

Construction of the Waikaremoana Upper Development is so near completion that the headworks were flooded in March to enable the first unit to be started up. Excavation of the intake channel (the last remaining portion of the job) had been planned to permit earlier use if required. This was not necessary, however, and advantage was taken of the opportunity to carry on excavation in the open behind a coffer-dam right up to March; the floor of the excavation is some 50 ft. below normal lake-level. Lake-level has varied greatly according to the rainfall, and at periods of high lake much effort was needed to keep the coffer-dam intact. The balance of the rock in the intake channel was broken up by controlled blasting, and under-water excavation will be continued to improve the channel to the greatest practical extent.

The next stage of the work at Lake Waikaremoana is to control leakage through the barrier at the lake outlet in the vicinity of Onepoto. This leakage water emerges from the barrier as a series of springs, all of which surface between Onepoto and Lake Kaitawa. The inlets to the leaks have nearly all been located on the lake-bed, and steps are being taken to have them sealed by blanketing with clay.

Now that all three machines at Karapiro are operating, there is only a small amount of construction activity going on; this is in the nature of finishing work. A careful watch was kept on the Tunakawa-Karapiro ridge, which forms a natural dam between Karapiro Lake and Karapiro Stream. Ground-water level through the ridge is being checked continually by means of bore-holes drilled before the lake was filled. The observations show that the toe-drain at the foot of the ridge on the Karapiro Stream side is having the desired effect of holding down the water-table.

Construction of Mangakino Village is progressing. Cottages for married workmen have been erected at the rate of 3 a week; 310 workmen's cottages and 28 staff cottages had been built up to 31st March, all of them connected to electric power, water-supply, and sewerage services. Other village buildings completed were 10 school class-rooms; a hall; fire-brigade station; post-office; bus terminal office; grocery shop; prefabricated hospital hut; and a public garage and service station. A third camp, to accommodate 200 men, was also finished. A number of works buildings, large and small, have been erected. The sawmill at Mangakino is producing ample timber to supply the needs of the works.

Considerable progress was made with excavation and concreting of the 25-ft.-diameter diversion tunnel at Maraetai; but even greater progress would have been made if a seven-day roster system for tunnellers could have been introduced. The strike that occurred in March is likely to cause some delay in the completion date of the tunnel. In addition to work on the tunnel, the gate shaft was excavated and a heading driven down the sloping leg of the spillway tunnel. A considerable amount of excavation has been done at the dam and power-house sites.

A great deal of investigation work has been carried out at Whakamaru to obtain information on the conditions underground in order that a decision can be made and designs prepared for the power-station there.

A start has been made with the new 220 kV. substations at Otahuhu and Bunnythorpe. These will be needed for transmitting power from Maraetai and future power-stations on the Waikato River.

Large-scale excavation at Cobb River disclosed that a gravity-type dam is unsuitable for the site: an earth dam with a concrete spillway structure will therefore be built. To provide more power for the Nelson and Marlborough districts during critical periods until the main scheme is finished, a low earth dam has been constructed up-stream from the main dam-site. The new earth dam provides storage that can be released to increase production from the existing power-house during times of low flow in the Cobb River.

The tunnel at Lake Tekapo is well advanced and its completion is expected within a few months. Excavation for the draught-tube has been completed and work on the power-house foundations is proceeding.