

FIG. 1. THE OFFICERS' CLUB SWIMMING POOL IN THE FINAL STAGES OF COMPLETION. THE POOL WAS OPENED IN APRIL, 1960, BY ADMIRAL SIR GERALD GLADSTONE, G.B.E., K.C.B., THE COMMANDER-IN-CHIEF.

## PLUMBING IN H.M.S. TERROR

BY

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The writing of this article was prompted by 'Plumbing in H.M.S. *Lochinvar*' by Commander B. N. Hocken (Vol. 10, No. 4), and by the thought that, because of the shortage of material, the future of this interesting *Journal* could be in doubt.

The engineering commitments in *Terror* are numerous, unusual and far from monotonous. The Engineer Officer is responsible to the Captain of H.M.S. *Terror* for the maintenance of machinery and equipment ashore and in the Reserve Fleet. The Captain, on the Staff of the Commander-in-Chief, Far East Station, as the Maintenance Captain, is also the Senior Officer Reserve Fleet, Singapore. Three territories exist: H.M.S. *Terror* (Base), the Reserve Fleet, and Singapore Communications (W/T Stations).

### H.M.S. 'TERROR' (BASE)

The 'hotel services' are considerable. The main galley, which can cater for two thousand junior ratings, is due for modernization and is inadequate when numerous ships are accommodated and victualled ashore. Apart from diesel fired ranges, the galley is mainly steam driven and supplied from two coal fired vertical boilers. Situated on the galley premises, these belch soot and smoke into the food preparing rooms and the adjoining accommodation blocks. Sea-going engineers are not alone in their problems of soot and smoke control. Inferior quality local coal, non-English speaking boiler watchkeepers and the predominance of white uniforms accentuate the problem ashore. There is, how-

ever, no telegraph to remind us to ' Stop Making Smoke '. Three smaller galleys are also maintained—the wardroom, C.P.O.s' and the dockside accommodation, an overflow for ships accommodated.

*Terror* boasts an excellent swimming pool and a smaller one is also provided at Admiralty House, the Commander-in-Chief's residence. A third pool, recently constructed through the generosity of Lord Nuffield, is now available at the R.N. Officers' Club. These pools require regular attention, the filtration and chlorination being a study in themselves. B.R. 820/43—The Provision of Safe Water for Swimming Pools, etc., is a useful source of information. The B.R. does not, however, give an explanation for the water changing from a clear crystal blue to a murky green overnight. This has happened on very few occasions but, as the main pool is considered to be one of *Terror's* most attractive amenities, the situation causes panic in the Department.

*Terror* contains the usual domestic refrigerators, water coolers and air-conditioning units in considerable numbers. Unlike at sea, ice cold water is taken for granted and, apart from use at ' Up Spirits ', consumption is negligible. Consumption of Tiger Beer, however, is a different story. An ice making plant is provided with a daily output of twenty blocks. As the plant is situated next door to the potato locker it is unnecessary to mention the method used for testing the brine density.

All fire-fighting gear is maintained by the Department. No trailer pumps or static water tanks are provided and complete reliance is, therefore, placed in the dockyard water main. The Dockyard Fire Brigade is, however, a model of speed and efficiency—four minutes being the average time from their receipt of the alarm to the issue of water from their hoses on arrival in *Terror*. The Scheme of Complement allowed for the Base is one E.R.A., one L.M.E. and seven M.E.s, one of whom is permanently employed by the Barrackmaster in the Damage Control, Fire Fighting and Paint Schools.

#### THE RESERVE FLEET

A lieutenant-commander (X), as Deputy Senior Officer Reserve Fleet, is in charge of the Reserve Fleet which is administered from two maintenance repair craft—M.R.C.s 1100 and 1119. H.M.S. *Medway* (ex-M.R.C. 1110 from Hong Kong) is also attached to the Reserve Fleet Base but is used by, and for, the 10th Submarine Squadron. Of some 500 tons displacement, the main features of these craft are the large and well equipped workshops, office accommodation and Diesel generators. An electronics maintenance room has recently been constructed for the maintenance of equipment in coastal minesweepers.

Electrical power, the main consideration in the Base, is provided by a selection from the nine 50 kW Dorman 6 DL Diesel generators available in the three M.R.C.s.

