

a process of rusting sets in, and the corrosion eats into the metal. The contraction and expansion of the plates causes the rust to break off and expose further metal, and so the pitting becomes deeper. This form of deterioration is very active in some boilers.

The tubes should be so spaced as to promote the circulation of the water. Unsatisfactory spacing cannot be put right after the boiler is built. In marine practice a clear space of $1\frac{1}{4}$ in. in a horizontal direction and $1\frac{1}{8}$ in. vertically is the standard spacing. For multitubular land boilers a space of $1\frac{1}{8}$ in. for tubes $2\frac{3}{4}$ in. diameter and upwards, and 1 in. for tubes under this size, is considered the least desirable if the circulation is to be satisfactory.

EXAMINATION OF LAND ENGINEERS, ENGINE-DRIVERS, AND ELECTRIC-TRAM DRIVERS.

These examinations were held at the various offices of the Inspectors of Machinery throughout the Dominion at the regular intervals provided for in the regulations—namely, during the months of February, May, August, and November. Also, to suit the convenience of candidates, occasional special examinations took place at these centres and at several country places visited by Inspectors on their periodical tours. The full list of places where examinations were carried out is shown in an appended return, as also is the number of candidates examined at each place. The classes of certificates for which examinations were held were: Extra first-class engineer, first-class engine-driver, second-class engine-driver, steam-winding-engine driver, electric-winding-engine driver, locomotive-engine driver, traction-engine driver, locomotive and traction engine driver, and electric-tram driver. The total number of candidates examined was 659; of this number 506 passed and 153 failed in their examinations. New examination-papers for first-class engine-drivers were issued from Head Office for each quarterly examination.

Recognition of Certificates from Abroad.—Under section 49, Inspection of Machinery Act, 1908, certificates of the appropriate grade were granted, without examination, to holders of certificates from abroad, as follows: United Kingdom, 1; Canada, 1; Queensland, 2; New South Wales, 1.

FISHERIES.

During the year the Chief Inspector of Fisheries paid official visits to the following fishing-ports and fishing-grounds, namely: Whangaroa, Bay of Islands, Whangaruru, Whangamumu, Whangarei, Kaipara, Hauraki Gulf, Coromandel, Kawau Island, Mahurangi, Great Barrier, Manakau, Lower Wanganui, Cook Strait, Picton, Blenheim, Nelson, Kaiapoi, Marlborough Sounds, Lyttelton, Timaru, Oamaru, Port Chalmers, Bluff.

Special inspections were made of the oyster-beds at the Bay of Islands, Whangarei, Great Barrier, Hauraki Gulf, Coromandel coast, and Kawau Island. Visits of inspection were also made to the Government salmon-hatchery at Hakataramea. The Chief Inspector assisted with the hatching of 600,000 quinnat-salmon eggs and liberation of the young fish at the Maori Creek hatchery, Marlborough; planned and assisted with the erection of a salmon-hatchery at Waitea Creek, Upper Wanganui; and also the hatching of Atlantic-salmon eggs and liberation of the salmon-fry in the upper tributaries of the Wanganui River. At the request of the Coromandel Acclimatization Society he made an inspection of the streams in that district with a view to advising the society with regard to stocking these waters with the most suitable kind of trout.

From the annual reports and returns supplied by the Collectors of Customs and Inspectors of Fisheries it would seem that fish have been plentiful on most of the fishing-grounds, and favourable weather was experienced the greater part of the year. In the northern districts, Hawke's Bay, and Wellington the supply of fish during the summer months was at times in excess of market requirements, snapper and mullet being especially abundant on the northern fishing-grounds. The past season was one of the best for whitebait that has been experienced for a good many years. The fleet of steam trawlers has been increased during the year by three English-built trawlers purchased by Sanford Limited of Auckland from the New South Wales State Fisheries Department. During the year fishing by means of the Danish seine was started in the Hauraki Gulf by Sanford Limited. In the early part of the year this firm fitted up its small steam trawler "Countess" with the gear, and was most successful in obtaining good catches of snapper, flounders, &c. Munro Bros. also purchased a useful small trawler, and have been successful in obtaining good catches with the seine. As the Danish seine is less costly than a steam trawling plant, and also much more economical in working, and almost as effective as far as catching fish is concerned, it is pretty certain in the near future to be extensively used by fishermen throughout the Dominion.

Foveaux Strait Oysters.—The local Inspector of fisheries at Bluff reports that oysters were plentiful on all the beds in the strait. Four vessels were employed from Bluff dredging, and made good catches when the weather was favourable. The oysters were in splendid condition throughout the season, and there was a keen demand for them both in the local market and also in Melbourne. The quantity of oysters dredged from these beds for the season was 28,785 sacks, being an increase of over 1,500 of the quantity taken in 1922. The wholesale value of the catch was £17,991.

Rock-oysters.—The natural beds at Bay of Islands are in good healthy condition. On most of them there is a large crop of young oysters showing, and principally on that account some of the beds could not be picked without destroying a large number of immature oysters; this reason, and also the fact that most of the pickers were employed last season on the Hauraki Gulf and Kaipara beds, accounts for the smaller quantity of oysters sent from the Bay of Islands last season. The Whangarei beds were lightly picked; they are in splendid condition, and will again yield a good quantity for market this season. There has been a good "fixing" of young oysters all over the beds this season. The Kaipara beds were picked, and 1,381 sacks were taken for market. The beds were left in good condition, and they will yield a considerably larger quantity this season. The picking of these beds was done by a small gang of selected pickers from the Bay of Islands.