

X.—PLEISTOCENE BEDS.

These, though differentiated on the accompanying map of the district, yet merge insensibly into the recent overlying alluvial deposits. In the southern area they are well developed at the debouchure of the Waiau and Tiki Creeks, where they form well-defined river-terraces, 30 ft. to 80 ft. above the present creek-level. Further to the south, on the southern bank of the Awakanae Creek, they form the tongue or spit of land over which the Coromandel-Thames Road passes. They are here very similar to the high-level terraces of the Kauaeranga River, Thames, being composed of highly decomposed andesitic boulders, much waterworn, and weathering concentrically. Scattered throughout the beds are waterworn and subangular fragments of quartz, wood-opal, chalcedony, and hyalite.

These are the beds referred to by previous investigators as Miocene breccias, which, indeed, they much resemble. They are well developed along the lower reaches of the Waiau Creek, where they were also mistaken for the Miocene breccias, or Beeson's Island beds. On careful examination, however, rounded quartz and chalcedonic pebbles are seen to be interspersed between the boulders, which are themselves rounded, evidently by attrition, thus pointing clearly to an aqueous rather than to an igneous deposition.

The disposition of the terraces at the mouth of the Tiki Creek appears to me to furnish the solution of a problem that has exercised many prospectors during the last thirty years. In a small creek in the slaty shales behind the Tiki Mill very rich specimens were obtained. From a given point in the creek the auriferous quartz was traced 40 yards further up to a junction of two small creeks. Higher up no trace of gold was discovered. It was naturally supposed that the specimens were shoadings from an adjacent reef, and drives were put into the banks on either side and in every direction, until at the present the place resembles nothing so much as a huge rabbit-warren. No auriferous reef was discovered, and further efforts are being made at the present time to discover it.

Considering, however, that this length of 40 yards is directly in a line with the river-terrace on the right bank of the Tiki Creek, it appears to me that the specimens formed part of the river-terrace, and came from the well-known rich Pukewhau reefs, and were lodged in a depression in the underlying slates. The sketch-plan from my field-book will probably simplify the explanation. (See Fig. 9.)

These beds are again developed along the upper course of the Kapanga Stream, where they consist of clays, sands, and highly decomposed waterworn pebbles and boulders. The Buffalo Reserve, on the right bank of Kapanga Stream, covers a considerable portion of the high-level terraces in this area.

The high-level gravels may be easily recognised in the field by their low horizontal spurs, running out into the flats parallel generally with the course of the stream that has deposited them. This feature is roughly shown in the section along such a spur shown in Fig. 10.

Corresponding with the high-level gravels, and, like them, shading insensibly into the overlying recent alluvium, are lacustrine beds, which probably underlie a considerable area of recent drift. They are exposed in one place only—viz., in the Kathleen shaft—and consist of very fine blue and yellow muds and of fine-grained sands. As shown in the section, the alluvial and lacustrine beds are here about 105 ft. in thickness, the lowest bed consisting of gravel containing free gold.

The fine-grained blue and yellow clays contain indistinct leaf-impressions, and also the rather badly preserved shell of a *Unio*, which from the following characteristics I am inclined to refer to *U. menziesii* (Gray): Shell oblong, high, much compressed (probably more than naturally), still covered with a thick olive-brown periostraca; teeth indistinct or hinge wanting. Shell brown, much excoriated anteriorly. Length, 2.75 in.; height, 1.5 in. The absence of the hinge-teeth makes the determination more or less unreliable. Since, to the best of my belief, no species of the Unionidæ exist on the Hauraki Peninsula at the present day, I have therefore differentiated the beds in which these fossils occur from those overlying. So far as I know, the nearest habitat of existing *Unios* is more than thirty miles away, across the salt waters of the Hauraki Gulf. It is very probable that this Pleistocene lake was barred from the sea by an elevated ridge of volcanic rock running from Keven's Point to Preece's Point. (See Fig. 11.)

A shaft through the recent alluvium was sunk in 1862-63 at a point to the right of the Huaroa Creek, near the main Coromandel-Thames Road. It reached a depth of 150 ft. through varying beds of sands, clays, and gravels. At 150 ft. an old "sea floor with mangrove stumps" (in the words of the owner) was reached, and, disappointed in their search for alluvial gold, the shaft was abandoned. The depths reached by the Kathleen and this shaft would therefore indicate a bed of alluvium extending across the flat certainly not less than 200 ft. in depth.

XI.—RECENT DEPOSITS.

Deposits of this period are met with at the head of Kitahi Bay, where they consist of creek-gravels and blown sands; at Long Bay; and at the head of the Coromandel Harbour, north of the Hauraki Wharf. At the last-mentioned area the recent beds are composed of material reclaimed by mangroves and other vegetation. The main alluvial area, however, lies to the south and east of the above localities. It extends from the Upper Township in the north to Lynch's Flat in the south, a distance of four miles, with an average width of one mile. This area has been filled in by the Kapanga, Karaka, Cadman's, Tiki, and Waiau Creeks, and is composed of coarse sand with occasional beds of conglomerate. Where well exposed the sands frequently show false bedding. Throughout the alluvium quartz containing gold is scattered, and in some places, especially at the mouth of the Kapanga Creek, in apparently payable quantities. The gold is still contained in the quartz, and it is therefore impossible by mechanical means to effect separation. It would appear that the gravel had not, unlike the gravel of the Otago rivers, travelled sufficiently far to secure the disintegration of the particles, and the consequent liberation of the gold.