THE DARTMOUTH BACKGROUND OF AN ENGINEER OFFICER

by

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Early History

The literature dealing with *Britannia* days skips lightly over the subject of engineering instruction. It was not until the arrival of the screw yacht *Wave* in 1884 as tender to the *Britannia* that engineering found a place in the curriculum. Other tenders included the screw gunboat *Dapper* and the screw sloop *Racer*. In 1885 a " Steam Study " was equipped in the *Wave* but the " object of the exercise," however, was primarily sail drill, and Cadets were not encouraged to visit the Engine Room. Steam was evidently still being viewed with " growing concern."

There is also a passing reference to the subject in a pleasing excerpt from the description of a Cricket Match in 1898, which announces : " Time for *Britannia* to go in, and Engineer Lieutenants Benn and Smith* are deputed to open the ball. Athletics, as is well known, are by no means neglected at the Engineers' Training College, and these two gentlemen, whose duty it is to look after the engines of the tenders attached to *Britannia*, and initiate Cadets into the mysteries of steam, are well able also to show them a wrinkle or two in handling the willow."

Later, we read that at the R.N. College, Osborne, in 1903, " Kingston, the workshop, appears to possess a tremendous attraction for the Cadets, and judging by the eagerness with which they race for their places and tackle the tools, practical mechanics is not going to be a difficulty in the new (the Selborne-Fisher) scheme."

Osborne and Dartmouth

The Kingston tools continued to be tackled till 1921 when Osborne closed down, and the whole of the eleven terms' training took place at Dartmouth.

Each term of Cadets had, besides its Term Officer, its own Term Engineer Officer. Engineering instruction included lectures, workshop practice, instruction aboard the four-funnel cruiser *Pomone*, and in the sea-going tender *Saumarez*, which was later supplanted by the sloop *Forres*.

Starting in his first term with 21 hours' engineering spread over 12 weeks, the Cadet gradually worked up to 46 hours in his 11th term, at the end of which he had received some 390 hours' instruction in engineering during his time at Dartmouth.

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* Late Engineer Rear-Admiral E. P. St. J. Benn, C.B., and Engineer Captain E. C. Smith, O.B.E., R.N.

Modern Times

The old term-system has been replaced by the house-system, but without House Engineer Officers, and the present day sees many changes. The 13-year-old entry has now ceased, and the last of these will leave the College in 1953. The new scheme of entry at the age of 16 is in force, and about 33% of these join as Cadets (E).

Object of Engineering Training

It is as well to emphasize that the syllabus of instruction is not designed to teach Cadets marine engineering nor to do more than to touch lightly on mechanical detail, but rather to give a sound grounding on which they can base their appreciation of the problems which, as naval officers, they will have to meet, whether it be connected with an ill-used power boat or contaminated feed water ; to disabuse their minds that engineering is all sweat and cotton waste, and to instil the truth that a basic mechanical knowledge greatly increases the usefulness of all naval officers.

Outline of Training

The Cadets (E) receive the same instruction in all subjects as do the Executive Cadets. They work one complete " Engineering Week," of 28 hours each term, and this is divided up into 20 hours' workshop practice (including instruction in power boats), 3 hours' drawing office, and 5 hours' lectures given by the Engineer Officers.

Instructional aids include demonstration models, films and film strips.

At the end of the week a test paper is given so that progress or otherwise can be assessed.

Sandquay

The workshops at Sandquay are admirably equipped with all the essential shops, and the machine tools are of modern design, Cadets receive practical instruction in the following shops and trades :—

Drawing Office
Fitting Shop
Lathes and machines
Patternshop and Foundry
Boilersmith and Enginesmith
Coppersmith and Welding (Oxyacetylene and Electric)
Electrical Shop, and Testing of Materials.

They are also given practical instruction in the operation and maintenance of Diesel-driven power-boats, of which fourteen are held at the College.

It is unfortunate that national economy has decreed the withdrawal of the best aid to instruction, the sea-going minesweeper tender, H.M.S. *Orcadia*.

Standard Attained

The 13-year-old entry passing-out examination is taken at the end of the 12th term. The standard should enable a Cadet to join the training cruiser, H.M.S. *Devonshire*, with an intelligent appreciation of the functions of boilers, main and auxiliary machinery, and power-boats. He should know the duties of the Engine Room Department personnel, the elements of damage-control, and theory of fire-fighting.

He should also have a fair knowledge of workshop practice, of the various tools used by the outside trades, and he should be able to interpret a blue print.

The standard of the 16-year-old, will be better assessed when the first batch joins the *Devonshire* in 1950. They will have received only half the number of hours' instruction and it is unlikely that their rate of absorption is double, any more than is the rate of the output of their instructors.

However, with a little modification of the syllabus, it is expected that they will be able to reach a reasonable standard on passing-out.

In this connection it may be mentioned that the Special Entry Cadets—18-year old entry—who are a mixture of Executive, Engineer, Electrical, and Supply and Secretariat Cadets, have only one term at Dartmouth, and their syllabus has to be modified somewhat drastically.

Conclusion

The Dartmouth Cadets Engineering Training is greatly encouraged by modern material facilities, and also by enthusiastic, patient, and capable pensioner Instructors. Everything, in fact, is " laid on," but the 168 hours allowed is for the 16-year-old entry a very short time in which to " initiate the Cadets into the mysteries of steam " and the many other aspects of naval engineering.