

Analysis.						
Fixed carbon ...	...	...	...	...	...	50.14
Hydro-carbon ...	...	...	...	...	...	27.72
Water ...	...	...	...	...	...	15.01
Ash ...	...	...	...	...	...	7.13
						100.00

Evaporative power on old standard—the American formula, 6.5 lb. The above results prove this to be a good coal of its class.

WILLIAM SKEY, Government Analyst.

REPORT ON THE SUPPOSED OCCURRENCE OF AURIFEROUS ROCKS AT HORSE-SHOE BUSH, NEAR WADE, AUCKLAND.

By ALEXANDER MCKAY, F.G.S., Government Geologist.

IN 1884 I visited Wade in connection with the general geology of the East Coast, Auckland, north of Waitemata Harbour to Mahurangi, and at that time examined some prospecting works on Mr. Lloyd's farm, and further west some outcrops of highly siliceous rock on Mr. Bond's property.

In the case of the prospecting shaft on Mr. Lloyd's farm, this had been sunk through marly strata and fine-grained sandstone forming part of the coal-bearing series as this is developed in the Wade district. Nests and small veins of calcite occurred in these rocks, but quartz was absent, and I had to conclude that the prospector had mistaken calcite for quartz. Further up the valley, on Mr. Bond's farm, quartz-rocks, apparently the deposit of a hot spring, appeared on the hill-slope on the west side of the valley. This was supposed to contain gold, but its appearance was certainly unfavourable for the occurrence of that metal. From the immediate district, more towards the Orewa, prospecting for reefs is at present being carried on, and during my last visit I was shown samples of quartz of a kind likely to carry gold. A test of this stone made in Auckland gave but a trace of gold.

In the matter that more immediately concerns this report, the locality of the supposed find is at Horse-shoe Bush, five to six miles to the west of Wade, and two to three miles north-west of Dairy Flat. I was accompanied to the place by Mr. Acres, of Takapuna, who had applied to the department, requesting that this examination should be made. It appears that several years since some prospecting had been carried on here and in the vicinity, and returns of gold were supposed to have been obtained on samples being tested in Auckland. This seems to have led to the erection of a one-stamp battery, mainly a wooden construction, which is still in place at the mouth of the drive where the principal workings are situated. The material operated upon is a breccia conglomerate, which shows in the bed and banks of a small creek draining the south-west side of the hills between the waters going by way of Dairy Flat and those falling into the Wade River. The exposure is made along a line of fault, striking north and south, the hade of which is to the west at an angle of 60°. The breccia-conglomerate, showing on the west side of the fault, dips at a lower angle, but to the westward also shows as vertical banks 6 ft. to 8 ft. on each side of this creek, and forms the bed of a cascade for some little distance up the creek.

The breccia-conglomerate plunging to the west, a dip drive has been made in this direction, a distance said to be 40 ft. But the drive was full of water when visited by me, and the length of the excavation could not be ascertained. The material said to be auriferous was, however, well exposed at the mouth of the drive and in the banks adjacent. It consisted of fragments of soft green sandstone derived from the rocks underlying and eastward of the fault-line, mixed with a considerable proportion of chalky limestone and siliceous clays (fire-stone) bleached white, and containing a small percentage of calcite in plate-like pieces. The matrix of the whole was a greenish sandy mud derived from the underlying rocks, and a small percentage of the whole consisted of iron pyrites which had evidently formed since the other material was laid down.

I procured three dishes of wash from parts whence former prospects, said to yield gold, had been taken. These I took and washed with my own hands, with the result that not a single spangle of gold could be detected, although extreme care was taken in dealing with the material. When panned off to a very small quantity, no black sand remained in the dish, and no heavy material except a little pyrite. It was explained to me that the gold was contained in the slimes, meaning thereby in the muddy part of the deposit. This statement I could not very well credit, because unlikely in the nature of things, and, further, because in all three cases I had taken such care that any gold, down to what is usually invisible to the unassisted eye, must have been retained in the dish. I therefore concluded that the deposit was not auriferous. To this conclusion all the surrounding circumstances conspired, and the deposit in question is about the last in which an experienced miner would look for gold.

On inquiry as to what foundation there was for the supposition that gold was present, or what had induced Mr. Acres to apply for an examination of the locality as a gold-bearing one, I was referred to the returns said to have been made, but of which no actual proofs were shown, and further learned that no evidence of the presence of gold had been sought for immediately prior to application for my services in this connection, that it was solely because there was an idea that gold existed in the district—a wish rather—and that in order to place the thing before the public and on the market a report was required, that my services had been sought. This sort of thing is to be reprehended.

The rocks are Tertiary sediments, derived from the destruction of older Tertiary and Cretaceous rocks, are themselves in no sense mineralised, and, as far as the particular stratum prospected, of material not such as form the usual associate of the precious metal. The same material stretches across Dairy Flat south-west, across the upper part of Lucas's Creek to Riverhead, and eastward to