

In July last the single-screw motor-ship "Margaret W" was disabled at sea through the fracture of the main engine crankshaft. The vessel was picked up by the motor-ship "Pukeko" and towed 140 miles to Auckland, where repairs were carried out. The fracture occurred near the end of the shaft immediately aft of a cam-shaft gear-wheel.

The defective portion was cut away and a new piece of shaft with a flange coupling was bolted to the gear-wheel after suitable drilling and keying. The repair was very efficient, and the vessel was able to continue in service during the time required to obtain a new crankshaft from England.

The extensive damage done to the s.s. "Rangatira" on the 2nd February, 1936, when she struck a rock in the vicinity of the entrance to Wellington Harbour is receiving the attention of the Department's surveyors. A complete report of the repairs will be included in next year's annual report. The vessel was most severely damaged forward, but considerable damage was also done to the bottom shell plating under the engine-room. Largely due to the efficiency of her construction and the subdivision arrangements and the amount of her reserve buoyancy, the vessel was enabled to survive foundering and to reach port drawing 27 ft. 6 in. forward and 11 ft. 6 in. aft, and with the fore peak and Nos. 1 and 2 cargo-holds open to the sea. The stem in way of the bow rudder was fractured, the top of No. 2 double bottom and the port side of the bulkhead dividing Nos. 1 and 2 holds were badly buckled, and No. 8 starboard tank top was set up sufficiently to cause overheating of the after propelling motor bearing. The vessel's freeboard is 12 ft. 0½ in. at her mean load-line draft of 17 ft. 0½ in. She has nine main watertight compartments, a fore peak and an after peak, a watertight double bottom 38½ in. high extending from fore peak aft to within a few feet of the after peak. It is estimated that 1,500 tons of water entered the flooded compartments, and that the deadweight of the vessel as loaded was approximately 70 per cent. in excess of her designed deadweight.

The repairs which it will be necessary to do consist of seven keel-plates to remove and renew, two to remove, fair, and replace, and one to fair in place. On the port side fourteen plates will be removed and renewed, three will be removed, faired, and replaced, and six will be faired in place. On the starboard side, twelve plates will require removal and renewing, two to be removed, faired, and replaced, and nine require fairing in place. In addition considerable repairs to stem, bow rudder, keelson, tank-tops, frames, floors, and intercostals in way of the damaged shell-plates, and to the bulkhead between the forward cargo-holds will be necessary. The repairs will restore the vessel to her original condition.

Plans and specifications of new vessels examined and approved by the Department during the year included those for a passenger launch for tourist service in Milford Sound, a passenger and fishing vessel for Akaroa, and four trawlers for service in the fishing industry out of the Port of Auckland. Two of the latter vessels are still under construction. The completed trawlers, the "Joan" and "Margaret," were built of wood of substantial construction, and are propelled by modern types of Diesel engines. The vessels are a little under 10 tons register, and are exempt from annual survey while engaged in fishing. They were built at Auckland shipyards under the supervision of the Department's surveyors, and the life-saving appliances, anchors and cables, fire-extinguishers, and other safety equipment placed on board complied fully with the Department's requirements for sea-going vessels.

A proposed new vessel of relatively high speed for the Defence Department was designed, and plans and specifications were prepared by the Department's staff during the year.

SAFE WORKING LOADS.

During the year the Safe Working Loads Regulations were revised. These regulations are designed for the prevention of accidents to persons engaged in working cargo on board ship arising from failure of cargo gear due to unsuitability of material, insufficient scantling, lack of proper maintenance, and overloading of the components of the gear. The opportunity was taken to bring the requirements for short-link chain and galvanized-wire ropes into line with British Standard Specifications, which were not in existence when the previous edition of the regulations was published. Other modifications were made to the regulations as experience showed to be desirable and necessary. The Department is indebted to the Standing Committee, consisting of representatives of the shipowners, waterside workers, and Harbour Boards, for their assistance and advice in the revision.

A considerable number of the regulations have already been sold to those parties whose duty it is to comply with the regulations. Several copies have also been sold in various parts of the world to parties not directly interested in the publication as regulations. This is taken as an indication that the value of the technical data in the regulations is appreciated.

INSPECTION OF BOILERS AND MACHINERY.

Boilers and Pressure Vessels.

The total number of boilers inspected was 9,009, an increase of 1,009 over the number inspected last year (8,000), and an increase of 865 over the previous peak year of 1931, when a total number of 8,144 was inspected: 4,997 of the boilers are fired boilers, 3,251 are unfired steam-pressure vessels, and 761 are air-receivers. The inspections include sixty-three new power boilers, aggregating 1,064 horse-power, manufactured in the Dominion, and twenty-four new power boilers, aggregating 530 horse-power, imported from abroad. They also include 168 new steam-pressure vessels, and twenty-six new air-receivers manufactured in the Dominion, and 123 new steam-pressure vessels, and twenty-six new air-receivers imported from abroad.