

In the four principal towns of New Zealand the time of one Inspector is now largely devoted to inspecting passenger and goods lifts, and more time should, I think, be devoted to work of this kind in the large cities than heretofore. The speed of these lifts is fairly high and the wear-and-tear considerable. During the working-day thousands of passengers travel up and down in these passenger-lifts. So far, very few accidents have been recorded with lifts, and but for the supervision given to them the number of accidents might easily have been more numerous. I personally visited most of the districts throughout the year, and I can bear testimony to the zeal displayed by the surveying and inspecting staff in their respective districts.

The engineering trades have been slack during the year, and the new work offering has not been sufficient to keep all the works at their full running capacities. Ship-building has been fairly busy in Auckland and Dunedin.

Annual Survey of Steamships and Auxiliary-powered Vessels.

During the year new Life-saving Appliances Rules for ships came into operation. The rules deal with new boat equipment, more especially lifeboat equipment in the seagoing class of vessel, and buoyant equipment for vessels plying in restricted limits in and around harbours. Considerable alterations have had to be made in the equipments of most foreign-going vessels, and these have added to the cost of surveys this year. These regulations have led to a good deal of correspondence, but so far satisfactory arrangements have been made to comply with the regulations without unnecessary friction of any sort. There is no doubt that each year adds to the cost of running a modern ship, but any appliance that leads to the greater safety of ships should be adopted without delay. Modern passenger-ships, even in New Zealand waters, are large and carry a lengthy passenger-list, particularly in the intercolonial trades.

Four new vessels, over 25 tons gross register, have been built in the Dominion during the year, and six vessels are now under construction. The plans and specifications for all these vessels were submitted to the Department for approval. Last year the engines and boilers of only one out of the three steamers built were made in the Dominion. Of the four vessels completed this year, three are steamers, and in each case the boilers and machinery were made in the Dominion. This is a step in the right direction, and proves that satisfactory work can be done in the Dominion equal to the imported article. Two steamers, the "John Anderson" and the "Admiral," have been fitted with new boilers made locally, and these were supervised by the Department's Surveyors during the whole time of construction and installation. Of the four new vessels, two, the "Albany" and "Te Teko," were built of New Zealand wood, the other two, the dredge "Wallace" and the tug "Dunedin," of steel plating.

The "Albany" is a twin-screw steamer of 35 tons gross and 20 tons register, and is employed carrying passengers in restricted limits.

The "Te Teko" is an oil-engine cargo vessel of 108 tons gross and 56 tons register. She is fitted with twin screws, and the propelling-engines are of the semi-Diesel type and are of 120 b.h.p.

The dredge "Wallace" was built on the Priestman system. Her length is 83 ft. 9 in., breadth 22 ft., depth 6 ft. 6 in. The propelling-engines have cylinders 9 in. by 16 in. diameter, with a stroke of 10 in. The boiler is of the dry-back marine type, 6 ft. in diameter and 5 ft. 3 in. in length.

The tug "Dunedin" is of the following dimensions: Length, 124 ft. 6 in.; breadth, 25 ft.; depth, 13 ft. 6 in. Her gross tonnage is 345 and the register tonnage 125. The vessel is propelled by two sets of triple-expansion surface-condensing engines, each set driving a separate propeller. A contraflo condenser with centrifugal circulating-pump has been fitted, and also an independent air-pump and a pair of feed-pumps. Salvage and fire pumps and a complete electric-lighting plant have been installed. Steam is supplied from an Inglis type of marine boiler, 14 ft. in diameter and 11 ft. in length, working at a pressure of 180 lb. per square inch. This is the first New Zealand vessel to have this type of boiler fitted. The boiler is similar to the Scotch type, except that the products of combustion first pass from the common combustion-chamber at the back of the furnaces to a flue leading to the front of the boiler. The gases then travel back again by way of the usual small tubes to the uptake at the back of the boiler. The boiler is fitted with three corrugated furnace-tubes, and the flue-tube, which is similar to the furnace-tubes, is placed directly above the centre furnace.

Sixty-seven of the steamers surveyed were fitted with new propeller-shafts; sixteen had new propellers fitted; eleven had new blades fitted to their propellers; twenty had new engines fitted; several had new boilers fitted, three of which were made in the Dominion. One vessel was fitted with a new donkey boiler.

Considerable repairs and renewals to several of the vessels surveyed were made. Extensive repairs, as set out below, were effected at survey to the following vessels:—

S.S. "Elsie."—In the forward part of the hull a new keelson, 12 in. by 7 in. by 28 ft., was fitted and secured with Muntz bolts, $\frac{3}{4}$ in. diameter. The mast was found to be defective and was renewed. A new casing was built over the boiler. The engines were lifted out of the ship and thoroughly overhauled, including the re boring of cylinders and the fitting of new pistons. A new donkey pump was fitted. All the main and auxiliary steam-pipes were tested by hydraulic pressure to double the working-pressure. The steering-chains were renewed.

S.S. "Ennerdale."—The principal repairs at the survey of this vessel were made to the propelling machinery and the donkey boiler. The shafting of the main engines was lined up, the crank-shaft being lifted $\frac{1}{4}$ in. and the thrust-shaft $\frac{3}{8}$ in. The spare propeller was fitted. In the main boiler a number of rivets in the circumferential seams at the bottom of the boiler were renewed. The landing, where forward end plates join the shell at the bottom of the boiler, was overlapped with a patch 9 ft. long by $\frac{1}{2}$ in. thick. The bottom of the centre tube-plate at the front end was also patched. In the combustion-chambers four dog-stays, two screwed stays, one $2\frac{1}{4}$ in. back stay, one stay-tube, and two plain tubes and sixty rivets were renewed. In the donkey boiler eighty plain tubes and two stay-tubes were renewed. Two new feed-pump plungers were fitted, and new valves were fitted to the main and donkey check-valve chests.