Lake Ontario for aircraft salvage ops. Further afield the team usually spends a couple of weekends each year with other Reserve diving teams at Kingston, Ontario or Montreal, Quebec (both about 100 miles away). Although it has a large river, Ottawa is not a port. These other locations, particularly Montreal, provide much better facilities for exercising the port Divers' capabilities. In the Winter months diving becomes somewhat difficult as the surface of the water develops

a hard, cold crust. What I mean is that Winter diving in mid-Canada is constrained by the lack of ice-free water so, between late November and April, sufficient through-ice dives have to be planned to keep up the expertise. Otherwise, the only other option is the dreaded swimming pool at the Air Force Base!

Under-Ice Dives

For those of you who have not experienced through-ice diving it is 'different'. It calls for a lot of preparation, thick, made-to-measure wet suits (the RN ones are OK for short dives), well maintained equipment, hot thermos flasks and, of course, the necessary recovery period thawing out in a suitably sociable establishment. As well as the ice dives later in the year, there are several outings planned for this Autumn. They will include some surveys of old wrecks the access rights to which are controlled by local preservation societies.

As with many other inland - based teams, diving is all in fresh water and the normal depth limit is 18m/60ft for which reserve divers use only compressed air equipment. The throughput of personnel is high so the essential aim of the weekend local diving programme is training. Weekly drill nights are used for diving equipment maintenance and other military training at the HQ facility in Ottawa which I shared with the Army Reserve and Sea Cadet Units. The Reserves are, as always, very enthusiastic and do a very creditable job with limited resources. I have certainly enjoyed being part of team during this year and look forward to the dives planned for the remainder of my time here.

A Happy Compromise

So, that's it. Life continues here at a healthy pace and we seem to have found in Ottawa a happy compromise between paper pushing and recreation. Think of us now and again. If you walk out of your house one freezing day and you reckon its cold thank your lucky stars that it's not between -20 and -40 degrees C. This range is the norm in Ottawa between November and April. A white Christmas is almost guaranteed - which reminds me I must sharpen up my ice skates and muster my winter woolly underwear.

Our experience of Canada during the last 15 months has enabled us to see some parts of this amazing country. From my point of view the job here has all the attributes, frustrations and hard work that a MOD job in UK would offer but with the added bonus of being surrounded by the most superb recreational facilities. We intend to make the very best of our remaining time here.

Bonne Chance

As a parting shot I must say that I am very glad we chose to come to Canada. Some of us have had more foreign exchange tours than others (the less said about that the better!) but they have all been opportunities which we have never regretted.

Good luck to you all during what I understand to be a very testing time for the branch. CDs, MWS and MCDs have come through other crises still smiling and I feel sure that this one will be no exception.

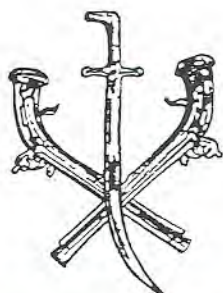
Bonne Chance and a happy Festive Season to you all.



Historical Association

THE ALGERINES ASSOCIATION

by Mick Arnold



The sword depicted in the badge above is the typical Algerian sword with a curved handle (for swinging it around one's head), and the pistols are those of the pirates of the time.

The Algerines Association was established in 1985, to bring together the men who have served in this class of naval vessel, and currently the membership stands at 1050, of all ranks and ratings; those who served in minesweeping and those who served in Fishery Protection service, as well as shipmates of the Royal Canadian Navy escorts, and those serving in the transferred ships of the Belgian and South African Navies, and ex-Algerines now living in Australia, New Zealand, Spain and Malta. Truly an International Association.

The Biggest Fleet Minesweeper

The Algerine-class ships were the biggest, and in our opinion, the best, class of Fleet Minesweeper built for the Royal Navy during World War II. They were capable of carrying out all methods of minesweeping for ordinary moored contact mines as well as the much more difficult influence mines. With an ocean-going range of several thousand miles, they were equipped for convoy and anti-submarine duties, and are remembered by their ships' companies as good-to-handle, fine sea-boats and relatively trouble-free.

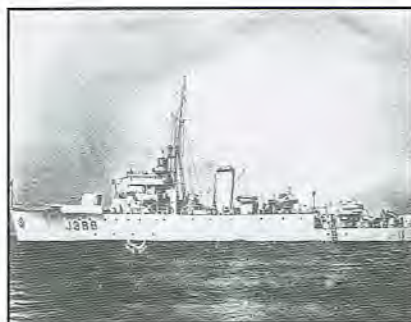
A World Record..?

A total of 110 Algerines were built, 48 of them in the UK and 62 in Canada. Of these, 98 served with the Royal Navy, and the other 12 with the Royal Canadian Navy as escorts in the Western Atlantic. Those of the Royal Navy operated in all the theatres of war as Fleet Minesweepers and took part in all the invasions of Europe and the Far East. In addition all were frequently engaged in convoy escort duties.

The first ship of the class, ALGERINE, after which the class was named, was laid down in March 1941 and completed 12 months later. ALGERINE was also the first of the class to be lost, sunk in November 1942 by an Italian submarine off North Africa.

The last of the class to be built was FIERCE in November 1945. The average building time was 13 months, and the cost about £210,000. By mid-1946 the Algerines had accounted for well in excess of 12,000 mines, including the probable world record of 49 mines swept in 17 minutes by one ship - WATERWITCH. Escort and anti-submarine work produced only one success against the enemy, when two of the class PINCHER and RECRUIT, sank U-300 in the Bay of Biscay in April 1945. Nine of those with the Royal Navy were lost during the war; two were torpedoed by U-boats, two destroyed by bombs/aircraft (one of these VESTAL - the last major RN warship to be lost in WWII - by a Japanese kamikaze) and five were mined. Additionally another seven were seriously damaged by mines, necessitating long periods in repair. Immediately after the War, many Algerines were engaged on the urgent task of clearing the shipping lanes of thousands of mines. One flotilla (the 5th MSF) cleared the area off Corfu where the Albanians had deliberately laid mines after the war and which damaged two Royal Navy destroyers and killed 44 men. Later, ships of the class became the main part of the re-formed post-war Fishery Protection Service until sufficient modern frigates became available.

A number were sold to other countries and saw service in the Navies of Belgium (6), Greece (5), South Africa (2) (one of which PIETERMARTITZBURG ex-PELORUS is still afloat as an accommodation ship), Burma, Persia, Thailand, Italy, Nigeria and Ceylon one each.



● "HMS CHEERFUL" a typical Algerine Class

Aims and Links

Besides the bringing together of those who served in the Algerines, the Association has among its aims... "to establish and maintain links with the Royal Navy, and with other suitable organisations, and to preserve the Algerine name".

In support of the Royal Navy the Association is closely linked with the only remaining ship of the Royal Navy to bear the name of an Algerine predecessor, the very modern type-22 class frigate BRAVE. The Association is proud to be linked with this fine ship, and grateful to her successive Captains for their splendid support as Vice-Presidents of the Association.

