

	£	s.	d.
Cost of water-supply, say	14,000	0	0
Turbines with belts, framing, &c., say	500	0	0
House for turbines and generators	250	0	0
House for transformers at Kuaotunu	100	0	0
Electrical apparatus, poles, and insulating wires	6,553	0	0
Packing, freight, and general shipping charges	573	15	0
Freight and cartage from Auckland, 90 tons at £1	90	0	0
Erecting pipes, turbines, generators, transformers, and line	375	0	0
Supervision	300	0	0
Incidentals	100	0	0
Total	£22,841	15	0

Yearly Cost.

	£	s.	d.
Interest, 6 per cent. on £22,841 15s.	1,370	10	1
Depreciation, 5 per cent. on £9,341 15s.	467	1	9
Depreciation, 3 per cent. on £14,000	420	0	0
One engineer	250	0	0
One assistant	200	0	0
Two men at £150	300	0	0
One man on race and line	150	0	0
One man at Kuaotunu	150	0	0
Oil and sundries	100	0	0
Total	£3,407	11	10

It will be seen by this that I have added the extra men to that of Mr. Fletcher's estimate, as no doubt the water-race and line will take up the whole of one man's time to look after them; and as it will require three men to be in constant attention on the generating-plant at Gumtown, and one man at transformers, I think the estimate given not too high. The great difference between my estimate and Mr. Fletcher's is the cost of the water-supply; and, at the time Mr. Fletcher left Wellington, I had not gone carefully into the matter, merely having mentioned to Mr. Fletcher that the cost of the open conduit would be about £1,000 per mile; but this would never cover the cost of fluming across the Rangihau, and raising the water out of the Rangihau and Waiwawa Rivers, where low concrete weirs would have to be placed, and closed boxing for a long distance down the side of these rivers, having piles driven to hold the boxing in position during time of floods.

Assuming that the owners of the present crushing-plants had to pay the whole of the expense in connection with working the plant, taking into account interest on the outlay and depreciation of plant, it would amount to £681 10s. 4d. per annum for the owners of each of the five crushing-batteries that are at present erected at Kuaotunu.

I have, &c.,

HENRY A. GORDON, Assoc. M.Inst.C.E.,

Inspecting Engineer.

The Hon. the Minister of Mines.

No. 2.

KUAOTUNU SCHEME.—MR. FLETCHER'S REPORT.

A PROPOSAL to work the machinery for quartz-crushing and gold-saving in the Kuaotunu Field by power obtained and electrically transmitted from the Waiwawa and Rangihau Rivers.

On the 9th May, 1893, accompanied by Mr. H. A. Gordon, Inspecting Engineer, visited Kuaotunu, where we were met by several of the mine-managers and others interested in the scheme. After discussing the subject with them, and visiting the Red Mercury, Great Mercury, and Try Fluke Companies' works, we proceeded overland to Mercury Bay, and on the following day up the Whitianga and Waiwawa Streams to Gumtown, the place where the water motors and electric generators would be erected for transmitting the power to Kuaotunu. Following up the Waiwawa for about three miles to the site suggested for taking up the water, and selecting a suitable place above its junction with the Rangihau River, we estimated from measurements of width, average depth, and velocity, the quantity of water then flowing to be 220.5 sluice-heads; adding 31 sluice-heads (which we estimated from observation) to be flowing into the Waiwawa from the Rangihau, this gave a total of 251.5 heads of water.

For the scheme to be satisfactory it is only the permanent effective power obtainable that must be considered, and to arrive at this it is necessary to estimate the probable minimum water-supply obtainable in an average dry season. The present year appears to have been an exceptionally wet one, and although the river seemed to be pretty low at the time of our visit, yet from general indications we deemed it advisable to largely discount the quantity of water which we estimated to be then flowing. From previous measurements made by Mr. Wilson, Inspector of Mines, when, after a period of two months' fine weather, he estimated that there were 144 sluice-heads, and from the opinions of others familiar with the district, we concluded (1) that at least one-quarter (say 63 heads) of the quantity flowing at the time of our visit would be available in an average dry season; and (2) that probably one-third (84 heads) might be relied upon, unless there happened to be an exceptionally long spell of dry weather.

To utilise this water and obtain sufficient fall it will be necessary to construct a race about five miles in length to bring the water into Gumtown, where a very suitable site for the necessary transmitting-plant can be obtained.