

*Benmore (Waitaki River).*—At this site, which has been referred to in previous statements as Black Jack's Point, subsurface exploration has been continued. Work is proceeding, and at least a further year will be required to complete this investigation. A survey is proceeding towards the development of a village site and irrigation of a camp area so that preliminary tree-planting can be undertaken.

*Clutha River.*—The preliminary report on the Roxburgh project was completed. It covered several sites in the Roxburgh Gorge and included information on two final sites, together with alternative layout plans for their development. Control of Lakes Wanaka, Hawea, and Wakatipu was also discussed. Final investigations are nearly completed at the preferred site at Roxburgh, and are still in progress at Hawea and Wanaka, where boreholes, shafts and drives are being used.

*Miscellaneous.*—Arrangements are in hand to erect a number of automatic water-level-recording stations on the Waikato and Rangitaiki Rivers, on Lake Tarawera, and on Lake Rotoiti in the South Island. The collection of flow records has been increased and the recording of data has been reorganized. Arrangements have been made for the aerial survey of several prospective projects, including the schemes proposed for developing Lakes Manapouri and Te Anau. A preliminary survey on the Manapouri-Deep Cove project was carried out to determine the feasibility of transmitting power from Deep Cove to Manapouri.

### DESIGN

Plans for further expansion of the staff were made early in the year, and appointments for additional engineers and draughtsmen were advertised both here and in the United Kingdom. Serious delays are being experienced in obtaining the staff required, but in the meantime some reorganization has taken place to make the utmost use of the present staff and to prepare for expected additions.

The architectural staff of the office has also been expanded to give due emphasis to that important aspect of the many large and prominent structures which are under design.

Arrangements for regular model testing of hydraulic structures were made in conjunction with the Dominion Physical Laboratory and tests on Maraetai and Cobb spillways gave invaluable information.

Investigation of scientific problems connected with materials has been arranged through the Department of Scientific and Industrial Research.

The Design Office is also responsible for the preparation of major contracts and for the ordering of the principal materials and fabricated parts for all works.

### Power Schemes

*Maraetai.*—The principal design work for Maraetai Dam and headworks has been brought to virtual completion during the year and design of the power-house and ancillary works is now well advanced.

*Whakamaru.*—Preliminary work has also been done on the design of the Whakamaru scheme, the construction of which is to follow immediately on the completion of the Maraetai scheme.

*Roxburgh.*—Study of the Roxburgh scheme has been undertaken and basic designs for this very large work have been produced.

*Cobb.*—Design of the new intake for Cobb has been completed and the spillway design is now in progress in conjunction with model testing. The principal decisions with regard to the Cobb Dam have been taken. Preliminary designs for the extended Cobb Power-house have been made and detail design work on this item will proceed shortly.

*Tekapo.*—Tekapo power scheme design, not including the control dam, has been brought to completion except for some details which are now in hand.