The Association has also been granted recognition by the Royal Navy through the Consultative Committee of the Commander-in-Chief, Naval Home Command. The Association is directly linked with the modern Minewarfare Branch of the Royal Navy through the Vice-Presidency of the Commodore, Minor War Vessels and Minewarfare at Rosyth, an honour and privilege we are delighted to have, and through our association with SMOPS at HMS NELSON (GUNWHARF) - known to most of us as VERNON.

Sea Cadet Units

The Association is also concerned in assisting the future Royal Navy through the Sea Cadet Corps, and we are delighted to be associated with three units in England, TS LENNOX (Gravesend), TSMARY ROSE (Basingstoke) and TS BRAVE (Beccles), and one in Australia TS MARMION all of which bear the name of a previous Algerine. We are also linked with TS LOCHINVAR (South Queensferry), on the Firth of Forth, close to the very site where many of the Algerines carried out their minesweeping "work-up" during the war years, or were based as Fishery Protection vessels afterwards.

Historical Projects

Whilst the Association deals with the present and looks to the future, we are rightly mindful also of the past and of the part played in our naval and maritime heritage by various Museums and Historical organisations. A history of the ships bearing the name MARY ROSE was prepared and presented to the Mary Rose Trust.

A monograph - The History of Minesweeping at Malta 1940-1946 - was prepared and presented to the National War Museum at Malta.

Continued on Page 35

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,
POLYOLEFIN ROPES**

I read with interest the article on Polyolefin Ropes in MAD Vol 1 No 3 and as I, in my present appointment, have some responsibility for outfitting the Fleet with berthing hawsers, I felt I should reply.

I would draw the author's attention to Fleet Temporary Memorandum 156/90 which explains the reason for the introduction, details plans for improvements and lays down precautions to be taken when using the ropes. It is well realised the current ropes have shortcomings and a replacement rope has been identified by CNSA. This replacement is currently being trialled in a variety of RN ships.

It would appear the letter was written before the author read the FTM (issued 30 Apr 90), hence his comments. I would stress however that any defects or deficiencies with the current issue ropes must be reported without delay on S.2022's. These eventually filter through to my department for action.

The author should also be aware that polypropylene has never been used for berthing hawsers - it lacks the strength. I am sure he meant polyester!

Yours sincerely,
Jon Riches
Cdr RN
Foxhill
Bath

**Dear Editor,
TON CLASS ASSOCIATION - AGM AND REUNION**

The Fourth AGM and Reunion Dinner will be held at the Carlton Highland Hotel, North Bridge, Edinburgh, on Saturday 21st September 1991. The AGM will be held in the Sutherland Room at 1400. This will be followed by a Sherry Reception and the Reunion Dinner, (1930 for 2000).

Total cost of the dinner inclusive of the Sherry, Table Wines (or soft drinks if preferred) will be £22.00 per person.

As at previous reunions, Dress is Dinner Jackets, Highland Dress, Lounge Suits or Blazers, with Miniature Medals. Accommodation at the Hotel costs £30.00 per night per person for Bed and full Scottish Breakfast.

Current members of the Association will be forwarded booking forms in the normal manner. Prospective members should contact:

The Hon. Secretary,
Mr. Jack Worth,
Amethyst,
Lerryn,
Lostwithiel,
Cornwall,
PL22 0QF.
Tel: 0208 - 872452.

**Dear Editor,
MISTAKEN MILESTONE**

My heartiest congratulations on a first class publication, I have been meaning to say that since issue No1.

However I really only got round to my previous paragraph because I was stung by an article in Vol.1 No.3, Diving Round Up by Chris Sherman and his observations on ships husbandry in the U.S.A.

A photograph of a ships propeller drew my attention to the paragraph where he proudly asserts that "1983 marked a significant milestone in the credibility of such work with the successful waterborne propeller change following the grounding of the USS Enterprise"

It wasn't so much the acclamation of this task as it was the final lines of the article in which the reader is questioned "Shouldn't the Royal Navy's Diving Branch be doing the same?"

D'you know I could have sworn that I received my BEM partly for the operation in which the A.E.D.U. Team successfully concluded the underwater changing of the old destroyer ALAMEIN's propeller and which then went on to, the again successful, changing of HMS LONDON's five bladed, eight ton propeller in 65 hours in 1965. Of course we were only given this task to keep idle hands busy whilst also carrying out bounce diving to 600ft from RECLAIM. Remember her?

The outcome was of course that: Royal Navy Officers don't run their commands aground, so there is no requirement for propeller changing. (Tongue in cheek)



Seriously though, the results of these trials were published in an AEDU Report (No.35, dated January 1966), written by M.Kettle and Lt. Cdr. H. Parker R.N.

WHO SAYS THERE'S A TWENTY YEAR CYCLE? Well almost! You may believe that the photograph is London's prop being landed, what you won't believe is that the bloke on the rope is a slim JIM QUINN with hair.

My best regards to the Branch and all who dive in it.

Yours Aye,
DAVID J. LOTT
(Ex-FCPO(D))
"LARKANDINE"
Nethercote Road,
Nethercote,
Nr.Eden,
N.S.W.2549 Australia

More Letters



Dear Editor, BBC2 - THE MINE CLEARANCE SERVICE

The following is an extract from "Badges and Insignia of the British Armed Services":

Immediately after the completion of the War in 1918, a special mine clearance force was organised to sweep the large number of mines which had been laid. Many men who would otherwise have been released remained to serve in this force. Its members wore a silver badge on the cuff depicting a floating mine surrounded by a wreath.

The following is also an extract, this one from "Swept Channels" by "Taffrail" (Captain Taprell Dorling, DSO, FRHist.S, RN) published 1935, page 311:-

A Special Mine Clearance Service was established in February 1919. There were special rates of pay and conditions of leave, while officers and men were permitted to wear on their left sleeves the Mine Clearance Badge approved by His Majesty for all those engaged in minesweeping.

In June 1919, the Service consisted of 700 officers and 14,500 men (the names of the officers in command can be found in Appendix 4 to the book). The task was finished by November 30 1919, at which time the British minesweepers had cleared 23,000 Allied and 70 German mines since the Armistice.

It should be noted that British, American, French and German Naval Forces were used in the operation, each allocated a separate sector.

The badge is silver plated and cheap modern versions exist. The genuine badge (of which I have a copy) can normally be proved by an oxide coating on the silver and by checking the back and looking for flaws. The genuine badge has a small ridge flaw running down the mine between the centre and right-hand horns. The copy normally has a large 'crack' running diagonally across the mine almost forming a 'third' mooring rope. For interest, when the pay for a AB was 1s 8d per day in 1919, the Board of Trade paid 2 guineas per week hard-layers money and a bonus of £1 for every British or Allied mine swept plus £10 for every German mine swept and exploded. One gentleman (AB) in the 4Force went on 4 months leave in December 1919 with £300 and returned to RNB in April 1920 "stony broke".

