

the other usual accompaniments of eruption. A reference to sketch No. 2, accompanying this report, shows that the activity is principally on the north-east side of the mountain and on the top. It is, I think, clear, from careful watching with the glass, that a crater has here been formed—probably a true one, and that the little peaks seen in the sketch have been formed by, or rather increased in height by, matter ejected from the crater. There is at present no sign of lava to be seen through the glass, though the testimony of those who saw the eruption first seems to indicate that some was ejected. As the top of the mountain is now covered deep in ashes, the lava may be hidden. The smoke from the crater is often of an inky blackness, though more frequently brown or even dark grey in colour, but its volume is not great. On the slopes of the central peak, and to a lesser degree on the right-hand one, the ground appears to be covered thickly with some yellowish-green matter—most probably sulphur: it covers many acres. There appears to be a deep deposit of ashes and sand on top of the mountain and down the slopes, filling up and smoothing over the innumerable crevices and heaps of broken stone which formerly made walking so difficult there. Frequent reference has been made in newspaper paragraphs to the previous existence of a crater on Ruawahia or Tarawera, but I am able to say that, on my three ascents of the mountain in 1874, no sign of a crater was visible. Prior to the eruption the two mountains of Wahanga and Ruawahia (for Tarawera is only a local name on the south end of Ruawahia) formed two high table-lands of about three miles in total length by about half a mile in width, divided by the saddle before referred to, the top of which was covered with large angular fragments of trachyte, which had the appearance of having been shivered into pieces by frost; and the top was further divided into hillocks by deep crevices running irregularly in all directions. The edge of this table-land has steep, precipitous, rocky sides, falling off into gentle slopes all round, on which were several forests of considerable size—now, alas, all destroyed!

*Tarawera.*—At the south end of Ruawahia, on the portion called Tarawera, is found the third crater or point of eruption. Sketch No. 2 shows this to take the form of an immense rift or gorge, extending from the top of the plateau right down the side of the mountain in a south-west direction towards where the White Terraces formerly were. It is at least 500ft. wide, by the same depth—and, indeed, may be much deeper, for at present it is impossible to obtain a sight right into it. The chasm emits frequent columns of black and brown smoke, with some steam, for its whole length; but no ejection of stone or other matter was noticed. On both sides of it, extending for a considerable distance right and left, the rocks and ashes are coloured a bright yellowish-green by the sulphurous vapours emanating from it. The forest which stood on the south-east spurs of Tarawera has disappeared, leaving only a comparatively few burnt and charred stumps to indicate its locality. The mass of matter which has been ejected from the chasm must be enormous, and has doubtless aided in heaping up the sandhills which now lie between it and the Terraces, and which have completely filled up the valley formerly existing near Rotomakariri. So much has the appearance of the country altered in this neighbourhood that it is almost impossible to recognize the former landmarks. The Kaiwhaka Valley, down which ran the stream of warm water connecting Rotomahana with Lake Tarawera, has disappeared in its upper part entirely, being filled by rocks, sand, and ashes. This being so, it is no wonder that the Maori village of Te Ariki, which was situated near the outlet of the stream into Tarawera Lake, and where some forty unfortunate Maoris were living, should be entirely buried; and, as reported, the land has formed a projection into the lake of some hundreds of feet. Between the foot of the chasm and the Terraces the country is cut up by cracks and gullies formed by the escaping waters ejected from the craters; and as the frequent earthquakes shake the ground jets of steam appear in quick succession as the cracks open.

*Rotomakariri.*—Rotomakariri, or its immediate vicinity—for the exact locality cannot be identified at present—seems to be the site of a very active crater, from which a high column of steam, with occasional smoke, is sent high up into the air, and from near which Mr. Morgan reports that he saw, on the evening of the 12th, a great deal of flame, or possibly the reflection on the clouds of vapour of the lava or heated stones below.

*Rotomahana and Terraces.*—The next point of eruption on the line is Rotomahana itself. Here the most wonderful alterations have taken place, changing a placid lake into a roaring crater, from which rises a column of steam nearly a mile and a quarter in its longest diameter and, as far as at present can be ascertained, nearly a mile in width. This grand column of steam, like a mass of cumulous cloud, ascends to over 15,000ft.—15,430ft. measured by clinometer, but the top of the column could not be seen. The western side of the crater at present can alone be studied, as the ashes and sand are too deep to admit of a journey to the eastern side. It has, as it were, eaten back southwards and westwards from the shore of the former lake a distance of over half a mile, the southern side being immediately at the foot of the high hill called Te Hape-o-Toroa, which will be remembered as standing behind the Pink Terrace. The spot where once was situated the most beautiful object of its kind in the world, the White Terrace, is now, I believe, occupied by a crater forming a sort of horse-shoe bay in the side of the greater crater of Rotomahana, and from which a vast column of steam arises and joins the general mass above. I wish that I could write positively on this point, but, as already pointed out, the shape and contour of the ground is so altered by the mass of ejected matter that exact localities cannot at present be identified. Should this horse-shoe crater hereafter prove to be not exactly where the White Terraces stood, it is, at any rate, quite close to it, and its exact position does not affect the question as to whether the Terraces are in existence or not. If not there, then they are either buried deep under the stones and sand, or have sunk into the main crater. The Pink Terraces were in such a situation as to be at least a quarter of a mile within the margin of the present crater, and no eye can penetrate through the dense steam to ascertain their fate. Occasional breaks in this dense veil allow of momentary glances into the crater, but for no great distance, and the sight disclosed is one of horror. A dim brownish twilight, making everything of a hideous hue, enables one to see a dreadful mass of