

H.M.S. HARTLAND POINT

BY

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This article has been written from the marine engineering aspect (old style—pre A.F.O. 650/61—type of M.E.). Officers of other specializations have not been directly associated with it so the Author is entirely responsible for any opinions with which there may not be agreement.

H.M.S. *Hartland Point* is the prototype modernized Escort Maintenance Ship. Mr. A. H. Monnington wrote an article in the *Journal of Naval Engineering*, Vol. 9, No. 4, which described the reasons for modernization and details of engineering maintenance and repair arrangements to be fitted. Generally speaking the final arrangements conformed with the intentions described, although as modernization progressed certain relatively minor alterations were made. The ship has been in service for a year on the Far East Station in her new form, at the time of writing, and it is thought that a description of the ship and her duties may be of interest both to the 'customers' (the escorts) and other 'floating garages' (the other escort maintenance ships now in hand for modernization).

GENERAL

H.M.S. *Hartland Point* was built in Canada by the Burrard Dry Dock Co., Vancouver Island. The basic design was that of a 'Victory' ship—or modified 'Liberty' ship. *Jane's Fighting Ships* of 1945 lists some 30 R.N. ships based on hulls of similar type, which included hull, escort, landing ship, landing craft, aircraft and aircraft component maintenance, repair or depot ships. Their names, in the majority of instances, were those of British coastal features: Head, Point, Firth, Cove, Ness, Bill, Cape, Sound and Mull. They are about 440 feet long and a little under 60 feet beam. Most were propelled by a steam reciprocating engine of only 2,500 i.h.p. driving a single shaft. A few had a steam turbine of the same power; I understand that this was not too successful. The *Fort* Class R.F.A.s also are 'Victory' ships.

H.M.S. *Hartland Point* was fitted out as a landing ship maintenance ship, first commissioning in July, 1945. After a short spell in the Far East she joined the Reserve Fleet in the Clyde in 1946 where she remained until taken in hand for modernization at Chatham ten years later.

FUNCTION

What is an escort maintenance ship? This can be partly answered by saying what she is NOT.

She is not a depot ship because there is no provision for administering the escorts, holding large quantities of spare gear or stores for issue to them, spare accommodation or personnel as 'spare crew'.

She is not a repair ship inasmuch as few facilities have been fitted to undertake major manufacturing tasks or permanent large repairs.

The escort maintenance ship function is to make destroyers and frigates independent of dockyard assistance between refit periods, except for docking and emergency repairs.

To achieve this function, *Hartland Point* provides berths alongside, overside services (electric power, steam, water, etc.) so that the escorts can shut down completely, skilled and semi-skilled manpower to assist escorts' staffs together

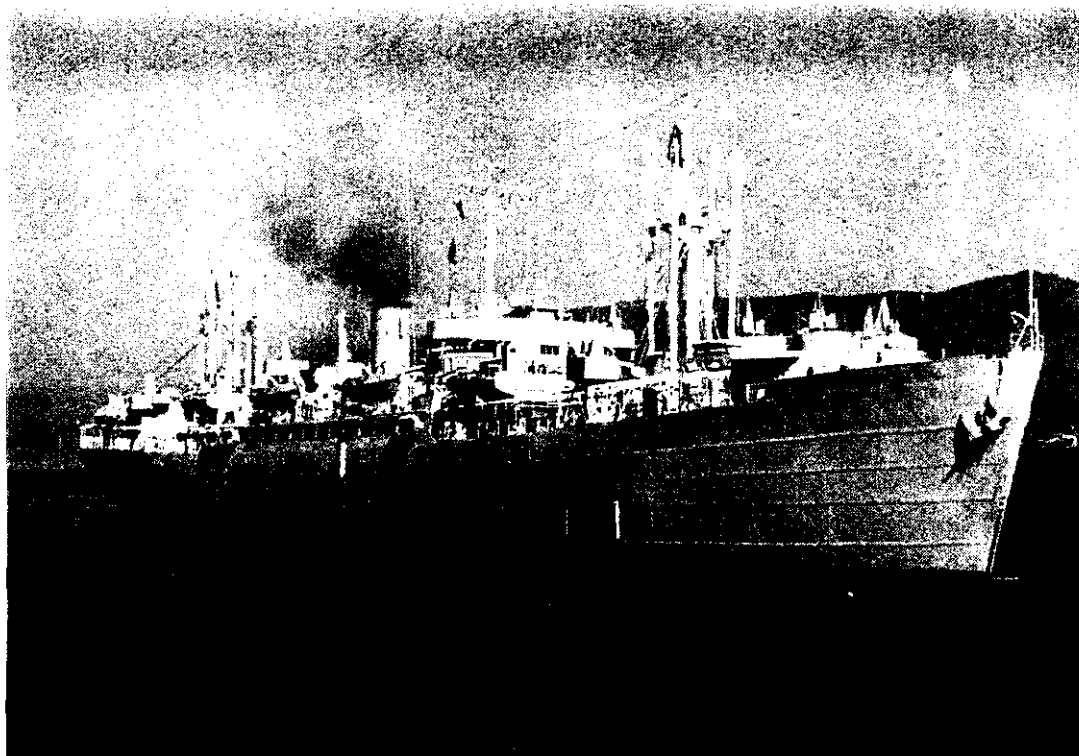


FIG. 1—'HARTLAND POINT' BEFORE MODIFICATION

with workshop and testing facilities to deal with maintenance routines and the defects expected to arise in normal circumstances. Naval stores and spare gear are held so that defects can be rectified.

