

In its crosscut the North Blackwater Syndicate intersected three lodes carrying visible gold, one of these being the main Blackwater lode. Permanent winding and air-compressing machinery is now being installed at this mine. It is interesting to note that at both this and the Blackwater Mine successful prospecting and underground development was carried out with the assistance of Government subsidies.

Accompanied by Inspector M. Paul during February of the present year I inspected the mining operations on the freehold of Mr. G. Muir, near Te Puke. The recent development upon the newly discovered Muir lode has been carried out a few chains to the east of the main lode formerly developed unprofitably by the Te Puke Gold-reefs (Limited), and reported upon by Mr. J. A. Bartrum in the seventh annual report of the Geological Survey.

The lode system near Te Puke resembles somewhat that at Waihi; branching and interlacing quartz lodes occur in fissures due to contraction of the bedded andesite; the ore-bodies vary considerably in width and course. With the exception, however, of the main lode, which is outside the boundaries of Muir's Gold-reefs (Limited), there is no comparison in magnitude between Waihi and Te Puke lodes. In appearance the oxidized quartz from the upper levels of the Waihi Mine also resembles considerably that at present being mined at Te Puke, being in parts sinterous, flinty, laminated, or banded.

Upon the Muir lode at the time of my inspection the following development had been carried out:

About 93 ft. below the crest of Fleming's Hill on its eastern side a level known as the "upper level" had been driven from an adit by Mr. Muir for a distance of 360 ft. along the lode, varying between 4 ft. 6 in. and 5 ft. in width, bearing approximately north and south, underlying 85° east. Samples of ore properly taken by Inspector Paul along the whole course of this level upon analysis proved payable, containing an average assay value of about £3 per ton. Assuming the ore to ascend for 60 ft. above this level in undiminished width, there is available for stoping a block containing 7,160 statute tons.

To the north of the upper level, and about 200 ft. below the same, the Muir lode has been intersected by an adit; at the point of intersection the lode is only 10 in. in width, but 10 ft. southward it increased to 2 ft. 4 in., and at 47 ft. (the face on the occasion of my inspection) it was 3 ft. wide. Samples taken at these points were of lower value than in the upper level.

The lode is crossed by a small fault, causing slight displacement at the northern face of the upper level; towards this fault the southern face of the bottom level is approaching.

In addition to the Muir lode a small branch lode and some "droppers" have been proved in the upper level to contain rich ore in small quantity.

Outside the boundary of Muir's Gold-reefs (Limited), a short distance to the west of the Muir lode, the main lode formerly developed by the Te Puke Gold-reefs (Limited) has been recently further developed at the top level by a footwall drive about 200 ft. in length. Samples taken by Inspector Paul across both north and south faces of this footwall drive averaged in value £3 10s. 11d. on the western face, and 5s. 1d. on the eastern face. This lode is stated to be 50 ft. wide at the upper level, but declines in width at lower levels driven several years ago. The quartz has in the past been found too low-grade to be payable.

The company is now installing a 10-head stamp battery, tube mill, and cyanide infiltration plant near the entrance to the adit of the bottom level. The underground development by this company was also assisted by a Government subsidy.

Reports on working quartz-mines by the district Inspectors of Mines are contained in Annexure A accompanying this report.

(2.) DREDGE MINING.

This class of gold-mining is rapidly declining, only thirty-five dredges being in commission during 1917, whereas in 1906 there were 167 active dredges. During the year thirteen dredges ceased operations and two dredges previously idle were put into commission.

Near Rimu, on the Hokitika River, the Rimu No. 1 Dredging Company commenced dredging early in April, and by the 31st December had handled 117,000 cubic yards of material (chiefly large boulders). The area dredged was 3½ acres, and the average depth about 20 ft., but some of the gold may be lost among the large boulders (too large for the dredge-buckets to deal with) assembled on the bottom. It is proposed to procure a more powerful dredge of American type to deal with the very heavy ground on this claim.

At the Arahura River the Westland Prospecting Syndicate has successfully proved by Keystone drill an extensive area of workable dredging-ground averaging 27 ft. in depth. The Workop No. 2 dredge has been purchased by the syndicate for use upon this area, and is now being removed thereto.

(3.) ALLUVIAL MINING.

There has been a considerable decline in the production of bullion from alluvial mines during the period of the war.

Reports on working alluvial claims by the district Inspectors of Mines are contained in Annexure A accompanying this report.

Water-power for Mining Purposes.—Water-power is extensively used for hydraulic mining, also to a smaller extent for hydro-electric transmissions and for water-motors installed to drive mining machinery.