

(3.) NGAURUHOE. (Photo. No. 17.)

Ngauruhoe is a cone of 7,500 ft. in height which has been built up inside an explosion crater formed on the south side of Tongariro. It is constructed of flows of augite-hypersthene-andesite of a dark colour, and of scoriaceous material of the same mineralogical composition. The lava-flows are very extensive, especially on the western and southern side, where they cover large areas in the upper valleys of the rivers running into the Wanganui and in the valley of the Waihohehu, a tributary of the Waikato. They have flooded these valleys like a viscid stream, spreading out over their floors, and where confined by the crater-ring near Tama have piled up against it in thick masses, or have broken through where the ring has been destroyed. Most of the later flows are very dark in colour and resemble basalts in appearance, but they are all augite-hypersthene-andesites.

On the north-west side of the peak is in all probability the most recent lava-flow in New Zealand, which, report says, issued from the crater as late as 1869, an extremely likely supposition considering its fresh appearance.

Some of the flows extend only a part of the way down the steep cone, and this is covered over wide areas with vast quantities of loose scoriaceous material lying at a very steep angle and set in motion at a touch.

The crater of Ngauruhoe is an irregular hollow (Photo. No. 10), about 150 yards across, at the top of the mountain. On the east, south, and west it has steep unscalable walls over 100 ft. high, while on the north side the wall has gone so that it is possible to enter the floor of the crater. Two large apparently extinct mud volcanoes occupy the principal part of the floor of the crater, and only at one point is activity shown, where from a fissure near the western wall steam issues with roaring sound and explosive violence. Also, different parts of the crater-edge emit steam and give out small puffs of sulphur-laden vapour. The recent activity of the mud volcanoes is evidenced by the great amount of mud which covers the upper slopes of the mountain, and which, according to Dr. Marshall, was ejected less than two years ago. This is channelled as if it had been subjected to the action of streams of hot water, which was no doubt thrown out when the volcano was more active. This crater has evidently reached the solfatara stage of activity. But rumblings and detonations from the interior of the mountain show that it has still a store of energy left, which may make its presence known by showers of ashes and scoria, or even by streams of molten rock.

(4.) THE RED CRATER.

This interesting spot, in the very centre of Tongariro, owes its name to the colour of the scoriaceous matter present in large quantities near its mouth. The colour-effects are very striking, for, besides the red, there are other materials, orange and yellow, brown and black, which are set off by the two little green ponds. This crater has thrown out quite recently considerable quantities of black scoria, and lava-flows have issued from it. One very large one has covered the floor of the Oturere basin and flowed out at the lower end; another recent one has flowed down alongside this for some distance; yet another has breached the crater and covered the southern half of the floor of the Central Crater (Photo. No. 11). A very small one indeed has congealed on the side facing the South Crater. These flows are of the same character as the latest from Ngauruhoe, and probably are of the same approximate age. The crater itself now emits jets of steam and sulphurous gases with considerable noise (Photo. No. 8).

(5.) TE MARI.

The third active vent on Tongariro is called Te Mari, and is situated on a small parasitic cone on the north-eastern corner of the mountain. The crater is some distance below the summit of the mountain, its elevation being 4,700 ft. The cone is composed of lavas and scoria thrown out from the crater. Within tolerably recent times a great flow of black andesite has run down the north-side of the mountain, cutting a path through the dense forest. Te Mari is very active at times, and throws out quantities of ashes and occasionally stones. It emits a great quantity of sulphurous gases, and incrustations of sulphur colour the rocks in its vicinity a vivid yellow. There is a line of small steam-holes and sulphur-vents above the crater in a line with the Red Crater and Ngauruhoe, and an almost extinct crater on the other side of the ridge running up to the Te Mari trig.-pole. Below Te Mari itself there is another disused crater, which is sometimes filled with water. The linear arrangement of the volcanic vents is well seen from Te Mari Trig. Station. Looking south-west, the Blue Lake, the Red Crater, Ngauruhoe, and Ruapehu are in a direct straight line; while, looking north-east, beyond the borders of the park are Pihanga and Tauhara, extinct volcanoes, lying directly towards Tarawera and White Island.

(6.) OTHER FEATURES OF TONGARIRO.

Immediately inside the old ruined crater-ring of Tongariro from Te Mari is the somewhat picturesque though rather shallow Blue Lake (Photo. No. 9). This occupies an old crater, and is separated from the Central Crater by a wall of blocks of black and grey andesite and scoriaceous material. It lies at an elevation of 5,570 ft. above sea-level, is almost circular in shape, and is quite half a mile across.

The North Crater (6,100 ft. altitude) is also interesting. This is situated at the north-west corner of the mountain. It is about 600 yards across and is very shallow, with the exception of a pit near its western side. The crater is nearly full of black lava with scoriaceous surface. It seems probable that a fairly large explosion crater once occupied this position, and that it was subsequently nearly filled from a vent where the pit is now situated. Great quantities of black scoria lie around the large crater, especially on its south side, and flows of black andesite extend down the mountain, particularly in a northerly direction past the Ketetahi Hot Springs.