

# NAVAL AIRCRAFT MAINTENANCE EXAMINATION BOARD

BY

COMMANDER J. F. TUCKER, R.N.

## THOUGHTS ON EXAMINATIONS

Among the many essential demands on our hard pressed Service resources, training is rightly accorded a privileged place, and as the efficiency of a high proportion of our training effort is measured by examinations, a few thoughts on examination methods may be of interest, and even of profit.

The growth and development of the examination system is a fascinating social study, but outside the scope of these notes. It is all too true, however, that the acquisition of prescribed qualifications is nowadays essential for the practice of a large range of manual and mental skills, and that these qualifications are awarded or withheld on the performance of the aspirant at some form of examination.

Whether the Service is wise in following such a system, or whether examinations can ever be suitable tools for measuring human knowledge and ability remain matters of individual opinion, but as no other suggested method commands the same volume of tacit acceptance, a combination of oral and/or practical and/or written tests will doubtless continue to be used for this purpose. An obvious alternative is to dispense entirely with all forms of graduation tests, and to accept completion of a set course of training as adequate qualification for entry to the higher sphere. But can mere attendance at a class demonstrate how instruction is being absorbed? And, if it be held that assessment of the new knowledge and ability can safely be deferred until the fledgeling has displayed his prowess on the job, would a set course of instruction still be deemed necessary? It is understood to be a matter of growing concern to the more forward-looking trade union leaders how much longer skilled status can justifiably be claimed for the large number of young people who merely spend a stipulated period as apprentices, but whose training (sic) is entirely a matter for the employer. It is proper that such fundamental queries be constantly raised, especially when technical ideas and methods are so rapidly changing, but there is surely little real doubt that the Navy must continue training in its present general form until the pipe-dream of a full-time, seagoing training squadron of adequate size is realized. Considerations of space in operational ships is alone a powerful argument for this attitude.

## THE BOARD

### Origin and Development

In the busy days immediately following the return of the Fleet Air Arm to the Royal Navy, the time-honoured tradition that examinations should be conducted locally was followed. Captains (E) on the staffs of Administrative Authorities were responsible for organizing these tests, station officers being co-opted as circumstances required. Even amid the strains and stresses of war, it soon

became evident that this hit and miss system was unsuitable for the job, as continuity and consistency of standards were too difficult to achieve. Outside criticism of such methods was, not unreasonably, growing, and it was accepted that the pace of progress and change in aeronautical engineering required a new approach to this problem.

In 1944, a lieutenant (A) was appointed to the R.N.A.S., Worthy Down, as a member of a Centralized Trade Test and Examination Board, under the presidency of the Technical Training Officer, a captain (E), on the staff of F.O.N.A.S. at Lee. From this nucleus, and following further Admiralty meetings chaired by D.A.M.R., the N.A.M.E.B. was formed in September, 1946, under the administration of Flag Officer Air (Home). By dint of special effort by all concerned, the Board was ready, but only just in time, to examine the first class of air mechanics to pass out of the R.N.A.S., Yeovilton, on the 23rd of that same month.

When the sub-command of F.O.G.T. was formed in 1948, it was deemed inappropriate for N.A.M.E.B. to be part of the training organization, and it remained under the direct control of F.O. Air (Home), until 1951, when greater independence was decreed and it was transferred to the Admiralty as an out-station of D.A.M.R.

### **Organization and Scope of Duties**

In the Fleet Air Arm, technical training (excluding electrical personnel) is controlled by the Director of A.M.R. whose Assistant Director, responsible for personnel matters, wears a second hat as President of N.A.M.E.B. Using a production analogy, the organization provides that specifications for technical training are drawn up by this section of D.A.M.R., are passed to F.O.G.T. for translation into the necessary syllabuses, which are then passed to the training establishments for implementation. At the training station, N.A.M.E.B. act as a personnel inspectorate whose standards are controlled by D.A.M.R. through this personnel member, in his second capacity as President of the Board.

Its functions have steadily increased (A.F.O. 1155/54 is the latest official statement of the terms of reference) to include the entire range of aircraft maintenance rating examinations (excluding electrical personnel) in Home Commands, and the professional annual examinations for commissioned air engineer. Those for upper yardman (E) have now ceased, but a recent addition has been the Admiralty Part II Intermediate Examination at R.N.A.S., Arbroath, comprising papers in aerodynamics, thermodynamics and mechanical drawing. The re-introduction of aircraft artificer apprentices (ordnance) will require a further extension of this semi-academic field, into basic physics, ballistics and a whiff of G.W., but all of which are well within the competence of professionally trained engineer officers.

