

As a rule, the richest reefs occur in belts of decomposed andesite, from whence the gold probably came. In some cases, however, as in the Bunker's Hill reef, the foot-wall rock is hard and undecomposed, while the hanging-wall portion only is decomposed by percolating waters. Further, speaking broadly, the richest reefs are the smallest, the best returns having been obtained from reefs only 6 in. in width, and in no case have the large reefs yielded payable returns.

The reefs of the field may be divided into six systems—the Tokatea, Kapanga, Hauraki, Preece's Point, Pukewhau, and Matawai. Of these the first three only are of importance.

The Tokatea system embraces the reefs worked along the crest of the Tokatea Range as far south as the Success Mine. The striking feature of this system is the main, or Big, Tokatea reef, a reef or lode of quartz 30 ft. to 150 ft. in width, striking north to south, and dipping west at an angle of 50° to 55°. It forms a salient feature in the landscape, standing out in places as a white wall, and covering the slopes below with white quartz boulders and *débris*. In the extreme north of the area mapped the reef is coincident with the crest of the range, but on tracing its course south the reef descends on the western slope of the range. Before reaching the Success Road it bifurcates, one branch striking south-east and the other south. This latter branch is last seen in Cadman's Creek. Several trials of the lode have been made, but, as the results showed a bullion content of only 1 dwt. to 2 dwt. to the ton, these have led to no practical issue. Cross-reefs join the main reef both on the hanging- and foot-wall sides, but it is only on the foot-wall that these have yielded good returns, the hanging-wall reefs being barren and profitless.

The important reefs of this system are therefore the east and west reefs on the foot-wall side of the main lode. These are the Tokatea lode, No. 1 or Tribute lode, Rainbow, Alpine, Swedish Crown, Grin's Hope, Fern-root, Comstock, West Tokatea, Carnatic, and Colonial reefs. Of these, the first three have yielded rich gold for nearly thirty years.

A mile further to the south, and on the western slope of the range, though still on the foot-wall side of the main reef, are the Success reefs. These are the Jubilee Nos. 1 and 2, Success Nos. 1 and 2, and James's East and West reef. The first four are north to south in course, while the last is normal to the course of the main reef. These reefs are very patchy in nature, and have never yielded handsome returns to any of the numerous companies that have worked them.

The gap between the Tokatea and Kapanga system of reefs is bridged to some extent by the Standard and Warner's reefs, which have both furnished small quantities of gold. The principal reefs in the Kapanga area are Murphy's, Flying Cloud, Scotty's Nos. 1, 2, and 3, and Kapanga. The two first-mentioned, both dipping to the north-east, are possibly identical. The others all dip to the north-west at very low angles, in places occupying an almost horizontal position. In their shallow workings they have all yielded considerable quantities of gold, but in the deeper levels the reefs tend to become impoverished. It was from Scotty's reef that the first reef-gold was taken in 1861.

The Hauraki system is grouped around the mine of that name. It comprises the Hauraki No. 2 reef (Legge's reef), Hauraki Nos. 1 to 7 reefs, Iona Nos. 1, 2, and 3 reefs, and Castle Rock reef, in the immediate vicinity of the Hauraki shaft; while in the Union Beach and Golden Pah Mines the principal reefs are Meredith's, Pacific, Golden Pah, and Black reefs.

These reefs are so disturbed by minor faults and slides, and are so variable in strike and dip, that they form a confused network, and in several cases at least it seems certain that a single reef receives different names at various parts of its course. The best-known of the above is Legge's reef—only 6 in. to 12 in. wide—which during the past four years has yielded four hundred thousand pounds' worth of gold. A pocket in the Green Harp reef, in 1872, yielded about £40,000.

The Preece's Point reefs all strike north to south, having a general dip to the west, and are evidently a continuation of the Hauraki system of reefs. They have never given profitable returns, and, in consequence, have been but little worked.

The Matawai system comprises the Progress, Matawai, Pohutu, and Nelson reefs. The two former have been worked intermittently for the last forty years, and have at times yielded pockets up to £5,000 in value.

An inspection of the accompanying map will show that the great majority of the reefs and all the richest areas are included in a belt of auriferous country about two miles wide extending north-east from the Hauraki and Preece's Point areas to the Tokatea and Success Mines respectively. Probably quite 99 per cent. of the gold output of the Coromandel Goldfield has come from within this belt.

XIV.—NATURE, VALUE, ASSOCIATES, AND SOURCE OF ELECTRUM.

The gold of the miners on the field is an electrum containing on an average about 80 per cent. gold and 20 per cent. silver. In the majority of cases it has been deposited contemporaneously with the quartz, occurring throughout it as an impregnation. A specimen from the Bismarck Mine, Tokatea, is tinged a deep apple-green, owing to the presence of very finely divided gold. Again, the gold may be in coarse leaves and scales, and may have been deposited subsequently to the quartz. In the Hauraki and Kapanga districts crystallized gold is absent, but in the Tokatea area, and more especially along the crest of the range, it is the rule rather than the exception. The crystals are generally very imperfect indeed, showing only a single edge or face. The most perfect specimen that has yet come under my notice is known locally as the "Golden Butterfly." It was discovered some two years ago in the Rainbow reef, Tokatea, and came from a "vugh" or cavity in the clear crystallized quartz. It is adhering very loosely to the quartz crystals, and is raised above them in fanciful shapes, the pale-golden delicate wings of the "butterfly" on its support of clear quartz crystals forming an object of singular beauty. The body is composed of irregularly massed imperfect crystals, from which five plates or "wings" rise at an angle of about 45°. The plates are composed of lamellar rhombic dodecahedra, with faces so unequally developed as to give the crystals a monoclinic facies. There is no trace of octahedral twinning, and only on the lower sides of the