

CORRESPONDENCE

SIR,

Transfer of Fresh Water at Sea

I was interested to read the Admiralty comment on the transfer of fresh water at sea by H.M.S. *Gambia*, in the October issue of the *Journal*.

The Second Frigate Squadron of the Mediterranean Fleet frequently carried out this manœuvre at sea during 1953 and 1954. In all cases it was only found practical to transfer feed water using an auxiliary feed pump, as in this way only could enough pressure be obtained to fill the canvas hose sufficiently to prevent the leather beckets seriously restricting the flow of water.

Although it was appreciated that the need for a modified *Black Swan* Class frigate to transfer fresh water at sea should never occur, it was considered good training, and was the only practical way in which the Engine Room Department could become active in transfer at sea operations, as opportunities to transfer oil were extremely few and far between.

Token amounts of feed water were transferred to the ship's tanks of all ships of the squadron at some time or another, and no one ever complained of foul drinking water.

When told of these transfers, the Squadron Engineer Officer Flotillas, Mediterranean (Captain (E) W. F. B. Lane, D.S.C., R.N.) was only concerned that the transfer of water from aluminium painted tanks would meet with medical approval. In H.M.S. *Mermaid* a stock of a substance known as *Stabacol* was available, and this adequately disguised the taste of feed water.

The move to effect these transfers was made because the ships of the squadron had transferred everything from 'bodies' to the 'kitchen sink', and it was felt that some variety could be introduced. In fact, on one occasion between two ships at an inspection, men were pissed on one jackstay, feed water on another, and electric power 'by Guess or by God.'

(Sgd.) P. W. M. JACOBS,
Lieutenant-Commander (E) R.N.

SIR,

With reference to 'Notes from Sea', Vol. 7, No. 4, under the heading 'Fresh Water Transfer' the following personal experiences may prove of interest.

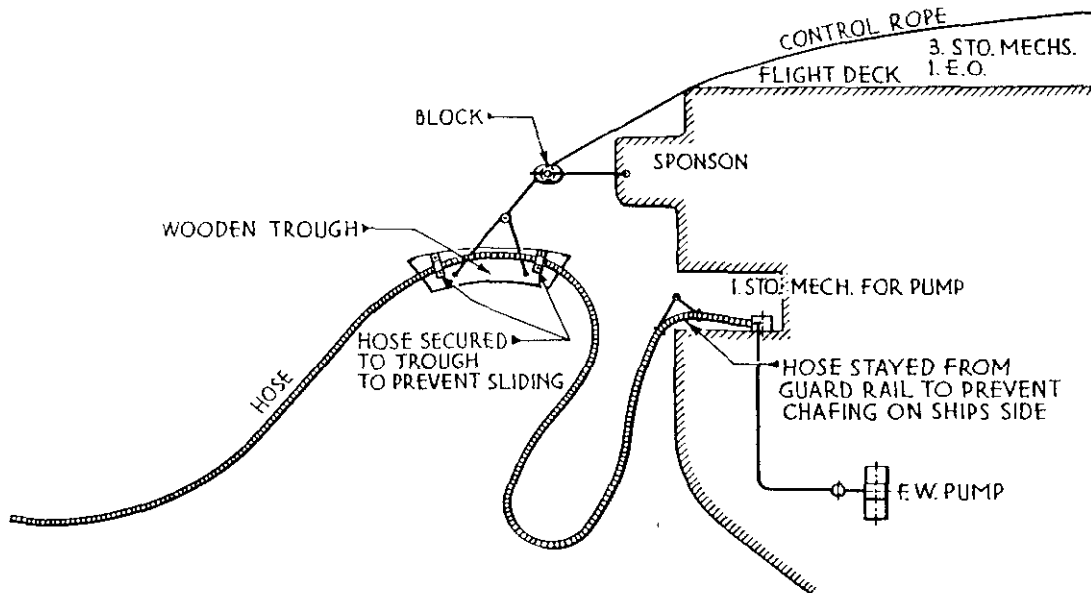
During the period 1941 to 1943 I served in H.M.S. *Indomitable* and, during the early part of that period was, amongst other duties, the 'Evaporator King'.

On the first occasion of fuelling a destroyer at sea it occurred to me, having previous knowledge of the limited distilling capacity of destroyers in those days, that the 'Chief' would no doubt be more than delighted to have a drop of fresh water while getting in his oil.

Accordingly I hailed from the flight deck and, after much gesticulation, managed to convey that I would send over some water if he wanted it.