MAIN MACHINERY

The original main engine is retained. This is a three-cylinder triple expansion engine developing 2,500 i.h.p. at about 76 r.p.m. Lubrication is by worsteds in oil boxes and hand oil can, syringe and water hose. It is about 20 feet high and weighs 120 tons : its power, weight and space ratio is consequently low. The combination of low-power engine and bulky hull gives passage speeds which are sedate at the best of times and almost zero in adverse circumstances.

The two new boilers are in a compartment known as the main machinery space which also contains the main engine and almost all the steam driven auxiliaries including the turbo generators and distilling plant. The boilers are Foster Wheeler design with wide range duplex sprayers and automatic boiler control. They are vast in size compared with modern warship design ; it is understood that they were built to Lloyds' rules and were originally ordered for re-boiling the now defunct submarine depot ship *Montclare*. Trunked air is supplied by one fan per boiler ; the fans are believed to be modified spare light fleet carrier fans. The boilers have economizers and superheaters supplying steam at 250 lb/sq in. at 600 degrees F. There is no saturated steam offtake and to supply the main engine, reciprocating auxiliaries and evaporators, a complicated system of desuperheaters is fitted whose automatic temperature control arrangements have not been entirely successful.

Two new turbo main feed pumps are fitted. Only one of these is needed to feed the boilers at the highest steam demand obtainable. Automatic cut-in-gear starts the stand-by pump in the event of failure of the running pump. The feed system is open. An air pump and two feed booster pumps are lever driven off the main engine L.P. crosshead. The closed feed system installed during modernization was not a success.

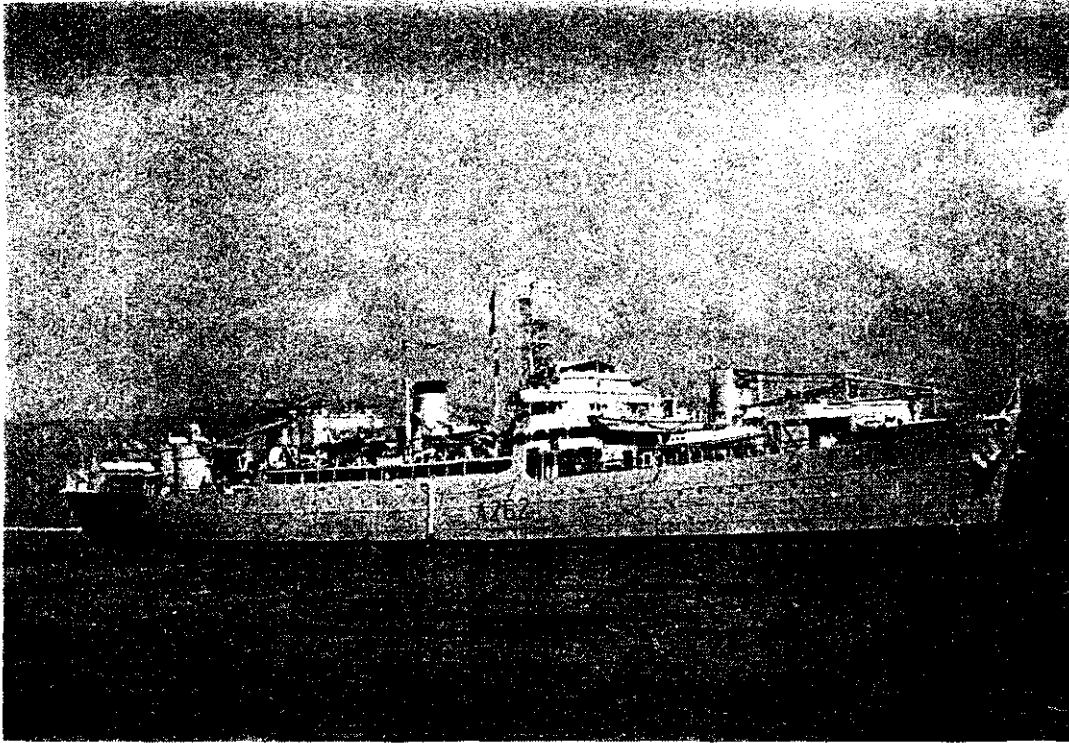


FIG. 2—'HARTLAND POINT' AFTER MODIFICATION

In addition to the automatic controls mentioned, air motor operated remote controls are fitted to important valves on boiler feed and fuel systems, also to the main engine throttle and reversing arrangements. The remote control panel is sited in the gas citadel so that the main machinery space may be completely closed down and evacuated in condition Alpha. Re-entry is, however, necessary at intervals for lubrication of the main engine ; this considerably reduces the value of the arrangements, but valuable experience has been gained in the operation and maintenance of this type of equipment.

