in the level of the river-bed must have taken place at this point. The evidence of eye-witnesses also shows that the surface of the water is not level along the bridge either at low or flood level.

Your Commissioners were met at Rangitata Island by the settlers and conducted over the island, visiting various properties where erosions had taken place and where protective works had been erected.

On the following day your Commissioners met the settlers on the south side of the river, and were shown evidences of erosions at various points, and also places where the flood-waters had overflowed the banks of the river and found their way into the Kapunatiki Creek, and by that creek to the sea.

On the 13th July your Commissioners visited the heavy protective works erected by the Railway Department in 1887 on the south side of the Rangitata River, about four miles below Arundel. These works consist of a levee approximately parallel to the axis of the stream, composed of gravel and boulders taken from borrow-pits immediately alongside, the largest stone being placed on the outside. The levee is protected at intervals by up-stream groynes of a similar character, with their outer ends protected by heavy rockwork. The whole space between the groynes was thickly planted with Lombardy and silver poplars, also a few other trees. One of the groynes had been protected by a timber crib. No evidence was found that any portion of this work had failed, but from the evidence contained in the Railway Department's files it appears that the work now visible is that which was proved to be necessary after damage had been done to the works as originally constructed, the principal addition being the placing of the heavy stone at the ends of the groynes. The cost of the work carried out at this point by the Railway Department was in the vicinity of £10,000.

River Nomenclature.

For the purposes of this report the river down to a point about three miles above the Main South Railway-line, and where it bifurcates, will be known as the Rangitata River. From where it bifurcates to the sea the river runs in two main channels, which are known respectively as the North Channel and the South Channel. Just below the railway-bridge across the South Channel it has a minor bifurcation, a small stream between the two main streams, being known as the Middle Channel. The land lying between the North Branch and the Middle Channel is known as Rangitata Island, and the land lying between the Middle Channel and the South Branch is known as Ruddenklau's Island. The Middle Channel runs into the South Branch again, and the North and South Branches join close to the sea, and flow into the ocean at what is known as Rangitata Mouth.

Closely adjacent to the South Branch, and probably derived from soakage from this branch through the intervening land and augmented by the overflow from the river in flood-time, is a small stream known as Kapunatiki Creek. This gradually increases in size by the augmentation of water from springs, and eventually finds its way into the sea some miles south of the mouth of the river. It is into this creek that the settlers fear that the whole river may turn, with disastrous results.

Physical Characteristics.

The physical characteristics of this river are very similar to those of the majority of Canterbury rivers. It issues from the Southern Alps through the gorge on to a plain composed entirely of shingle brought down by the existing and other rivers in former ages. The watershed of the river covers an area of 683 square miles down to Arundel Bridge. The river has, in past geological ages, run at several different levels, all higher than the present one. As it has cut through and denuded the mountains the slopes have become easier, and therefore the amount of detritus brought down has become less, so that in time the stream has been able to corrode the bottom of its bed at a faster rate than that at which fresh material came down from the hills. As a result its bed has gradually lowered until the gravel plains on which it originally ran are now many feet above the present water. This cutting-down through the plain may be to some extent due to uplift of the land, and partly to coastal erosion.