

P.N.O.S AND N.S.P.O.S

BY

CAPTAIN D. G. SPICKERNELL, R.N., C.ENG., M.I.MECH.E., M.I.P.M., M.B.I.M.,
M.I.MAR.E.

The following article is the substance of a talk given by the Author, the Deputy Director of Naval Ship Production, to senior overseers in September, 1967.

In 1966 a Working Party was set up under the Chairmanship of Captain B. Broomfield, Royal Navy, to review the existing overseeing services, that is, Constructive, Engineering and Electrical, with the aim of rationalization into a single overseeing service working for the Director of Naval Ship Production.

At the end of January 1967, the Working Party forwarded their Report with the following quotation by 'Spinoza' in the heading—"Men will find that they can prepare, with mutual aid, far more easily what they need, and avoid far more easily the perils that beset them on all sides, by united forces".

The main recommendations of the 'Broomfield Working Party' were as follows:

- (a) That D. G. Ships' overseeing organization should be recast so as to provide for co-ordination across professional boundaries by direction rather than by consent.
- (b) That to the above end the Principal Naval Overseer concept already in existence in the Polaris project should be universally adopted in respect of both shipbuilding and factory production.
- (c) That shipbuilding and factory production should always be treated as part and parcel of the same task.
- (d) That four senior posts be created the holders of which, though not intervening in the day-to-day conduct of overseeing business, shall fulfil a number of important requirements not the least of which being that of co-ordinator and 'contact' men between the Outports and Headquarters.
- (e) That DGW(N)'s Warship Weapons' Overseers be integrated as equal partners into the PNO organizations in the shipyards.
- (f) That any special shipbuilding projects in locations remote from the main shipbuilding regions (e.g. Lowestoft and the U.S. contract) shall be dealt with by the setting up of PNO type organizations, but that where very important factory production matters requiring inter-PNO co-ordination are concerned (e.g. the 'marinised' Olympus project), they shall be dealt with by the appointment of Project Officers.
- (g) That the NREEs should be brought into line with the other parts of the service in respect of progressing of contracts.
- (h) That wherever practicable, PNO boundaries should conform to those of the regional seats of government.
- (i) That 'specialist' overseers be organized into teams administered by the four officers referred to in recommendation (d) above. This is to provide for the most economical and efficient employment of the 'specialists' talents.
- (j) That the question of authority from Headquarters to the Overseers should be reviewed.
- (k) That consideration should be given to incorporating DGD and M's Principal Yard Machinery Overseer organization into the D G Ships' overseeing service.

- (l) That whatever re-organization may be approved for the overseeing service, a series of 'teach-ins' should be embarked upon to explain the intentions to all concerned in an authoritative and informed manner.
- (m) That the provision of avenues whereby there may be a two-way flow of technical grades between the dockyards and overseeing, should be a matter for very early attention.

Taking the above items one by one, the official view as approved by the Board of Admiralty, is:

Item (a)—Co-ordination by direction. Co-ordination by consent has been found in practice to be flabby wherever it has been applied. There is little doubt that 'co-ordination by direction' improves efficiency and this is wholeheartedly supported, and is indeed the main factor behind the PNO/NSPO concept.

Item (b). That the PNO concept to be adopted is as for the Polaris programme, which has been universally proclaimed as a great success, i.e., one man in each shipyard who can be held responsible for the many naval activities taking place daily. A great deal is owed to the teams that have supervised the building of nuclear and Polaris submarines, and one of the main reasons for adopting the title 'Principal Naval Overseer' is that it has already become a respected name in the shipbuilding world.

Item (c). That shipbuilding and factory production be treated as part of the same task. This was not agreed except inasmuch that any organization that is set up in the future must be flexible, and it may well be that PNOs will have factories to oversee and NSPOs may have work in some small shipyards. Shipbuilding is, in the main, an assembly industry where the products of many factories are brought together and fashioned into a single but vastly complex unit. Co-ordination and team work is essential. Factory oversight varies greatly from items such as the development of prototypes requiring a single overseer who is in constant communication with the designer, to, at the other end of the scale, the verification for payment of delivery of components which require no progressing or inspection. It has been considered better that those in charge of factory production be regarded as Area Managers, and be recognized by a name other than PNO. Thus the title 'Naval Ship Production Overseer' (NSPO).

