

of the gold which it produced. The gold was comparatively pure, and might be worth £3 17s. 6d. per ounce; and on examination the material of the cement proved to be wholly volcanic in its character, and consisted of a moderately coarse breccia-conglomerate, mixed with a percentage of clayey matter, serving to bind the whole together. The gold derived from this matrix was evidently alluvial, and the position of such a deposit—on the side of a steep range—naturally excited my curiosity, and I therefore took the first opportunity of examining the conditions under which it occurred.

The lower and middle slopes of the range north of Clark's Hill and the Sisters Claim are formed of rhyolite up to about 800 ft. above the sea. Here the range is cut into by a deep gorge that carries the waters of a small creek to the low grounds. Where the rhyolite ceases the stream divides into two branches, the main branch continuing east directly for the higher part of the range, while the lesser branch turns to the north, and rises on a saddle about a mile distant, being fed and augmented by lesser streams from the range to the east. At the source of this stream on and near the saddle a good deal of prospecting has been done by sinking and driving, and by channelling along the bed of the creek.

The rhyolite rock is here of a highly felspathic character, and, near the surface, so much decomposed that holes may be sunk in it to a considerable depth without having recourse to blasting. Much of the partly disintegrated rock, on being thrown to the surface, resembles a coarse sand, other bands are of a more clayey nature. Holes and drives were made in this formation under the belief that it was an alluvial deposit, and gold, it is said, was obtained from some layers of the decomposed rhyolite. This statement, however, could not be verified, yet, from the amount of excavation made, there would seem to have been some inducement to continue the work.

Where the first eastern tributary joins this northern branch of the creek, alluvial gold was obtained, and the bed of the stream has been sluiced for about two chains. Gold was obtained here, and it is more than probable that most of the gold from this part of the range was obtained here. The wash in the creek-bed is mainly andesitic, and is supplied by the tributary already spoken of. It is, however, peculiar that gold could not be traced in the eastern tributary along which the andesitic wash had come. Below this, along the northern branch of the main creek, rhyolite rocks continue, and in these a small vein of quartz carrying a little cinnabar is seen on the left bank of the creek, opposite the junction of the second tributary coming from the east.

Crossing two ridges and a gully on the east side of the north branch, the main eastern branch of the creek was reached at a height of 950 ft. above the sea. The creek here flows along a deep valley, almost a gorge, cut in pumice-sands, that, resting on the rhyolite rock, form a soft sandstone, and are seen to continue for some distance up the creek, and probably continue to the crest of the range.

At the point where the bed of the creek was reached is a waterfall some 15 ft. in height, beneath which, and in the precipitous banks of the creek on both sides, a stratum of coarse dark gravel-cement is exposed. On the right bank of the creek the most westerly (down creek) exposure of this is about 8 ft. in thickness, it thins out rapidly towards the east, and under the waterfall a thickness of not more than 2 ft. can be seen. About midway in the distance mentioned a drive has been put in towards the south, and here there is evidence that the cement is divided into two bands by a bed of pumice-sand (soft sandstone). As the cement, followed to the south some 20 ft., gave evidence of thinning out, the drive was turned to the eastward, and driven to nearly abreast of the waterfall; but in this direction also there was distinct evidence that the cement would shortly thin out. Divided in two by the band of pumice-sand, and there being a low dip of the beds to the east, the lower band of cement in the farther part of the drive passed underfoot. The upper bed of cement becoming thin, of finer grain, and yielding no gold, a winze was sunk in the floor of the drive to cut the lower bed of cement, but, as I understood, failed to do so.

Where thickest, and not divided by pumice-sandstone, the cement is composed of rather coarse material, boulders 10 in. or 1 ft. in diameter not being uncommon; and it was from this part that the best prospects of gold were obtained. As the bed thinned, and the material became finer, the gold gradually disappeared. I washed two dishes of stuff from the coarser part of the cement, whence it was said the best prospects were obtained, but I failed to get gold. At the same time I carefully examined the nature of the material of which the cement is composed. This might at first sight be judged of as being dark andesite, but at least two-thirds of it proved to be rhyolite.

On the opposite (north) bank of the creek the cement, where exposed abreast of the thicker part of the south side in the face of the cliff, showed from 2 ft. to 3 ft. in thickness. A short drive was put in to the north-east, at the inner end of which the cement had totally disappeared and only pumice-sands were driven on. I did not learn that gold had been obtained from the commencement or any part of this tunnel. Altogether, in neither branch of the creek has payable gold been got from either the recent alluvial wash or from the cements, and more particularly in the cements the prospects obtained were poor.

From the manner in which the cements died out to the south, to the east, and north-east, although possibly more than half of it has been washed away, the cement deposit at no time was other than of limited extent, and what remains of it may be estimated as little more than an acre in extent. None of it is payable, and, so far as proved, but a small part of it is gold-bearing. How much cannot be said, as I found no gold, and none was shown me when on the ground.

The alluvial gold found in the north branch of the creek is probably derived from a like or similar deposit of rhyolite and andesite gravel to that which has been prospected in the east branch, as such patches of coarse dark gravels abound in the pumice-sands that form the country between the shores of the Bay of Plenty and Rotorua Lake. These Te Puke cements are interest-