

TOTAL APPROPRIATIONS FOR RAILWAY-CONSTRUCTION.

In addition to the items already mentioned a vote of £130,000 is proposed for permanent-way materials, £3,000 for surveys of new lines, £1,000 for land claims and other old liabilities, and also a small sum of £25 to cover a liability for clearing noxious weeds on the abandoned section of the Midland Railway between Belgrove and Tophouse. These items bring the total appropriation proposed for railway-construction purposes up to £884,025. This is somewhat in excess of last year's vote, but the Department has more work in hand at the present time than it had twelve months ago, and consequently an increased vote is required.

OTHER RAILWAY-WORKS.

The expenditure on additions to open lines during last year amounted to £351,044. The great bulk of this expenditure was on additional rolling-stock, and the remainder on works of a very varied nature, required to enable the railways to cope with the present greatly increased traffic. I would draw the attention of honourable members to the fact that the Public Works Department has not imported any rolling-stock for new railways for many years past, and that the lines, as completed from time to time, are handed over to the Railway Department, which Department provides the additional rolling-stock necessary for their working. A considerable portion of the expenditure on additions to open lines is therefore fairly debitable to first cost, the remainder being for improvement-works. Practically the whole of our rolling-stock is now built in the colony. For the current year a vote of £300,000 is proposed.

Work on the Hutt railway and road improvement was proceeded with throughout the year, and considerable progress made. The expenditure amounted to £44,739, and for the current year an appropriation of £50,000 is asked for.

The Railways Improvements Authorisation Act of 1904 authorised the duplication of the lines between Auckland and Penrose, Addington and Rolleston, and Dunedin and Mosgiel. A good deal of work has already been done on the former, and a start made with the latter, and preparations are being made for putting in hand the work between Addington and Rolleston. The expenditure last year amounted to £8,566, and for the current year a vote of £100,000 is provided on the estimates.

UTILISATION OF WATER-POWER.

Though the year has been a very unfavourable one for field work, surveys have been completed (except in one case) for schemes to utilise the power available at Huka Falls, Rotoiti Lake, Mangahao, Tauherenikau, and Hutt Rivers, Clarence River at Hanmer Plain, Lake Coleridge, and Opihi Gorge.

The alternative surveys at Huka Falls and at Rotoiti-Kaituna (though the latter survey is not quite complete in some details) show that it would be more profitable to generate power on the Kaituna than at Huka. The conditions in favour of Kaituna are the shorter distance to transmit the power, the much greater fall available, and the smaller quantity of water to be handled to get a given power, while the adverse condition is the longer conduit. But power should be delivered in Auckland and *en route* at about 15 to 20 per cent. less cost than from Huka, and the cost of power from Kaituna would also be less than from any other scheme to utilise the rapids on the Waikato, at Aniwhaniwa, Ateamuri, Horahora, or elsewhere, where the low fall available would be a handicap. It appears best at Kaituna to adopt a conduit about five miles long, where 530 ft. of fall is available, giving about 30,000 brake horse-power on the turbine shafts for continuous working. Another scheme could subsequently be developed to use the remainder of the fall, perhaps as much as 300 ft. The country falls somewhat too fast to enable all the available fall of 900 ft. to be utilised in one scheme without very long pipe-lines.

A preliminary survey, just finished near Shannon, shows that by diverting the Mangahao through the range between its upper valley and the plains falls from 600 ft. up to about 1,000 ft. may be got, giving probably 8,000 to 10,000