AUXILIARIES AND OVERSIDE SERVICES

The auxiliaries are of considerably greater importance and are of higher total power than the propulsion machinery as the ship's primary role is performed in harbour.

Electric power, at 440 volts, 3-phase, 60 cycles/sec, is generated by two G.E.C. turbo generators each of 1,000 kW capacity. These are condensing machines with separate motor driven circulating water pumps and extraction pumps. Four transformer/rectifier sets, each of 250 kW, provide 220 volts D.C. for D.C. ships berthed alongside.

Two Paxman 12YHAXZ Diesel generators, each of 300 kW, are fitted in the auxiliary machinery space which also contains the main switchboard and the transformer/rectifier sets. The Diesel generators are principally provided so that steam can be shut down during *Hartland Point's* own self-maintenance periods. The Diesel exhausts pass through a waste-heat boiler and provide some, but not enough, domestic steam during these periods.

The distilling plant consists of two Buckley and Taylor sets of submerged coil type, each of six tons per hour capacity. The steam supply to the plant, as originally designed and installed, was from the exhaust range which was connected to a 'pass-out' arrangement bleeding steam from an intermediate stage on the turbo generators, any deficiency being made up from the desuperheated steam range by automatic valves. The 'pass-out' arrangements failed

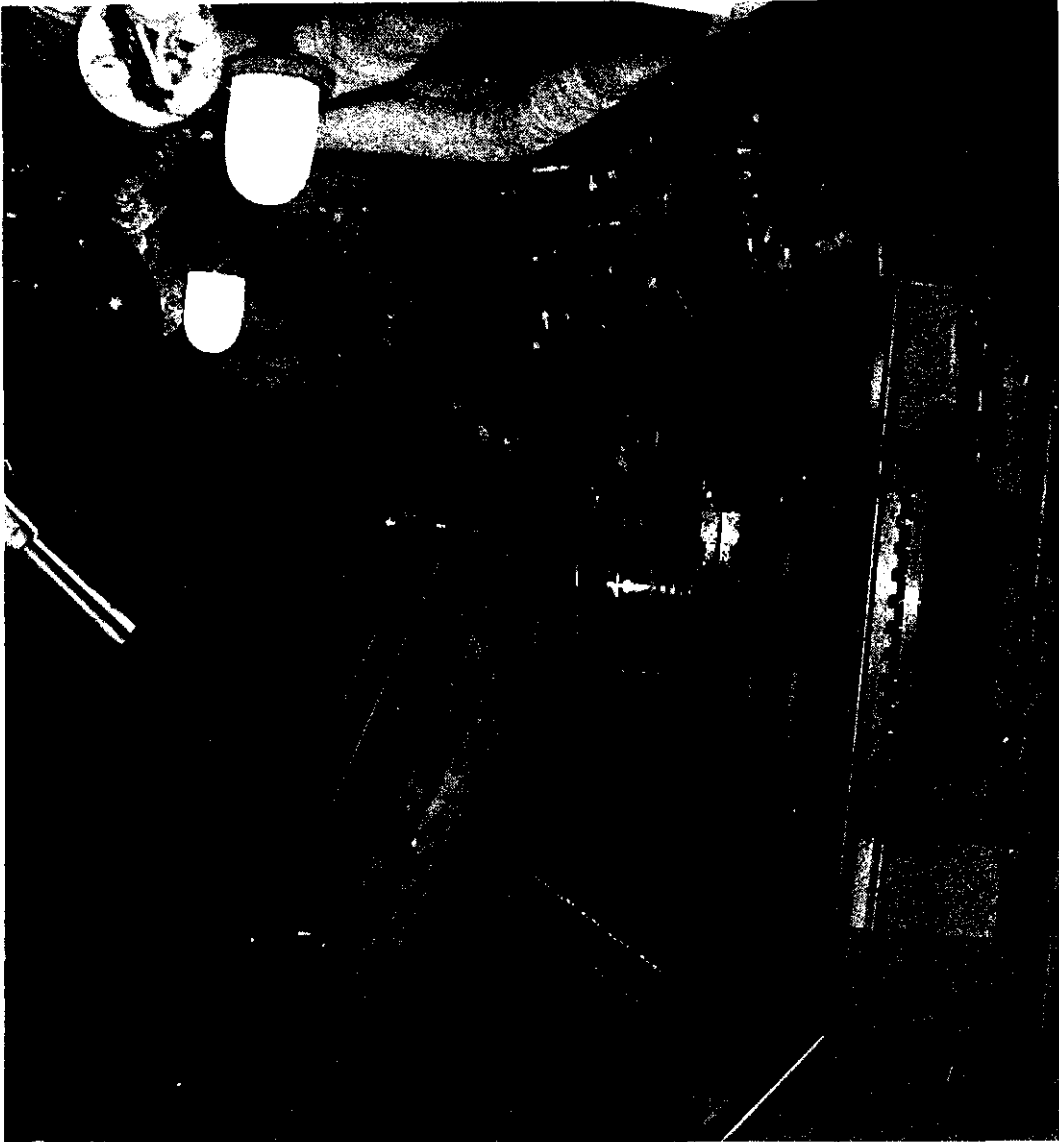


FIG. 3—BOILER CONTROL PANEL.

on trial and, there being very little surplus exhaust steam available from elsewhere after satisfying the feed heater's requirements, a new pipe system, providing live steam only, was hastily installed. This is not economical but it works. Storage is provided for about 200 tons of feed water and 400 tons of fresh water. Overside supply systems and connections are fitted.

