

The boiler certificates issued during the year show an increase of 744 over the number issued last year.

Government Boilers and Machinery.

Beyond the annual inspection of Government boilers, for which no fee is charged by the Department, a number of plans and specifications for new boilers, pumping appliances, and machinery appliances for asylums have been attended to, and the machinery connected with the Defence Department has received attention.

Defects in Boilers and Fittings.

A great number of defects were discovered during the year, the total being 475. In some cases boilers have been seriously impaired through using feed-water, in time of drought, from a supply that had become impure. Steam-users should in these cases be most particular, more especially if there happens to be any saline matter in solution. Boilers fed with this water quickly scale, and overheating of the plates, leaky tubes and joints follow as a natural consequence.

New Boilers.

A large number of new boilers has been added to our books, principally used for gold-dredging and dairying purposes. The total number added amounts to 427, representing a total horse-power of 6,291. Of this number, 255 were imported, and 172 made in the colony.

It is gratifying to be able to compliment the builders of boilers in New Zealand on the very excellent workmanship they now turn out. Before manufacture a plan of each boiler is submitted to the local Inspector of Machinery for his remarks and information, and the construction is carefully watched by him during manufacture, and then tested by hydraulic pressure on completion, in his presence, by standard gauge. The days of punched holes and rough riveting is a thing of the past for this class of work, and there is no need for any one wanting a boiler to go outside the colony for its manufacture. Numbers of the engineering establishments have hydraulic appliances for riveting, and the very heaviest work can now be undertaken.

Lifts and Water-driven Machinery.

One hundred and twenty-seven hydraulic lifts, thirty-nine lifts driven by gas, steam, and electricity, sixty-seven gas and hydraulic hoists and electric motors, 227 water-driven machinery, 461 gas-engines, seventy-two oil-engines, and thirty-one steam machinery were inspected during the year, making a total of 1,024, or 422 in excess of the number inspected last year. The repairs were fairly evenly distributed over the colony for this class of motive power, and amongst general repairs the renewing of ropes in hydraulic lifts, the annealing of chains, and general overhaul of safety-catch gears in cages formed the most important.

Fencing of Machinery.

In the appended table No. 4 is set out some examples of the notices which have been given to fence all classes of machinery throughout the colony. I find that owners of machinery are exceedingly pleased to have the advice of practical Inspectors in this matter, so that the dangers arising to employees may be lessened. It is difficult to protect all parts of machinery in factories without impairing the efficiency of the machine, but where moving machinery appears to be a menace to an employee's safety in any part of a factory used as a thoroughfare all parts are ordered to be specially well guarded. The majority of accidents, where, say, a hand or a finger is crushed, mostly arise from the employee becoming careless through constant practice and use of the machine rather than from the want of protection. All employers, however, should instruct employees not to wear loose clothing or aprons, and, in the case of girls, the hair should be worn in a net and not loosely. Several accidents have occurred in New Zealand clearly demonstrating the above, and employees cannot be too careful, especially where speeds are high.

Uncertificated Steam-users.

It has been necessary to maintain prosecutions against several owners of boilers and machinery for working same without the necessary certificates; but it has now become so generally known that these certificates must be taken up that the prosecutions are decreasing in number, though the steam-users do not take the full advantage they should do of lifting their certificates within the month given them, by which they obtain a very considerable concession. The failure to do this gives a great deal of extra trouble to the Department.

EXAMINATION OF ENGINE-DRIVERS AND EXTRA FIRST-CLASS ENGINEERS.

The work connected with this branch of the Department is constantly increasing, and, as examinations have to be held all over the colony, much loss of time that used to be employed at practical inspection-work occurs. There have been four fixed examinations held at each of the centres—viz., Auckland, Wellington, Christchurch, Dunedin, and Invercargill—each of which has extended over several days. There have also been examinations held at Alexandra South (2), Blenheim (1), Cromwell (2), Clyde (3), Dannevirke (3), Feilding (1), Gore (2), Grey-mouth (2), Gisborne (2), Hastings (1), Hawera (1), Hokitika (2), Lawrence (2), Marton (1), Masterton (2), Napier (4), Nelson (2), New Plymouth (2), Oamaru (1), Palmerston North (2), Queenstown (1), Reefton (2), Roxburgh (2), Stratford (1), Timaru (1), Thames (2), Wanganui (2), Westport (2). In each case the examination has occupied some days, and there has been the time spent in going to and from many of the places specially.