

This Department has collaborated with the Public Works Department on the methods to be used in carrying out the works and the provision of plant and its layout.

*Whakamaru*.—Studies have been made of the very complex structure of this site, and further surveys and geophysical tests have been made and are being made to determine all the old river channels and generally define the outlines of the rocks on which the dam and other structures must be founded.

*Waikaremoana*.—The closest possible liaison has been kept with the field, especially in regard to the tunnel into the lake. Important decisions have been reached on the manner of breaking through to the lake, location of the intake, and its general form. Details of the intake are well in hand, but cannot be completed until work on the job is more advanced and the exact conditions are known.

The penstock has been fully designed and a contract let for its construction.

In connection with the tailrace of the upper development, the intake race for the main development is being enlarged and a new spillway of greater capacity is being provided to deal with flood-waters. A contract for automatic gates has been let in this connection.

In order to concentrate on more important schemes, it has been decided not to proceed with minor schemes below Piripaua in the meantime.

To meet the acute situation that has arisen in regard to the supply of power, a decision was reached to install siphons to obtain more water from the lake for use in the two existing stations. Three siphons, each feeding a 4-ft.-diameter pipe were installed, and they have been very successful. The lake is very low, and there is a limit below which the siphons cannot operate. Their installation was only justified on the understanding that the Kaitawa and Karapiro Stations would be operating for the winter of 1947.

*Cobb River*.—Because of lack of staff and insufficient knowledge of the rocks underlying the proposed dam-site, no substantial progress has been made with this scheme. In view, however, of the probability that an earth dam will be built, an intensive study of the flooding possibilities of the river has been made, and tests have also been made on local materials with a view to their use in an earth dam.

*Tekapo*.—Design of the intake structure is complete, and gates, surge-chamber, penstock, and tailrace are in hand.

*Pukaki*.—A proposal to control water from Lake Pukaki has been initiated with a view to augmenting the output of the Waitaki Station. A study of the catchment is being made so that adequate provision is made for floods, and steps are being taken to ensure that inordinate flooding does not occur. These studies also cover Lake Ohau, which will probably be controlled in the near future.

*Black Jack's Point*.—The survey and examination of this site on the Waitaki River is complete, and it has also been thoroughly examined by a geologist. A scheme for development has been outlined.

*Clutha River above Roxburgh*.—This site has reached the same stage as Black Jack's Point, and the Public Works Department has been asked to carry out drives, shaft-sinking, and boring at both sites to prove the foundations prior to a report and recommendation being submitted.

*Clarence River*.—Comparatively little has been done on this survey on account of staff difficulties and inaccessibility. An examination has been made of the dam-site, and a geological report has been obtained of the whole area. Contouring of rough and inaccessible country is being done by the Lands and Survey Department from aerial photographs.