

Except for the Maniototo Plain, where a gravitational water-supply is available, most of the future developments can only be done by pumping, which involves large initial outlay and heavy annual charges for power.

During the past four years extensive investigation work has been carried out in Canterbury and Marlborough, and the result of these investigations proves that very large areas of land can be developed at a much lower cost than the remaining land in Otago.

The main centre of activities in regard to irrigation development has therefore shifted to Canterbury.

The largest irrigation scheme remaining in Central Otago is the Maniototo Scheme with a gross area of 83,000 acres, and of this area the first development consists of 30,000 acres of the central portion which can be developed and still remain an integral portion of the major scheme. This area has been fully surveyed, but before the work can be put in hand the question of subdivision of the larger holdings must receive consideration of the Government.

The following is a brief description of the works in hand :—

The main races and laterals of the Omakau Scheme were completed last year, and enabled thirty-three irrigators to commence operations. During the year a further 11 miles of distributaries were completed, thus making the whole 13,400 acres available for next season. This area will shortly be increased by installing a pumping plant to raise the water to higher levels.

The Teviot Scheme was originally constructed by utilizing a large mining race and extensive renewal of old pipes taken over from the mining race became necessary. The work comprised the removal of 9,660 ft. of steel riveted pipe, and the replacement of 4,660 lineal feet of concrete-lined steel pipe, and 5,000 lineal feet of reinforced-concrete pipe.

On the Last Chance Scheme the concrete dam at Butchers Creek, containing 2,056 cubic yards of concrete, was completed, and the supply race, including 1,900 ft. of tunnelling, was also completed.

The work on the Fraser Dam which is to conserve additional water for Earnsclough Flats has progressed, and will be completed in time for the current irrigation season. The dam is 102 ft. high, and contains 13,000 cubic yards of concrete.

On the Manuherikia Scheme a tunnel 5,148 ft. long is being constructed to eliminate a length of troublesome race in Chatto Creek Gorge, and the length completed to date is 3,714 ft.

A small scheme to irrigate 3,000 acres near the Dunstan Creek is now under construction, and 3 miles of the main race is completed to date.

In the Canterbury Province the Redcliff Scheme comprising 4,603 acres has been in operation during the season, and six of the farmers irrigated their land. The results obtained by them have demonstrated that the application of water can increase the productivity fivefold in some cases, and in all cases is sufficient to reward the users handsomely.

The Levels Scheme, comprising 12,800 acres, is now completed, and water was made available towards the middle of last season, but too late to enable any extensive use to be made that season.

In the Ashburton County an area of approximately 210,000 acres is to be irrigated, and the main supply will be diverted from the Rangitata River.

This diversion race, which has a designed capacity of 900 cusecs at the intake, will be the main supply race for this area.

The works already authorized and on which construction is proceeding are this main diversion race and the Ashburton-Lyndhurst section, comprising an area of 25,500 acres. Four other large sections have been projected, covering the remaining area, and will be put in hand from time to time as the works progress.

The construction of the Rangitata Race and the main supply races and laterals of the Canterbury Scheme involve several million cubic yards of earthwork excavation, and to enable this large amount of work to be carried out economically a number of modern earth-moving machines have been purchased and some are already in operation. The result of the use of the machines already in service shows that