I have never seen fresh water hoses provided and rigged so quickly as they were in that destroyer!

Meanwhile, a heaving line was passed, by a stoker, to which was attached a 3½ in canvas hose. The hose was hauled across by the destroyer, a large bight being held up at the supply end by a rope and three stokers on the Flight Deck. They heaved in and let out as necessary, to allow for the yaw between the ships.



The after fresh water pump was used and, in spite of several bad kinks in the hose, due to the inadequacy of the rig, no difficulty was experienced in topping up all their tanks before they had completed oiling.

The Commanding Officer, the Commander (E), and the Senior Engineer were all highly amused and somewhat impressed by this impromptu effort and I was given *carte blanche* to produce a proper rig which could be used in future.

This rig was simplicity itself and proved highly satisfactory on all subsequent occasions. During the whole of the time I served in *Indomitable* thereafter, it was accepted as a matter of course that a destroyer was given fresh water whenever we fuelled one at sea.

Owing to the lapse of time, I am afraid I cannot give factual details such as pump capacities, amounts transferred, and time taken, but these details could be obtained by reference to the ship's drawings and the engine room registers for that period. The paramount fact is that it was found possible to give destroyers all the fresh water they could stow in the time taken for fuelling.

A rough idea of our gear is shown in the diagram.

It would be interesting to know if *Indomitable* was the first ship to take on the watering of destroyers as a routine, as distinct from an emergency.

(Sgd.) J. A. E. WEEKS,
Lieutenant-Commander (E) R.N.

SIR,

Keeping a Clear Funnel

I was most interested to read in Vol. 7, No. 4 in 'Notes from Sea' under the heading 'Keeping a Clear Funnel—H.M.S. *Gambia*', that the adoption of extreme courses in smoke and ash abatement are not recommended.

Having recently served as Engineer Officer in our latest cruiser—H.M.S. *Superb*—I am prepared to say that extreme measures are absolutely essential in solving this problem. *Gambia* is fortunately not blessed with such modern equipment as economizers, the biggest storage vessels for ash and soot ever invented.

The internal shape and structure of *Superb's* funnels could not have been better arranged had they been deliberately designed as traps for the maximum quantity of carbonaceous matter.

The inference that *Gambia* has not attempted to comply with B.R.16, Article 213 in harbour may or may not be correct, but there are many to verify my attempts in *Superb*, under the most ideal conditions, at a time when tropical rig was being worn ! It is sufficient to say that such an experiment was never permitted again, nor was I in the least inclined to attempt it. The only method therefore was to change boiler rooms about 48 hours before leaving harbour and remove all loose soot from economizers and uptakes by hand on the shut down boiler. Truly a deplorable state of affairs in these modern times.

With regard to the other matter, of smoke making when manœuvring on entering or leaving harbour, the main trouble in *Superb* was the time required for the fans to build up the extra air pressure to cope with the rapid flashing of additional sprayers. Experiments with methods to compete with the problem led finally to only one workable answer—and once more an extreme course was required ! On receipt of the order 'Obey Telegraphs' when leaving harbour, or just prior to arriving at a harbour entrance, the order was passed to the boiler rooms—'Assume Manœuvring Conditions'—At this order the air pressure was increased to 8 in and no further alteration to fan control was carried out, except in an emergency until the order 'Revert to normal' was passed. This air pressure had been obtained by trial.

This extreme course resulted in a near perfect solution and never ceased to impress the bridge. Additional sprayers being flashed could hardly be noticed unless a very careful watch was kept on the funnel by an expert.

To convert the Chief Stokers to the success of this system they were all taken on to the bridge and the telegraphs moved from 100 r.p.m. Ahead straight through to 100 r.p.m. Astern. During this manœuvring no movement was permitted on the fan control valve. The results staggered even those stalwarts who are known for their dislike of extreme courses !

No, the abatement of smoke and ash in a modern ship is one problem which following the regulations does not solve.

(Sgd.) R. H. P. ELVIN,
Commander (E) R.N.

SIR,

With reference to 'Keeping a Clear Funnel' (Notes from Sea, Vol. 7, No. 4) I would suggest that much can be done by better co-operation between the Engine Room and Boiler Room.

At least one *Town* class cruiser, which always made smoke when manœuvring ('and there's nothing you can do about it, old boy'), was cured of this distressing habit by impressing on the throttle watchkeepers that they were to follow the Chief Stoker and not cause him to chase them.

The Chief Stokers knew of these instructions and so did not 'panic' when there was a change of speed, but carried out their drill correctly and unhurriedly.