### **Methods**

The basic principle, always applied, is that the aim of the examination is to find out if the candidate can do the work of the higher rating to which he aspires. This may appear to be a truism, but extensive experience has shown a universal tendency to teach too much, and to expect an unnecessarily high standard, in topics which are but distantly concerned with basic duties. Current orders on the scope of duties of aircraft maintenance ratings are, therefore, used as the primary guide for examiners, using the syllabus as a check list for the depth of knowledge on particular items. An organization such as N.A.M.E.B. is particularly suited and able to keep in immediate touch with changes in curricula and methods of training, and so to make all reasonable

allowances for candidates whose performances might be affected by such transitions.

Experience has also made painfully plain that most candidates, and a minority of examiners, are handicapped by varying degrees of inability to communicate their thoughts, sometimes by muddled thinking, but far more often by lack of facility in speech and writing. For this and other reasons, N.A.M.E.B. examinations, whenever possible, include some form of oral test as well as a written paper. Practical orals, with the necessary hardware—aircraft, component, engine, gun, lathe, etc.—in front of the candidate are considered to be the best test of all, as they give every chance to those who are not so slick with the tongue or pen, but may be thoroughly competent with their hands. Again, the purpose of the exercise is to find out what the candidate knows, rather than what he does not.

Much ink has flowed on the question of written examinations—the suitability, dependability and even the ethics of using such a medium have all been called into question. One of the principal reasons for their use in the Fleet Air Arm is that most technical orders and instructions must be promulgated in writing, not least the inspection schedules which form the very kernel of aircraft servicing procedure, so the ability of the candidate to interpret these schedules and other written technical statements must be established.

The type of written examination used is varied to suit the grade of rating concerned : very short answer type (at most a short sentence and often only one word) for new entries qualifying as air mechanics ; rather harder, but still very short answers, needing some reasoning power as well as factual knowledge, for leading rates ; brief descriptive or fault-finding questions (about ten minutes each) for petty officers ; essay type questions, requiring a higher standard of technical knowledge over a wider range, and ability to draw conclusions from known facts, are used for mechanic and artificer grades. It is generally accepted, that a written examination, to be of reasonable length, cannot cover the whole of a syllabus, and this is a further reason for supplementing by oral/practical tests. Broadly, similar methods are used in the Royal Air Force, with whom a good liaison is maintained.

In craftsmanship or trade tests, also, the aim is to make the test as unlike a drill exercise as possible, by requiring candidates to use their initiative about the type of tool, hand or machine, to be used, and to make as many of their tools as they might reasonably expect to do in the field. The coupling of a written workshop-practice paper to all trade tests is a valuable aid in assessing overall knowledge of the craft syllabus. The continuity, provided by an organization such as N.A.M.E.B., in the standards of manual skill and technical knowledge demanded, and in the methods of marking and invigilating, are well recognized and appreciated by all concerned.

‘ Without fear or favour ’ has often been suggested as a motto for the Board, and it fairly describes its steady policy. All examiners are specially trained to conduct tests in a way which gives all candidates every chance to show what they know, and the almost universal bogey of examination nerves is treated with sympathy.

#### REFLECTIONS

Can the Service afford a non-productive unit, such as a permanent examining body ? To employ ten officers and fifteen chief petty officers (two of whom are writers), may seem unjustified in these days of economic stringency. Measured against the cost and value of the products examined, however, and considering that the personnel of the resident boards would remain a Vote A charge in any case, this issue can be seen in proper perspective. The statistically

minded might wish to know that about 180 written papers per annum are set by N.A.M.E.B., and that the great majority of these form but one-half of an examination, the other being oral.

Considering its ability, denied to separate and occasional examiners, to integrate all the technical aspects of long-term training as given to mechanics and artificers, to help in keeping academic instruction strictly related to a man's job in the Service, and to keep the necessary margin ahead of changing requirements in the skill and technical knowledge of maintenance personnel, might not a similar system be usefully applied to the Service more widely?