As I have mentioned, I have a Special Mine Clearance Service badge in my collection of RN badges. I also have some torpedo cloth badges. I would be very interested if you have a museum and could certainly loan a few items for a short time.

Since I also collect all RN cloth badges, I would be interested in contacting anyone who has any interesting old RN badges even if it is only to see them.

Yours aye,
J. Fletcher
Lt RN

Fleet Engineering Staff
South Terrace
HM Naval Base
Portsmouth.

Dear Editor, CANADIAN DIVING EQUIPMENT UPDATE

Since my article in MAD Vol 1 No 2, there have been a number of achievements concerning the development of an MCM diving set to replace DSSCCD:

SIVA 55/CCDA

The SIVA 55 diving equipment, also known as the Canadian Clearance Diving Apparatus (CCDA), has now formally entered service with the Canadian Forces (CF). I had the honour (especially pleasing to an RN MCDO) to run the first training courses at the Fleet Diving Unit (Atlantic) in Halifax, Nova Scotia in August of last year, and then at the Fleet Diving Unit (Pacific) in Victoria, British Columbia in September. The equipment was well-received by all the Divers. Two of the CF SIVA 55s are now completing trials with FDU 1 of the RN.

MCM Diving to 81msw.

The initial development of SIVA Plus, also known as the Canadian Underwater Mine Apparatus (CUMA), has been completed following a successful open-water trial in May 1990 in Victoria, British Columbia. SIVA Plus is Phase Two of the DSSCCD replacement Project, the development of a self-contained MCM diving set for deep Clearance Diving in the 54 - 81msw range. CUMA (or SIVA Plus) has a similar appearance to CCDA (SIVA 55), since the set makes use of the same semi-closed breathing loop (counterlung, breathing tubes and CO2 scrubber). The gas supply system is different in that CUMA is an oxygen partial pressure set which uses separate supplies of oxygen and diluent gas (usually helium) to provide the diver's breathing loop with a constant Partial Pressure of Oxygen (ppO2) at all depths. CUMA also has a separate onboard diagnostics unit with an LED in the facemask which glows Red or Green to tell the diver whether the ppO2 of his breathing gas is within limits.

CUMA pre-production sets tested on the West Coast in May were both sturdy and reliable in operation and 6 divers, including myself, had the enjoyable experience of self-contained re-breather diving deeper than 54msw. All our diving was conducted from Zodiac inflatable craft and a total of 44 man-dives were achieved, including 4 to maximum depth.

Difficult Task

Although MCM diving to 81msw is close to becoming a reality, nobody should have any illusions as to the efforts required to achieve this. Equipment preparations, time allowance, logistics, training and weather conditions all come into play as does the psychological loading on the divers and supervisor. Having dived and supervised to 81msw I can vouch for all of these! The SIVA Plus design has now been finalised and the set enters service in summer 1991.

EDU Project Work

The decompression table development project to develop new surface supplied 84/16 Heliox (HeO2) diving tables in conjunction with the RN and USN is nearing completion. The final series of manned dives is scheduled for Feb/Mar 91. Looking ahead, it is hoped that the liaison between the RN FDG and DCIEM will continue when SIVA+ HeO2 table work starts in September 1991.

One atmosphere suit diving with the "NEWTSUIT" continues with both warm and cold water trials scheduled. We are getting quite attached to our big yellow diving buddy.

Life In Canada

The life of an Exchange Officer is not all work, though, however interesting that may be. Toronto is a lively city to live in. We have a great major league baseball team, a not-so great ice hockey team and the tallest free-standing structure in the world. We get lots of sun and humidity in the summer and lots of snow and freezing temperatures in the winter. Niagara falls and the USA are 75 minutes away by road and the opportunities for travel are very good, both for business and leisure.

Keep up the good work. In spite of the genuine equipment problems which are recognised over here, RN Divers are still envied when it comes to operational achievements and the underlying professionalism demonstrated by all members of our diving community.

Yours aye
JON CHAPPLE
Experimental Diving Unit,
Defence and Civil Institute of Environmental Medicine (DCIEM),
North York,
Toronto,
Canada.

Diving and Minewarfare Training

DIVER TRAINING REGULATIONS



By Phil Burrell

The aim of this article is to highlight recent changes in the regulations with regard to Diver Training Certificates and Diving First Aid Certificates, both of which are now required before a diver can be employed commercially within the UK.

Commercial Diving in the United Kingdom is governed by the Diving Operations at Work Regulations 1981 (DOAW 81) as amended by the Diving Operations at Work (Amendment) Regulations 1990. The regulations are administered by the Health and Safety Executive (HSE) and the Department of Energy (D of E).

A copy of DOAW 81 is contained in Chapter 9 of BR 2806 and all Service Divers and Supervisors should be fully aware of its contents.

The HSE issue 4 types of Diver Training Certificate (DTC) which are awarded on completion of an appropriate HSE approved diver training course:

Part 1

Air divers who are trained to perform a wide range of air diving operations and diving techniques including surface decompression; who have received basic training in the performance of work tasks using tools underwater at depths to 50m.

Part 2

Divers who are trained in deep diving using diving bells, mixed gas and saturation techniques, involving open water experience of these techniques to 100m.

Part 3

Divers who need to perform only a limited range of air diving using both types of surface orientated equipment (SCUBA/SURFACE SUPPLIED). The training covers operations to 30m but after appropriate work-up dives operations to 50m can be undertaken by this category of diver providing they do not exceed 20 minutes decompression time.

Part 4

As for Part 3 but restricted to use of self-contained underwater breathing apparatus.

ONLY PART 1 AND 2 DIVERS MAY BE EMPLOYED IN THE OFFSHORE OIL AND GAS INDUSTRY.

Seaman Divers and LMCDOs are presently awarded an HSE Part 3 Certificate on completion of course. Ship's Divers are not entitled to any HSE certificate by virtue of their depth limitation.

Once issued a Diver Training Certificate does not require to be renewed.

Diving First Aid Certificate

With effect from 29 April 1991 Divers whom wish to be employed commercially will, in addition to holding the Appropriate DTC, require to hold a Diving First Aid Certificate (DFAC) issued by an HSE approved school.

The regulations pertaining to the DFAC are as follows:

a. The certificate must be obtained by 1 April 1993. This "breathing period" will allow for the high volume of initial training required.

b. The DFAC will be issued on completion of an examinable 3-day (4-day for those Divers holding Part 2 DTC) training course and will be valid for 3 years. A 2 day unexamined (3 day for Part 2) refresher course must then be taken before re-certification takes place. The certificate is then valid for a further 3 year period, and so on.

c. Divers who hold a DTC obtained between 29 April 1988 and 29 April 1991 will only require to undergo the refresher training course to obtain the certificate at para b. All other divers will have to complete the 3 day course.