Watchkeeping on these machines is on a twenty-four-hour basis employing ratings from the Reserve Fleet and the 10th S/M. Squadron. Because of the continuous use of these machines, with top overhauls on two or three machines at intervals of nine weeks, maintenance is a real problem. As power is supplied to submarines, this problem is even more acute during submarine self-maintenance periods when additional generators are required. A request has been submitted for shore power which, if approved, will not only lighten the maintenance burden, but will also release valuable ratings for more objective duties.

Three *Coniston* Class Type I (Mirrlees) coastal minesweepers have recently joined the Reserve Fleet with a further three to follow. The first two, *Santon* and *Thankerton*, having arrived under their own power, require preservation and refitting before they can be finally accepted into reserve. The remainder will have been towed and will be in a state of preservation on arrival. Fortunately, the vessels to date have arrived in very good condition, the state of the

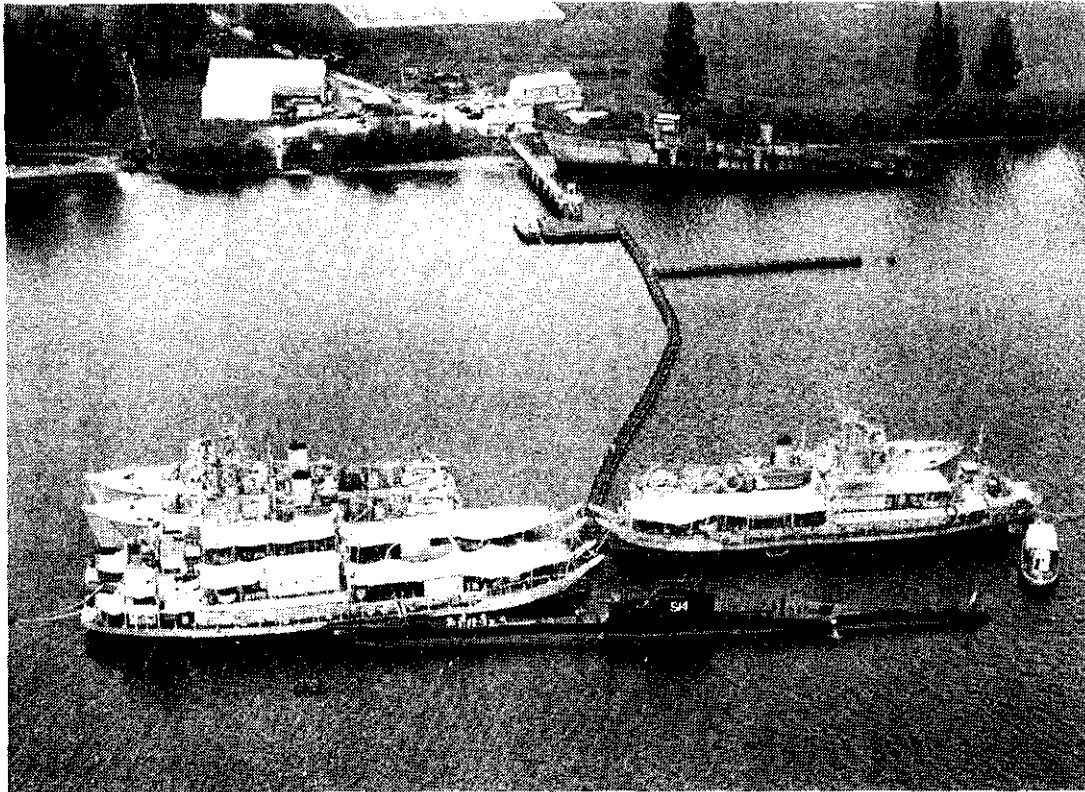


Fig. 4--THE RESERVE FLEET BASE SHOWING THE WALK-ASHORE AND KENOWA, THE DERELICT JAPANESE DESTROYER USED FOR DAMAGE CONTROL AND FIRE-FIGHTING INSTRUCTION. H.M.S. TACTICIAN IS SHOWN AT THE MOORING WHICH CAN ACCOMMODATE FOUR SUBMARINES

books, records and documentation being commendable. Reserve Maintenance Schedules had not been overlooked and were found in the Ship's Box. The routines were implemented without delay and were a boon to the maintenance team who had had little previous experience with craft of this nature.

