

SURVEYS.

Rimutaka Deviation.—Work on the various trial surveys in connection with the Rimutaka deviation is nearing completion. The surveys of the Tauherenikau and Coach Road routes have been completed, and plans and estimates are being prepared. The party is now being moved to complete the survey of the Wainuiomata route, work on which was suspended during the war.

Tuapeka Mouth Branch Railway.—During the year the various trial surveys for the above railway were completed. Three routes were surveyed, as follows: (1) Crichton to Tuapeka Mouth via Hillend; (2) Lovell's Flat to Tuapeka Mouth via Lovell's Creek and Hillend; and (3) Lovell's Flat to Tuapeka Mouth via Stony Creek and Hillend. A fourth route, running from Sterling to Tuapeka Mouth, and known as the Riverbank route, was surveyed some years ago. Plans and estimates for all these routes have been prepared and reports submitted. Plans have also been forwarded to the Agriculture and Railways Departments for investigation and report.

Dunback-Kokonga Railway.—A reconnaissance survey of this suggested railway was made during the year, and approximate estimates prepared.

PLANT.

In the last Statement I said something about the installation of a large quantity of machinery on the works and about the beneficial results obtained. I am pleased to be able to announce that the results of last year's work with the plant have been highly satisfactory, and have more than justified the outlay involved.

The class of machinery most beneficial on our public work is that in connection with the excavation and transport of earthwork, and in this direction our plant has not only speeded up the rate of work, which was to be expected, but it has also considerably reduced the cost, a result not always so easily attained.

The excavating machinery consists chiefly of steam-shovels and drag-line excavators for heavy earthwork, and scoops, hauled by caterpillar tractors, for the lighter work. Thirty-four steam-shovels and drag-lines are now at work, and an indication of their economy is provided in the fact that the average cost of excavation by these shovels during the last year has been 2s. 3d. per cubic yard, whereas the cost by hand would undoubtedly have been 30 per cent. higher.

This rate, of course, includes haulage, which has chiefly been done by small construction locomotives, which attend almost every steam-shovel. The equipment necessary for excavation by a steam-shovel, consisting as it does of a locomotive, a large number of trucks to cope with the increased output, and appliances for tipping trucks and spreading material, is in many cases more expensive than the steam-shovels themselves. Success and economy have also been achieved in transporting material from steam-shovels by means of caterpillar tractors hauling rakes of trailers.

The excavation-costs of drag-line machines have been so satisfactory that I have considered myself justified in purchasing from England this year two machines of a much larger type than any yet used in this country, and I am hoping to have these in operation early next year.

The metalling of roads presents one of our most difficult problems, and one in which there is considerable economy to be obtained by using modern appliances. The actual crushing of the road-metal is the part of the problem most easily solved, and a large number of modern stone-crushing and screening plants installed now for some years have economically settled this point. The haulage of road-metal is, however, a more serious matter, and one whereby a great deal of money can be wasted. The solution so far seems to have been the use of the motor-lorry, and therefore the Department has invested in a considerable number of these for the purpose. This service has resulted in a considerable saving over the old methods of haulage, and has enabled lengths of road to be metalled on which the cost would have been almost prohibitive by any other means, chiefly on account of the distances over which the haulage was necessary.

The Department is now constantly on the lookout for machines that will accelerate and consequently cheapen the rate of work, and, in addition to the above examples, much advance has been made in regard to tunnelling and concreting machinery used. It is now recognized that machinery sets the pace and speeds up construction, especially when concentrated.