

FLOOD-GATES AND FLAPPERS.

Four large double-door flood-gates and five double flappers have been placed in position, and others are now in course of construction. Iron doors have lately been used on same with excellent results.

WHARVES.

Two wharves have been erected during the year, and another is under construction. Improvements have been effected to jetties already erected, and several service wharves will be built later on, as it is more economical to provide wharfage at fairly close intervals than to construct roads.

BRIDGES AND CULVERTS.

Eight small bridges and six culverts have been erected, and the material is on the ground for as many more.

BUILDINGS.

One cottage and three sectional huts for workmen have been erected during the year, and one iron hut built at Orchard, which will be used later on as a goods-shed. A cookhouse and drying-shed were also built at Waitakaruru, and revenue is being obtained from the former. A goods-shed was also erected at Shortland Wharf, and general improvements effected on all existing buildings.

PRIVATE TELEPHONE-LINE.

In accordance with authority issued, some fourteen miles of telephone-line has been erected between Waitakaruru and Kerepehi. The line is very substantial, all poles being of heart of totara, and tapered. Cables were also laid across the Piako River and the main canal, and lightning-guards placed on same. Five telephone-stations are on the route, and all the works are in immediate touch by telephone with the Thames Office. The saving in time is very great, and the convenience to all concerned is of undoubted benefit.

WATER.

Constant supplies of water were conveyed to the various works by the Department's steamer and launches, and, as a result, no sickness was experienced on the works through men drinking inferior water.

FLAX AREAS.

Some eleven flax-areas were traversed and estimated during the past year, and on three of these the cutting-rights were let. Unfortunately one area was badly burnt out about one week after the letting of the same. The experimental flax areas planted eighteen months ago appear to be coming on well, and, generally speaking, the drainage operations have brought much flax to light on areas where it was previously not seen at all. It is anticipated that a fair revenue will be obtained from these sources.

ARTESIAN BORES.

Arrangements were made with Messrs. Mounce and Sutcliffe to put down bores on the plains, and up to date two bores have been sunk to a depth of about 393 ft. each. The bore at Pipiroa gave flows varying from 200 gallons to 34,500 gallons per day at different depths. The deepest flow showed a temperature of about 92° Fahr., and the water was of a soda nature. The proportion of sodium-bicarbonate seemed to increase with the corresponding greater depths.

The bore at Orchard is at a depth of 435 ft., and the highest temperature found was 73° Fahr. There was apparently not such a large proportion of sodium-bicarbonate in this water.

Generally speaking, the first flows found are quite palatable and fit for human consumption. However, as regards a water-supply for stock, the artesian water found quite clears up this question, as stock are fond of the water, and do very well on it.

Another bore is now about to be put down at Waitakaruru. I feel certain from the foregoing experiments that the artesian water is general, and I find that the flows will rise 12 ft. above the surface of the ground.

Another interesting result of the boring operations is that the geological formation of the plains is now made known, and shows that for the first 25 ft. to 35 ft. an alluvial deposit is found, and under that about 370 ft. of pumice sand (coarse and fine), the whole resting on rhyolitic rock.

Schedules giving the class of material met with during boring operations are attached.

As regards analyses of the various waters, I am waiting a little time to allow the bores to clear themselves somewhat, and will then forward samples duly labelled. There is also a gas issuing from the bores which can be lit, and I intend to make a small experimental gas-holder to see if it is possible to get any lighting results on a small scale.

FIRES.

Very little damage was done from this cause, as incipient fires were taken in hand early, special instructions having been issued to all workmen to use every effort to suppress same.

GRASS.

Some 400 acres has been sown in grass during past year, and the seed has come up very well, more especially the clovers.

Another 400 acres of burnt country will be sown early. Kentucky blue-grass will also be sown on all stop-banks, as it is particularly suitable for this purpose.