

From data collected with great care by several parties, who differed very little in their calculations, it was found that, during the late dry summer, the water collected from this gathering ground (including also the Hihi, which drains a large portion of the south side of the Kauwaeranga), at an elevation to deliver in Grahamstown 130 feet above high water, did not exceed 29 cubic feet per second. At an elevation to deliver in Grahamstown at 500 feet, this ground furnished, from all sources, 8 cubic feet per second. As the proposed supply would have to be collected from the same ground at an additional elevation of 600 feet, the supply would be very small if the same diminished proportion was maintained, which there is every reason to suppose would be the case.

As an instance of the varying supply, I may mention that, during the last summer, the Maungarahu, at its junction with the Kauwaeranga, was gauged by me, and was running $2\frac{1}{2}$ cubic feet per second; this stream, on my last visit, at a distance of several miles from its junction, and at an elevation of more than 1,000 feet above it, was delivering nearly the same quantity.

From experience acquired on the Thames Gold Field, it is evident that any system of water supply demanding more than 30 cubic feet per second, at a greater elevation than 130 feet above high water in Grahamstown, must be dependent on storage reservoirs; but the cost of forming and maintaining reservoirs at the elevation of the Moanatairi Race would be very great compared with the supply to be obtained at that elevation.

J. J. O'Neill, Esq., C.E.

I have, &c.,
DANIEL SIMPSON.

No. 7.

REPORT UPON WATER SUPPLY, THAMES GOLD FIELD, BY UNDER SECRETARY, GOLD FIELDS DEPARTMENT.

Mr. C. E. HAUGHTON to the Hon. J. D. ORMOND.

SIR,—

Public Works Office, (Gold Fields Branch,) Wellington, 15th May, 1872.

In accordance with your instructions, received by telegram at Wellington on the 16th April ultimo, to proceed forthwith to the Thames, and “make careful inquiry both respecting the high and low level schemes, and also as to the third proposed supply suggested by Mr. Whitaker,” I left the next day for Auckland, and having visited the Hauraki Gold Field, and made such investigation and inquiry as, under the circumstances, were possible, I have the honor to report as follows:—

The High Level.

The high-level scheme is altogether out of the question, for the following reasons:—

(a.) It would afford an insufficient supply of water. This point may be considered as satisfactorily disposed of by the report of Messrs. Simpson and Winks, C.E.s., enclosed under date 8th February, 1872, in a letter from Mr. J. J. O'Neill, C.E., to the Minister for Public Works, and the letter of Mr. Millett, District Provincial Engineer of the Province of Auckland, to myself, copies of which are appended hereto.

(b.) Assuming that during a certain portion of the year there would be a sufficient supply of water, the cost of construction of the race under this scheme would be entirely out of proportion to the probable benefit to be derived from carrying it out.

Mr. O'Neill's estimate is £97,772, and this is exclusive of the value of the land which would require to be taken; and it must be borne in mind that, under any circumstances, the mere width of the race would not be sufficient.

The great length, again—forty-five miles—would, in so rough and thickly timbered a country, necessitate very large annual charges for repairs, especially to the fluming (calculated at 420 chains).

Some portion or other of the race would be from time to time under repair, and a consequent stoppage of machinery, dependent for motive power upon the water, would ensue.

I may observe that great inconvenience has been experienced, during the late heavy rains, through the injury to existing races by land slips and falls of stones, which, owing to the loose nature of the soil, are of constant occurrence upon the ranges. It is hardly necessary for me to state that a supply of water for motive power to crushing batteries becomes practically useless when, from any cause whatever, it is periodically intermittent; and upon this point I should call especial attention to the very lucid remarks of Mr. Gibbons, an experienced quartz miner, the manager of the Una Gold Mining Company, who, in his letter accompanying answer to circular of 24th January, 1872, says,—

“Water power, if not constant and reliable, would lose a great part of its value, and would not generally be adopted in preference to steam for mining or manufacturing purposes. I admit the great value of water power, but it must be from a constant and thoroughly reliable source of supply. A stoppage occasioned by damage to aqueducts, races, or dams, would cause a stoppage to most of the mining operations upon the field, were water adopted as the chief source of motive power. Contracts would unavoidably be broken, and in some cases mines abandoned for a time, and ruin would result to many companies. These may appear to be extreme views, but to me it would appear an absolute certainty if the high-level scheme is carried out as proposed. No one who has had anything to do with even moderate length of flume or water-races but must be aware of the constant expense of keeping them in repair, even under ordinary favourable circumstances as to the routes they traverse; but when it is taken into consideration that the proposed route is over the roughest country, across ravines, and along hill sides almost certain to slip as sure as a track or any erection disturbing the surface is placed upon it, subject to bush fires and falling trees, damage from winter torrents and loosened boulders, but will agree with me as to the utter fallacy of the proposal, unless he be one who goes in for a large expenditure on public works without regard to the future.

“I feel fully convinced that, if the high-level scheme be carried out by a long line of flume, there will not, in ten years, be sufficient evidence of it remaining, except the cost incurred in its erection.”