A compressor room contains the centralized air conditioning plant, a steam driven 4,000 lb/sq in. air compressor which previously was installed in H.M.S. *Obedient* and two 100 lb/sq in. air compressors which appear to have earned their L.S. and G.C. medals prior to this commission. Connections for air hoses are provided on the weather deck for ships alongside.

Hot water for boiler washing, both for *Hartland Point* and escorts alongside, is supplied by the reciprocating auxiliary feed pumps and heated by the original boiler feed heater retained for this purpose.

Domestic steam supplies to escorts are provided through deck connections from a 100 lb/sq in. reduced pressure range.

No fuels or lubricants are carried specifically for supply to escorts. Arrangements are fitted for receiving small quantities of dirty lubricating oils or fuel sillage ; these are mixed with *Hartland Point's* furnace fuel oil after any water has been separated out.

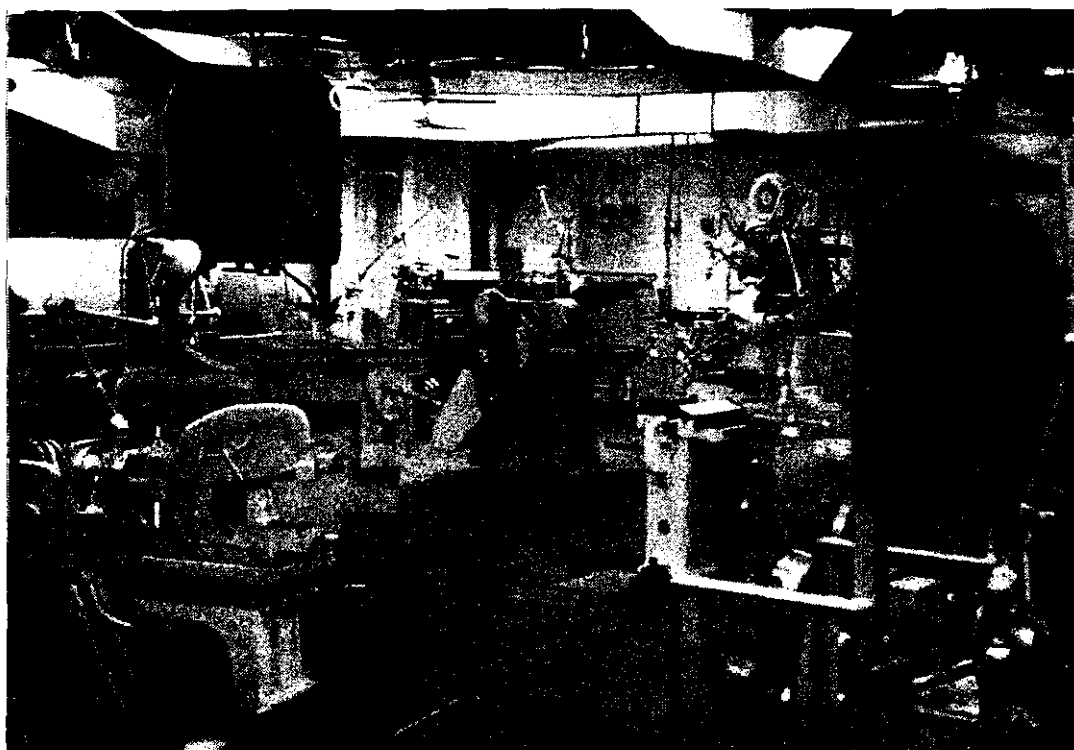


FIG. 4—MAIN MACHINE SHOP

ENGINEERS WORKSHOPS

The Engineer Officer is in general charge of the work done for escorts and as necessary, co-ordinates the activities of the L, O/E and Shipwright Specializations. The Senior Engineer is primarily responsible for keeping *Hartland Point's* own machinery running and for the overside services ; as the Engineer Officer's deputy he keeps himself in the picture about what is being done for escorts. The Workshop Engineer Officer, normally an experienced S.D. officer, has an office in the main machine shop. Adjacent to his office is a combined workshop office and receipt and issue room. This is used as a headquarters for the Senior and Regulating C.E.R.A. who is in charge of all shop work. A Ch.M(E) or P.O.M.(E), normally an E.O.'s writer, keeps the records, looks after the technical publications, is in charge of all spare gear transactions and, in conjunction with the Ready Use Storekeeper, accounts for repair materials used.

The workshops are, unfortunately, not ideally sited. This is the inevitable result of a modernization in which virtually no alterations were permitted to existed bulkheads and decks.

Main Machine Shop

This shop, situated in the forward part of the ship, is served by a 10ft × 6ft hatch and trunk from the weather deck which is plumbed by the forward (12-ton) crane.

Some of the larger machine tools originally fitted have been removed because the emphasis is now on maintenance at the expense of heavy repairs.

