

APPENDIX No. 11.—EXPLORATIONS.

THE FOX GLACIER.

My recent work has been confined entirely to the terminal face of the glacier, fixing cairns on all the prominent points, not only for present but future reference. All those cairns are fixed as accurately as possible with compass and chain, their distance from the present ice measured, aneroid and clinometer heights taken from every point, and over two dozen half-plate photos, showing the terminal face and rounded hills in all aspects, have been sent to Hokitika. These photos are all taken from points fixed either by chain traverse or from the various cairns, and, when required, the direction the camera was pointed was taken by compass. The hut has been erected on a flat near Dolly's Creek, and within 3 chains of the open river-bed of the Waiho. The ground is cleared all round. There is plenty of wood and water, and a splendid view of the glacier can be obtained from the door of the hut. A few chains from the hut a track has been cut to a small lake, where tourists can bathe without fear of drowning. A cross- and direction-post show the entrance both to this and all other tracks.

To those who wish a good view of the glacier, and have no ambition to go up it, the following are the best points of view: (1.) Cairn 3, on a high rock 3 chains west of the hut. (2.) Cairn 5, the Sentinel Rock: a track to top goes in at cairn on west side. (3.) Cairn 4, the Corporal Rock, west of Sentinel: a track and cairns show route. Point D: On hill west side of Corporal Rock there are two outlooks, one 600 ft. up and one 800 ft., but most people will be content with the first, as the track is very steep and rough, and to make a proper one was more than I had time to do. The entrance to this track is at a cross and cairn close to the Corporal Rock. The road from the wire bridge to the glacier is in good order, but the Waiho is often unfordable in the summer, so visitors to the glacier will generally have to walk, unless parties coming send notice ahead to have horses on the south side of the river. Still, in most cases, the river can be depended upon as crossable for horses.

The terminal face of the glacier is now entirely changed from what it was a few years ago. Instead of a wide face of ice, with an arch in the middle for the outlet, extending from the Sentinel Rock across to east side, as shown in old sketches and photos, the view is now interrupted by a series, or rather a double series, of low rocky hills, through which glimpses of the ice can be obtained. The arch has gone, at least from view, as it is now round the point of the spur on the east side, and inaccessible to ordinary mortals. The drift-covered ice, which in 1894 extended from the big slip down to within 20 chains of the terminal face, is now falling over that face and spoiling the appearance of the glacier. The ice has retreated from the Park Rock, which is now nearly isolated, and uncovered another to the west of it. This latter rock forms with the Sentinel a well-defined specimen of the crag and tail formation. The ice has retreated 100 links from the Sentinel Rock since 1894, and on the east side of the glacier, where the arch formerly stood, it has gone back nearly 4 chains, and sunk 60 ft. or 70 ft. From this point up to cairn E the ice has retreated about 2 chains all along, and sunk 30 ft. But since 1894 there must have been a temporary advance, as my two cairns, placed on the slope of the rock a good few feet above the then ice-limit, have been carried away, and water could not have done it. On the west side of the glacier the changes are not so apparent. From the Sentinel Rock for about half a mile up, the ice has retreated about a chain, but its height has not lowered much till the *débris*-covered ice is passed, where the lowering is decided. No doubt the drift on the surface protects the ice to a certain extent, and causes it to lower less rapidly.

The glacier is at present easy of access, so far at least as the great ice-fall. Any one can travel it with proper boots and some sort of an ice-axe to cut a few steps with, but there is still considerable difficulty in getting on to the sides from the ice. In 1894 the whole glacier was serac ice from the terminal face to near Cape Defiance, which shows what changes can take place in a short time, and what splendid opportunities there are for alpine men to dive into a bitter paper war; when one says such a place was easy, and another contradicts him, both may really be in the right.

After leaving the glacier I shifted camp to what is called the "Hospital," to examine the reserve at the hot springs. Where the main flow of hot water comes from it is hard to say, as the point between the Waiho and Callary Rivers is covered with drift and backed by a terrace lying against Doughboy Hill. This terrace is about 100 ft. high. No doubt out of the hill and under the terrace the hot water comes, and its volume must be considerable, as on sinking on any part of the flat, or on the edge of the river from near the Callary Bridge to 40 chains up the Waiho, hot water springs up everywhere it is tapped, in depths varying from a few inches on the river-bed to 8 ft. or 10 ft. near the terrace. What their chemical components are I do not know; they evidently have some virtues, as several people, to my knowledge, have been cured of rheumatism by bathing in them, but whether the water and faith or a change from a miserable life in a sunless gorge or windy sea-beach to the pleasant, sunny Forks, should get the credit I leave others to decide.

As there was no defined spring, and only a mud-hole with a few inches of water in an old race, to represent the Sanatorium, I have made a pond in the bush about 10 ft. square and 6 ft. deep; it is walled all round, free from floods, and has 2 ft. of water in it in all weathers, and only wants a roof over it to be complete. The dense bush surrounding it protects the bather from the cold winds, and he or she can decide for themselves whether to take it mildly, be boiled, or parboiled, as the heat can be regulated with ease.