The HSE do not currently recognise RN training as appropriate for the issue of DFAC's. Discussions are underway at MoD-level to decide whether RN Divers will be required to hold a Diving First Aid Certificate, in which case appropriate training courses will be designed and documented. Further details will be published as they become apparent.

The Service link with the HSE is the Diving Theory Section in Gunwharf and all queries

and enquiries should be directed at the CPO(D) (Quality Control) in the first instance.

Any further changes to the rules will be promulgated by signal / FTM.

An indication of the prices charged by Commercial Diving Schools for DTC's and DFAC's is as follows:

<u>COURSE</u>	<u>COST</u>
PART 1	£4000
PART 2	£6500
PART 3	£1600
PART 4	£1100
PART 4 to PART 3	£700
PART 4 to PART 1	£3000
PART 3 to PART 1	£2000
DFAC (3 Day)	£180



STOP PRESS

It is now MoD policy that all CDs will attend the Diving First Aid Course. Final details are being considered at present and will be published when available.

Further details on the subject can be obtained from the Diving Theory Section in HMS NELSON (Gunwharf), Portsmouth, PO7 3HH

Minesweeping Historical

HISTORY OF HMS CROMER



By Tony Silva

On the 6 October 1990 Lady Brown, the 2nd Sea Lord's wife, launched HMS CROMER at Woolston, Southampton. Sadly the ship's name is probably better known throughout the Service from the MAD magazine 'Big Badge Challenge' than for any other reason.

However, the present ship is the third Single Role Minehunter to be accepted by the Royal Navy, the third generation of ship to be constructed of Glass Reinforced Plastic and the third ship to bear the name HMS CROMER. Incidentally, all three ships were officially named in the month of October.

Her predecessors were a BRITOMART class gunboat: 1861 - 1886, and a BANGOR class minesweeper: 1940 - 1942

BRITOMART Class Gunboat

The BRITOMART gunboat was designed in 1854 and based around the need for a shallow draught vessel capable of carrying two large artillery pieces. Originally six craft were ordered and proved themselves to be invaluable during the Crimean War.

These small craft operated close inshore, attacked coastal fortifications and dominated enemy ports. Their actions gave recognition to the gunboat and the term 'Gunboat Diplomacy'!

With many developments a further ten ships were ordered to take-up a policing role at many places in Britain's far-flung Empire. CROMER was the last of the class to be built and although laid down in Haslar gunboat yard in 1861, she remained on the stocks for six years before being launched.

During her Service she was attached to the coastguard. The Coastguard at that time was the Naval Reserve and the majority of their time was spent conducting gunnery drills to keep the Reserves at a good state of efficiency plus an annual cruise with the Reserve Squadron.



● *The BANGOR Class HMS CROMER - J128*

BANGOR Class Minesweeper

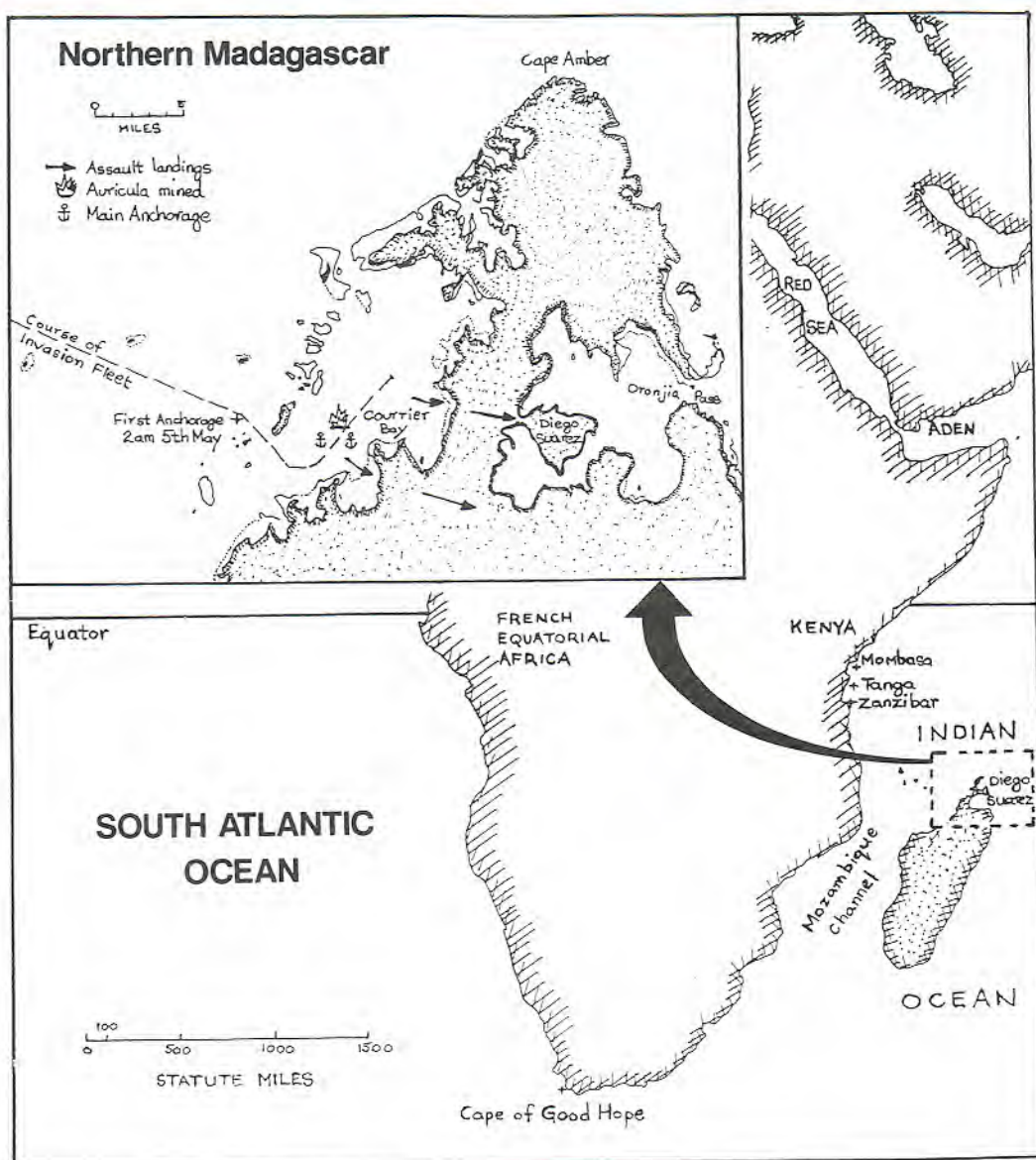
The BANGOR class minesweeper was introduced into the service at the beginning of the second World War. It was designed as a replacement for the HALCYON class minesweeper that was being used more and more for escort duties. The specification was for a new diesel-driven minesweeper based on the hull of the HALCYON but 25 per cent smaller. However, due to a shortage of diesel engines, the class was modified to accept reciprocating machinery instead.