The maximum size work which can now be undertaken is :

Turning :	2 ft 6 in. diameter (16 in. diameter only over lathe saddles)
Horizontal Boring :	3 ft diameter over 4 ft length
Horizontal Grinding :	16 in. diameter over 4 ft length external, 12 in. diameter, internal
Surface Grinding :	16 in. diameter.

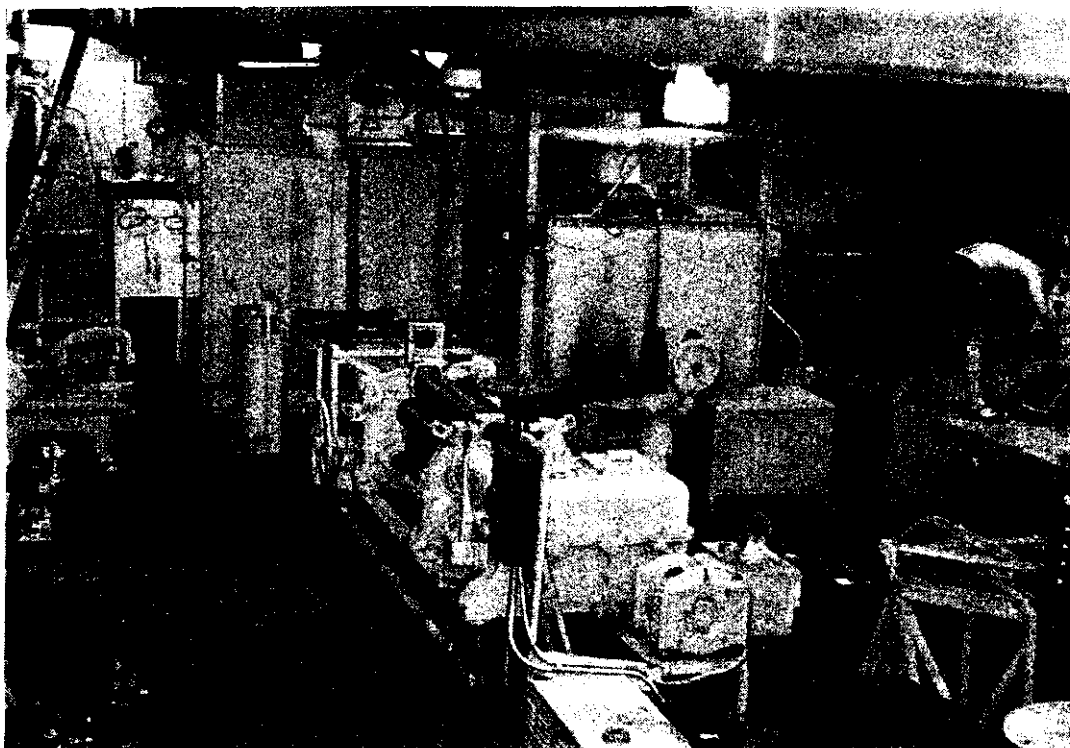


FIG. 5—SMITHERY AND FOUNDRY

In addition, machine tools are provided for universal milling, shaping and slotting. Other equipment includes a spring tester, pressure gauge test set, water pressure test bench, power band saw for plate up to four inches thick, metal spraying equipment, I.C. engine valve grinder, Y.100 turbine nozzle control spherical valve grinder and carbide tipped tool grinder.

A fitting space with a 6 ft × 4 ft marking-off surface table is situated at one end of the machine shop adjacent to the ready use store.

A bay containing a degreasing plant is provided.

Portable equipment, including Diesel driven welding plant and air compressor, pneumatic and electric tools, forge, etc., is kept in the portable repair plant bay for emergency repairs in ships which are not berthed alongside.

Smithery and Foundry

This shop is sited immediately below the main machine shop and has a 10 ft × 6 ft access hatch through the deck head below that serving the machine shop.

Again much of the heavier equipment was removed during modernization. Facilities are provided for :—

Pipe bending up to 4 in. diameter

Strip bending up to 7 in. × $\frac{3}{4}$ in. section

Plate rolling up to 4 ft × $\frac{3}{8}$ in. thick

Pipe flange facing and drilling up to 18 in. diameter

Annealing furnace of 4 ft × 4 ft area

Foundry work up to 100 lb casting. The CO₂ core drying process is used

Grit blasting

Welding, brazing, etc.

Hand forging and general smithing work—Coppersmith, Engin smith and Blacksmith.

Dehydration Shop

This shop is on the forecastle and is equipped to thoroughly dry out and evacuate small refrigeration circuits and components. Portable plants are also

held for use *in situ* on larger plants. As nowadays almost all D.A.R.s and water coolers are either absorption type or sealed units, this plant is seldom used. A small test panel has been constructed in this shop for testing pneumatic automatic boiler control components.

Welding Shop

This is also on the forecastle and is superintended by the Shipwright Officer. Fixed A.C. welding equipment is provided with extensions and plug boxes to facilitate welding work anywhere in the ship or in the escorts alongside. Three portable D.C. welding plants are also held for jobs where A.C. is not suitable or allowed, e.g., in confined spaces ; these plants are driven by A.C. motor, D.C. motor and Diesel engine respectively. A stud welder is also provided.