If this caused any lag in the response of the propellers to the orders from the bridge, which I doubt, there was no comment on that score, but immediate appreciation of a clear funnel.

Everyone was much happier.

(Sgd.) K. F. MARSHALL,
Commander (E) R.N.

SIR,

Water-Washing of Boilers

The notes on water-washing in Vol. 7, No. 4, page 428, have been read with considerable interest, as we think we have found the solution to some of the difficulties met in the *Indefatigable*.

Notes (a) and (b) do not appear to apply to the 'Melesco' type superheaters fitted in destroyers. However, we have found that 5 tons of water at about 130° F. is ample for a thorough clean of the funnel, the uptakes and the boiler, though presumably rather more would be required where air preheaters or economizers are involved. Overalls, bathing shorts and gym shoes, without any protective clothing other than rubber gloves and goggles, is the most popular rig for the ratings employed on cleaning.

The first time a boiler was water-washed we had the same difficulty as *Indefatigable* due to sludge and water finding their way into the bilge (Note (d)). This has since been overcome by leaving all the side casings securely in position while the main washing is carried out from the funnel and uptakes down. The lances are pushed down through the generator tube nests, working down to the water drums from the uptake space. The lances are then transferred to the furnace and passed up through the fire-row tubes. Finally, when as much cleaning as possible has been done by these methods, the rear superheater casing doors and then the side doors above the water drums are removed, and any soot or sludge remaining is washed into the furnace. Thus practically no water, and no sludge at all, finds its way into the bilges.

Considerable thought was given to sealing the brickwork to prevent damage and at the same time avoid unnecessary labour. Pattern No. N.12865 bitumen could not be obtained and bitumastic Pattern No. 12304 was used instead. The latter was found to be too thin to form an effective seal by itself. However, we have now found that, by first sealing the surfaces with fine crushed brick and fireclay mixed in equal proportions, and allowing this to dry for about two hours, the application of one coat of this thin type of bitumastic is entirely satisfactory. This method should preferably be employed the day after shutting down a boiler, to take advantage of the residual heat in the brickwork for drying purposes. The time required is considerably less than for two coats of bitumastic and the application of the crushed brick and fireclay appears to increase the life of the brickwork considerably.

Mention is made in E.-in-C.'s comments of two new sealing compounds and it would be interesting to have details, both of their characteristics and their cost, compared with the method described above. Information was obtained from Messrs. British Paints Ltd., Newcastle-on-Tyne, about a method employing two compounds, the first 'Lactoid' applied as an adhesive compound for the second 'Resistau', a mixture of asbestos and bitumen, which can be brushed or trowelled over the surface to provide an impervious seal. The cost, however, appears to be prohibitive—about £5 per boiler—and compares unfavourably with the method we have used. Both boilers have now been water-washed twice and although he was somewhat suspicious before we washed the first time, my C.E.R.A. boilermaker is now an enthusiast for this excellent and very quick method of cleaning.

(Sgd.) M. B. F. RANKEN.

Lieutenant-Commander (E) R.N.

E. in C. Comment

The use of protective clothing is considered essential, to prevent skin infections. Trials of new types of plastic clothing, including goggles, are being arranged.

Trials are also in progress to find the best type of sealing compound. Bitumastic is not wholly waterproof, and the use of compounds containing inorganic salts is undesirable because of the risk of attack on brickwork at high temperatures. The ideal would be an organic compound which would burn off and leave no residue.

SIR,

When attempting to find a cheap and simple means of proofing boiler brickwork prior to water-washing, it was found in *Perseus* that, after applying one coat of bitumastic solution, any cracks remaining could be covered by sticking sheets of paper to the solution. A final coating proofed the paper.

No trouble was experienced in burning off this 'wallpaper'.

It was felt, however, that a solution between bitumastic—which is too thin, and bitumen—which is too cumbersome, would be more effective.

As *Perseus* had plastic lagging on her water drums, before attempting to water wash, a serious attempt was made to prevent the soot and water flowing over the drums and into the bilge.

Light plate doors approximately 12 inches deep were made by ship's staff, and fitted to the lower casings, rubber being used for jointing and cotters for securing. These proved most effective, though two-inch drains were cut and fitted with hoses to the furnace after the first wash, as the existing drains choked and could not cope with the flow. These plates were removed in the final stages of the clean, to give access to the tube roots.

It was also found that it was not necessary to use every cotter to secure the plates, and the time taken to fit and remove them was amply repaid by the saving in time of bilge cleaning afterwards.