Numerous small craft are either attached to, or maintained by, the Reserve Fleet Base but they are far from being of a 'reserved' nature. Two 45-ft M.F.V.s, two 52½-ft H.L.D.s, three barges, including the Commander-in-Chief's, one 75-ft M.F.V. used by the Bomb and Mine Disposal Unit, one 62½-ft M.F.V., used by the Port Clearance Diving Officer and two 45-ft P.L.D.s are all very much going concerns and keep the Department well occupied.

Planned maintenance, which was started a year or so ago, has paid handsome dividends, the number of actual breakdowns being negligible. Maintenance schedules were compiled from Forms S.1195, makers' handbooks, and experience. Some of the power boats are fitted with Foden FD.6 engines with, of course, Megator circulating and bilge pumps, the sad history of which is well known. However, trouble is avoided by shipping a refitted spare every 200 hours irrespective of apparent efficiency. Type 'N' fuel pumps have also given some trouble with broken plunger springs. Replacement with modified springs appears to have cured the defect.

Some excitement was caused on one occasion when the C.-in-C.'s barge, powered by twin Fodens, returned to the Base from an official trip. As the barge approached the jetty, a large smouldering hole was seen in the glistening green enamel above the exhaust outlet. Investigation revealed bad design of the cooling water pipe from the gearbox oil cooler which should have, but didn't, supply the exhaust cooling jacket on the boat's side. A more efficient driver would have prevented the damage from reaching such serious proportions.

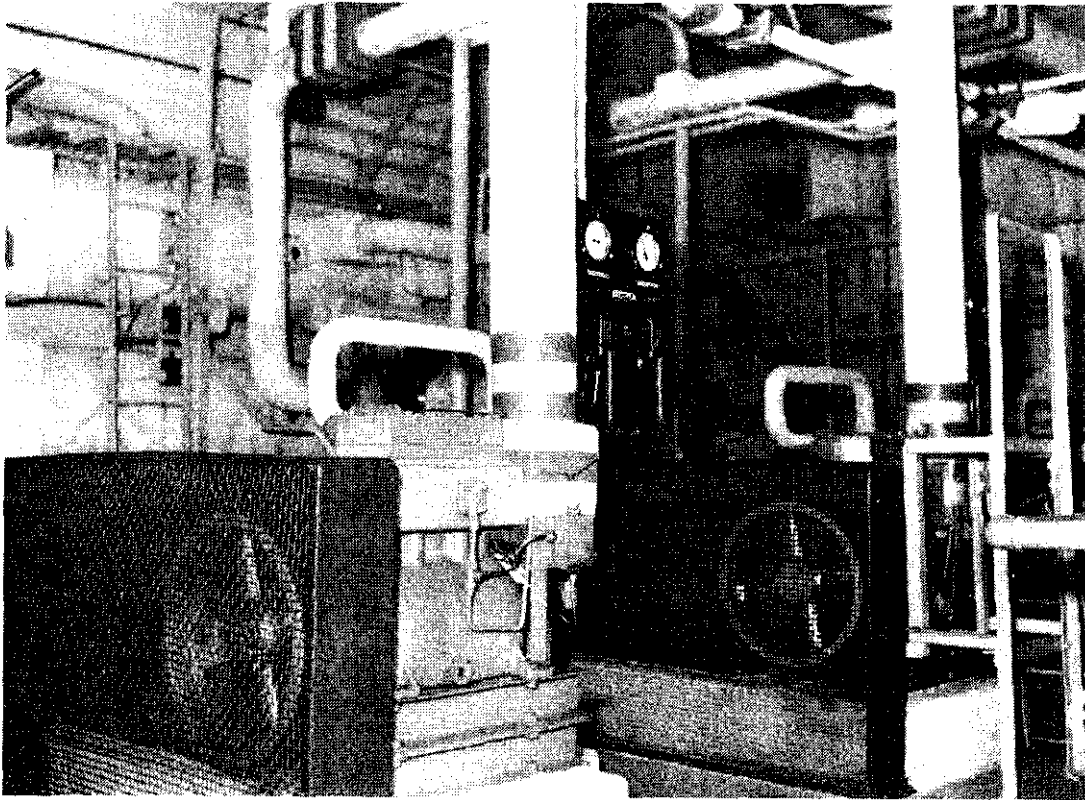


FIG. 3 KRANJI W/T STATION AIR CONDITIONING PLANT SHOWING THE THREE COMPRESSORS

At all times and during Fleet concentrations in particular, there is a great demand for boats for libertymen, exercises, banyan parties, etc. They are also required by survey vessels for inshore work. In consequence, the engines come under the hands of a varied assortment of drivers and, considering the rugged existence they lead, they are more reliable than one might expect.