Argonarc welding plant, for aluminium, stainless steel, etc., is fitted in the welding shop. The plant is theoretically portable but experience has shown that it is not really so.

Acetylene gas cutting and welding equipment is provided for use where required.

Underwater cutting and welding equipment is carried for emergency use by the qualified divers borne.

Light Plate Shop

A shop fitted out with equipment for manufacture and repair of light gauge sheet metals, such as ventilation trunking, is on the forecastle deck just forward of the bridge. This shop is used as a general metal working shop for the shipwright artificers and the Chief Plumber.

Woodworking Shop

This centre of the ' Chippy's empire ' is situated in the after superstructure with large double doors at each end in line with the circular saw and planing machine. Other equipment includes a bandsaw, a mortising machine (a drill for square holes), vertical drilling machine and a woodworkers lathe. The Patternmaker has a small ' caboosh ' here, too ; this is not entirely satisfactory but it avoids duplication of the machine tools. The Shipwright Officer has his office leading off this workshop. There is deck space nearby, served by two 5-ton cranes, for repair of boats.

I.C.E. Injection Test Shop

This shop is also in the after superstructure and is the only air conditioned workshop in the ship. Two Hartridge fuel pump calibrating and testing machines are fitted ; the larger of the two will deal with pumps up to and including those for A.S.R.I engines. Both machines have electronic phasing. For injection nozzles, in addition to the normal hand operating nozzle tester, grinding and lapping equipment for reclamation of injectors together with a microscope viewer is fitted. The equipment and results achieved compare favourably with those in dockyards and civilian specialist firms.

P.I.P. Shop

Adjacent to the I.C.E. injection test shop is the P.I.P. shop fully fitted out, on a small scale, to properly preserve small and medium sized articles to modern standards. Its services have not been greatly required but the vital necessity for good preservation facilities is obvious in the heat and humidity of the Far East Station.

OTHER DEPARTMENT FACILITIES

It is not proposed to detail other workshops and equipment. Heavy electrics, electronics, fire control, optical, ordnance, T.A.S., rigging and canvas work are provided for on a scale generally similar to those described for the engineers and shipwrights.

In addition, there is a well equipped sick bay with an operating theatre and a dental surgery, all of which are air conditioned.

A large bakery is equipped to supply all the bread requirements for at least a dozen escorts.

SPARE GEAR AND STORES

A fair quantity of spare gear for escorts is carried to enable maintenance and repair tasks to be undertaken. Spares are not, however, carried to replenish escorts' holdings. The same principle applies to Naval Stores. A few smaller assemblies which are normally held by Admiralty Machinery Depots are carried ; these also include spare motor boat engines.

The engineer's spare gear is mostly stowed in three spare gear stores which are fully equipped with fibre glass boxes in racks. This stowage has been a great success.

Large and heavy items are stowed either in the heavy spare gear store, which is also used by the L and O/E Departments, or in the motor boat engine store ; these stores are served by the five and twelve-ton cranes respectively.

COMPLEMENT

Officers

Engineering—Under the Engineer Officer and Senior Engineer there are two lieutenants (G.L.) and one lieutenant or sub-lieutenant (S.D.). The S.D. officer is in charge of the engineer's workshops, spare gear, stores and staff for manning the workshops and oversee escort repair/maintenance parties. One of the G.L. lieutenants is in charge of boilers, main engine, turbo generators, distilling plant and all associated auxiliaries in the main machinery space. The other G.L. lieutenant is the Damage Control Engineer Officer and is in charge of all 'outside' machinery and systems, i.e., D.B.s, fuel and water, Diesel generators, boats, air compressors, refrigerators, air conditioning, domestic machinery, steering gear and all engineer's oversee services to escorts—water, steam, air, etc.

The Shipwright Officer and Ordnance Engineer Officer are the sole representatives of their specializations.

The Electrical Officer has two S.D. officers—one electrical, the other radio—to assist him.

The Boatswain is in charge of rigging and canvas repairs.

There is one medical officer and one dental surgeon. The other officers—seamen, supply and the instructor—make up the remainder. The total, including the Captain, is 25. No officers are borne for training and there is no room for any.

Ratings.

The total complement is about 420.

Engineering

There are 150 engine room ratings including 37 E.R.A.s and mechanics (including chiefs). Two chief E.R.A./mechanics and 7 E.R.A./mechanics are specifically to keep *Hartland Point* running, the remaining 28 man the workshops and provide the skilled oversee working parties.

The moulder, patternmaker, one coppersmith and four fitters and turners form a standing workshop party under the senior C.E.R.A. The remainder form two escort parties, each with a C.E.R.A. in charge, who work in the escorts or in the shops as requirements dictate.

By using the repair/maintenance parties for *Hartland Point's* own maintenance and defects only during the odd periods when no escorts are alongside, it has been generally possible to keep the escort parties at full strength doing their proper job.

During much of this first commission there were a number of 'makee-learn' E.R.A.s as part complement. This was unsatisfactory ; the ship is not suitable for training for watchkeeping certificates and training man-hours in harbour make a corresponding reduction in escort maintenance.

