DEVELOPMENT IN FIREFIGHTING TECHNIQUE.

The loss of a number of H.M. ships during the early stages of the war through fires caused by enemy action, proved that this danger had not been fully appreciated. The inadequacy of the fire-fighting equipment supplied was revealed and it was evident that the existing allowances in all classes of ships had to be considerably increased and supplemented by new types. It was also apparent that facilities should be provided to enable training to be given in fire-fighting technique and in the use of modern equipment. To expedite matters, E. in C. and D.N.C. were made jointly responsible to the Board of Admiralty for fire-fighting matters appertaining to the fleet, E. in C. being responsible for training.

The assumption of the responsibility of equipping the fleet with new equipment came at a time when industry was engaged in meeting the growing demands of all fighting services and many disappointments were experienced through unavoidable delays in delivery. These difficulties are still present in varying degree, the demand for diesel driven pumps particularly being far greater than the number available to the Admiralty.

Owing to the lack of data and experience of ship fire fighting it was decided to establish an Admiralty Fire Testing Ground at Haslar with a full scale mock-up of an engine-room of a *Dido* class cruiser. By this means the practical side of the subject could be studied and new equipment and materials tried out. Many trials were undertaken and the lessons learned promulgated by fleet orders. In addition, new appliances and fittings were developed and

subsequently supplied to H.M. ships. Concurrently with the introduction of new equipment it was necessary to provide means for instructing personnel in the technique of fire fighting and the use of the equipment supplied. Schools were therefore established at Lyness, Rosyth, Chatham, Porstmouth, Gosport, Devonport, Malta, Kilindini and Trincomalee.

E. in C. is kept abreast of developments in all aspects of fire-fighting technique and apparatus by virtue of representation on a National Committee appointed by the Ministry of Home Security and the Admiralty Chemical Advisory Panel. Ships' damage reports and reports of accidents and fires on board provide useful information from which the efficiency of the equipment may be assessed. The analysis of these reports also brings to notice risks which might otherwise be overlooked.

The low firemain pressure and small capacity of the pumps originally fitted was one of the many problems confronting E. in C. and D.N.C. in deciding what new equipment should be supplied. Standard equipment as used by shore fire brigades would not function efficiently at the low pressures available, and the quantity of water necessary was far too high from the aspect of limited pumping capacity and stability considerations.

To provide for the low pressures likely to result when damage is received it was decided that all fire appliances operating from the firemain should be capable of functioning efficiently at 25 lb. per sq. in. It was also decided that additional pumps should be provided and that the standard nominal working pressure of the firemain should be increased to 75 lb. per sq. in.

The decision to carry out fire-fighting equipment trials on new construction and on ships which had undergone extensive refit was made to ensure that the equipment had, in fact, been supplied, was in working condition and stowed correctly and that some of the crew at least, had, at a very early stage, a knowledge of the equipment. The report of the tests carried out on the firemain furnishes valuable design data, those received soon after the institution of the tests indicated that in some classes of ships the friction loss in the main was far too high. This information permitted alterations to be made in later vessels.

E. in C's responsibility is not confined to major war vessels but extends to all types of craft. The frequency of petrol explosions and fires on petrol-engined craft causes much concern as the reports frequently show that they are due to neglect of the orders applicable to the handling and stowage of petrol. Many instructions regarding precautions to be taken to minimise the risk of explosion and fire in such craft have been promulgated by fleet orders.

Methyl-bromide, the medium used in the fixed fire extinguishing apparatus in petrol-engined craft is an effective extinguishing agent but, unfortunately is toxic and owing to its insidious nature is very dangerous. Fatal accidents have occurred due to leakage from these systems. The problem of finding a satisfactory non-toxic substitute for methyl-bromide is being actively pursued in collaboration with the Director of Scientific Research. Many improvements in the design of this installation have been made.

The vulnerability of aircraft carriers has received special consideration and many warning instructions have been issued, with particular reference to the hangars. Additional safeguards to minimise fire and explosion risk have been introduced in the design stage and have also been incorporated in existing ships undergoing refit.

The many different classes of ships with their multifarious equipment required in the war against Japan, has necessitated a close study, by the fire-fighting section, of the additional fire risks involved and of the consequential remedial measures to be adopted.