The Scheme of Complement for the maintenance of ships and craft in reserve allows for one C.E.R.A. (a very busy man), 4 E.R.A.s, one P.O.M.E., four L.M.E.s and nine M.E.s, one of whom is the Shipwright's Mate. One P.O.M.E. and one M.E. are also allowed for M.F.V. 1044, the vessel used by the B. and M.D.U. Because of the age of its main engine (Lister 4 EPVMG) and auxiliaries (one Lister CE 2 and one Gardner 2 L2), this vessel receives more than its share of maintenance. On one occasion, when the vessel was operating in the Port Swettenham area, the main engine was badly damaged. At that time no engine-room crew was allowed and the frequent changes necessary to man the vessel were most unsatisfactory. The L.M.E. in charge was injured on board and it was necessary to send him to a local hospital. The M.E. then took charge and, in his ignorance, failed to prime the lubricating scavenge pump on starting the engine, with consequent failure of all the bearings. This occurrence is not uncommon with this type of engine as explained in B.R. 1986, Article 0302 (c). A copy of this Article is, and always has been, displayed at the engine starting position. Engine repairs were undertaken locally and were of such poor standard that the engine required a complete refit on arrival in Singapore.

#### SINGAPORE COMMUNICATIONS (W/T STATIONS)

Two W/T stations—Kranji and Suara—are each provided with one E.R.A. to maintain air-conditioning plants and emergency Diesel generators. At

