

The following table gives the approximate capital values of the lands and properties affected by floods :—

	District.	Area.	Capital Value.	Totals.
		Acres.	£	£
Farm lands	Barnego	563	9,000	343,000
	Otanomomo	6,700	84,000	
	Inch-Clutha	6,780	150,000	
	Lakes district	5,120	100,000	
		19,163		
Boroughs and towns ..	Balclutha	440	209,000	324,000
	Kaitangata .. ..	..	110,000	
	Stirling .. ..	..	5,000	
Government property ..	Railway-line, Balclutha ..	..	25,000	33,000
	Government Buildings, Balclutha ..	..	8,000	
Freezing-works	Finegand works .. ..	..	100,000	450,000
	Carcases in store .. ..	..	350,000	
Private railways	Kaitangata .. ..	..	17,000	42,000
	Taratu .. ..	..	25,000	
				£1,192,000

Your Commissioners, having received the necessary plans, met again in Dunedin on the 17th February, 1920, and, after revisiting the salient points on the Clutha River, drew up their report, and now beg to submit their findings on the various heads in the order of reference, as follows :—

REFERENCE NO. 1.

To inquire into the cause or causes of the silting-up of the channel, the flooding of the adjacent lands by the said river, and erosion of its banks and the damage to the surrounding country.

This is largely due to the quantity of debris coming down from the mining operations in the many tributaries of the river draining the gold-bearing country, and acting as sludge-channels for the mining operations carried on therein ; also to the acceleration of natural denudation by removal—by burning, agricultural, and pastoral operations—of the protective covering of natural vegetation, thereby giving the river an overcharge of detritus in excess of its natural carrying-capacity.

The fact that the traffic-bridge at Balclutha has a throttling effect upon even small floods has assisted to aggravate the silting-up between the town and Barnego Flat.

A certain amount of silting in the Koau and Matau Branches has also been caused by the growth of willows, though in this river this frequent cause of trouble is not so pronounced.

REFERENCE NO. 2.

To ascertain the nature and extent of the damage done to the lands adjacent to the said river, and what area of land is affected by such floods or erosion, or both, and whether it is practicable at reasonable expense to prevent such flooding or erosion, or both, either wholly or partially.

The damage is of a manifold nature :—

(1.) Actual erosion of the banks.

(2.) Damage to the improvements on the land, and the crops being grown thereon, by overflowing. The flood-waters sometimes lie on portions of the ground sufficiently long to kill the vegetation, and in other places they carry such a quantity of silt as completely covers the vegetation, and kills both grass and crops.

The amount of damage done varies greatly with the season and consequent condition of agricultural operations, but history does not seem to show any definite