

can be obtained with a little care and the crossing of a little swamp at intervals, and time bestowed in laying out these roads in a proper manner will be well spent.

The worst roads occur between Hamilton and Te Awamutu, Otaupo to Alexandra, Alexandra to Ngaruawahia, Whata Whata to Hamilton; and on the best roads now existing there are many places capable of improvements—the Tamahere Gully on the main road Hamilton to Cambridge, may be quoted as an instance; and in reference to the work which has been done and is being done by the Armed Constabulary and by the Road Boards, it may be stated that the improvements gained will bear no proportion to the amount of expenditure and work, much of which has really been thrown away by adhering to the old lines of road on the spurs, which were no doubt originally the driest and most available ground, but over which it will require an enormous expenditure to make really good roads, the work undertaken by the Road Boards consisting very frequently of cuttings to reduce the grades of hills from 1 in 6 to 1 in 9 or 1 in 10; when, by judicious alteration of routes, really good level roads might be obtained at less expense. There is no doubt that a few months spent in surveys of better lines would be productive of real good and much future economy; and these could be carried on during the winter months, in readiness to begin the necessary works in the spring.

Nearly all the old bridges on the main lines of road are in a bad state of repair, some of them quite unsafe, and many renewals will ere long be necessary.

### BAY OF PLENTY.

(A. C. TURNER in charge.)

*Tauranga to Taupo.*—Dray road formation, 18 feet wide. The work on this section, extending to Atiamuri, Waikato, which has been completed during the last year, consists of seventeen and three-quarter miles of formation of which one mile is through forest and the remainder through open land. This completes the formation over this length of road, viz. sixty-six and a half miles, and includes 495 feet of bridging, 81 culverts, and 19,948 cubic yards of rock excavation distributed as follows—viz., 1,209 in the Mangorewa Valley, 655 in the Hemo Gorge, 202 at the Kotukorua Bridge approach, and about 800 at the Atiamuri Bridge approach. Besides the above, a deviation of thirty-eight chains has been completed through forest, mostly in heavy side-cuttings, and including five culverts and one bridge of 9 ft. span. This was rendered necessary by the heavy floods in April, 1872, which destroyed the line as first laid out.

This road is now sufficiently completed to admit of traffic for wheeled vehicles, but some works are yet unfinished—viz., road excavation at the Atiamuri Bridge approach, about eighty culverts in side-cuttings for which the timber is being cut, and a few slight alterations and improvements now in hand; the bush portion, about eighteen and a half miles, will doubtless require metalling to maintain it in good order, and should form part of next year's work.

*Tauranga and Kati Kati Horse Road.*—This forms part of the main line of road to the Thames, and its formation—6 feet wide and 19½ miles long—was completed before the end of June, 1872. Since then the whole of the rivers, excepting the Wairoa, have been bridged, and twenty-three large culverts built, sufficiently wide for dray traffic. The bridges and culverts are as follows:—

Bridges, 254 feet, viz:—

Te Puna, plain, 52½ feet  
Waipapa, truss, 56 „

Wainui, plain, 82½ feet  
Whatakao „ 63 „

Culverts, all 12 feet wide, viz:—

3 culverts, 6 feet opening  
4 „ 4 „ „

9 culverts, 2 feet opening  
7 „ 12 in. × 12 in. opening.

Some of the traffic in cattle and sheep between Napier and the Thames has passed over this road; and the amount is increasing, so much so as to necessitate the formation being widened to at least 10 feet; and the Armed Constabulary are engaged on this work between Judea and the Wairoa River, about three miles, and have already completed about 10 chains of swamp.

Between the Wairoa and Ongatete (the end of the road) the work is being done by contract and is progressing favourably. On its completion it is proposed to let the maintenance of it for twelve months by contract. The survey of the extension of this road to the confiscated boundary, towards the Thames, will be proceeded with shortly.

*Maketu and Rotorua Dray Road.*—Thirty-eight miles. Several improvements have been made on this road during the past year, viz. the erection of a truss bridge, 51 feet in length, over the Taheke, with side-cutting for approaches 62 chains long; also side-cuttings along the shore of Roto-iti, between the Taheke and Morea, 37 chains, including 558 cubic yards of rock; 16 chains of side-cutting leading into Maketu; repairs and reconstruction of Mourea Bridge, 86 feet in length, plain; one 10-foot bridge over a stream on west side of Kaituna River, and two small bridges beyond the Ngae. Timber is being prepared for the erection of a 40-foot truss bridge over the Puheringa River, and will shortly be delivered. Other improvements are in progress, such as alterations in grades at Omatuku, 1 in 6 to 1 in 12, under contract with Natives, who, however do not evince a disposition to complete the work as speedily as could be desired.

*Rotorua and Tapapa Horse Road.*—In length about twenty-seven miles. The survey of this road was commenced with a view to the work being executed; but it was afterwards considered advisable not to proceed with it at present, and the survey was therefore not completed.