Engineering Mechanics—four P.O.M.(E)s and 29 L.M.(E)s and M.(E)s, out of a grand total of 108 ratings from Ch.M.(E) downwards, are drafted for the maintenance/repair staff. Normally only 2 L.M.(E)s and 10 M.(E)s are available, split into two parties, for semi-skilled work in the escorts ; the remainder are in the various workshops, spare gear stores and office, ready use store and P.I.P. shop. In addition some duties cover both *Hartland Point* and escort requirements, e.g. a party under a Ch.M.(E) looks after the ship's fuel, water, D.B.s, winches, capstans and supplies and hoses to escorts. Two M.(E)s are allocated to assist the shipwrights.

The total of 108 was found to be inadequate largely because of the number *required for communal domestic duties*. The Engine Room Department, being the largest department in the ship, has to supply a large number of ratings for these duties. An additional 8 M.(E) IIs and J.M.(E)s were therefore drafted and it is hoped that they will be added officially to the complement. Satisfactory training can be given to these young men as steam is nearly always raised with plenty of auxiliaries running ; in fact, the boiler load in harbour can equal the maximum possible at sea.

Shipwrights

The complement is two chief shipwrights and 12 shipwright artificers. One and six respectively are drafted for *Hartland Point* and the remainder for escorts. In practice it has often been found necessary to put up to nine shipwright artificers on escorts ; *Hartland Point's* backlog of maintenance and defects are progressed at sea and during occasional slack periods in harbour.

A number of artisans : painter, joiner, blacksmith and plumber—all chiefs, were borne to start with but are gradually being replaced by shipwright artificers. There is a sufficient volume of specialist work to keep one of each of the above trades well occupied.

Ordnance

Only one O.A. (W) is allocated to *Hartland Point's* own armament of eleven single barrel bofors and miscellaneous small arms. The remaining staff consists of two chief O.A.s and ten O.A.s assisted by a number of seamen gunnery and T.A.S. rates. With negligible own ship work to provide a 'base load' the ordnance staff work seems to consist of long periods of intense activity interspersed with spells of underemployment. However, useful work can usually be found and odd jobs for ships get carried out during these latter spells.

General Electrical

The skilled staff consists of six E.A.s/Mechs. divided 2 : 4 between *Hartland Point* and the escorts, with a total of two chief E.A.s. Under two chief electricians there are twenty-five electrical mechanics of various rating divided 3 : 2 on own ship and escorts. After allowing for the gyro and flyplane E.A.s, crane drivers, switchboard watchkeepers, writer, storekeeper, communal domestic duties and the fairly large installation to be maintained in *Hartland Point*, it can be seen that maintenance/repair effort available is inadequate. It is hoped that this complement will be increased.

Radio

A total staff of fifteen, including three chief and R.E.A.s. seem to manage to cope with the work load.

ACCOMMODATION

The ratings have all bunk accommodation with cafeteria messing. Some of the spaces are above or close to the main machinery space and are pretty hot in a tropical climate. Unfortunately, none of the accommodation, other than the Captain's cabin, is air conditioned, but it is hoped that some air conditioning will be installed in the not too distant future.

METHOD OF WORKING

Each escort on the station is given copies of a brochure prepared by the ship's officers during the modernization. This details the facilities available and tells them how to ask for assistance. In addition, the escorts are given supplies of MAINTREQ forms which have printed headings on which escorts can state the overside services required and maintenance schedule items, in order of priority, with which they require assistance. Differently headed forms are supplied for each department.

These forms, together with departmental lists of defects, also in order of priority, are required one week before the escort arrives so that appropriate preparations can be made. Escorts are asked to raise job cards so that, on arrival alongside, these can be handed to the men told off for the jobs ; on completion or otherwise they are marked accordingly and returned.

Only two escorts are dealt with at a time, although overside services arrangements are provided for four. The limiting factor is the number of men—there is no accommodation for more—also workshop facilities for more would probably be inadequate. Work for other ships is undertaken only when essential, otherwise escorts alongside suffer ; this can result in these ships incurring defects during operational periods, appealing for unprogrammed assistance and thus perpetuating the sequence of events. The output of work might increase slightly in a cooler climate ; it would probably increase quite a lot in war-time because of the added incentives and lessening of peace-time diversions.

Normally each head of department deals directly with his opposite number in the escort. There is no central planning except in the Engineer Officer's head ; as stated earlier he carries out any co-ordination required but this was seldom necessary during the first commission. It is realized that this procedure is opposed to the latest theories and teachings on the subject but it works very well, the escorts say they like it and, anyway, there is no staff nor facilities to do otherwise.

An effort has been made to remember the end-product ; the maximum useful work for the escorts. Thus no records or paper-work have been raised except where really necessary ; many urgent or last-minute jobs are done without being covered by signal, defect list or job card. It was necessary, however, to keep certain additional records during the first year so that recommendations forwarded for alterations to the ' follow-on ' ships could be backed up with facts.

Efforts have been made to instil the need for the Escort Maintenance Ship to create a good impression. If the overside cables and hoses are all ready when the escort arrives, if the overside working parties ' get cracking ' without delay and if services and commodities which can be supplied are made available without reservation, then every one is happier, a better job results and occasional failures to meet escorts' requirements are accepted without acrimony.

