

and to the carrying of certificated officers. This exception, however, does not apply to a ship whose length exceeds 40 ft. This class of vessel is found mostly in districts where, owing to lack of road or railway communications, farm-produce is carried by launches.

The Department's requirements to which objection has been taken relate to the insulation of engine-rooms with asbestos-board and metal sheathing, and the provision of adequate whistle or other form of apparatus for use in fog and to enable one vessel to indicate to another any change of course.

In considering the reasonableness of the Department's requirements it must be borne in mind that the Board of Trade will not allow a petrol-engine to be used at all in a passenger-launch plying for hire. This is an indication of the opinion of the Board of Trade that a petrol-engine in a passenger-launch is unsafe.

Arising out of the conference which was held with hire-launch owners in Auckland, it has been decided to amend the requirements in the following direction :—

- (1) To cancel the requirement to use asbestos-board in the engine-room, except in the case of small engines totally enclosed in a wooden box or casing. The reason for this is that as the vessels are run the asbestos-boarding is saturated by bilge-water and collapses on to the wall of the vessel, thus preventing a free flow of air and causing rot to occur.
- (2) To accept metal lining on the floor and half-way up the walls as sufficient for engine-rooms entered from a cockpit, instead of metal lining throughout.
- (3) To require the air intake of carburettor to be turned upwards, where this has not already been done by the makers of the carburettor, and fitted with gauze to damp the " back-fire " and to in any case direct the " backfire " should it pass through the gauze away from where loose petrol or vapour may be lying and away from woodwork.
- (4) To require a small tray, also covered with gauze, to be fitted under the carburettor to catch any petrol which may leak therefrom.
- (5) To require two fire-extinguishers to be carried, one tetrachloride, and one foam or froth. The reason for this is that the tetrachloride is most efficient for fires in enclosed, draught-free spaces, from which the gas cannot be dispersed. In open or partly open spaces the foam or froth extinguisher would be most effective.
- (6) To permit existing whistles or foghorns to be used, for the reason that there is not available on the market in New Zealand at the present time a whistle or foghorn of reasonable size and cost which can comply with requirements.

EXAMINATION OF MARINE ENGINEERS.

During the year 166 (168) candidates passed their examinations and 90 (121) failed. Of those who passed, 75 (70) were engineers of seagoing steamships, 7 (8) were engineers of steamers plying within restricted limits, 18 (21) were engineers of seagoing motor-vessels, and 66 (69) were engineers of motor-vessels plying within restricted limits. The figures in parentheses are those for the previous year.

REGULATIONS AS TO SAFE WORKING-LOADS FOR CARGO GEAR.

These regulations have now been in full operation since the 1st June, 1927, and only minor difficulties have been encountered in securing compliance therewith. Shipowners generally show a desire to obtain a good class of article for replacements to cargo gear. Although the effect of the regulations has been to increase the first cost of some items of cargo gear, the shipowner will ultimately receive the advantage by the longer period of service of improved-quality material. The regulations, of course, were introduced primarily to ensure safety, and there is no doubt that conditions are much more safe than hitherto. Many instances of lifting-tackle unduly loaded, badly proportioned chain slings, and neglect in annealing have been noted. Up to the end of the year fifty-eight guarantee certificates for fibre ropes were issued. Owing to the demand by shipowners for fibre ropes with a higher-grade certificate some ropemakers have improved the quality of their brands of ropes formerly classed as ordinary grade and have obtained higher-grade certificates for them.

During the year a report was received from the Home Office of experiments carried out by the National Physical Laboratory to test the efficiency of correcting the brittleness of chains by annealing. The report states that low-temperature annealing, when properly carried out, is the most practical method of correcting brittleness due to surface or skin hardening, a condition caused by repeated small blows on the chain links due to interlink action, bumping or dropping on hard ground, and chafing under hatch-coamings. Extracts from the report have been printed and distributed to users of chains and other interested persons, and copies have been enclosed in the regulations on sale. Several firms have installed small plants for the proof testing of chains. A number of tests, proof and breaking, have been carried out at the Engineering Colleges at Christchurch and Auckland.

INSPECTION OF MACHINERY.

During the year the number of inspections amounted to 40,957, which is an increase of 1,734 over last year's total. The number of new lifts installed is sixty-seven, and of new cranes twenty-six, an increase of twenty-eight and six respectively compared with last year's numbers. Pending the preparation of more comprehensive instructions regarding the safe working of lifts, it was considered desirable to issue instructions during the year dealing with gates and doors for lift-wells and cages. There were ten accidents to lifts during the year, three of which resulted in the death of a like number of persons. There is a noticeable improvement in the safety-devices now being fitted by first-class makers to passenger-lifts, but the Department encounters difficulties in obtaining reasonable protection for some types of goods-lifts.