(Sgd.) J. S. D. TIRARD,
Lieutenant-Commander (E) R.N.

SIR,

Journal of Naval Engineering

As an engineer officer envisaging retirement within the next few years, may I suggest that, unless it has already been done, consideration should be given to including retired engineer officers among the recipients of the *Journal*.

If this could be done, it is thought that :-

(a) The usefulness of retired engineer officers in any future emergency would be increased by their being kept abreast of trends and advances in naval engineering ;

and

(b) it would give force to the idea that membership of the (E) branch of the Navy is indissoluble, as the retention of naval rank in retirement seems to imply, and that this is, at least, the equivalent of the various civilian engineering institutions, as regards keeping its members well informed, regardless of whether they are 'practising' or not.

Should cost, or the requirements of security be obstacles to adopting such a scheme, would it not be possible to produce a special 'expurgated' edition for issue to retired officers on a system of repayment ?

(Sgd.) C. R. HAVERGAL,
Commander (E) R.N.

Editor's Note : This matter is receiving attention, but there are many difficulties. It would not be possible to produce an expurgated edition for retired officers, but it is not considered that the present 'restricted' nature of the publication would present great difficulty. Were it possible to issue *Journals* to retired officers, the cost would be about 5/- per copy. More views on this subject would be appreciated.

SIR,

The purpose of the *Journal* is presumably to keep up to date, and in the picture, engineer officers who are away from the nerve centre of Head Office. I rather think, however, that its general lay-out and contents are not sufficiently well presented to ensure that it fulfills this function.

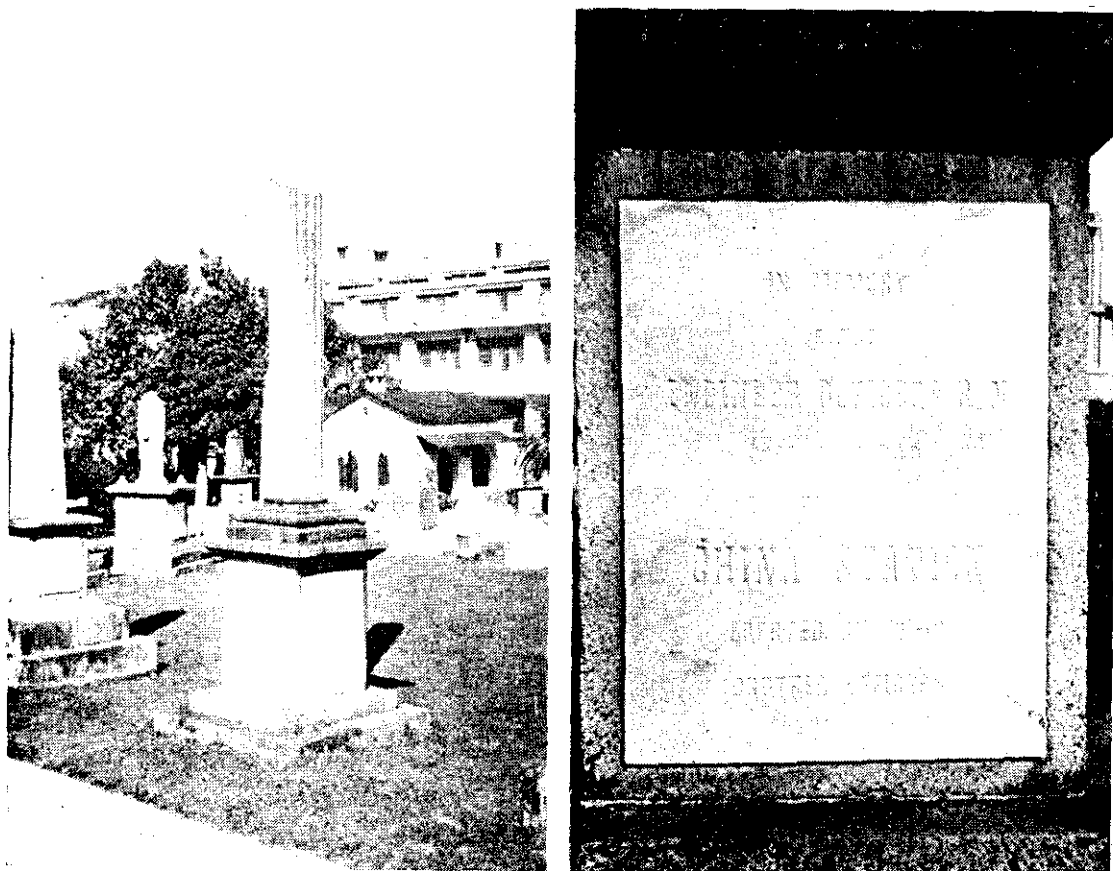
Having now been away from Head Office in various isolated jobs since 1947, I welcome the *Journal*, but too often I am defeated in my attempts to read the articles, either by the author's assumptions that we are all well up to date with Head Office progress, or by bad lay-out, which makes it difficult fully to follow the author's argument.