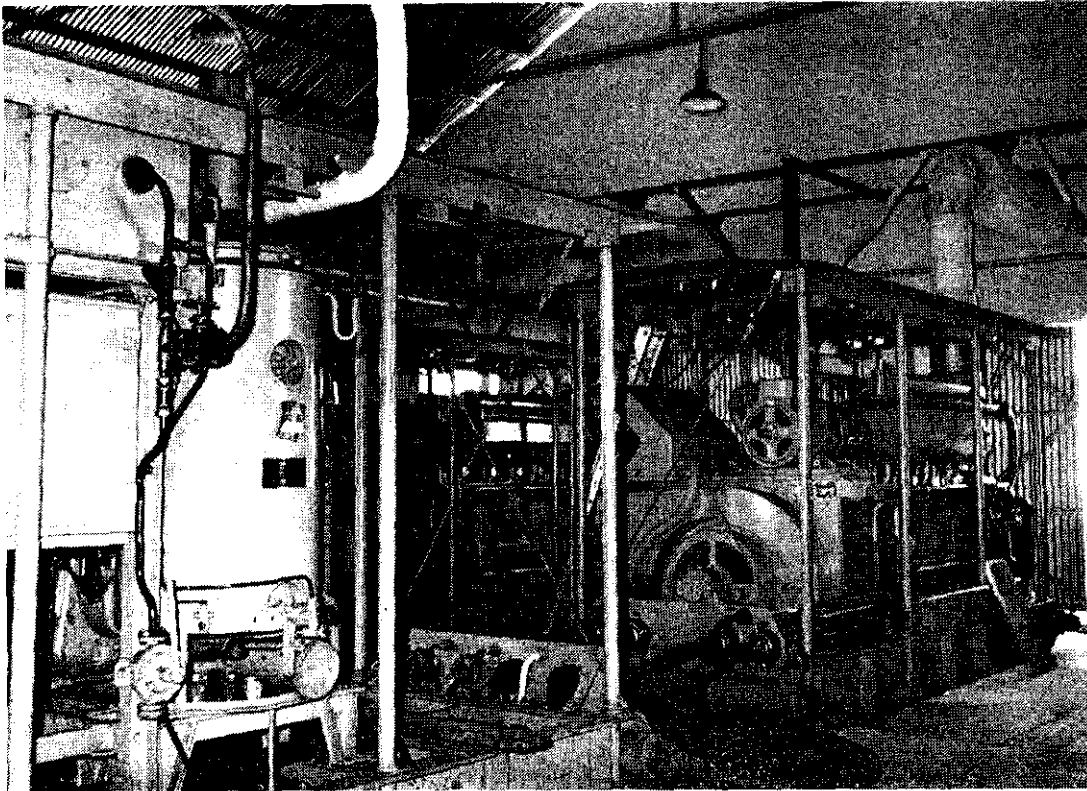


FIG. 2—SUARA W/T STATION SHOWING ONE OF THE ENGLISH ELECTRIC 4 SRK SKID-MOUNTED DIESEL GENERATORS. THE LIGHTING UP BOILER AND THE VARIOUS HOSES CAN BE CLEARLY SEEN

Kranji, ten miles from *Terror*, the Officer-in-Charge and his officers live on the Station. Accommodation for ratings is also provided, with galleys and associated machinery, refrigerators and the usual services. Suara W/T Station, across the road from *Terror*, differs in that no accommodation exists, the machinery, however, is very similar.

At Kranji, Asian watchkeepers are employed full time on the air-conditioning plant of 500,000 BTU/hr which supplies the transmitting and receiving rooms. Failure of the plant would make the building untenable in a very short space of time. Defects are, therefore, dealt with promptly.

Four Paxman 12 YHA Diesels with a total output of 600 kVA are available as emergency generators. As interruptions in the power supply are unacceptable, these machines are always at immediate notice and manned accordingly. The installation of these machines was completed this year. In 1958, when only two sets were available, they were temporarily housed in a building previously used as the fire engine shed. Initial trials, carried out under these temporary arrangements, were the cause of much concern as the machines overheated and cut out on the automatic watchkeeper when the circulating water temperature reached 180 degrees F. Efforts to improve the air supply to the building, for engine aspiration and the air cooled radiator, watched by a worried Paxman representative from the United Kingdom, failed to overcome the problem, and the machines were reluctantly derated to ninety per cent of their designed output. It was, therefore, with considerable relief, and with all eyes on the thermometer in the circulating water system, that trials carried out in the new generator station were entirely satisfactory.

Suara W/T Station is considerably larger than Kranji, with a corresponding increase in the capacity of the air-conditioning plant and Diesel generators.

The A.C.P., with an output of  $2\frac{1}{2}$  million BTU/hr supplies air of the correct humidity and temperature essential to the efficient operation of the W/T rooms.

The main room itself is a veritable mass of complicated electronic equipment which is a constant source of fascination to the Author, taught as he was, to suspect anything not driven by steam.

Three English Electric 4 SRK Diesels, with an output of 900 kVA, are available as standby generators. These have recently been installed and, unlike Kranji with A.S.R. 2 engines, these are, to the best of the Author's knowledge, non-standard engines. The generators are interesting in that they are mounted on portable skids in two distinct sections. One section contains the actual Diesel and dynamo while the other carries an air compressor, fuel, lubricating oil and water, the radiator, various electrical switchgear and, of all things in Singapore, a Swirlyflow boiler complete with galley type sprayer to provide hot water for starting. The two sections are connected by hoses to provide the various services.

#### PERSONNEL

The Engine Room Department work a normal day-work routine with a mid-week 'make and mend' and two weeks' station leave annually. The Scheme of Complement is generally adequate when the incidence of sickness is low. Ratings with tropical skin diseases who are not allowed contact with oil or dirt are the frequent cause of the Author having several E.O.'s writers. Complications also arise when vessels of the Reserve Fleet are, as is often the case, in dockyard hands. The consequent division of labour, the requirement for transport and the supervision of junior ratings and Asians by the single P.O.M.E. have all to be considered.

Asian watchkeepers are employed on the majority of shore based equipment. They are reliable and generally display more interest than naval ratings in work of a monotonous and routine nature. Their greatest asset is, however, the fact that they are always available for the job they are intended to do. Naval ratings, on the other hand, are required for such things as ceremonial guards, riot squads and an assortment of other duties. The popular impression of a shore establishment is that it is teeming with hands. *Terror* is, in fact, hard pressed to muster a guard of respectable proportions and the sudden disappearance of ninety per cent of the M.E.s is taken as a matter of course.