CROMER was initially known as Job Number J.1088, and was laid down in the spring of 1940 and launched on the 7 October that year. She was the second of the Bangor class to be built by Lobnitz and Company whose shipyard lay on the River Clyde in Renfrew. Although the ships were minesweepers, their primary role was as anti-submarine and they were equipped with asdic and a small outfit of depth charges. After commissioning, CROMER was

attached to the 9th Minesweeping Flotilla (MSF) based at Portsmouth. Yet, despite her size and limited fire power she was often assigned to escort duties in the western approaches. One night in May 1941, whilst in Portland, the crew were recalled from night leave to make full preparations for sea as it was feared the German Battle Ship Bismarck would try to make her escape through the English Channel - fortunately, CROMER and her crew were not required.

Operation IRONCLAD

The majority of all British military supplies and reinforcements for the North African campaign was routed via the relatively trouble free area of Cape of Good Hope to Egypt. However, the French possession, the island of Madagascar was showing Vichy sympathies to Germany. Coupled with military pact signed by Germany, Italy and Japan it appeared that the sealanes around South Africa would be lost to the allies, and



● Operation Ironclad

Madagascar was perfectly positioned to provide a basis for Axis forces to prey on the convoys with virtual impunity. Detailed plans were drawn up for an amphibious assault to capture DIEGO SAUREZ, at the northern end of Madagascar and gain control of the fine natural harbour there. The operation was code-named IRONCLAD.

With her anti-aircraft capability upgraded, CROMER was transferred to the 14th MSF and joined her sister ships CROMARTY, POOLE and ROMNEY who were under the command of Rear Admiral ENSYFRE. They, with 30 other ships took up their respective stations for Operation IRONCLAD. Using danbuoys for navigation, the 14th MSF commenced work on the evening of 4 May. Many mines were swept and a few mines exploded in the sweep. Fortunately only one ship, the AURICULA, was lost to mining and the landings, meeting little resistance, were successful.

CROMER remained in Madagascan seas in

support of other amphibious landings on the island until late September. She was then detached to the Mediterranean to join the rest of her flotilla who were working in the mediterranean waters.

Operation SUPERCHARGE

After a boiler clean, CROMER headed for Alexandria, Egypt where she received dockyard attention and was fitted with external degaussing cable. CROMER was the Senior Officer of the 14th MSF and with CROMARTY and BOSTON in company they conducted minesweeping into the harbour of MERSA MATRAH, Egypt on 9 November in support of Operation SUPERCHARGE.

A large number of mines were being swept on each track and it soon became apparent that the mines had been laid indiscriminately and in batches of anything up to six at a time. It was mid afternoon that day when CROMER pronounced the channel open and ordered the ships to recover their equipment. As the

Artwork by George Kegg

ships headed back to Alexandria CROMER detonated a mine. Her stern section sank immediately, the bow floated for more than an hour.

Tragic And Untimely End

It is assumed that CROMER struck a partially submerged mine amidships on her port side. The enormity of the explosion suggests that the magazine had detonated simultaneously. CROMARTY and BOSTON returned to Alexandria when they had done all that could be done. 46 men lost their lives, or died of wounds received, in the sinking of HMS CROMER on the 9 November 1942. The 36 survivors were given rest and recuperation in Alexandria before taking up other duties throughout the fleet.

CROMER, and the spirit of her ship's company were not forgotten and today she is still remembered with affection by those who knew her before her tragic and untimely end.



Divers (Golfing) Dits



GOLF REWARDS

By Jim 

Early August saw a sun-drenched Southwick Park Golf Course play host to the annual Royal Naval Divers Golf championship. Serving and past members of the branch travelled long distances to attend this increasingly popular event. With the war in the Gulf at an end this year's championship proved to be a particularly happy occasion.

The organising committee led by Maurice Crang had worked tirelessly for many months to stage-manage the tournament. Friends and companies associated with naval diving were kind enough to sponsor prizes. The committee extends their grateful thanks to these companies for their help and support.

Under cloudless skies and in perfect playing conditions the overall



● Mick Beale receives his trophies from Mrs Sandiford

Champion this year was Mick Beale with a two-round stableford score of 79 points. Well done Mick!

Mrs. Pauline Sandiford, wife of the Superintendent of Diving kindly presented the prizes to the winners. John Dadd won the Best Gross trophy, Mo Crang and Mick Beale won the Pairs trophy, Mo Crang walked off with the 1st Division winners prize and Sean Teale picked up the 2nd Division winners prize.

1992 RN CLEARANCE DIVERS GOLF CHAMPIONSHIP

Venue - Southwick Park (Naval Recreation Centre)

Date - Monday 10 August 1992 (Tee Times from 0800 available late July)

Cost - Includes Entrance Fee and Green Fees, Morning Coffee and Luncheon. The Course has been booked for the whole day and an evening Barbecue with entertainment will commence at 1900. Individual entry prices are listed below.

Rules - The competition will be AM/PM Gross and Stableford rounds with prizes for both, plus overall Divers Golf Champion and Stableford Winner with Divisional Champions and many more including Nearest The Pin and Longest Drive.

Handicap - There will be a handicap limit of 24. Personnel who have neither a current handicap certificate nor have a current handicap, posted in Southwick Park Club House, will be allocated a handicap of 24 or a handicap based on last years performance which ever is the lower. Players must state if they are playing to less than 24. The competition will be run on 7/8th of Handicap. Cards will be scrutinised after the morning round and the Committee's decision will be final.

Entries - There will be a limit of 90 players on a strict first cheque first served basis including guests. Cheques should be made payable to RN Clearance Divers Golf Championship - regrettably no post-dated cheques. Priority will be given to present and past Clearance Divers up until 1 June 1992, with late entries until 1 July 1992 or before if limit is reached. Successful guest applications will be informed in July.

Point Of Contact - WO(D) Mo Crang on BT 0705-753751 or Portsmouth Naval Base Extension 24866.

All applications, using the forms below, to:

WO(D) M. Crang, HQ Fleet Diving Group, HMS NELSON (Gunwharf), Portsmouth, Hampshire, PO1 3HH

1992 RN CD GOLF CHAMPIONSHIP ENTRY FORM

CLEARANCE DIVER DETAILS

NAME & INITIALS
 ADDRESS:
 HANDICAP:

ENTRANCE FEE:

SPNRC MEMBER (@ £12) £.....
 NON-MEMBER (@ £22) £.....

CHOICE OF LUNCHEON

CHICKEN AND CHIPS OR SAUSAGE AND CHIPS
 OR SOUP AND PLOUGHMANS

EVENING BBQ AND ENTERTAINMENT (@ £8) x No..... = £.....

GRAND TOTAL = £.....

4 BALL COMBINED STABLEFORD TEAM

1. ONLY ONE ENTRY APPLICATION PER TEAM. SOLO PLAYERS WILL BE TEAMED UP.
 2. PLAYERS: 1..... 2..... 3.....

GUEST DETAILS

NAME & INITIALS
 ADDRESS:
 HANDICAP:

ENTRANCE FEE:

SPNRC MEMBER (@ £12) £.....
 NON-MEMBER (@ £22) £.....