This can well be illustrated by two examples from Vol. 7, No. 4. Reading Mr. Redwood's article on Gas Turbines all goes well until half way down p. 378 when one is invited to study Fig. 3 and later Fig. 4 which are on the back of p. 380. Worse is to come on p. 379 when references are made to Fig. 5 which is on p. 382. After juggling the pages to and fro for some time, in order to master an unfamiliar subject, one is inclined to give up the struggle and look for something easier. Turning to p. 387 for a refresher course in Ordnance Engineering all goes well until on p. 391 we learn that 'the results are plotted on the familiar Nyquist diagram'. Familiar to whom? It is bland assumptions of this kind which dissuade the average engineer officer from grappling with the more learned articles in the *Journal*. If it were not for its 'restricted' classification, it would probably end up in the waste paper basket.

I have, in my little Scottish empire, some thirty-odd engineer officers, few of whom, so far as I know, have ever even been inside the sacred buildings of Bath, and who are naturally inclined to view its activities with suspicion. The majority of these officers, I find, open the *Journal* at 'Notes from Sea' which they find usually of direct interest to their jobs and related to their experience. They glance at the correspondence to see if any of their friends are in print; they then glance briefly at the pictures (though even these can be confusing when they show *Illustrious* with two funnels (p. 419) and the *Journal* then joins the dusty heap of former issues.

Could we have a simpler approach to the production of the *Journal* so that it may be more palatable to the average engineer officers for whom we presume it is intended ?

(Sgd.) T. B. YATES,
Commander (E) R.N.
now Captain (E) R.N.



THE MONUMENT

SIR,

Happy Valley Cemetery, Hongkong

After recently re-reading those delightful extracts from the autobiography of Matthew McIntyre which you printed a few years ago, I felt impelled to seek out the Memorial to the 42 Queen's Hard Bargains who died on the China Station in the middle of the last century.

As my snapshots show, the Monument is scarcely a thing of beauty, but it is in a good state of preservation. The tablets bear the names of 48 Engineers who died during the years 1857 to 1868 (an additional six in the last year), mostly between the ages of 22 and 34. Inscriptions on nearby memorials to other service men suggest that it was typhoid, not drink, that did for the majority. Matthew himself must have been a man of iron.

While one is admiring the foresight and ability of the commercial giants who founded this Colony, one should perhaps spare a thought for such men as these, whose unrewarded sacrifices played such an important part.

(Sgd.) H. F. WAIGHT.
Commander (E) R.N.

SIR,

Testing of Modern Naval Ordnance

Lt. (E) Vivian's article in Vol. 7, No. 4, may have given some readers visions of the Ordnance World of the future as a collection of wizards, surrounded at their magic by flashing lights and waving green traces.

The article, as the author did well to mention, was written from the experience of others, members, it is assumed, of the Research Department at Elswick, and I must emphasize this background to the article.

A research department, if it is going to produce anything of value, must have means to measure. Consequently, one would expect such a department to be greatly concerned with measuring instruments and methods. The fleet is not a research department but is concerned in doing the best that it can with what it can get.

In general, naval ordnance is concerned with positional control, and our main interest lies in measuring misalignment and assessing stability. The pen recorder in service with the Fleet has been found to have a wide range of application, both to fire control systems and mountings, and the permanent records produced by this instrument have been found to indicate to the practised reader more than was originally envisaged.

Although it is realized that there is, at the moment, a certain lack of ability to measure some quantities, e.g. I-Pot servo misalignments, and that there does exist a need for some form of predictor testing, it is considered there should be a diminishing demand by the Fleet for more instrumentation and specialized training to overcome the critical nature of tuning to an optimum. This problem is, it is believed, gradually being solved by the designers, using improved techniques and the experience gained by the specialist teams and the Fleet.

It would appear that the article advocates that the owner of a motor car should drive around with his garage in the boot. Our garages are surely the Dockyards, and these may be, and are, more extensively equipped to deal with those problems which the Fleet is unable to solve.

(Sgd.) M. R. HOCKEN,
Lieutenant (E) R.N.