Item (d). The creation of four senior posts who would act as a go-between between the Senior Overseers and the Assistant Directors. This would have involved the creation of yet another Civil Service grade and this was considered unnecessary.

Item (e). That Warship Weapons' Overseers be integrated as equal partners into the PNO organizations in the shipyards. The Director-General Weapons agreed wholeheartedly to this very important proposal.

Item (f). The proposal to create additional PNO posts and Project Officers where applicable was in agreement with the present policy but unlikely to be necessary in the present political climate.

Item (g). In future, the amount of progressing required for MOD(N) contracts will be defined by Headquarters. It will vary from requiring the firm to produce a Cardinal Date Programme for a complex unit, to requiring the firm to report only the estimated delivery date. Progressing is, of course, a firm's responsibility, but Overseers will be required to assure themselves that reliance can be placed on the forecasts produced by the firm. Having said this, it therefore follows logically that no one specialization will be required to set up a separate scheme of progressing.

Item (h). That wherever practicable, NSPO boundaries should conform to the regional seats of Government. This was not agreed. The policy is 'flexibility'

and 'mobility' and the overseeing staffs must be prepared to move to where the work is being carried out.

Item (i). That the Specialist Overseers be administered by the four super grade officers. Specialist include those with expertise in materials, paints, welding, etc., and it is obviously not economical to provide a full team in each region. As the four super grades were not approved the question became whether the specialists should be responsible to one NSPO or to more than one. It was decided to leave this question unresolved until NSPOs have experience in post, but probably specialists would be administered from Headquarters. It is possible of course, that the requirement for specialists in the field may reduce now that Form CP.160 (Standard Conditions for Inspections and Tests) has become mandatory.

Item (j). That the question of authority from Headquarters be reviewed, which means in fact delegation of authority, i.e., exercising professional judgment in matters in design changes, drawing approval, etc.; easy to say, but difficult to define the limits. The designer obviously requires to be informed if there are any proposed changes. However, current opinion is to encourage 'value engineering' by including allowance for it in the contract, and it is the policy to allow the men in the field to get on with the job. Therefore, this problem will receive a great deal of attention during the next year or so.

Item (k)—D.G.D. and M.'s Yard Machinery Overseers. There are six Yard Machinery Overseers, four Grade As and two TGIs. D G Ships and DGD and M have agreed that they will be responsible to the NSPO who in turn will answer to DGD and M.

Item (l). A series of 'teach-ins' to be embarked upon. Agreed wholeheartedly. One of the main functions of the PNOs and NSPOs will be to determine the knowledge and skills of his staff, and to make recommendations where improvement is required. Courses will then be arranged or money made available for attendance at commercial courses. Quality auditing will be a relatively new subject to most.

Item (m)—Two-way flow of Technical Grades between the Dockyards and the Overseeing Organization. The Joint Personnel Service (JPS) for technical grades has just been started, the aim being to achieve a better balanced career for technical grade officers and this should solve this particular problem.

On 1st May, 1967, DNSP signed a minute to D G Ships asking that Board approval be sought for a reorganization of the Overseeing Services of the Ship Department; that the PNO scheme (Principal Naval Overseer) be extended to all shipbuilding areas, and that the factory organization be rationalized and placed under the charge of an NSPO (Naval Ship Production Overseer). The minute stressed the fact that neither D G Ships nor D G Weapons could see any advantage at present in bringing DGW's factory production into the NSPO scheme, as most of the weapons' equipment is radically different from that dealt with by D G Ship's overseers; and the methods of controlling research, development, production and progress, through links between Headquarters, ASWE, AUWE and ACO, are fundamentally different from those followed by D G Ships. Both Director-Generals agreed that the title 'Principal Naval Overseer' was appropriate for an officer who administrates and co-ordinates both Weapon and Ship Overseers in shipyard areas. However, the use of this comprehensive title in manufacturing districts could misrepresent the Navy Department's intentions, and lead to confusion in industry in view of the presence of Naval Weapons' Production Overseers and Inspectors of Naval Ordnance. Direct control of the overseeing service was to be vested in DNSP, with the Deputy Director as the Executive Head supported by the Assistant Directors of Production—Manufacture, Ships and Organization.

