

flood season; of the heavy floods on record three occurred in the spring, one in the summer, one in the autumn, and one in the winter.

Damage is also done to house property and furniture, due to floods actually invading the houses; and the value of many portions of the district for building purposes and for agricultural pursuits is depreciating because the fear of floods prevents people living therein, or prevents them from carrying out agricultural operations which would be jeopardized by floods to a greater extent than would mere grazing. In 1878 the flood which swept over the town of Balclutha did an enormous amount of damage; it also did great damage to the farm lands in all parts of the flooded area. The flood of 1917 did considerable damage on the left bank of the Matau Branch and at Otanomomo. The flood of 1919 did immense damage to the same localities, and also on Inch-Clutha, and but a small amount of damage in the town of Balclutha. Enormous damage in Balclutha would have been sustained had it not been for the protection afforded to the town by the works erected by the General Government about 1880, and strengthened and raised partly at the expense of the Borough Council and partly at the expense of the General Government—in 1913.

(3.) The roads in the flooded area were damaged by the metal being washed off them, and by the deposition of silt, sometimes to great depths, over the existing metal.

(4.) Railway traffic was interrupted on the Main South Railway in 1878 for a considerable period. The main line was also breached at Balclutha, and large and costly viaducts had to be erected in place of the banks which had been washed away. In 1919 railway traffic was interrupted for eight days. In both of these floods, and also in the flood of 1917, the private railway running from the main line at Stirling to Kaitangata was breached, and the traffic interrupted for considerable periods. Interruption of the private railway from Taratu to Lovell's Flat was also suffered. This resulted in the stoppage of the coal traffic, and represents a dead loss not only to the companies but to the local authorities and to the Government, which can never be made up.

The very valuable works of the South Otago Freezing Company, with all the valuable store of frozen meat, were seriously jeopardized by the comparatively moderate flood of 1919.

With regard to erosion, 50 acres of land was eroded from the peninsula between 1847 and 1880. The fear that the whole town would be swept away by this cause was what prompted the Government to carry out certain protective works, which they did. In addition to building a flood-protection levee on the upper side of the town, the whole slope of the river from the top of the levee to the bottom of the river was clothed with riprap, as before mentioned. This has been entirely successful, though it is probable that by now its toe is becoming eroded by the continual abrasion due to travelling shingle, and some work in this connection will be recommended under reference No. 3.

Erosions similar to those which took place near Balclutha have taken place in a great many of the concave bends between the town and the sea, but in almost all cases complementary accretion has occurred on the opposite bank of the river, so that the ultimate area of the river-bed or river-channel is not materially, if any, greater than it was when the land was first settled. Though certain hardship may have been caused to individual owners by the erosion, other owners have gained by the accretion. Nevertheless, the amount eroded at any one point other than at the town does not, in the opinion of your Commissioners, warrant the carrying-out of the extensive works which would be required to prevent further erosion. If the land between the stop-banks were the property of an organization controlling the river, then no hardship would be caused to any individual owner, and the central authority would gain in one place and lose in another, remaining substantially as it was. If erosion at any point proceeds to such a length that the levees are threatened with undermining, it would be better to purchase a strip of land and move them back than to attempt protection, unless there are some very special conditions which would warrant this latter course being adopted.

Your Commissioners consider it practicable to wholly prevent the flooding, at reasonable expense.