General Harbour Regulations.

The total number of accidents reported during the year under Regulation 103 of the General Harbour Regulations was 826. Last year 529 accidents were reported. It was found necessary during the year to draw the attention of interested persons at some of the smaller ports in the Dominion to the necessity for reporting accidents, and the increase in the number of accidents can be partly accounted for by the number of reports now received from these districts.

Seven of these accidents had fatal results. Three were caused by goods slipping out of slings, two by goods swinging whilst being hoisted, one through a sling of cargo dislodging a gangway not secured, and one was the result of a vessel moving suddenly when it was being slipped for repairs.

The accidents may be classified as follows:—

Handling goods and other articles, including the use of hand-tools, and accidents due to lifting heavy goods and cases with sharp or rough edges, &c., 368 accidents.

Persons falling or slipping off gangways, shafts, down hatchways, off ladders, or slipping or stumbling on the level when not handling goods, 97 accidents.

Persons struck by falling or swinging loads not being handled by injured persons, 278 accidents.

Persons stepping on or striking against fixed objects not included in other classification, 37 accidents.

Due to failure of gear (chains, ropes, slings, derricks, &c.), 17 accidents.

Not otherwise classified (miscellaneous), 29 accidents.

Most of these accidents were not serious, yet any steps that could be taken to safeguard them would be worth while.

Any improvements that could be made in mechanical safeguards would probably not affect the accident rate very much. The nature of the accidents occurring to those engaged in loading and unloading ships seems to call for more attention and care in the man-handling, slinging, and stacking of goods.

Inspection of Machinery.

Boilers.

The following statement shows the number of inspections of fired boilers, unfired steam-pressure vessels, and air-receivers made during the year, the corresponding figures for the previous year being shown in parentheses:—

Fired boilers	4,880	(4,834)
Unfired steam-pressure vessels	3,732	(3,370)
Air-receivers	815	(775)
Total inspections	9,427	(8,979)

The increase in inspections for the year is a little over 5 per cent., and the aggregate for the year 9,427, is the highest annual return of inspections of boilers, steam-pressure vessels, and air-receivers yet recorded. The inspections include 77 new power-boilers, aggregating 2,091 horse-power, manufactured in the Dominion, and 43 new power-boilers, aggregating 2,345 horse-power, imported from abroad. They also include 142 new steam-pressure vessels and 85 new air-receivers manufactured in the Dominion and 242 new pressure-vessels and 58 new air-receivers imported from abroad. The total number of new boilers, pressure-vessels, and air-receivers for the year was 647, against 560 for the previous year. Plans showing the design and scantlings of all new boilers, pressure-vessels, and receivers were first submitted to the Department for approval of design and method of construction, and for computation of the allowable safe working pressure. After examination in Head Office the plans were forwarded to the field inspecting staff for the purpose of checking with the actual jobs, and final approval and certification of any unit was conditional on the materials of construction, workmanship, safety connections, and tests being in accordance with the Department's requirements.

Close attention is given to the quality of the materials used in the fabrication of boilers and pressure-vessels, and it is a rigid requirement that every plate used for parts subject to pressure shall be of boiler quality. Boiler steel is of known quality, and a certificate must be produced for every plate showing that, from the results of tests, the chemical and physical properties are in accordance with requirements laid down by the Department. Naturally, the Dominion's stocks of this special steel are not as extensive as those of ordinary mild steel, and manufacturers are dependent on comparatively small and frequent importations to supply their wants. A short supply of boiler-quality steel plates has been apparent during the year through the inability of English and Australian steelworks to deliver plates of certain sizes within a reasonable period, and there has been, on many occasions, considerable delay in boiler-manufacture. The position, however, became easier towards the end of the year, and there is now a fair supply of boiler-plates available, with prospects of earlier deliveries from abroad.

No explosions from boilers or pressure-vessels were reported during the year.

At the end of the year 1937 the erection of two Velox steam-generators, described in last year's report, was completed and the boilers were subjected to hydraulic and steam tests under the Department's supervision. These tests and the subsequent operation of the units in regular service gave complete satisfaction and aroused technical interest throughout New Zealand and beyond.

As the water content of each unit—only 4 tons—is relatively very small for an evaporation rating of 90,000 lb. per hour, manual control of the feed-water supply as understood in orthodox boiler practice is not practicable in this instance, and consequently the Velox units are equipped with a complex system of electro-mechanical control which performs the dual duty of regulating the combustion of fuel and the supply of feed water during normal operation, and in the event of an emergency arising from a failure of the feed-water supply the fuel is cut off before any damage to the boiler can ensue.