

be controlled by the governor; it prevents any permanent change in the speed. A fly-wheel cannot prevent an engine running away, but a governor can, and it is necessary that it and all the gear and the belting should be maintained in first-class order and condition.

At the end of the year all boilers had not been inspected that were due.

#### INSPECTION OF GAS-, OIL-, WATER-, AND ELECTRIC-DRIVEN MACHINERY, INCLUDING LIFTS.

In this branch of the Department's work a large increase has to be recorded. During the year 20,807 inspections were made, which is an increase of 2,256 compared with last year's figures. At the end of the year there were still a number uninspected.

#### FENCING AND GUARDING OF MACHINERY.

The whole of the machinery driven by prime movers has been thoroughly examined to see that sufficient protection was afforded those working in and around such plants. The great point aimed at always has been to fence and guard all the dangerous parts, so as not to destroy the efficiency of the machinery. There were issued 1,759 notices to fence and to guard machinery, and of this number 352 were considered very dangerous cases. Action was taken to eliminate the danger in the use of square-head buzz planers by converting them into round heads. This alteration will have a marked effect in the safety of those working with this machinery.

#### EXAMINATION OF LAND ENGINEERS AND ENGINE-DRIVERS.

These examinations were held at the principal centres throughout the Dominion, and special examinations were also held at other places to suit the convenience of applicants. The full list of places where examinations were held is as follows: Auckland,\* Bleinheim,\* Carterton, Christchurch,\* Dannevirke, Dunedin,\* Gisborne,\* Greymouth,\* Greytown,\* Hamilton,\* Hokitika, Invercargill,\* Kaingaroa, Karamea, Martinborough, Masterton, Napier,\* Nelson,\* New Plymouth,\* Ngatapa, Norsewood, Opunake, Otaki, Pahiatua, Palmerston North,\* Puponga, Reefton, Takapau, Taurarunui, Tauranga,\* Te Kopuru, Timaru,\* Waiuku, Wanganui,\* Wellington,\* Westport,\* and Whangaruru.\*

The examinations held were for extra first-class engineers, first-class engine-drivers, second-class engine-drivers, winding-engine drivers (steam and electric), locomotive- and traction-engine drivers, locomotive-engine drivers, and traction-engine drivers.

Reciprocal certificates were issued to applicants from other States as follows: England, 1; New South Wales, 1; United States of America, 3: total, 5.

The number who sat for the examinations total 488; of this number ninety-six failed to pass their examinations.

New examination-papers for all first-class engine-drivers' examinations were prepared in Head Office, and at each quarterly examination throughout the year new papers were forwarded to all district offices. The questions set were a good practical test of the candidates' knowledge, and contain the information necessary for the applicants to become competent in their daily duties. The appended return gives the names, &c., of successful candidates.

#### EXAMINATION OF ELECTRICAL-TRAMWAY DRIVERS.

All those who applied for examination and who had the necessary qualifications were examined. This examination includes a practical test on the car itself under ordinary and emergency conditions. Examinations were held at Auckland, Christchurch, Dunedin, Invercargill, Napier, Wanganui, and Wellington. The number who sat for examination totalled 165. Nine out of this number failed. More than one examination was held at the places named, excepting Napier. Special examinations were also held to suit the convenience of the tramway service, as requested, throughout the Dominion. The appended return gives the names of those who passed.

#### BOARD OF EXAMINERS APPOINTED UNDER THE INSPECTION OF MACHINERY ACT.

The Board of Examiners, consisting of the Chief Inspector of Machinery of the Marine and Inspection Department, the Engineer-in-Chief and the Resident Engineer of the Public Works Department, the Inspecting Engineer of the Mines Department, and the Chief Electrical Engineer of the Public Works Department, with Mr. J. G. Macpherson as secretary, sat at Wellington on eight days during the year. Mr. R. W. Holmes, late Engineer-in-Chief and Secretary of the Public Works Department, retired from the Public Service last year and from this Board. Mr. Holmes sat as a member of this Board on many occasions, and his discussions and decisions at all times were very helpful and of great service in deciding on any points in dispute. Mr. F. W. Furkert, who succeeded Mr. Holmes as Engineer-in-Chief and Secretary of the Public Works Department, was appointed a member of the Board, and also Mr. C. I. McKenzie, the Assistant Engineer of the Public Works Department. The Board dealt with all matters that came before it, and issued all the necessary certificates to successful applicants.

During the year a district office was opened at Gisborne. This district is growing rapidly, and the stationing of an Inspector there has saved many trips that used to be made from Napier by the Inspector stationed at Napier. The change has been much appreciated by land-machinery owners and the shipping people in the Gisborne district.

I have, &c.,

The Hon. the Minister of Marine, Wellington.

ROBERT DUNCAN,  
Secretary, Chief Surveyor of Ships, and  
Chief Inspector of Machinery.

\* Places where more than one examination was held.