The Terms of Reference for PNOs and NSPOs which were debated during the week were as follows:

PNOs

- (a) Principal Naval Overseers are to be the principal representatives of D G Ships and D G Weapons in the shipbuilding areas to which they are appointed.
- (b) The PNOs are to act as the main contact between the shipbuilders and the authorities that the PNOs represent, on all matters concerned with planning, programming and the progress of work. They are also to act as the main contact on all general administrative matters (e.g., accommodation, telephones, etc.) where a co-ordinated approach to a shipbuilder is desirable.
- (c) The PNOs are to be responsible for keeping the Senior Officers appointed to ships building fully informed on all matters concerning progress and the supply of technical information, and for arranging for the attendance of ships staff as necessary at meetings, trials, etc. PNOs are also responsible for making arrangements with shipbuilders to cover domestic matters relating to accommodation and other facilities required inside shipyards by naval officers and ratings appointed to H.M. ships under construction.
- (d) The PNOs are authorized to direct the work of all Navy Department Overseers in shipyards. It should be noted, however, that direction of DGW(N)'s Warship and Naval Polaris Weapons' Overseers are subject to certain limitations given in the succeeding paragraphs.
- (e) In technical matters, PNOs have no authority to overrule overseers of professions other than their own. Should any professional or technical matter threaten to delay the timely completion of a contract, the PNO is to refer the matter to Headquarters (D G Ships, DGW(N) or DPT as appropriate), forwarding the remarks of the Overseer(s) concerned.
- (f) The PNOs are responsible for the general superintendence, organization and administration of the Navy Department's Overseeing Services in shipyards, in accordance with standing instructions, within the shipyards to which they are appointed.
- (g) The PNOs are specifically responsible for:
 - (i) The preparation by shipbuilders of programmes of construction, manufacture, tests, trials and inspections, as may be necessary to achieve economical, timely and satisfactory completion of the contracts for which they have responsibilities.
 - (ii) The monitoring of progress against the above-mentioned programmes and the co-ordination and rendering of progress reports to the Ministry of Defence (Navy) as may be called for specifically or laid down in standing instructions.
 - (iii) The observance of the Quality Assurance requirements contained in the documents relating to the contracts for which they have responsibilities.
 - (iv) The co-ordination of visits by Ministry of Defence (Navy) representatives or Ministry of Defence (Navy) contractors to the shipyards.

