

The first Inspectors of Machinery were Mr. Joseph Nancarrow, Chief, and Messrs. William James Jobson, Henry Augustus Levestam, George Croll, and Thomas Cairns Burt. Mr. Levestam and Mr. Burt resigned within a few months after appointment, and Messrs. Henry Alexander McGregor and Alexander Crawford were appointed in their stead.

In his first report on the working of the Act (a very brief one as the Act had been in force then for only six months) the Minister stated that the Government considered that, while no attempt should be made to create a revenue from this source, the fees should be made to pay all the necessary expenses of carrying out the Act.

The first report of the Inspectors showed that a considerable number of the boilers inspected were in a defective, and some in a highly dangerous, state.

Subsequent Legislation relating to Boilers.

Since 1874 steam has come into use for other purposes than driving engines, and compressed air, often under high pressure, has also come into general use. Proper periodical inspection of steam-pressure vessels and air-receivers is necessary if explosions are to be avoided. As these pressure vessels came into general use, the legal definition of boiler was extended to include them. In 1894 steam-digesters were brought under inspection, and by 1908 all other steam-pressure vessels were also similarly treated. Since 1927 air-receivers working at pressures exceeding 30 lb. per square inch have been subject to periodical inspection.

In the search for efficiency, boiler pressures have crept higher and higher. Up to 1890 a pressure higher than 100 lb. per square inch was rare. Nowadays pressures of 180 lb. to 200 lb. are common. Abroad quite a number of boilers are working at pressures between 500 lb. and 1,000 lb. per square inch, and even a few boilers have been constructed for a pressure of 3,000 lb. per square inch.

The design, workmanship, and inspection have been progressively improving to meet the more exacting conditions under which high-pressure boilers are worked.

Boiler explosions often attributed in the early days to inevitable accident would, in the light of our knowledge to-day, be put down to gross negligence. A boiler explosion due to avoidable causes is very rare to-day. For the ten years prior to 1905, there was only one boiler explosion in New Zealand for the 38,976 boilers inspected. In 1911 it was reported that there had been only two explosions in the last twenty-one years, and that over 70,000 boilers had then been inspected. Since 1911, 173,324 boiler inspections have been made, and there has been one explosion since this time resulting in one death, and two explosions which did not cause any personal injury.

In 1888 complaints were being made as to the incompetency of many of the drivers then in charge of traction engines, which were rapidly superseding the horse-drawn portable engine.

In 1894 provision was made in the Act for the examination of engine-drivers of locomotive and traction engines, and drivers of winding-engines, and for the issue of appropriate certificates to applicants passing the examinations. In 1900 a similar provision was made for engine-drivers of stationary engines other than winding-engines, and for the issue of an Extra First-class Engineers' Certificate to applicants who were trained engineers and had a superior knowledge of the design and operation of steam machinery. Certain marine engineers' certificates are also accepted as equivalent to stationary engine-drivers' certificates. The Department's experience is that this requirement that persons responsible for the safe operation of boilers and engines should hold certificates has had very beneficial results. Holders of certificates generally realize the responsibility which rests on them for the correct operation of boilers, and they are deserving of some of the credit for the good results attained in respect to the safety of boilers. Approximately 17,000 certificates of competency granted under the Inspection of Machinery Act have been issued to date.

Subsequent Machinery Legislation.

The remarkable development of machinery driven by mechanical power during the last sixty years is well known. It is not surprising, therefore, that as new kinds of machinery were made for an increasing variety of manufacturing processes, the schedule in the original Act defining the class of machinery subject to inspection should have been extended. New sources of power, such as gas, oil, and electricity, greatly assisted in this development. It was in 1896 that machinery driven by electricity was first made subject to inspection. Four years later, machinery driven by gas, gaseous products, and compressed air was also defined as machinery subject to the Act and brought under inspection. In 1908 machinery driven by hand or animal power was excluded from the provisions of the Act. At the present time machinery driven by power of 1 h.p. and under and farm machinery not exceeding 6 h.p. are also exempt from inspection. In respect to the farm machinery, however, an owner who permits the moving parts of any such machinery to be used without being guarded is liable to prosecution.

In 1908 all vehicles propelled by steam and all motors whose weight unladen exceeded three tons were brought under the Act. In 1928 an amendment was made to the Act limiting its application to steam wagons and other special types of steam-driven vehicles.

In 1927 the standard of safety for lifts and cranes was raised. These special classes of machinery are now required to conform to safety standards as regards design and construction, as well as to be properly fenced and guarded.