

REPORT.

The SECRETARY, MARINE AND INSPECTION OF MACHINERY DEPARTMENT, to the Hon. the MINISTER OF MARINE. *

Marine and Inspection of Machinery Department,
Wellington, 30th June, 1921.

SIR,—

I have the honour to make the following report on the work of this Department during the year ended the 31st March, 1921.

The different activities and services of the Department have been kept going during the year. I consider that the staff as a whole has endeavoured to maintain the high standard of efficiency gained by the Department. The work of the Department being largely of a technical nature, the staff has to keep abreast of the times with new improvements and scientific details so as to modernize the service from time to time. This applies more especially to shipping-surveys, lighthouse equipments and appliances, and to land machinery-construction work, with which the Department largely deals. Since the Great War finished, the Board of Trade in Great Britain has introduced many improvements, and that body has simplified conditions in many directions. The rules emanating from that body are adopted as our principal guide when dealing with the construction of ships and the installation of propelling-machinery to drive them.

Shipbuilding has not altogether been stagnant in New Zealand during the year, as there were several wooden vessels under construction, for which auxiliary power is to be installed of the oil-engine pattern. There are several very creditable oil-engines suitable for marine purposes now made in New Zealand, and I am hopeful that their manufacture will increase. For land purposes as a motive power many hundreds of oil-engines are made in New Zealand every year, and the oil-engine has become the farmers' and the small manufacturers' friend: it is such a useful engine for intermittent or for continuous use, and it can be made a portable motive power very readily. In this respect it has been a great labour-saver in remote districts where man-power has been scarce. The oil-engine has been almost universally used for propelling launches and other small craft in New Zealand waters.

Throughout the world there has been a remarkably rapid development of the heavy oil-engine. The design of these engines has been much improved, and the disadvantages of the oil-engine compared with the steam-engine have been correspondingly decreased. In Great Britain several large engineering firms, accustomed to the construction of marine steam-engines of first-class workmanship and of the highest power, have turned their attention to the construction of the large marine oil-engine. A vessel of 12,000 tons recently launched for the Bibby line of steamships, named the "Somersetshire," has two sets of six-cylinder oil-engines fitted, each set of 2,250 indicated horse-power. Nearly all the large shipping companies are following in the same direction, and the Union Steamship Company of New Zealand has also a large vessel being built and engined with oil machinery as a motive power.

In Wellington the first hulk in New Zealand fitted out to store oil for ship consumption has been placed in commission. The hulk carries 2,000 tons. Shore tanks to carry large quantities of oil fuel are now in course of erection and equipment. These are being built of steel, and are placed near wharves. The oil can be either pumped into the tanks for storage or from the tanks into the vessels using oil as a fuel. A keen competitor of the motor-ship is the steamship propelled by geared turbine machinery in which oil replaces coal as a fuel.

The Department requires that the engines of motor-vessels shall be in charge of properly qualified engineers. Three classes of certificates are issued—one for vessels plying in restricted limits, and two for seagoing vessels, the class of certificate in the latter case being governed by the vessel's horse-power.

Amendments have been made to the Deck-cargo Regulations as regards the carriage of coal and timber and other approved cargo under special conditions.

Amendments have been made to the General Harbour Regulations in respect to the carriage of petroleum on vessels. The carriage of petroleum has been rather a tough proposition to settle, and, as this substance is of a very inflammable nature, the greatest care had to be taken in the framing of these regulations. All interested parties were consulted, and a Minister of the Crown lent very helpful aid while the regulations were being framed and discussed. Great care has been also exercised by the Engineer-Surveyors to see that bulkheads in ships are tight and deck-spaces suitable before they issued to the owners of ships their permits for the carriage of petroleum. With slight alterations these regulations have worked admirably.

New rules have been adopted for the design and construction of marine boilers. In my last report I referred to the changes in the rules, but at that time it was only known approximately what the changes would be. The complete rules have now come to hand from the Board of Trade. The rules were framed at a conference attended by representatives of the Board of Trade, Lloyd's Register of Shipping, British Corporation for the Survey and Registry of Shipping, and the Bureau Veritas International Registry of Shipping. They follow closely on the lines recommended by the British Marine-engine Design and Construction Committee, and have been recommended by the conference for adoption by the various societies represented at the conference. The unification of rules for boiler-design and the adoption of the standard rules will do away with a great deal of the confusion and