CHOICE OF LUNCHEON

CHICKEN AND CHIPS OR SAUSAGE AND CHIPS
 OR SOUP AND PLOUGHMANS

EVENING BBQ AND ENTERTAINMENT (@ £8) x No..... = £.....

GRAND TOTAL = £.....

TEAM NAME:..... CAPTAIN:.....
 4.....

THE PRECISE MINELAY AND SEABED SURVEY SYSTEM

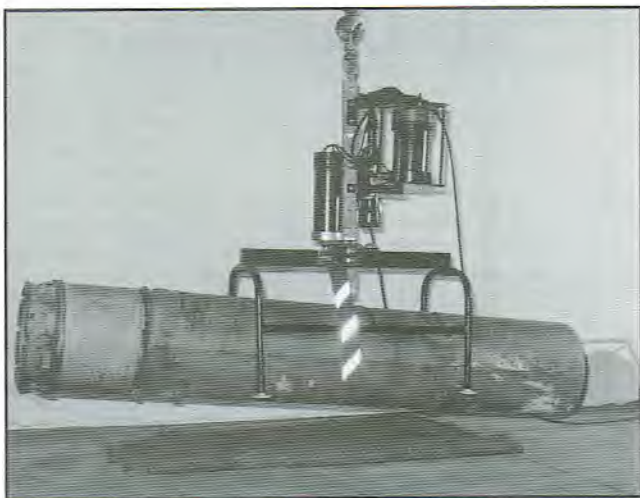
by Simon Mansell

Introduction

Precise minelaying, ascertaining the orientation and environment, detection and recovery of sub-sea targets is and will remain a costly, time consuming exercise. In the main this is due to the required use of high value, labour intensive ROVs and the need for dedicated host ship support.

The Need for Precision

Why worry about precise minelaying? After all, if the lay vessel records the lat and long when the mine is slipped, can this not be considered accurate enough? The answer is of course "No!". During any system evaluation and calibration it is vitally important that the orientation angle and immediate seabed environment are known if the trial is to be successful. It is hardly ideal to lay a mine only to find once the ship is on task that it is lying in a gully or behind a rock. We spend enough time doing RCMDS runs on "minelike rocks" without doing the same during trial periods. If we know the precise layout of the sea bed the mine can be laid with the rocks avoided.



- *The mine in its "Safe Position", prior to launch, with safety pin and lanyard fitted. The UDI scanning sonar, Osprey Low-Light Camera and Compass are mounted on the Release Mechanism bracket.*

Current Methods and Their Disadvantages

- a. Use divers to assess orientation and environment.
 - (1) Costly
 - (2) Logistically complex
 - (3) Depth limited
 - (4) Time consuming
 - (5) Does not give a true picture of surrounding environment.
- b. Use large workstation ROVs.
 - (1) Availability of ROVs
 - (2) Special type of vessels
 - (3) High cost of ROVs and support

- (4) Logistically complex

- (5) Ability to retain ROV should delays occur

- c. Slip the mine from the rubbing strake and use a small ROV to ascertain the orientation and environment.

- (1) Not scientifically sound

- (2) Once slipped is "fait accompli"

- (3) Prone to failure

- (4) Time consuming

- (5) Limited information on surrounding environment

It is also worth mentioning that the above methods require support from various sources within MOD/RN, ie COMMW, ARE, DGUW(N) etc. It is also intended that with the system developed a team of 3 men would be able to undertake all functions required and produce a scientifically quantifiable base line from which sonar analysis or development can proceed with a high degree of confidence.

PMS Advantages

The Precision Minelaying System (PMS) has the following advantages over the above methods of minelaying:

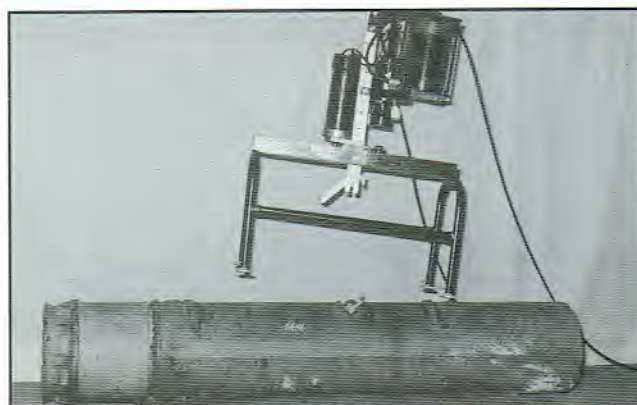
- a. Cost is kept to a minimum.
- b. All items are available as an assembled portable unit.
- c. Deployment can be executed by any vessel capable of embarking any minelike target, or any MCMV engaged in the trial or exercise.
- d. All MCMV sensors can be used without extra cost to compliment the system.
- e. The UDI scanning sonar will give an accurate assessment of the surrounding environment out to 100m.

Transportable Components

The PMS comprises the following components:

- a. UDI AS 360° Scanning Sonar: Frequency 500 KHz; Ranges 10, 20, 40 and 100m; Scan sizes 15°, 30°, 60°, 90°, 180°, 360°
- b. Osprey low light camera and compass.
- c. Release Mechanism.

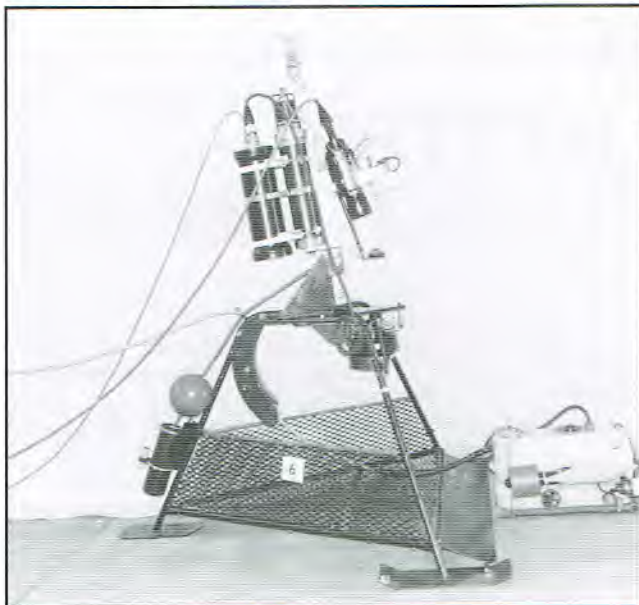
All the above are connected to the surface by 2 umbilicals which lead to the sonar control, TV monitor, video recorder and release control. These are easily transportable and soon assembled once onboard ship. With a well briefed and worked up team the operation can be conducted with the minimum of trouble and maximum accuracy.



- *The mine at the Point of Release.*

Still On Trial...