- (v) The administration of the overseeing teams under their direction in order to ensure the most advantageous deployment of the staffs concerned. In particular, PNOs are responsible for ensuring that an adequate number of overseers of the requisite rank are maintained by all professions, and for giving early intimation to Headquarters' Departments whenever staff changes are required.
- (vi) The safety of all H.M. ships under construction in their area.
- (vii) The representation to the Ministry of Defence (Navy) of additional facilities required at or associated with shipyards which will involve Ministry of Defence (Navy) liability. Examples of such matters are office accommodation, furniture, communications, catering and car-parking facilities.
- (h) All professional overseers appointed by PNO staffs are to act under the authority and general direction of the PNOs in all aspects of their work relating to administration, planning and programming. Subject to this overriding requirement, the senior departmental overseers are authorized to control and supervise the work of subordinate officers of their own profession. Under the direction of the PNOs, the senior departmental overseers are to act as a team to eliminate duplication of overseeing effort.
- (j) For purely professional/technical matters, the senior departmental overseers are responsible to their parent professional Headquarters' Directorates in accordance with the existing regulations and practices.
- (k) The PNOs are responsible to Headquarters' Directorates as follows:
 - (i) For all matters concerning new construction warships (other than nuclear submarines) except as stated in sub-paragraph (ii) below, to the Director General Ships.
 - (ii) For all matters in connection with the new construction and refits of warships (other than Polaris weapon systems in nuclear submarines), for weapon, radio and compass design and technical matters, including the standard for installation and performance, and for installation of weapons by MOD(N) contractors, and for questions on Weapons Programmes before integration into Ships' Programmes to the Director General Weapons (Naval).
 - (iii) The Director of Naval Ship Production is to be an information addressee for all communications where ship programmes or general progress are involved. Information copies are likewise to be sent to DGD & M or DFMT(N) for contract refits or repairs of Auxiliaries or RFAs.
 - (iv) To the Technical Director, Polaris Executive (DPT) for all matters concerning nuclear submarines.
 - (v) For all matters concerning refits by contract to the Director General, Dockyards and Maintenance and to DFMT(N) as appropriate, except as stated in paragraph (ii) above.
- (l) PNOs are to consult and co-operate with other Ministry of Defence or Ministry of Technology inspecting authorities having work in or near their areas.

NSPOs

- (a) Naval Ship Production Overseers (NSPOs) are the principal representatives of D G Ships and DGD & M in the manufacturing areas to which they are appointed.

- (b) NSPOs may have minor shipbuilding responsibilities in their areas. (In this event, terms of reference for PNOs will apply in the ship or boatyards concerned).
- (c) NSPOs are authorized to direct the work of all D G Ships' Overseers allocated to them. They are responsible for the general superintendence, organization and administration of D G Ships' Overseeing Service in the areas to which they are appointed.
- (d) In technical matters NSPOs have no authority to overrule overseers of professions other than their own. Should any professional or technical problem threaten to delay completion of a contract the NSPO is to refer the matter to D G Ships forwarding the remarks of the overseer concerned.
- (e) For purely professional/technical matters Senior Departmental Overseers are responsible to their parent Headquarter Directorates in accordance with existing regulations and practices.
- (f) NSPOs are specifically responsible for:
 - (i) Preparation by manufacturers of programmes of construction, test, trial and inspection as may be necessary to achieve economical, timely and satisfactory completion of contracts for which they have responsibilities.
 - (ii) Monitoring of progress and rendering reports to D G Ships as may be called for specifically or laid down in standing instructions.
 - (iii) Observance of Quality Assurance requirements contained in documents relating to their contracts for which they have responsibilities.
 - (iv) Administration of the overseeing teams under their direction in order to ensure the best deployment of staffs concerned. In particular, NSPOs shall ensure that an adequate number of overseers of the requisite rank are maintained by all professions and they are to give early advice to Headquarters when staff changes are required.
- (g) NSPOs are to consult and co-operate to the fullest extent with Naval Regional Overseers and Ministry of Defence or Ministry of Technology inspecting authorities having work in their areas.

The reorganization has been planned to use the senior people already in post, no more, no less. There is no wish at this stage to reduce any career factors, nor to enhance the prospects of one specialization at the expense of another. Accordingly, seven Chief Constructors will be appointed as PNOs, and the NSPOs will consist of four Captains, three Superintending Electrical Engineers and one Chief Constructor. The question as to whether these posts should always be held by the present specializations has been referred to the Functional Committee who have ruled that they are to be functional, that is, open to all specializations. This means that in the future we may well see a Weapons Captain as a PNO, and a Chief Constructor filling the post of NSPO now held by a naval officer. It is quite possible that if the work load reduces, the number of senior overseers in post may also be reduced. In this case, reductions will be made in proportion to the numbers of people in each specialization now in post. In the meantime, there is no doubt that the status of the senior posts in the overseeing service will be raised in the eyes of industry.