A variety of jobs come the way of the Engine Room Department. Four inshore minesweepers have been transferred to the Royal Malayan Navy in the last two years. These arrived in R.F.A.s and required much attention before they were ready for transfer. Defect lists had to be compiled, harbour and sea trials carried out, trials reports made and every single item of spare gear mustered in the presence of the future owners before they were finally accepted.

Training of junior ratings for advancement has always been a problem. M.E.s accompanied by their wives and families, are loath to spend several weeks at sea to obtain A.W.K.s. Single ratings, on the other hand, are usually only too pleased to have the opportunity of a change of scenery, especially if the trip includes a visit to Hong Kong or Australia.

#### CONCLUSION

A plumber's life ashore is far from dull and he can expect to be called upon to undertake a variety of unusual jobs. Whether it be, as once was the case, studying the mechanics of a lighthouse and planning to operate the six in the Singapore area with M.E.s as lighthouse keepers, studying the organization of a large civilian petrol filling station and planning to take over, or taking charge of a riot squad, toting a forty-five which was more of a menace to the riot squad than to possible rioters. It is all in a day's work.

The signal convening a Fleet Board for engine-room ratings invariably includes a requirement for 'one engineer lieutenant from *Terror*'. Considerable experience is, therefore, gained in this field sometimes with amusing results. On one occasion a candidate informed the Board that his engineer didn't believe in boiler compound and never used the stuff! The President's reaction can be quite alarming on such occasions, especially if he happens to be the S.E.O. of the ship in question. All *Terror* officers are in the Officer of the Day's union, another job packed with excitement, especially on pay week ends with the Fleet in. Except for rum issues, this duty does not interfere with the day's work but usually entails a session at the Commander's table the following morning and the Captain's table for more serious cases.

It would be unfair to conclude this article without mention of the assistance rendered by the overworked Department of the Chief Engineer of the Dockyard. Because of limited complement and the lack of some equipment, it is necessary in some cases to refer major defects to the C.E. Department. The refrigerator shop in the dockyard is a hive of industry looking after all the refrigerators and air-conditioners ashore, which includes shore establishments and married quarters, and afloat. Likewise, the I.C.E. shop is hard pressed to meet all the commitments from ships, submarines and the innumerable craft attached to the Port Auxiliary Service. Mention of only two small departments has been made, but with the addition of C.M.S.s, both operational and reserve, and submarines to the Far East Station, it is the Author's humble opinion that considerable additions to the dockyard's services will have to be made if an acceptable standard of efficiency is to be maintained.

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## THE NAVY CLOSES SHEERNESS DOCKYARD AFTER 300 YEARS

The Royal Navy officially left Sheerness at sunset on 31st March and a ceremony at H.M. Dockyard, Sheerness, on that date ended the Service's association with the Isle of Sheppey—a link which has existed for more than 300 years.

After the ceremonial closing down Sheerness Dockyard passed to the controlled Building Developments Ltd., who have purchased the establishment for use as a trading estate.

A guard from the Royal Naval Barracks, Chatham, and the band from the Royal Marines School of Music, Deal, was paraded for the last time at Sheerness while the Union Jack was lowered during the Sunset ceremony. The last Captain-in-Charge of Sheerness Dockyard (Captain P. M. B. Chavasse, D.S.C. and Bar, A.D.C., R.N.) gave a short address before relinquishing the command.

This simple, short ceremony ended the naval history of the Dockyard. It was in 1665 that an H.M. Dockyard was established as an adjunct to Chatham although for many years before Sheerness had been used by the Navy for the 'careening' of ships.

Samuel Pepys, the then Secretary to the Navy, wrote in his Diary in 1665 : 'To Sheerness where we walked up and down, laying out the ground to be taken on for a Yard, to lay provision for cleaning and repairing ships and a most proper place it is for the purpose.'

From then on the men of Sheerness Dockyard helped to play their part in naval history. From 1667, when the first boat was completed there, the Yard has built a variety of H.M. ships ranging from brigantines used to suppress the slave trade to 1,500-ton cruisers, and has refitted frigates, submarines and minesweepers