

matter, and visited Coleman's drain, near Shaftesbury, where an ordinary small drain had been eroded to such an extent that the roadway had to be carried across it by a bridge of three spans of 20 feet, and its bottom had sunk to a depth of some 20 feet below the original level of the country. This huge volume of sand has been swept into and down the Waihou River, which has in its upper reaches sufficient velocity to sweep it onward. There does not appear to be any evidence that there has been serious diminution in the depth for navigation purposes in the Upper Waihou until within a short distance of the Junction. Bathers describe the sandy bottom in the Upper Waihou as being alive, and always moving onwards.

Waihou sands sold in Auckland.—Hardening effect of tailings on bottom.

In the various samples taken from the bottom of the river, from above the Junction right down to its mouth, there is shown a large predominance of the volcanic sands. From banks deposited where the river has widened out at a point about one mile and a half below the Hikutaia Stream, there has been removed for more than thirty years, by means of scows and cutters, enormous volumes of this volcanic sand for sale, for building purposes, in the Auckland market. It therefore appears that the rivers have so far, assisted to a limited extent by man, been able to carry down and dispose of the sands from the Upper Waihou district without affecting navigation, but the addition of the finer sands and slimes from the mining-works to the coarser and lighter natural Waihou sands is, in the opinion of the Commission, having, and will have, an increasingly detrimental effect. The finer artificial sands are filling up the interstices in the coarser and loose-lying natural sands, causing them to compact, and rendering them more difficult to move under the action of the current.

Hardening of shoals, Thames Harbour.

The fishermen gave evidence of the increasing hardness of the bottom in the lower reaches, and in the Thames Harbour, on what is known as the bar. Captain Bayldon, the Harbourmaster, confirmed this increased hardening of the bed of the sea in the Thames Harbour, and pointed out that, whilst some years since vessels could be relied on to force their way through a depth of, say, 2 to 3 feet of soft silt on this bar, and that, if stranded on the bottom, vessels would sue and settle some 6 feet into the bottom at low water, that in recent times he cannot force vessels through the shallows, and that vessels now, when stranded, only settle to perhaps half the previous depth. The evidence, beyond the hardening effect, does not disclose any serious reduction during the past thirty or thirty-five years in the navigable depth in the channel through the Thames Harbour to the Waihou River, although there have been some changes in its direction.

Foreshore shoals, Thames.

There has been serious shoaling on the foreshore opposite the Township of the Thames; but this is entirely due to local causes, and, in our opinion, the changes there have not contributed to any reduction of depth or hardening of the bottom of the navigable channel used by vessels entering or leaving the Waihou or Thames Rivers.

Thames Harbour dredging probable.

Although there has been no serious change yet, still it is clear that an extension seawards of the shoals may be expected, caused by the detritus brought down by the rivers settling in the estuary, and probably it will not be many years distant before dredging must be resorted to in order to maintain the present depths in the Thames Harbour, and in the channel required for navigation both within and without the mouth of the Thames River.

River-dredging required.

The Commissioners are also satisfied that dredging is now, or will shortly be, required in the reaches of the river from the Te Puke Wharf down to Hikutaia, a distance of some ten miles. Throughout this distance tailings are showing freely on the banks, and to a slight extent in the bed, of the river. The