Continued from previous page



● **Total Seabed Survey System:** *The Electronics Pod and Osprey Low-Light Camera are mounted on the Release Mechanism bracket (top). The Acoustic Marker Buoy (bottom left) and the Ulvertech 3000 HRTS Sonar (centre) are mounted on the frame, with the Mini-Rover LCROV (right) carried beneath.*

Simplified Standard Operating Procedure

- Lay vessel arrives on station. Either anchors or approaches the lay position at a max SOA of 2.5 Kts.
- Target loaded and safety pin inserted. Release key removed.
- Lay vessel closes datum. Target trained outboard and veered until level with garden wall. Safety pin removed. Veering continues until 2 feet above sea bed.
- Sonar set to 360°. Scan and local environmental features noted.
- 30° scan selected to give a detailed picture of the approaching seabed.
- Video recorder running to record orientation of mine and seabed type.

- I/C counts down to lay position. Release key inserted mine veered to one foot above seabed.
- Ship passes over datum. Mine is released on order from I/C. Sonar set to 360° scan range 20m. Any special seabed features noted such as rocks/heavy ridging.
- The information collated provides the ship or I/C of the trial with:
 - The position of the mine.
 - The orientation of the mine on the seabed.
 - The seabed type.
 - Items of interest in the surrounding area.
 - Sonar profile of the immediate area.
- The PMS can now be recovered and another mine loaded.

Additional Seabed Survey System

This is used in conjunction with the PMS. The configuration of equipment is similar as for minelaying with the exception being that below the unit is slung the LCROV deployment frame. In the photograph below the UDI scanning sonar is replaced by a Ulvertech 3000 series HRTS sonar, otherwise the equipment remains the same. The tracking of the ROV is achieved with the sonar be it 3000 series or UDI:

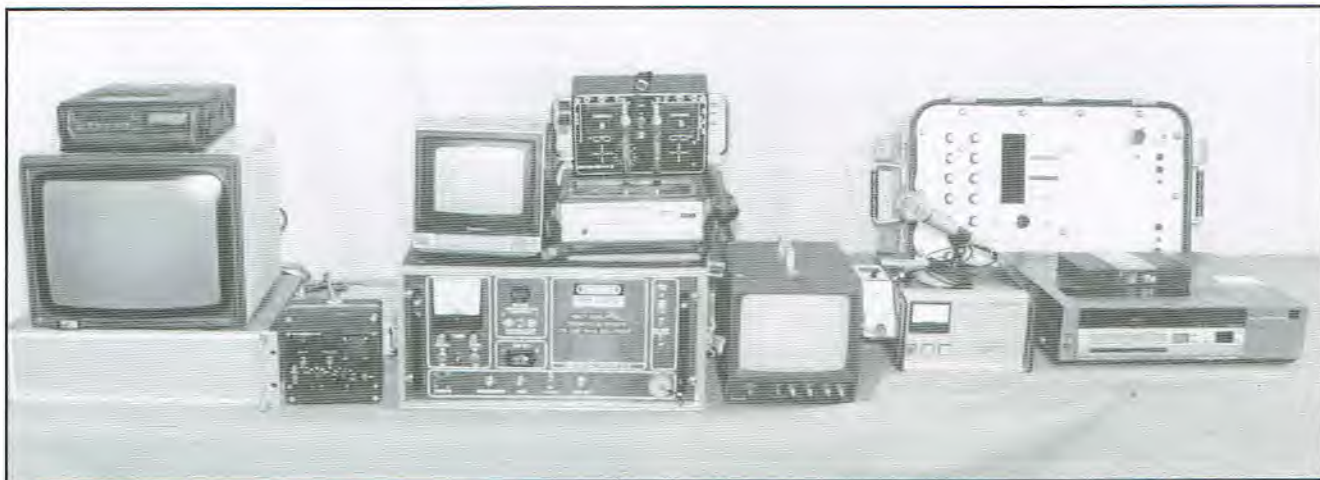
- Target is held on sonar.
- Acquire ROV in sonar beam. Typically one meter from frame.
- Con ROV as per SOP for 193 PAP Run.
- When target and ROV are coincident mission accomplished.
- Should object require marking, release mechanism now drops acoustic marker buoy. The 37.5 KHz pinger is diver hand held sonar compatible.

Less "Spearing-In"?

If it is valid that development and evaluation trials require the orientation, attitude and environmental data relevant to the target, it would appear to be a misnomer that it is not required operationally and that MOAT takes no account of it.

The instances are numerous of targets laid using precise navigation systems but remaining undetectable on sonar. Subsequent investigation by diver or ROV reveals complete burial, "spearing in" to the seabed, or wooded by natural phenomena. Operational time is also wasted during system set to work by not being aware of the orientation and therefore being unable to predict the aspect likely to be encountered. Time, effort and a major increase in the confidence level afforded to minehunting sonar would be the benefit if we employed the PMS in our calibration and STW phases with quantifiable benefits occurring at all future stages during operational minehunting.

The PMS Team at ARE(H) are ready to meet your minelaying needs.



● **System Controls and Data Collectors:** *(left to right) Sonar Control, Monitor & Video Recorder; Mini-Rover ROV Controls; Osprey Low-Light Camera Control; Suber Acoustic Release Controls to Hydrophone.*

Sweep Store

Continued from page 26

Currently the history of all the Algerines, in war and peace, is being compiled, and so far the eleven volumes covering the war years have been completed. Copies have been placed in the libraries of the Imperial War Museum, National Maritime Museum, the Naval Historical Branch and the MDT Department of SMOPS (Vernon).

Unfortunately a projected Museum on the site of the now departed (to Rosyth) HMS LOCHINVAR at Port Edgar, on the Firth of Forth, has not been able to proceed, but with the co-operation and support of the Eden Camp Museum at Malton, Yorks, the many items of interest and nostalgia donated by members and depicting the work of the Algerines and minesweeping, will be displayed during the coming year.



Beautiful Memorial

In 1987 due to the generosity of the Lothian Regional Council in making available to us a site at Port Edgar, overlooking the waters of the Forth, the Association has erected a beautiful Memorial Cairn, which remembers all the men and ships, not only the Algerines, that served in the Minesweeping and Fishery Protection Service of the Royal Navy between 1939 and 1975 when the base was finally closed.

In all these ways, and others, it is the hope and intention of the Association that the life and work of the Algerine Class will long be remembered. The motif of the Association showing the crossed swords and pistols is taken from the ship's badge of ALGERINE, designed by the College of Heralds in 1941. The choice of design is particularly apt, since Algerines besides being the name for natives of Algiers/Algeria (North Africa), was also the name applied to the ships and the men of the period in the 17th and 18th Centuries who were known as the Barbary Pirates. Their ships attacked the merchant vessels passing through the Mediterranean or in the Atlantic off Africa, often taking the crews as prisoners and subjecting them to fearful torture or death. The ships of the Royal Navy were constantly engaging them, and there is recorded one fight which occurred on 8 December 1669 when Captain John Kempthorne in the 40-gun vessel MARY ROSE successfully defended his convoy and beat off several Algerines, for which action MARY ROSE was awarded a Battle Honour. The name MARY ROSE was also awarded to an Algerine in 1944 and she saw service in the Mediterranean and the Far East with the 8th MSF.