The locations of the PNO and NSPO teams will most likely be as shown in TABLES I and II.

TABLE I—PRINCIPAL NAVAL OVERSEERS

<i>Name of PNO</i>	<i>Office Location</i>	<i>Area Covered</i>
PNO Clyde South	Govan	Shipyards on South Bank including manufacture in these yards and ship repair.
PNO Clyde North	Scotstoun	Shipyards on North Bank including manufacture in these yards and ship repair.
PNO Tyne	Grainger Street Newcastle (or Swan Hunter)	Tyne and East Coast Shipyards in Region I including repair and manufacture within these yards.
PNO Barrow	Barrow	Barrow Shipyards and factory work in Barrow-in-Furness area.
PNO Northern	Belfast	Northern Ireland.
PNO Birkenhead	Birkenhead	Cammell Laird (including all manufacture and ship repair).
PNO Southampton	Southampton	South Coast Yards from Lyme Regis to Shoreham inclusive. Factory work in Dorset, part of Hampshire and Sussex.
PNO Lowestoft	Brooke Marine	Lowestoft.

TABLE II—NAVAL SHIP PRODUCTION OVERSEERS

<i>Name of NSPO</i>	<i>Office Location</i>	<i>Area Covered</i>
NSPO Scotland	Crown Terrace, Glasgow	Scotland outside shipyards on Clyde.
NSPO North	Grainger Street Newcastle	All manufacture and shipyard work in Region I not covered by PNO Tyne.
NSPO North West	Manchester	Lancashire, Cheshire and North Wales, less Barrow, Furness and Birkenhead.
NSPO West Midland	Birmingham	Warwickshire, Staffordshire, Shropshire, Worcester, Hereford.
NSPO East Midlands	Sheffield (sub offices Derby and Nottingham)	Notts., Lincs., Derby, Leicester, Northants, Rutland, Yorkshire.
NSPO South West	Bristol (sub offices Exeter and Cardiff)	Gloucester, Somerset, Devon, Cornwall, Wiltshire, S. Wales.
NSPO East Anglia	London (sub offices Col- chester and Bedford)	Norfolk, Suffolk, Cambridge, Hunts, Bedford, Essex, Herts, Bucks, Peterborough, Oxford, Middlesex, North London.
NSPO South East	London	Surrey, Kent, Berkshire, North Hampshire, South London.

