

The CHIEF INSPECTOR OF MACHINERY and the CHIEF SURVEYOR OF SHIPS to the SECRETARY OF THE MARINE AND INSPECTION OF MACHINERY DEPARTMENT.

SIR,—

Head Office, Customhouse Buildings, Wellington, 5th August, 1918.

I have the honour to submit herewith the annual report of the operations of the Inspectors of Machinery and the Surveyors of Ships during the twelve months which ended on the 31st March, 1918.

The work of the Department has made satisfactory progress during the year. All districts have been inspected as far as possible, but at the end of the year there was still much inspecting to do. The war conditions have made for the introduction of labour-saving machinery, and whenever it could be procured it has been installed. Flax-milling has been notably busy during the year, and the freezing-works have kept abreast of all requirements in their new storage accommodation and added products. A great many inventors out of pure patriotism have submitted to the Department during the year suggestions for the solution of the submarine problem. Several of them were of a very ingenious nature. It has been interesting to read through their specifications and to peruse their plans. The question of better subdivision of ships has also been raised. Several of the suggestions have been well thought out. A good deal of time has been spent by myself and other Surveyors in work connected with Admiralty requirements and with troopship equipment. Whenever the services of Surveyors have been asked for to cope with such work they were readily given up to meet the emergency. A very special survey was made of the late gunboat "Torch," which was given up by the Admiralty to the New Zealand Government. Two Surveyors of Ships were engaged on this work for several weeks, and a rough plan was made out, with suggested alterations to make her suitable for lighthouse work to replace the s.s. "Hinemoa." She is of steel construction, and is sheathed with wood under water and for some feet above the usual draught-level.

An officer has been placed in the North Auckland district during the year, and his advent there is much appreciated by steam-users all over that large and scattered district. He has been stationed at Whangarei as a centre.

I had the pleasure of visiting several of the districts during the year, and met a great many engineers, shipowners, and steam-users on my way. The machinery installed and the provision made for a great extension of the plant at a dried-milk factory near Hamilton which I visited was most interesting and instructive, and showed clearly the possibilities of scientific and up-to-date methods. The dairying industry has an unlimited future before it. Great credit is due to those who have acted as pioneers in such an industry, for in the initial stages they risked much to perfect these new methods of milk-treatment. My Inspectors at Hamilton have gladly given their practical assistance when asked regarding suitable materials in connection with some of these new factory installations in their district.

There was no boiler-explosion during the year, which is a very gratifying record.

I can bear testimony to the zeal and to the work done by all the staff, very often during very trying conditions, in all districts.

Annual Survey of Steamships and Auxiliary-powered Vessels.

The survey of all vessels is nearly up to date. The piecemeal surveys to meet the requirements of shipowners have been acceded to as far as possible, but it has been found on occasions impossible to comply in all cases. Several vessels have been recommissioned and made suitable for sea service. This has added to the work of supervision considerably. Several coal-hulks are amongst this number; one in Lyttelton is now being fitted up as a steamship, and she is having the machinery which has been salvaged from a stranded steamer fitted on board. All the several details and plans were agreed to with some modification, and the discussions have been of an interesting and satisfactory nature throughout. In some cases it was difficult to get the required scantlings, and this difficulty had to be got over and the strengths maintained by other means.

The total number of surveys of steamships and of auxiliary-powered vessels was 697.

Two vessels were built in the Dominion during the year. One is a steamer and is named "Tiroa"; the other is the "Koau," an oil-engine-propelled vessel. Particulars of these two vessels are given below. Plans and specifications have been submitted for three other vessels, and two of these vessels have been completed since the end of the financial year. The third vessel is to be of considerable size for a New-Zealand-built vessel. She will be constructed of the best of New Zealand and Australian timbers, and will be of 700 to 800 tons. The following are the particulars of the s.s. "Tiroa" and the o.e.v. "Koau":—

S.S. "Tiroa."—This vessel is employed in the cargo trade within the Gisborne extended river limits. Her length is 111·2 ft., breadth 23·3 ft., depth 9 ft., and gross tonnage 184 and register tonnage 93. The hull is diagonally built, principally of kauri, and is sheathed with totara. The propelling-engines have two cylinders, 13 in. and 28 in. diameters, with a stroke of 18 in. They were made locally. The boiler is of the multitubular marine type, and was imported.

O.E.V. "Koau."—This vessel is employed in the Napier extended river limits, and has insulated spaces for the carriage of frozen meat. The hull has two diagonal skins and one of longitudinal planking. The planking, beams, keelsons, floors, and stringers are of kauri, and the keel and rudder-stock of hardwood. The dimensions of the vessel are—Length, 87·7 ft.; beam, 22 ft.; depth, 9·5 ft. The gross and register tonnage are 144 and 77 respectively. The vessel is propelled by two sets of oil-engines of a total brake horse-power of 170.

Fifty-three vessels had new propeller-shafts fitted, fourteen had new propellers, one had a new propeller-boss, and five new propeller-blades. Nineteen vessels had new engines fitted, and two had new main boilers. A new donkey-boiler was fitted in one vessel, and the pressure of the donkey-boiler was reduced in another. The pressure of one vessel's main boiler was also reduced. The main steam-pipes were renewed in two vessels, and the crank-shafts were renewed in six vessels. Four sailing-vessels and one steam-vessel were converted into oil-engine vessels.