APPENDIX A-3.

NOTES ON ALPINE SWITZERLAND, IN ILLUSTRATION OF THE VALUE OF THE NEW ZEALAND HIGHLANDS.

The most obvious European parallel to the character of the northern districts of the South Island of New Zealand, and the highlands of New Zealand generally, is Switzerland. If nearness to markets and the annual march of a great tourist army favour the European land, New Zealand has all the advantage in climate and elevation. The parallel of 46° 45′ north latitude runs through the middle of Alpine Switzerland; that of 42° south through the middle of the uncolonized part of the old Nelson Province. Switzerland is an inland country, distant at its western angle 170 miles from the nearest point of the Bay of Biscay, on its north-western side 160 miles from the British Channel, and on its southern side 60 miles from the Gulf of Genoa, in the Mediterranean. Its climate partakes largely of the continental character of the Northern Hemisphere, viz., great variability of temperature between summer and winter. Its summer is as hot as that of Auckland, its winter severer than that of the Auckland Islands or Kerguelen's Land. In respect to elevation its lowest points are—the escape of the Rhone a little below Geneva, 1,180 feet above the sea; and of the Rhine at Basle, 815 feet. Its highest point is Monte Rosa, 15,212 feet (Mont Blanc, in the Savoy Alps, whose peaks bound Switzerland, is 15,777 feet high).

Alpine Switzerland, from which the valley of the Rhine below Lake Constance, and of its tributaries below the lakes of Luzern, Zurich, Zug, Thun, &c., and some other level districts, are excluded, is the principal subject of the following notes.

It constitutes in area about two-thirds of the whole republic, or, say, 6,800,000 acres; and this is nearly the area of the district northwards of the Waiau-uwha and Ahaura Rivers. The entire republic occupies a territory about equal to what would be cut off to the northwards by a line from coast to coast through the mouth of the Teramakau River and Christchurch.

The following broad facts show in a general way the greatness of the contrast between Alpine Switzerland and our northern district in level. In an area equal to our district there are not less than 262 peaks exceeding 10,000 feet in height, and varying from 10,000 to 15,000 feet. Of these, 71 surpass 12,000 feet, and 120 surpass 11,000 feet.

Outside the Southern Alps New Zealand can show but one mountain for which a height of 10,000 feet is (only conjecturally) claimed, four or five exceeding 9,000, ten or a dozen rising to from 8,000 to 9,000, and as many more to between 7,000 and 8,000.

Of these mountains, six between 8,000 and 10,000 feet are within the northern district, where, however, the great majority of the summits deserving the name of mountains lie between 4,000 and 7,000 feet—a range of level at which would be found a large part of the summer pastures—the Alps properly so called—of Switzerland. None of the peaks in the immediate neighbourhood of the Wairau, the Clarence, or the Acheron exceed 7,000 feet. Mounts Odin and Kaitarau, among the Kaikouras, are forty miles from the nearest point on the central route; Mount Franklin is seventeen miles from the confluence of the Rainbow and Wairau. The summits of Spenser Range are twenty-five miles from the nearest point on the Acheron. The valleys of Alpine Switzerland are all hemmed in by mountains of a much higher order. The lowest and largest of these (hardly within the Alpine country proper), that of the Rhine between Chur (the chief town of Granbünden) and Lake Constance, is overlooked by peaks of from 7,000 to 8,000 feet. Higher up the Rhine than Chur, and in the valleys tributary to it and to the Rhone, above the lakes, the bounding ranges rise to peaks of the class contained in the list, from 10,000 to 14,000 feet high and upwards. These valleys form the bulk of Alpine Switzerland, and comprise the Vorder Rhein, Hinter Rhein, Prättigau, Upper Aar and Reuss, the Linththal, Grindelwald, Meiringen, the Upper Rhone (or Valais), the Upper Inn (or Engadine), the Upper Ticino and Adda, &c. The Valais is that which is most loftily guarded, passing between the Bernese, the Savoy, and the Monte Rosa groups. Most of these valleys and their branches are occupied, and some of them cultivated up to the glaciers, which descend to 6,000 and 5,000 feet.

The Swiss passes show the general elevation of the country as clearly as the summits. Sixty of them, including all the most important, average 7,500 feet in height, a mean which is also maintained in sixteen important passes named in the attached list. An imperfect list of passes, most of them in our northern district, shows a range of 1,200 to 4,500 feet, and a mean of 3,150 feet. Over most of the Swiss passes named in the list there are fine coach-roads, some of them exhibiting the boldest engineering, and constructed by the little cantons in which they lie without incurring any debt. The mean height of the twenty-two cantonal capital towns is 1,572 feet; that of the principal lakes is 1,470 feet.

A consideration of these facts will show that it is hardly exaggerating to say that, were the northern district elevated as a whole 3,270 feet (the height of Tarndale) above its present level, it would, even at that height, possess a winter-climate equal to that of Alpine Switzerland, and its summer would be longer but not so warm as that of the European Alps.

The population of the Swiss highlands averages twenty-one persons to the square mile, giving a total of about 223,000. The question, "How are these people occupied, and what is their condition?" is one of practical interest for us, seeing that New Zealand as a whole contains at least three milder Switzerlands, at present almost bare of population, and acting as a barrier to the intercourse of the people of the plains. Before giving an answer to this question, it should be stated that the Alpine valleys have been occupied to overflowing for hundreds of years. Their population is by no means principally due to the deluge of visitors that spreads over the land every summer. A large proportion of those who wait upon the tourists are, like them, birds of passage, who seek their living in all parts of Europe during the long winter, and do not swell the census. Though warmly attached to their land, the mountain population have, as long as they have had a history, sent out detachments of their surplus youth to seek their fortunes elsewhere in all sorts of occupations, civil and military. The population of the whole confederacy, lowland and highland together, has increased largely during the last thirty years. At the early part of that period railways had only begun to help trade, and Cook's tourists—a discovery of a New Zealand colonist—had only just begun to chip the egg. The population was then