APPENDIX No. 6.—EXPLORATIONS.

ON RUAPEHU.

By W. H. DUNNAGE.

Raetihi, Pipiriki, 8th April, 1894. Sir,-

I have the honour to forward, under separate cover, photographs of the crateral lake on Ruapehu, and other places of interest on the mountain, as they may be of some departmental value. Taking advantage of the fine weather and clear state of the mountain at Easter, I made an ascent with the object of taking some photographs of the lake in the crater. As I have been a good deal on the mountain, a short report may be of interest and value.

No. 1 photograph shows the start of my party from Ohakune, with a general view of the mountain in the distance, showing the peaks from the south to the north-west. The highest peak of the mountain is the second peak from the south; a spur clear of snow is shown leading up to it, with snowfields on either side. The extreme southern peak is a comparatively low one, but very precipitous. The western side is part of the lip of the upper crater falling precipitously into it. (See photograph with the men in it.) It forms two small peaks, which are not distinct in the photograph, as the distance is too great. From here there has been a rent in the upper crater, which is formed again by the north-west peak, just visible in the photograph above the snow and a fog-cloud. The intervening rent is covered with a large snowfield, which is very much crevassed, and the side of the mountain below is cut into deep ravines. I send a view showing the interior of the upper crater of this part, but it is somewhat marred by my indulging my men in their wish to be photographed on the top, and the only space was a ledge of rock too near the camera.

From the north-west peak to Parateitaitonga, on the north-north-east, the upper lip of the crater is pretty regularly defined, and filled with a large snowfield to the inner crater or lake, as shown in the view of the lake. The snow comes right down to the water on the north west, but on the north-east and south-east the lake is bounded by a rock bank, precipitous in most parts, but sloping off a little to the east and south-east.

A descent to the lip of the inner crater might be made anywhere along the northern side, but

care must be made to avoid crevasses, which, however, are not very numerous in this part.

The easiest descent to the water is from the east or south-east, down the bare rocks shown in the lake view. This is steep—nearly precipitous, and the rock is probably brittle, or loose and treacherous, so that a rope should be used as a precaution. I should think that 80ft. or 90ft. of rope would be sufficient, and with it a party could reach the water with but little risk. There appears to be a rift on the south-east between the bare rocks and the snowfield that extends from the west to the south. I had not time to examine this, but I believe the water from the lake finds egress here, and forms the source of the Wangaehu. The varying amount of sulphur in the Wangaehu also points to its having its origin from the lake in the crater.

A yellow, apparently sulphurous, deposit lay on the east margin of the lake, some of which was carried out into the lake by the wind. The lake was to all appearance quite cold.

I should have liked to examine the lake more carefully, but I had to get back to Karioi that night, in order to get back to my camp on Monday; but I think I should have been justified in taking an extra day to have examined the lake and the source of the Wangaehu.

There is a rent on the side of the mountain on the south-east, and, should there be a flow of lava at any future time, it would run down the south-east side to the "desert," or to the south of

Large floes of lava have formerly run down the mountain-side there, and Mr. Parkes, of the Geological Department, examined some of these when I was with him in January, 1885 or 1886,

the year of the Tarawera outbreak.

Ruapehu is particularly clear of snow this year, and the ascent was a very easy one. We were on the top for an hour and a half, and a cold wind blew from the north-west. No sign remains of my old trig. station; but when it was erected the mountain was deep in snow, and I could not get down to the rock, and it has been carried away with the snow. In some places there is 20ft. less snow than when I was up last. The photographs were taken under shelter of a rock, just below the old trig. station. The cliffs below are now bare of snow, whereas not a rock could be seen on my previous ascents. Tourists, or people wishing to climb the mountain, have plenty of choice, as there are four or five different peaks. Those on the north-west, north, and east are the easiest to ascend, and each commands a good view of the lake. But any one wishing to tread the highest point in this Island must climb the one that I have just been up, and the main spur should be chosen, and the sharp, extreme southern peak must be given a wide berth, as it is beset with be chosen, and the sharp, extreme southern peak must be given a wide berth, as it is beset with precipices and dangerous snowfields, a view of one of which is given. Horses can be taken to the head of the bush, and two hours' tramp along the side of the mountain will give a good camping-ground. I have climbed the extreme southern peak once, and must warn any one from trying to reach the main peak that way

We went from the Raetihi Township up the mountain and back to Karioi in fifty-eight hours, or two days and a half, without the aid of horses, which is very good time. I have made this

longer than I intended, and I must close.

The Assistant Surveyor-General.

I have, &c., Walter H. Dunnage.