

has varied between eighteen and forty-two men. Sixty-six chains of canal has been widened and 11,500 cubic yards of excavated material placed in the stopbanks. A working party of from ten to twenty-six men, camped on the Maukoro Canal, completed the clearing of an area of 306 acres in the autumn of 1933, and the felled scrub was burnt and the land surface sown with grass. The men have since been engaged cleaning and improving drains and grubbing blackberry. The formation of a stock route from Ngatea to Waitakaruru, via the Orchard East Road and the Maukoro Canal Road, commenced last year, has been completed. This route will eventually form an important addition to the roading system of the district, and, although not yet formed to the standard required for general road traffic, it can now be used to divert travelling stock from the main highway. Drains of a total length of 23 miles 56 chains were cleaned in this district, 6,726 cubic yards was excavated in widening and deepening 2 miles 24 chains of existing drains, and 5,802 cubic yards excavated to complete 100 chains of new drain construction.

#### MANGATARATA-TOREHAPE DISTRICT.

The cleaning of the Mangatarata Stream for a distance of 3 miles 30 chains was completed during the year by a party of from three to seventeen relief workers. The same party was also engaged on deepening drains through peat lands and clearing an area of 76 acres of scrub, which has since been subdivided into two small farms. At the end of the year the number of men in this party had decreased to three, and, as there does not appear to be any immediate possibility of increasing the number, the camp will be closed and the men transferred to other work.

Drainage and the formation of roads through peat land, with clay ballast conveyed by light railway from the pit in the foot-hills at Torehape, has occupied a gang of sixteen to twenty-eight men throughout the year. 5,910 fascines and 11,384 cubic yards of clay ballast were laid on 90 chains of road. The ballast was hauled four miles, and 60 chains of new light railway was laid, requiring 2,000 sleepers, which were cut from willows growing on the banks of the Waitoa and Piako Rivers. Some 415 cubic yards of shingle was removed from the Torehape Road Drain and used for ballasting the line; 10 miles 25 chains of drains were cleaned in this district, and 8,964 cubic yards of spoil was removed in widening and deepening 2 miles 24 chains of drains. An area of 56 acres at Mangatarata was ploughed in the spring and cultivated during the autumn, preparatory to sowing. This is part of an area to be selected under the small-farms scheme.

#### PATETONGA DISTRICT.

A special feature of the year's work in this district has been the large amount of drain improvement carried out. For this purpose a camp for twenty men was established at Patetonga; but the number of men employed has varied between eight and nineteen. The Waikaka Canal was cleaned and deepened for a distance of 60 chains, and this proved a difficult undertaking for manual labour, owing to the size of the canal and volume of water; 9,072 cubic yards of material was excavated to enlarge 4 miles 44 chains of main drains, and 16 miles 48 chains of drains were cleaned.

The metalling of the Patetonga Top Road, commenced in October, 1932, was completed in March, 1934. The total length of this road reconstructed and metalled is 350 chains. 2,590 cubic yards of metal was quarried, hand broken, and spread on the road during this year, and 220 chains of fairly heavy road reconstruction carried out; also additional metal was quarried for resurfacing Otani Street, Patetonga Township, and 10 chains of formation was widened on O'Dwyer's Road, preparatory to metalling. The cost of this roadwork was provided by the Hauraki Plains County Council, assisted by the Unemployment Board. Practically all the important roads in the Patetonga district have now been metalled, and this is an amenity much appreciated by the settlers.

#### STRUCTURAL WORK.

A large concrete road culvert having two 5 ft. by 4 ft. barrels and sluice gates operated by rack and pinion gear was constructed on the Kerepeehi Block. One 30 ft. span girder bridge, with hardwood piles and decking, was erected on the Pouarua Canal, and two similar bridges were dismantled and re-erected as the dredge passed down the canal. Four small bridges were erected to provide access to farms and several road culverts were extended to provide for road-widening. Fencing and a milking-shed were provided for a small farm at Kerepeehi. The installation of a large drainage pump previously mentioned has been commenced on the Kerepeehi Block. A temporary dam of steel sheet piles has been placed across the canal outlet and the site unwatered. The driving of 230 piles, 40 ft. long, required for the foundations of the pump-house, has been commenced.

#### SURVEYS.

Engineering surveys carried out during the year involved 15 miles 12 chains of traverse, 55 miles 41 chains of levels, 21 miles 51 chains of check levels, 211 cross sections of road and canal, and 100 borings.

Native and Crown land surveys of 2,050 acres subdivided into twenty-one sections were also carried out. A continuous record of river stage at several control points on the Piako River and one point on the Waitoa River was kept during the winter months.