

The total cost of a water-supply as above indicated, including head-works, benching pipe-track in rock on right bank of creek, a small trestle-bridge at the old mill, laying of pipes with branches, valves, and all necessary fire-plugs, with contingencies and supervision, I estimate at £4,895 approximately.

In conclusion, I recommend that the reservoir should be securely fenced against the entrance of cattle, &c., for at least 2 chains wide from the weir on each side up the creek for a distance of at least 10 chains, and all decayed logs, &c., removed to preserve, as far as possible, the purity of the water. It is possible that, in the event of the work being carried out, the permanent levels taken, and final arrangements made, the scheme may be found capable of modification in only laying pipes, &c., in the streets sufficiently built on to warrant the expenditure, and thus supply the immediate wants of the town, and therefore the above estimate must be considered approximate. Still, as in all such undertakings, the first cost being the least I would recommend the laying of the mains to the extent indicated on the plan from Woollams's Triangle northward to the neighbourhood of the Tramway Hotel at Belleville. My thanks are due to Messrs. McCormick and Turner, also to Mr. Simmonds, County Clerk, for their ready assistance in my examination for the purposes of this report.

T. PERHAM.

Karangahake Mining Township.—Domestic Water-supply.

I now forward, together with a sketch plan, report on the above.

The town lies in the entrance to the deep and narrow gorge of the Ohinemuri River on the right bank, and at the junction with that river and the Whitawheta Creek, and is about six miles south-east of Paeroa on the Waihi Coach-road.

With the exception of the business premises along both sides of the main street, which is parallel with and close to the bank of the river, nearly all the houses are scattered about the steep hillsides, which consist of rugged spurs and gullies running down from a range to the river. To systematically provide water, except in the main street, for such a place is not an easy matter, on account of the absence of properly graded roads and the irregular manner in which the houses are disposed; and, taking into consideration locality and small population, it will be comparatively expensive. The population is estimated roughly at between five hundred and seven hundred, counting what may be called the suburbs or outlying tenements. As there is always a probability of mining towns of this description extending, and perhaps rapidly in the near future, I think it would be well practically to provide for an increase of the present population to 1,500 at the usually accepted rate of 30 gallons per head per diem—namely, 45,000 gallons. The following recommendations are therefore based on this.

A never-failing supply of pure water can be attained from the Parapara Kauri or "Dogherty's" Creek (running at the proposed intake about three-quarters of a Government sluice-head), and which has been reserved for the purpose. The creek joins the Ohinemuri River near to and north of the township.

Two schemes have been formulated, both taking water from the same and, in fact, only source: One to convey the water from the creek in almost a direct line, by means of pipes, along the sloping spur sidelings to a saddle on the hill at the back of the town, and there to construct a distributing-basin, and from thence the service-main being taken down a broad, convenient gully into the town. The alternative scheme is to convey the water from the same point in the creek either by an open race or pipes round the spur of the hill partly by the road following down the creek to the junction of Main Street with Butler's Road, marked "A" and shown in long red dots on plan. This route, in my opinion, would, in addition to being the most expensive, if pipes were used the whole way, and open to the objection if a cut race be used to expensive maintenance and liability of contamination from a large area of surface drainage. Again, from the point "A," in addition to the race or pipes from the intake, 23 chains of large piping would be required, which at the present time is not a necessary requirement for either fire-extinguishment or ordinary domestic purposes.

Under the circumstances, I think the first proposal is in every way the best and in the end prove to be the most satisfactory and economical.

The position selected in the creek for the intake or headworks is by aneroid barometer 325 ft. above the Ohinemuri River, and well above all habitations, as shown on the plan, and, when fenced, is free from any contamination, and is about a mile by the pipe-track, shown in firm red line, to the before-mentioned saddle, which is 250 ft. above the river. The headworks consist of a simple concrete dam, 5 ft. in height, built in the solid rock at the top of a small waterfall, and creating a useful little reservoir from a natural rock-bound pool, which is estimated to contain, when full, about 20,000 gallons, about two-thirds of which will be available for use, the remainder of the pond acting as a first filter and silt-bed. On the left bank of the creek a small supplementary silt-pit, with a rose-strainer and 3 in. stop-valve on the outside of the pit, is built in to shut off the water from the 3 in. supply-main when necessary. At the upper end of the reservoir is an iron and timber grating, similar to that described for Coromandel, to prevent any small snags or *débris* floating down the creek from entrance. This small pond, in addition to acting as the intake, is a silt-pit, and the supply of water will be useful in case of emergency and during the periodical cleansing of the service-tank hereafter described.

At the saddle it is proposed to excavate for and build, in a natural depression in a gully near and about 30 ft. below the 250 ft. level, a tank with a capacity of 45,000 gallons, or about one day's supply for fifteen hundred of a population. The tank is to be of concrete, with vertical walls, the top of which to be 2 ft. above the surrounding ground-surface to prevent entrance of surface-water, and, as it is in the bush, roofed over with curved galvanised iron to keep out falling branches, &c. To be fitted with a ball-valve to regulate the supply from the 3 in. pipe. Washout- and overflow.