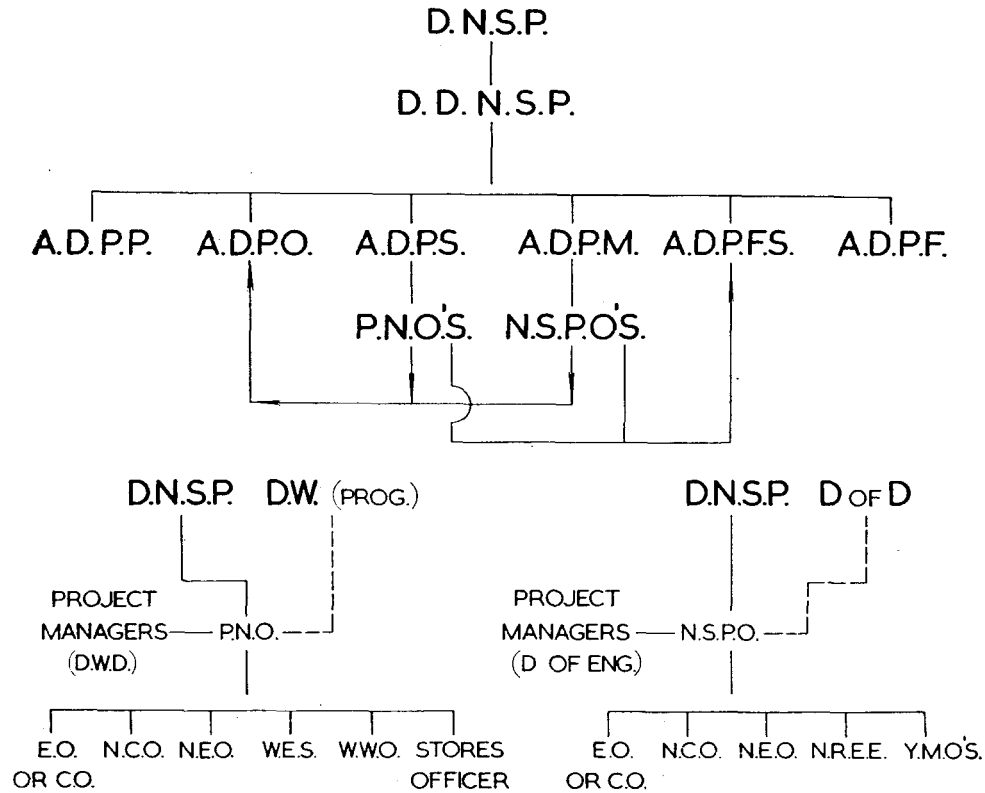


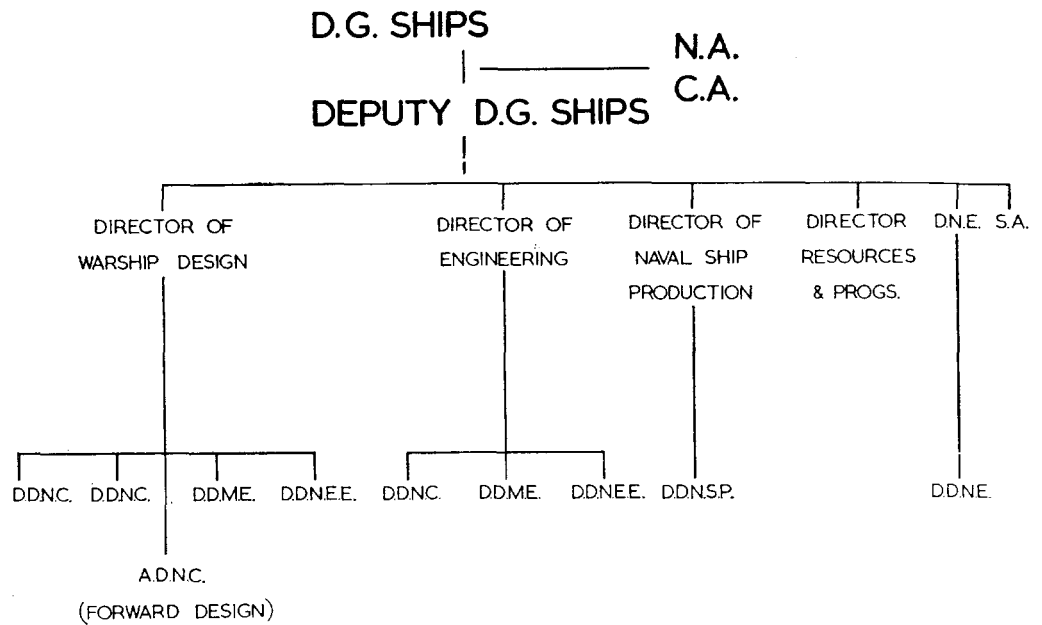
FIG. 1

FIG. 1 shows how the overseeing service fits into the overall D G Ships' pattern in the new organization at Headquarters which is scheduled to come into operation in the middle of next year. As can be seen there is very little change within DNSP.

FIG. 2 shows how PNOs and NSPOs will fit into the DNSP Department. There are still a few who find it difficult to accept functionalization, but if the organization is to be made to work, it is essential that the PNOs conduct their business through ADP(Ships) and NSPOs through ADP(Manufacture). Put briefly, ADPS and 'M' are responsible for quality and timely delivery, and the PNOs and NSPOs are their agents. When it comes to people, the most important element, the dialogue is with ADPO, and the Overseas Sales problems will shortly be entrusted to ADOS (Assistant Director Overseas Sales).

