This excursion furnished more full information in relation to the geological structure of the island than had before been obtained. This is exclusively volcanic, and the rocks are either compact basalts, or conglomerates of basalt and tufa, although no active volcano exists, nor any well-defined crater, unless Lake Waiherea can be considered as one. Through these rocks olivine and pyroxene are copiously disseminated; cellular lava was found in some places, but neither pummice nor obsidian; quartz and mica were not observed, nor any carbonate of lime, except in the form of coral rock.

There is no conformity between the rocks of the centre of the island and those which in most places extend inwards for a few miles from the coast. The former are usually compact, of columnar structure, and exhibit no appearance of horizontal stratification; the latter lie in horizontal layers, composed of scoriaceous and vesicular lava. In both of these structures, singular twistings and contortions were observed. Many dikes were seen to occur, not only in the mountains, but near the sea-coast; these were from three to six feet in width.

All the rocks of the island appear to be undergoing rapid decomposition. Even in places where the rock seemed to have retained its original form of sharp edges and pointed pinnacles, it was found so soft, to the depth of a foot or more, as to crumble in the hand. The earth thus formed varies in colour from that of Indian red to a light ochrey tint; in consequence, many of the hills are of a red hue, and one immediately behind Papieti, takes its name (Red Hill) from this appearance.

This decomposed earthy matter, mixed with the abundant decayed vegetation of a tropical climate, forms, as may be readily imagined, a soil of the greatest fertility, adapted to every kind of cultivation. On the higher grounds, the soil thus constituted has the character of a clay, and is in wet weather slippery and unctuous; in lower positions it is mixed with lime derived from coral and shells, which often tends to augment its fertility.

Iron abounds throughout; on the mountains to such an extent that compasses were found of little use from the local attraction by which they were affected; and on the shore, the sand was composed in part of iron, which could be separated by the magnet.

Water gushes out near the coast in copious springs, but none of them were found hot, nor were any warm springs reported to exist.

Papieti, in whose harbour we were now lying, is one of the largest villages on the island; being the ordinary residence of the queen, and the abode of the foreign consuls. The foreign residents are also, for the most part, collected here. Among all its dwellings, the royal