Hartland Point is an independent command administered directly by the Commander-in-Chief, Far East Station. As none of her heads of departments are part of anyone's administrative staff, escorts' officers are not so reluctant to reveal any skeletons in their cupboards, thus *Hartland Point* can often give experienced advice and assistance to overcome difficulties which might otherwise remain concealed until too late.

NOTES ON THE FIRST COMMISSION

Modernization was officially completed on 1st April, 1960, some months late because of failures during harbour trials and preliminary sea trials in 1959. After trials off Sheerness, including a return to Chatham for further 'sorting out', and a few days at Spithead and Portland, the ship sailed from the U.K. on 12th May. Steaming at her best speed, and stopping for a couple of days each at Malta, Aden and Colombo, Singapore was reached on 28th June.

Hartland Point is on foreign service and hence is unaccompanied. This has caused disappointment to many and, at the time of writing, there are no signs of a change of policy in this matter. Personnel, therefore, spend a maximum of 18 months away from the U.K. The ship is on a running commission; this is necessary because some of the personnel who had 'stood by' during modernization had been on board for up to two years before the ship arrived on the station, also, taking into account the special equipment on board, the maintenance and repair effort can be kept going without too much disturbance.

Much of the commission has been spent at Singapore. This is trying from the climatic point of view, also the fleshpots of Singapore city are a long way away from the Naval Base. However, from the maintenance point of view, the closeness to the Dockyard, S.P.D.C., Naval Stores and C.-in-C.'s Staff is advantageous. Visits have been made to Penang (twice), Hong Kong (three times) and Kobe. One of the visits to Hong Kong lasted two and a half months which included Christmas and the New Year.

It is not practicable to attempt escort maintenance at Hong Kong during the typhoon season; this was made very obvious during May, 1961, when 'Alice', the first typhoon of the season, with wind speeds up to 92 knots, passed right over the harbour and *Hartland Point* secured and steaming to a buoy, the escorts being maintained and the rest of the Fleet having hurriedly put to sea.

After trying out various working hours, tropical routine, 0715-1300 with $\frac{1}{4}$ -hour stand-easy, was found to be the best. The theoretical hours are slightly less than normal routine but the work done is consistently greater. The hot afternoons are free for sunbathing, swimming or other sports and if essential work arises it can be done during the evening when it gets cooler. It is futile to try and get thorough work done on a hot afternoon after the 'tot' and dinner.

Types of escorts maintained have included Type 12 frigates (*Rothesay* and *Whitby* Classes), Type 61, Type 15, *Bird* and *Bay* Classes and modernized 'CA' destroyers. Assistance has been given at various times to R.F.A.s, a cruiser, the commando carrier, Australian destroyers and frigates, New Zealand and Ceylon frigates and U.S.N. ships.

Very generally speaking, defects absorb more than half the effort. In spite of planned maintenance the newer ships suffer from major defects just as much as the older ships.

Contrary to expectations the Diesel driven Type 61 frigates have not proved to be such a maintenance and repair burden as the steam driven Type 12s. Could this be because the need for thorough overhauls at correct intervals for I.C.E. machinery is more fully recognized and more rigidly applied than is the case with steam machinery?

Although ship's officers were told by a senior officer that if maintenance was done thoroughly defects would not occur and that even if they did occur we should still concentrate on maintenance, experience and opinion has caused a swing towards another senior officer's statement: 'If you have a bicycle with a puncture there is no point doing routine maintenance on the bell unless the puncture is mended'.

Regrettably, *Hartland Point* herself needs a self-maintenance period every three or four months. This is partly because she has no unit system thus certain steam, water and electrical equipment and systems cannot be maintained or repaired without cutting off overside supplies to escorts. Also, as mentioned

earlier, the staff allocated to the ship is inadequate to deal with the larger maintenance schedule items without assistance from the escort maintenance parties.

Being a prototype modernization there have been a number of failures and shortcomings (referred to onboard as 'built-in malfunctions'). It is understood that efforts are being made to improve the follow-on ships accordingly.

One major problem is soot. As in most ships the economizers are efficient soot collectors ; they also so cool the funnel gas that upward velocity is low. After much experimenting it is evident that the best that can be done with a poor situation is to blow soot regularly about every eight hours at sea and in harbour. This keeps the soot particles small so that they are better carried away by any wind. It is no good delaying unduly when there is no wind ; within 24 hours the soot will start coming out in large lumps when there is an increase of boiler load caused by starting up workshop machinery, cranes or distilling plant. On first arrival alongside, first lieutenants of escorts are warned that they will have difficulty painting their decks and superstructure ; the warning is superfluous subsequently. Their only consolation is that *Hartland Point's* Executive Officer is worse off—he has the soot all the time.

CONCLUSION

Is *Hartland Point* a success despite her various shortcomings? Her officers and men think so. Escorts maintained have professed praise for services rendered and appear to have sailed away smiling and satisfied ; it is hoped they weren't just being polite.

COMMENT BY D.M.E.

The opinions and criticisms expressed in this article are the Author's own, and while D.M.E. does not necessarily endorse them, he welcomes the valid and constructive criticism and will take due account of it.
