

out. The country is of a character that would permit of a locked canal being constructed either within or parallel to the river-bed, but it is evident that the trade is insufficient to warrant so large an expenditure for very many years to come. The trade, actual and prospective, is, however, sufficient to warrant the expenditure of a considerable sum in experimenting in an attempt to confine the summer flow of the river within a narrower channel than it now occupies, whilst leaving the whole width of the present bed available for the winter flow and floods.

The design of the work which it is suggested should be tentatively tried is indicated upon the annexed sketch-plan marked M.D. 5354/E [not printed]. It is believed that some such system of low-level and permeable spur groynes, run out from the banks at distances apart to be determined by experience, would have the effect of concentrating the summer flow into a central channel, which it is suggested should have a width of about 10 chains, and that the flow of the water being concentrated therein would have the effect in time of deepening the channel so as to permit of the summer navigation of the river by boats drawing up to 4 ft. 6 in. It is recommended that the experiment should be tried at first upon a stretch or stretches of from 2 to 3 miles. It is probable that no hard bars exist within this portion of the river, but there are the remains of standing timber and other snags which may have to be dealt with by a snagging plant.

It is anticipated that the action of such works as are proposed would be slow, and that no immediate effect on the river would be apparent. It is felt that the more slowly the improvement is effected the more likely it is to be of a permanent character, and that an increased depth in one place may result temporarily in a decrease elsewhere. For this reason it is important that the control of the execution of the work should be placed in the hands of those who are not likely to be swayed by local influence.

The cost of the works indicated, if carried out on the portion of the river between Meremere and Huntly, is estimated as not being likely to exceed £60,000 if judiciously carried out, which estimate includes a moderate amount of snagging in the river, but nothing in the way of dredging. In addition to this sum required for the main river, a further expenditure of £10,000 is urgently required for the clearing of willows, removal of snags and sand-bars, and otherwise improving the tributary creeks and the Whangape Lake for launch traffic; and this expenditure should be carried out within a couple of years, so as to give as speedy relief as possible.

Once the training-works are completed and a success, the cost for maintenance thereof ought to be small, and an annual sum amounting to 10 per cent. of the expenditure, or £7,000, should cover interest, sinking fund, and upkeep. As the watershed below Cambridge will benefit more or less by the improvement of the navigation, the best method of covering the cost appears to be to strike a rate over the areas benefited. The capital value of the three counties of Waikato, Waipa, and Raglan, with the contained boroughs and Town Boards, appears from the 1920 Year-book to be over £16,900,000, upon which, if levied equally over the whole district, a rate of one-tenth of a penny in the pound would suffice. As, however, the whole of these counties would not benefit, the rate should be imposed only on those districts that did benefit, and upon a classification basis, to be determined after the degree of benefit has been inquired into and ascertained.

The Taupiri Coal-mines (Limited) brought under the notice of the Commission a proposal that it has under consideration, to pump sand from the bed of the Waikato River for the purpose of filling up the existing workings of the company's mines, and, by thus supporting the roof, to enable the coal left in the pillars to be removed. Without expressing any opinion as to the feasibility or otherwise of the scheme, we think that if this project eventuates no charge should be made to the company for the material, provided that the dredging of the sand is confined to the middle third of the river. Any such removal, by deepening the channel and forming a trap to impound the travelling sand, must be beneficial to navigation, and should be encouraged. It is recommended that, as a general principle, provided sand or pumice can be removed from the centre of the channel under suitable supervision, no charge should be made therefor as has been done in the past. The trade of obtaining material from the river-bed should be encouraged, rather than discouraged by the imposition of a royalty.