

The usual work in connection with stream-gauging, lake-level recording, and meteorological records was carried on throughout the year.

#### SCHEMES UNDER CONSTRUCTION.

*Omakau Scheme: Falls Dam.*—This structure, a rock-fill dam 110 ft. high, was completed early in the year. Work done during that period consisted of the completion of the spillway and spillway shaft, lining of 294 ft. of the access-drive to the valve-chamber, and the plugging of the diversion tunnel and installation of valves. These works entailed the placing of some 570 cubic yards of concrete. In addition, the concrete pavement slab, parapet wall, and handrail along the crest of the dam were completed.

The dam has since been filled and put into operation, and is giving very satisfactory service.

*Race System.*—During the year 7 m. of main race were excavated, making the total to date 30½ m. 34 m. 36 ch. of branch and distributary races were completed, making a total of 49 m. 36 ch. to date. Of this, 24 m. 46 ch. are in the Omakau section, 10 m. in the Lauder section, and 14 m. 70 ch. in the Matakau section.

Work on concrete siphons included the completion of the intake siphon of 54 in. diameter, and the laying of distributary lines of smaller diameter.

The main intake weir, silt-trap, and bye-wash were completed, and one siphon spillway installed in the main race.

Other works included the intake weir in Lauder Creek and other structures incidental to irrigation schemes.

This scheme is now practically completed, and water was supplied to an area of 5,000 acres during the past season.

*Ida Valley Scheme: Poolburn Drainage.*—This work was completed during the year, the length of drain finally excavated being 5 m. 70 ch., of which approximately 2 m. were cut during the period. A very marked improvement has resulted in the lands affected by the drain.

*Teviot Scheme: Intake Tunnel.*—The driving and lining of the tunnel to eliminate the main 36 in. pipe line was completed. The total length of tunnel, which was put into commission in October last, is 5,078 ft. The year's progress consisted of 1,658 ft. of excavation and 3,078 ft. of lining.

*Extension Siphons.*—No. 2 siphon, which was in a bad state of repair, was renewed with 510 ft. of 22-in.-diameter concrete-lined steel pipes.

*Last Chance Scheme: Butchers Dam.*—This dam, of the arched type, of 105 ft. radius and 82 ft. in height, is now nearing completion. 1,800 cubic yards of concrete were placed during the year.

The tunnel, of a total length of 2,388 ft., has been driven and a limited amount of lining-work is being done. The length driven during the year was 1,888 ft. The dam and tunnel will be put into commission for the approaching irrigation season, and will supply Alexandra Borough in addition to lands under the Last Chance scheme.

*Earnscliffe Scheme: Fraser River Dam.*—Work on this dam is well in hand, which is a concrete arched structure of 175 ft. radius and of 102 ft. in height. During the year foundation excavation work has totalled 3,640 cubic yards, and 1,079 cubic yards of concrete have been placed. Access to the site entailed the construction of 6 miles of road.

Additional works carried out included the erection of 6 m. of transmission-line, installation of plant and buildings, and diversion of the Fraser River.

This dam will augment supplies to the Earnscliffe scheme.

*Manuherikia Scheme: Manuherikia Tunnel.*—Work on this tunnel, which will eliminate approximately 1½ m. of troublesome race in the Manuherikia Gorge, was commenced late in the year. Camps and buildings were erected and compressor plant and air-lines installed.

Up to the end of June, 504 ft. of tunnel have been driven at the outlet end and 256 ft. from No. 1 adit. The total length of tunnel is 78 ch.

#### SURVEYS.

*Maniototo Scheme.*—Further surveys and investigations of alternative layouts of this scheme were carried out during the year. A considerable amount of work was done in surveying distributary races and in preparing estimates for the full and for a modified scheme.

#### CANTERBURY.

##### SCHEMES UNDER CONSTRUCTION.

*Redcliff Irrigation Scheme.*—During the year construction work was actively carried on. At the conclusion of the year all works had been completed except the raceman's cottage, which is now in hand.

All structures and races had been finished and tested satisfactorily under full-flow conditions.

Construction was finished too late in the season for the water to be made available to irrigators, but approximately 100 acres of the demonstration area were watered once.

An automatically controlled turnout was constructed to deliver water from our water-races to the Lower Waiho stock water-race, and suitable financial arrangements in respect to this were concluded with the Waimate County Council.

The area commanded by this scheme is 5,134 acres, of which 4,603 acres are considered economically irrigable, and everything is now in order to have the scheme operating next irrigation season.

*Levels Plain Irrigation Scheme.*—Work was commenced on 1st July, 1935. Buildings for office, stores, and workshops, &c., were erected, and yard established 1½ m. from Temuka Railway-station and adjacent to Opihi River Bridge, Main South Road. An average of over 120 men have been employed during the year.