

was reversed, premium income being 39.9 per cent. and loss 51.6 per cent. The figures are strictly comparable, as the Fire Board levies are treated as loss for the purposes of the calculation.

It is not within the province of this report to enter into a discussion as to the equity or otherwise of the existing insurance tariff rates as they apply to fire districts, and for this reason the detailed figures on which the table is based are not published. As far as can be ascertained no reliable figures are available from any other source showing the incidence of fire losses in these districts in relation to insurance premiums, and it was therefore considered that the information would be of general interest as showing the value of fire-protection.

The principal purpose in the preparation of the average tables has been to determine whether the fire-loss figures taken over a period would confirm the impression gained from the examination of the work of brigades at individual fires, referred to at the commencement of this section of the report, that the additional cost of bringing the organization and equipment of the brigades up to a higher standard would be justified by the resulting decrease in fire loss. It is considered that, allowing for the difficulties with respect to water-supply and equipment under which many brigades are now operating, the figures amply confirm this conclusion.

#### HAND FIRE-EXTINGUISHERS.

The Departmental Technical Committee referred to in the last annual report has had a number of meetings since it was set up. A circular has been sent to all suppliers of fire-extinguishers requesting information as to the specification to which these extinguishers are manufactured, and further information is being obtained from Great Britain. It will not be possible to complete the work of the Committee for some time owing to the necessity for obtaining the fullest possible information before a final decision is reached regarding the standards of construction and maintenance to be adopted. The Committee has, however, recommended that the following conditions should apply in the meantime to extinguishers for use in departmental buildings:—

- (1) No new extinguishers to be purchased unless complying with the British Board of Trade standard and tested by the manufacturer to a pressure not less than 350 lb. to the square inch.
- (2) All extinguishers now in use to be submitted to a hydraulic pressure test of 300 lb. to the square inch, and a similar test to be applied every fourth year.
- (3) Maintenance: Acid-soda extinguishers of the turn-over type to be examined for corrosion and operating-defects and recharged annually. Acid-soda extinguishers of the sealed-bottle type to be examined annually and the alkaline solution to be replaced at not greater intervals than three years. Foam extinguishers to be examined annually, and the constituents tested for foam-producing content and replaced at not greater intervals than two years. Tetrachloride extinguishers to be examined six-monthly to check operating-mechanism and to see that extinguisher is fully charged.

During the course of the investigations made by the Committee a considerable number of cases have been noted where extinguishers of the break-bottle type, particularly conical extinguishers of the "Quenchee" and "Minimax" types, have been fitted with a sealed bottle containing an excessive quantity or strength of acid. This applies particularly to the 10-pint extinguisher, which is commonly found equipped with the acid bottle designed for the 2-gallon type, and in some cases even with the excessive strength charge intended for the 2-gallon type.

The Committee decided that a public warning should be issued regarding this matter, since there is a serious hazard in the use of an extinguisher with an excessive acid charge, owing to the fact that in the event of the blockage of the delivery, sufficiently high pressures may be developed to cause the explosion of the extinguisher. The importance of this warning may be gauged from the fact that the use of the standard 2-gallon acid charge in a 10-pint extinguisher would create an excess pressure of approximately 60 per cent., while the high-strength charge referred to is capable of producing a pressure from 300 per cent. to 400 per cent. of that developed by the standard charge.

There is little doubt that the use of a non-standard acid charge was mainly responsible for the fatality which occurred in the use of an extinguisher of this type at Hastings in 1933. The inquiries indicate that a number of these charges are still in use, for the supply of which the makers of the extinguishers disclaim all responsibility. It is therefore strongly recommended that all owners of sealed-bottle type of extinguishers purchased prior to 1933 should make arrangements for their examination by the manufacturers or selling-agents, or by some other person competent to ensure that the correct charge is installed.

The servicing of hand fire-extinguishers in commercial use by the local fire brigades has been further extended during the year. The brigade records show that a further development of this work is most desirable, as a considerable number of extinguishers have come under notice which were in bad condition or improperly charged. The records also show the value of this first-aid equipment in dealing with fires in incipient stages—in Auckland City alone no less than thirty-two extinguishers being used on incipient fires in premises where the equipment is serviced by the brigade.