

*Maratoto District.*

*Hikutaita Gold Syndicate's Mine* (Area, 350 acres).—The mine has been well opened up. The reef, which varies in thickness from 6 ft. to 14 ft., has been driven on at No. 5 level 1,250 ft. and 600 ft. at the bottom level. Winzes have been sunk from one level to another, giving good ventilation. Prospecting has been done at the surface levels, and the ore, though of low grade, is considered payable. A considerable quantity of quartz is now in sight. Thirteen men are employed.

*Walker's Maratoto Mine* (Area, 80 acres 2 roods 2 perches).—Prospecting has been energetically carried on in this property, but the results have not been sufficiently good to justify the erection of a battery. From five to sixteen men were employed.

In the Volunteer, Lord Salisbury, Retreat, and several other claims in the district prospecting operations have been suspended.

*Komata District.*

*Komata Reefs Mine* (Area, 79 acres).—This has lately been joined with the Komata Queen Mine, with an area of 130 acres, making a total area of 209 acres. The owners are the Komata Reefs Gold-mines (Limited). A considerable amount of development work was carried on in the Komata Reefs section. There are three levels opened—No. 1, 60 ft.; No. 2, 140 ft.; and No. 3, 240 ft., below the surface. Argall's reef, the main ore-producer, has an average width of from 3 ft. to 4 ft., and is composed of loose friable quartz containing a large quantity of manganese-oxide. The vein stuff is well oxidized on the levels at present opened, there being very little iron-pyrites through the quartz. Hartridge leader is a small vein varying from 6 in. to 8 in. in width, carrying high-grade ore. The quartz is similar in character to that of Argall's reef, only harder and more compact. Lavington reef is a large low-grade reef about 20 ft. wide, the quartz being similar in appearance to that of the Argall reef; very little work, so far, has been done on this reef. The nature of development work carried out during the year consists of driving cross-cut, No. 3 level, and driving along the strike of the various reefs on the different levels, and rising and sinking to make connections. The chief work has been on Argall reef, and consists of—No. 1 level, driving north 80 ft., south 40 ft.; No. 2 level, driving north 428 ft., south 150 ft.; No. 3 level, driving north 260 ft., south 160 ft. The total amount of work done in the mine is—Rising and sinking, 720 ft.; cross-cutting, 1,450 ft.; driving on reefs, 1,500 ft.

Mine machinery: One small ventilating-fan, driven by small Pelton wheel. Mill machinery: Steam-engines—One small semi-portable engine used as auxiliary power for driving the stamp battery. Water-wheels—One 6 ft. Pelton wheel for main motive-power, and one 3 ft. Pelton wheel for driving vacuum pumps, berdan, and dynamo for electric light. Stamps—One battery of twenty head, square frame, with horizontal driving-belts; weight of stamps, 700 lb.; five stamps working in each mortar-box and a Challenge ore-feeder to each box. (The battery was erected for dry-crushing but has recently been changed to the wet process.) Rock-breakers—One Gates No. 2, style D. Berdans—One, used for blanketings. Concentrators—Blanket strakes. Ore-drying furnaces—One rotary furnace. Cyanide-vats—Twelve circular vats, 22 ft. diameter, 4 ft. sides, made of steel, and each supplied with a revolving distributor for spreading the tailings from the battery evenly. Zinc-boxes—Two, with twelve compartments in each. The capital expended on mill machinery is £9,216 10s.

The process employed up to February, 1898, was dry-crushing and cyanide leaching, the tailings from the vats being run over amalgamated copper-plates and blankets, there being a fair quantity of coarse gold in the ore. The process at present in use is wet-crushing, amalgamation on copper-plates, and leaching of the tailings by cyanide solution. About 70 per cent. of the total gold is obtained as amalgam on the plates in front of the battery, and a further 75 per cent. is extracted from the tailings by cyanide. The *modus operandi* is as follows: The tailings from the plates are run through a revolving distributor (this revolves automatically by the flow of the tailings from its curved pipes), and evenly spread in the vat. The excess of water, charged with fine slime, discharges into a circular launder placed around the inside of the vat, from which it runs into a tank, to be pumped back to a tank above the battery, and reused as battery water. The percolation by this method is good and comparatively easy, the percentage of extraction being very fair.

Length and capacity of water-races: Main race, two miles long; capacity, four sluice-heads. Besides the main race there is half a mile of branch race. The capital expended on water-races is £1,460 13s. 4d. Aerial tram-line: 44 chains in length, of the single-rope system, carrying thirty-three buckets of 150 lb. capacity each, worked by gravitation, assisted by a 3 ft. Pelton wheel, using the water from the mine. The ground tramway is one mile in length, operated by a small locomotive. The capital expended on tramway construction is £4,818 5s.; and on road-making, £385 18s. Milling operations, &c.: Average quantity of quartz crushed per stamp daily, 16 cwt.; average number of stamps employed daily, 17; number of days during the year on which the mill was worked, 177; total quantity of quartz crushed, 2,375 tons, of 2,240 lb. each; total yield of bullion, 12,303 oz., value £9,532 12s. 2d.; total bullion recovered by cyanide process—Gold, 1,759·85 oz.; silver, 8,864·5 oz.; total value, £8,486 2s. 2d. Total bullion recovered by amalgamation—Gold, 249·57 oz.; silver, 142·78 oz.; total value, £1,046 10s. Total value of bullion for owners, £9,532 12s. 2d.; cost of mining per ton, 19s. 9d.; cost of carriage per ton, 1s. 10d.; cost of milling and treatment, £1 0s. 4d. Average number of men employed during the year: Mine, forty-eight, on wages and contract; tramway construction, forty, for six months; erection of and running of battery, twenty-six during the year.

The following account applies to the work carried on in the Komata Queen section previous to amalgamation:—Top level: Average depth below surface, 50 ft. Lavington reef driven on a distance of 100 ft. in a northerly direction. This is a very large reef, containing low-grade quartz. Smithy level: Average depth below surface, 250 ft. Lavington reef driven on a distance of 281 ft. in a northerly direction. The reef is very wide in places, and carries a soft friable quartz. Argall reef; Driven on a distance of 286 ft. The reef shows small, and pinched, with small patches of