Membership

Membership of the Association is open to all who have served in any ship of the Algerine Class at any time (Full Membership). Associate Membership is at the discretion of the Committee and may be granted to those who served in naval vessels with the Algerines, notably the danlayers (trawlers and drifters) and minesweepers of other classes, eg the Bangors, Halcyons, BAMS etc.

Family Membership is available to those whose relative served in an Algerine.

The Association sends to each member a quarterly newsletter, "The Sweeper" and issues a Membership List, updated each quarter. An Annual Reunion Weekend is held in May/June, alternating between the North and South of the country, and in addition a number of regional social events are periodically arranged. Full details and application forms may be obtained from the secretary:

Jack Williams
395 Lytham Road
Blackpool
Lancs
FY4 1EB
Tel: 0253 44157

Algerines Association Reunion

Details of the 1992 Annual Reunion are as follows:

- Dates:** 9-11 May 1992
- Main hotel:** Crest Hotel, Portsmouth
- Civic reception:** p.m. 9 May, Guildhall, Portsmouth
- AGM** a.m. 10 May, Guildhall, Portsmouth
- Dinner:** p.m. 10 May, Guildhall, Portsmouth
- Service & wreath laying:** a.m. 11 May, Southsea Memorial
- Lunch:** Royal Sailors Home

Members Secretary and general enquiries:

Mick Arnold,
35 Larks Rise,
Ferndown,
Dorset, BH22 9QU.
Tel: 0202-875707

Improved Offshore Positioning

By Bob Barton

A device which enables up to four channels of offshore navigational data to be transmitted over a single radio channel has been introduced by Communications & Measurement Technologies Ltd, UK.

The MSI 140 is a microprocessor-based asynchronous interface which enables up to four serial devices to be multiplexed into a single channel. Designed for use with the MTS 458 telemetry system the device firmware supports a number of commonly available sensors such as MicroFix, Syledis and Robertson Gyro as well as RTCM 104 (differential GPS) which enables it to provide high integrity communications for DGPS applications.

The system is also user-programmable by its built-in command language or for more advanced applications can be programmed in a high level language.

The new device enhances CMT's MTS 458 Marine Telemetry System which is already in wide use in the North Sea to aid the positioning of pipelaying and construction barge spreads. With the MTS 458 on the anchor handling tugs and a central controller on the barge the tugs are precisely positioned without the need for each to have a dedicated onboard survey package and operator. Each tug transmits raw positioning navigational data to the barge which is processed, transmitted back to the tugs and displayed. Previously, only one data stream could be telemetered. Now, with the new MSI 140 device, data from four sensors may be telemetered.

All the devices are part of the RADACS (Remote Access of Data & Control Systems) series developed by CMT to facilitate the establishment of flexible, high integrity radio data networks.

Reader's 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 Jun / 1 Dec of each year, and that by sending my article in today it will arrive at least six weeks before the next edition is due out.

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 BADGE CHALLENGE III

Answers To Big Badge Challenge III (BBC3)

Many replies were received in response to the Big Badge Challenge III in the September 1990 edition of MAD Magazine. Two of the best answers, from the XO of the new HMS CROMER and from "Tim and Phil" of REDE, are published below. Jack Worth, of the Ton Class Association, kindly replied but with similar details (drawn presumably from the same source) as Tony Silva's.

No disrespect is intended by publishing the most humorous reply to any such competition and it is hoped no offence will be taken, in keeping with the spirit of the magazine.



W.O. (MW) R. DEAN

With no expense spared by the Minewarfare Section of SMOPS HMS NELSON (Gunwharf), a dye has been made for this superb Minewarfare name tally. Made from black trafalite with a gold Minewarfare motif and white engraving, the badge has a brooch fitting on the rear.

If you would like to order some tallies for your MW Department on board, you may do so through:

Portsmouth Craft & Manufacturing IND.
Cosham,
Portsmouth,
Hants.
Tel: 0705 - 376633/4

The minimum order is £10 (5 name tallies) with cash, or £20 (10 name tallies) with invoice. The cost of each tally is £2.10

Dear Editor

THE RIGHT TO REPLY

In response to Big Badge Challenge III, which depicted the ship's badge of HMS CROMER, the following answer can be found in Adrian Vicary's book: "HMS CROMER - The Story of the Town's Namesake Ships in the Royal Navy".

The design of the badge is as follows: "On a field of blue, a trident erect, gold, surmounted by a boar passant, white, langued red."

The badge design was completed in January 1942. One finished example, cast in brass at H.M. Dockyard, Chatham was despatched to the ship later that year. It is known that the badge never reached the ship as she had left home waters in March 1942 but its ultimate fate is unknown.

The trident may often be found in ships' badges as a traditional maritime emblem of long standing.

The white boar forms the connecting link between the town of Cromer and the ship, being adapted from the crest from the arms of the Bacon family of Norfolk. The specific connection is Robert Bacon of Cromer who was a master mariner in the early years of the Fifteenth Century.

Yours sincerely,
TONY SILVA,
Lt RN
Executive Officer,
HMS CROMER
BFPO Ships

Dear Editor,

ROYAL ENGINEERS - TRUTH SLEUTHS

After a lot of groundwork incorporating the Richard III Society (his badge was a White Boar), Cromer Town Hall, etc., we looked closer to home, i.e. the RN MUSEUM in the Dockyard.

Their explanation, after research, is as follows:

In the 15th century there was a famous mariner, one Robert Bacon, who traded quite extensively with Iceland.

In 1405 in CROMER BAY he captured Prince James of Scotland later King James I of Scotland.

To commemorate this feat they incorporated the Boar into the ship's badge (Bacon/Boar gettit?).

Hard to believe but there it is straight from the horse's mouth.

Yours sincerely,
TIM and PHIL
Royal Engineers Diving Establishment
HMS NELSON (Gunwharf)
Portsmouth
PO1 3HH

EMBROIDERED NAME BADGES

For those persons interested in ordering Diving, Minewarfare, overalls or No. 8 embroidered badges, the service has been assumed by Roger Sawell of Rainbow's End, Shamrock Quay, William Street, Southampton, Hants, SO1 1QL. Details and prices are available on request, care of the above address, or Tel. 0703-223434.



BIG BADGE CHALLENGE IV

The badge illustrated above belongs to an existing RN Unit but was transferred from elsewhere a long while ago. Where? When? Why?

Please send your answers, background stories, dits and pics to: The Editor, MAD Magazine. The best replies will be published in the next Edition (1 Dec 91). Stories generated from BIG BADGE CHALLENGE III (HMS CROMER) are on Page 37 of this Edition.

Any badges suitable for inclusion in future challenges gratefully received (and returned!)