What does the organization hope to achieve? In the first place there will be quarterly meetings of PNOs and NSPOs at Bath, and these will be separate meetings because the problems will be different. As problems are aired, Working Parties will be formed to look at these across the board. In quite a short time DNSP plans:

- (a) Centralization of Common Services.
- (b) Introduction of common schemes of Progressing, Recording and Reporting.
- (c) An organization that is professionally and technically competent to carry out Quality Assurance in each area.
- (d) Co-ordination of planning so that manpower is used effectively and not wastefully.
- (e) An Overseeing Service which is high in morale and economical in operation.



DIRECTORS TO FORM BOARD OF MANAGEMENT.

D.D'S. TO BE THE TOP LEVEL FOR PROFESSIONAL ADVICE.

AD'S. TO FORM THE EXECUTIVE LEVEL OF AUTHORITY

RESPONSIBLE FOR THE MANAGEMENT OF PROJECTS OR TASKS.

FIG. 2

- (f) Rationalization with assurance that the working levels are left with a task within their competence by training, qualification and experience.
- (g) Documentation and records that are proper tools for efficient management and are really required, and not merely information of the 'come in handy' type.
- (h) Efficient and economical management of other Overseers by PNO and NSPOs, but without technical interference.
- (i) A great improvement in the handling of staff and welfare problems.
- (j) A continuous feedback to Headquarters of suggestions for improvements in design and specifications.
- (k) A better feedback of information to Overseers from Headquarters regarding defects found in service so that the weak points can be established.
- (l) A more critical look at the 'Admiralty List' of firms with whom we deal, and a much firmer approach to those firms who accept Navy Department work, but only pay lip service to our requirements.
- (m) Rationalization of overseeing, that is, one overseer only, to one firm, wherever possible. This will involve Headquarters in a considerable amount of consultation with the Staff Sides, and Senior Overseers must check that before any radical changes are implemented, which cut across existing demarcation boundaries, DNSP has been informed and has given approval.
- (n) Concentration of overseeing into areas where there are the most important orders and the heaviest financial commitments. Laying of emphasis on the vital few, and not the trivial many. Headquarters will detail the amount of inspection and progressing required, but will expect overseers to report back instances where they consider overseeing to be unjustified.

- (o) Introduction of bulk purchasing, and an annual 'shopping list'; that is to say, better and earlier information of annual requirements to overseers to enable them to concentrate their effort in advance.
- (p) An introduction of some form of measurement in order to compare more effectively than at present the loading per overseer in each area.
- (q) Regrettably, but necessarily, the collection of a large amount of data so that a break-through to higher performance can be achieved. For example, DNSP should be able to compare each firm's reputation for delivery, quality and price, with the number and value of contracts that the firm has had from us during the last few years.
- (r) A proper definition of the work required of each individual overseer coupled with his present and estimated future loading.
- (s) An improvement in the timely delivery and quality of ships and equipment.

In anticipation of approval of this scheme, certain Senior Overseers have already taken actions to improve the efficiency of overseeing within their present areas. In one region there has been rationalization of overseeing between the Constructive and Engineering Specializations, and in another area there has been an agreement of one firm to be visited by one overseer only, drawn up between the Naval Weapons Overseer and the Naval Regional Electrical Engineer. Another future PNO has made some clear-cut recommendations as to how to use his available effort more economically rather than asking for additional staff, and his recommendations include the dropping of overseeing altogether in certain outlying areas.

The reorganization of the Overseeing Service follows on logically from the functionalization of the DNSP Directorate and ties in with the introduction of GRAQs (General Requirements for Assurance of Quality) and SCITs (Standard Conditions of Inspections and Tests). The latter place much more reliance on the firms' Quality Control procedures, and so the overseer of the future will become more an auditor of software than an inspector of hardware.

DCI41/68 has now been published giving full details of the reorganisation of the Overseeing Service.
