

In addition to overflowing the peninsula in and prior to 1878, an active erosion of the peninsula on the western side was in progress, and simultaneously with the construction of the levee in 1880 a great deal of riprap was placed in the concave bends, so as to clothe the bank from the top to the bottom of the river. This was so successful that erosion, which had amounted to 50 acres between 1847 and 1880, has been entirely arrested.

At various times levees have been constructed on Inch-Clutha wherever the experience with previous floods has shown the danger of overflow. There are on the island many miles of them, some being fairly high, but the majority of moderate dimensions.

A large levee known as the Hermitage Bank, and one or two smaller banks immediately in the vicinity of the town, protect Stirling from the overflowing of floods of such volume as that of 1919. In this connection it may be well to remark that these levees should protect the land, but in actual fact they were breached by both the 1917 and 1919 floods, due to their not having been properly maintained and rabbits having been allowed to burrow clean through them. The same remark applies to the levees on Inch-Clutha, which have been breached at different times.

The Waitepeka Stream, which previously had joined the Puerua Stream near its confluence with the old mouth of the Clutha River, has been diverted into the Clutha River direct by a canal passing under the Catlin's River Branch Railway into an old lagoon, and thence into the river at Section 14, Block XXII, Clutha Survey District. A tidal gate has been constructed at the mouth of the Puerua River to prevent the high tide backing up the stream, and thus to improve the drainage of the Otanomomo Swamp.

A levee of small dimensions has been constructed near the mouth of the Waitepeka Canal referred to above, down to a point within a mile of the Koau mouth.

The outlet to the Tuakitoto and Kaitangata Lakes has been improved by the construction of the canal connecting the Kaitangata Lake with the river, and also by an extension connecting the two lakes, the high water of the Clutha being prevented from flowing through this canal into the lakes by the erection of tidal gates at the lower end of the canal. This protected a large area of the lakes district from Clutha flood-waters, and greatly improved the drainage.

Inch-Clutha, a large portion of which has been originally swampy, was also improved by a comprehensive scheme of drainage.

From time to time efforts have been made to prevent erosion of other portions of the banks, with more or less success.

#### LOCAL BODIES INTERESTED.

At the present time the control of the area coming within the scope of our investigations is in the hands of the following controlling authorities: Barnego is under the control of the Otago Land Board; Balclutha is controlled by the Balclutha Borough Council; the lakes district is controlled by the Bruce County Council, which also carries out the functions of the Matau Drainage Board; Inch-Clutha is under the control of the Inch-Clutha Road, River, and Drainage Board; Kaitangata is under the control of the Kaitangata Borough Council; Otanomomo is controlled by the Otanomomo Drainage and River Board.

Inch-Clutha is also included in the Bruce County, and Otanomomo and Barnego are included in the Clutha County. There is also the Clutha River Board, which has control of the river, but confines its work almost entirely to such matters as concern the navigation of the river.

#### LAND SETTLEMENT AND TENURE.

The approximate area of land subject to flooding is 17,000 acres. The area of this requiring drainage in addition to river protection is approximately 6,000 acres.

The Barnego Flat is the property of the Crown, and is leased under the provisions of the Land for Settlements Act. A considerable portion of the Otanomomo district is also Crown land, leased in the same way. The balance of the land may generally be considered as freehold.