

"The dip of the Big Reef and the dip of the auriferous rocks, as far as developments have been prosecuted, seem to be in the same direction—namely, south-westerly. This being so, augurs well for the Tokatea Big Reef (and mother-reef, so-called) for permanency in depth.

"I may say that during my experiences I have met representatives of large syndicates, who were eagerly disposed to develop the Big Reef with deep-level mining. Finding the reef too poor to work on the surface series, and owing to the complications of having to work through various companies' and claimholders' areas, the proposal was abandoned, as it would not pay to sink shafts and open up levels, support drainage, winding, &c., for a limited area of ground. The necessity of a large holding for the purpose of developing this reef is therefore apparent.

"It is my opinion—based on the fact that the Big Reef traverses the country for miles (see locality-plan) towards Cape Colville (north) and to the Thames (south)—that if once proved by diamond boring to be payable, the reef would ultimately be permanently developed on a large scale, thus making the Coromandel Goldfield to equal any yet discovered in any part of the world.

"In South African gold-mines and in Australia borings have been carried out at depths from 3,000 ft. to 4,000 ft. Diamond boring is only just being initiated in New Zealand on a small scale as yet, but so far is fairly satisfactory, and I feel persuaded that if it is persevered in throughout the colony it will prove that New Zealand is very rich in gold-ores, especially at great depths."

In connection with this subject, I would also draw attention to a paper on "The Igneous Character of the Carboniferous Rocks of the Tokatea Goldfield, Cape Colville Peninsula," by Mr. Alexander McKay, F.G.S., Government Geologist, read before the Australasian Institute of Mining Engineers at the annual meeting held in Auckland in January, 1903 ("Transactions of the Australasian Institute of Mining Engineers," Vol. ix., Part ii.). This is reprinted with this report, appearing at the end of notes on quartz-mining in the Northern District.

The Royal Oak of Hauraki Mine had a better year during 1903 than was the case in 1902. Work was carried on by the company on a lode not hitherto worked (cut from No. 6. level), and good hopes are entertained as to its permanence. Tributers have been employed in taking out blocks of stone in other parts of the mine. In common with other parts of the Coromandel field, the quality of the ore is patchy, and "specimen stone" is eagerly looked for.

At the new Four-in-hand Mine, near Kennedy Bay, a new crosscut tunnel has been commenced at a considerably lower level than the Tainui level (above Waikoromiko Creek and on the opposite side of the hill from the battery) which is expected to intersect the Tainui reef at a distance of 480 ft. It is calculated that the Four-in-hand reef will be cut at 1,080 ft., and the tunnel will, if continued 660 ft. further, come through the hill near the battery considerably below the No. 4 level in the Four-in-hand reef. The total length of the tunnel will thus be 1,740 ft., and it will command a considerable height of backs in both reefs. When visiting this mine I noticed that the country rock through which the new crosscut is being driven is of a different character to the andesite at the higher levels, and, as the crosscut will intersect ground which does not appear to have yet been proved, the results of the undertaking will be looked forward to with interest.

Sundry small claims are being worked in the locality, which afford employment to a somewhat limited number of men.

In the locality of Kuaotunu the Waitaia Mine is at present the only gold-producer. The mine has been steadily worked, employing twenty-four men, the value of the stone averaging £4 4s. 8d. per ton. Tunnel-driving and prospecting have been carried on during the year at other properties in the neighbourhood.

Work on a limited scale has been done at the mines near Guntown, the average value of the stone at the different mines varying from £1 19s. 7d. to £5 15s. 2d. per ton. The three small mines crushed in the aggregate 634½ tons for a bullion-value of £2,440 3s., representing a general average value of £3 16s. 11d. per ton.

Prospecting at the Sunbeam Mine on Great Barrier Island has evidently been satisfactory, as the owners have purchased a battery for work there.

In various parts of the Northern District there are several mining properties which, taken as a whole, afford employment to a considerable number of men, and good work of an exploratory character is often done by the miners employed.

The report of Mr. Coutts, Inspector of Mines, gives valuable information as to these holdings.

*The Igneous Character of the Carboniferous Rocks of the Tokatea Goldfield, Cape Colville Peninsula.**

[By Alexander McKay, F.G.S., Government Geologist.]

On the Hauraki Goldfields, within the limits of Cape Colville Peninsula, the Palæozoic rocks are confined to the district north of a line drawn from Mercury Bay, on the east coast, to Rocky Point, on the shore of the Firth of Thames. South of Kennedy's Bay they are developed on the east coast only at Kuaotunu, at which place gold-mining is carried on in sandstones and slates of this age. Between Tapu Creek and Coromandel there is, along and adjacent to the shore of the gulf, a very considerable development of Palæozoic and in part of Trias rocks, and between the Tiki Stream and the northern end of the Tokatea Hill, along the western slope of the main range, lies the special area of the Palæozoic or Carboniferous rocks that have more particularly to be dealt with in this paper. The same formation has a large development between Cabbage Bay and the northern slopes of Moechau, and appears to the water-marge on both sides of this part of the peninsula.

* Paper read before the Australasian Institute of Mining Engineers at the annual meeting, held in Auckland, in January, 1903: "Transactions of the Australasian Institute of Mining Engineers," Vol. ix., Part ii.