

"Lake Taupo is a real inland sea, twenty-five miles long from south-west to north-east, its greatest breadth about twenty miles, and of a depth as yet not fathomed. It lies 1,250 ft. above the level of the sea. . . . The lake is everywhere surrounded with volcanic formations. Quartz-ore, trachyte lavas—which of late have been distinguished from the common trachyte by the name of rhyolite—in the most different modifications of structure and colours (crystalline and vitreous), together with huge masses of pumice-stone, are the prevailing rocks. They form round the lake a high table-land from 2,000 ft. to 2,200 ft. above the level of the sea, upon which numerous volcanic cones arise, built up of trachyte, phonolite, trachy-dolerite or andesite, and partly also of basalt. The lake itself evidently owes its origin to a break in the plateau, and seems to be of an extraordinary depth, especially in its western half. The west shore of the lake is formed by vertical bluffs or rocks, which, near Karangahape, at a promontory projecting far into the lake, attain a height of more than 1,000 ft. Upon that side of the lake a landing is practicable only at the few points where little rivers empty into the lake. The long-stretched wooden ridges of Rangitoto and Tuhua Mountains, rising to a height of 3,000 ft. above the level of the sea, shut out the horizon in a north-westerly direction, and only one point attracts the attention by its rather singular form—I am speaking of the Titiraupinga Mountain, from the summit of which a bare pyramid towers up, resembling a ruined castle. The east shore, in its greatest part, is flat and formed of a broad sand-beach, upon which the road leads along the lake. Widely gleaming white pumice-stone cliffs border the strand. Above them extend pumice-stone plains covered with grass and bushes, which rise in terraces up to the foot of a high wooded range, which, under the name of Kaimanawa, forms the continuation of the Ruahine chain in the Province of Wellington, and, together with this chain, is to be considered as a continuation of the Southern Alps of the South Island. The foot of the range is ten to fifteen miles from the east shore of the lake. Behind the wooded ranges rocky pyramidal peaks tower to the sky, which attain a height of 6,000 ft. more above the level of the sea, and present, with their rugged alpine character, a picturesque contrast to the regular conical shape of the volcanic mountains on the south side of the lake. Further to the north-east the mountains are growing lower and bear the name of Te Whaiti. The range, in its whole length from Cook Strait to East Cape, was, and for the greater part still is, a *terra incognita*. And if there is anywhere upon the North Island a prospect of finding gold, silver, and other metals, it is in those unexplored mountain-chains. . . . In that range all the numerous and partly considerable rivers rise which empty into the lake from the east. The detritus which they carry with them consists mostly of bluish slate and of grey sandstone. At the north end of Lake Taupo the beautiful cone of the Tauhora points out the region where the Waikato leaves the lake as a stream of quite considerable size.

"By far the most attractive parts, however, are the southern shores. They are bordered by a successive series of picturesque volcanic cones, behind which the Tongariro and Ruapahu rear their lofty heads. From the south shore itself these two giants are not visible; but from the east and north shores they are everywhere seen towering high above the lower mountain-cones, by the Natives so well designated their wives and children. Their names are Pihanga, Kakaramea, Kuharua, Pukekaikiore, and Rangitukua. Pihanga, the eastern one of those cones, is also the highest. I estimate its height at 3,500 ft. above the level of the sea. Only its topmost peak, cleft by a deep chasm, is woodless, and displays already from afar a crater open towards the north; likewise the Kakaramea, the summit of which is of a red colour, bears probably a crater. Both craters are deemed extinct, but the volcanic forces below have by no means been as yet lulled to their final repose; for on the northern declivity and at the foot of the Kakaramea it steams and bubbles and boils in more than a hundred places. . . . The whole northern side of the Kakaramea Mountain seems to have been boiled soft by hot steam, and to be on the point of falling in." [pp. 365-367.]

"The fertile lowlands about Tokaanu are . . . to be considered as part of the extensive delta of the Waikato River, which here, at the south-east side, flows into the lake. The river in its delta is divided into four branches. . . . It is formed by two rivers uniting at the foot of Pihanga, the one coming from the south bearing the name of Waikato, the sources of which are at the Tongariro and Ruapahu; the other rising in the Kaimanawa Range, and, as it seems, the larger branch, retaining the name of Tongariro. . . . The foot of Tongariro [Mountain] is about twelve miles distant from the lake. Between the volcano and the Pihanga and Kakaramea Mountains lying before it, there intervenes a broad valley with the beautiful Lake Rotoaira, three miles long. The outlet of this lake, the Poutu, is one of the principal tributaries of the Waikato." [pp. 370-371.]

"Tongariro is not a single mountain like Ruapahu, but is composed of a whole group of mountain-cones. The beautiful cone towering high above the other parts of the group is distinguished by the special name of Ngauruhoe. It bears a funnel-shaped top-crater, the principal active one of the Tongariro. The Ngauruhoe, together with the grand circular range, from the centre of which it rears its head, forms the southern portion of the Tongariro system. It is a cinder-cone of the most regular conical shape, with a slope of 30° to 35°. The height from the base to the top I estimate at 1,600 ft. It overtops the highest points of the other parts of the system by about 500 ft., and attains probably an absolute height of 6,500 ft. above the level of the sea. The outer circus, shelving off inside with steep walls, and from all appearance forming a grand mountain amphitheatre with rocky precipices of 1,000 ft. in height, is opened to the west side by a broad chasm, and no doubt it is through the chasm, from the atrium between the cone of cinder and its circumvallation, that the chief source of the Wanganui River flows. This seems also to be the only side from which the cone is accessible. . . . [pp. 372-373.]

"The Ngauruhoe crater . . . seems to be at present in the state of a solfatara, throwing out, continually, large masses of steam and other kinds of vapour. The Natives know nothing of lava-flows, yet from time to time the crater is said to eject cinders and hot mud, and during such