

## WESTLAND.

The Westland District occupies the central portion of the western watershed of the South Island. The main length is 225 miles, and its average width twenty-seven miles. The area is 6,086 square miles, composed for the most part of the great central snow-clad mountain-chain and its outrunning ranges, intersected by narrow valleys, and subsiding westward into undulating plateaux, river-straths, and shelving coasts.

The main range, Southern Alps (which is the dividing elevation or backbone of the South Island), constitutes the eastern boundary of Westland for its entire length. This mountain system is snow-covered almost from end to end, and its ice-clad lofty peaks uplift from the snowfields which cap the less abrupt elevations, and which fill the immense intervening hollows (*névés*). Subsidiary ranges, varying in height, radiate chiefly from "knots" in this great central chain, and are snow-coated most of the year. From these, again, ravined ridges descend steeply into the valleys, or fall abruptly to the level of the inland plateaux of the littoral country. The westward faces of these spurs at one time formed the sea-wall. From the sheets of *névé* snow, alluded to above, numerous glaciers, with feeders from the lateral ranges, extend down the upper main valleys, presenting every form of ice-action, and from these the principal rivers take their rise. Parallel with the central mountain-chain, and linked to it by low narrow saddles in the northern districts, are isolated mountains, varying in extent and height, which are the remnants of an ancient granite range that once extended along the old coast-line. The bold flat-topped Paparoa Range, lying between the central Grey Valley and the sea-coast, is another island hill. And the seaward country between Jackson and Big Bay, in the far south, is wholly occupied by high outlying hills directly connected with the inland ranges. From Jackson Bay to the northern boundary of the district there is an almost continuous extent of drift country lying between the foot-hills of the great mountain-chain and the sea-coast; a continuity of broad-topped hills and hillocky ridges of moderate elevations; immense terraces of glacial drift, river and lake gravels, shallow valleys, and gently sloping coastal lands.

Thus, Westland may be roughly classed into two divisions—viz., highlands and lowlands, the former consisting of the great main range (Southern Alps) and its western mountainous offshoots, with numerous intervening valleys; the low-lands, again, comprising the champaign country between the high-lands and the sea-coast.

Generally speaking, the whole of the district is covered with dense forest, from the sea-beach to the grass-grown tops of the high ranges, even the broken mountain-faces being wrapped with exuberant foliage.

The height of the "bush-line," sometimes called the "grass-line," above sea-level varies all over Westland, sometimes dropping to 2,800 ft., and again rising to 5,000 ft.; the mean height may be taken as 3,500 ft. In a few localities the forest is slowly forcing its way upwards.

## ALPINE FOREST.

From the "grass-line" (3,500 ft.) down to 2,000 ft. the forest may be termed "alpine," and consists of numerous varieties of scrub, and various kinds of small trees, stunted, twisted, and gnarled by frequent gales and snowfalls. In certain localities, such as the Upper Grey Basin, the Mahitahi, Landsborough, &c., the bush forest grows right up to the grass-line, stunted, but yet a forest tree; in such places there is rarely any alpine scrub. This alpine forest, as yet, has been incapable of commercial use, the scrubs not being of any known value, and the stunted trees below the scrubs being only fitted for woodwork for mountain roads, mines, or firewood. However, with a view to utilising this alpine bush for wood-pulping, under the provisions of section 141 of "The Land Act, 1908," two wood-pulp reserves, aggregating 50,000 acres, have been set apart in the Teremakau Valley, and a company has taken up an area of 30,000 acres, and is now importing the necessary machinery, and expect to commence operations at an early date. Should this venture prove successful, it is assured that other mills will be started, as there are large areas available in all parts of the mountain country which carry forest reputably suitable for the manufacture of wood-pulp.

The approximate total area of alpine forest—i.e., from 2,000 ft. up to the "grass-line"—is 812.5 square miles, or 520,000 acres.

## MOUNTAIN FOREST.

Along the seaward faces of the ranges outrunning from the main divide and the diversified slopes of the intervening valleys up to 2,000 ft. above sea-level, there are immense quantities of high-class milling-timber, such as red-pine, totara, cedar, beech, and even rata (the latter with a fair workable barrel). All such timbers are tough, with nicely figured grain, and well fitted for all industrial purposes in which strength, flexibility, durability, or ornamental beauty is desired. This great belt of timber is, for the most part, at present not come-at-able, owing to the initial cost of procuring the timber and the expense of transport, which prevent its commercial exploitation.

The mountain-valleys of the larger rivers—viz., those which flow from the main divide—have in their lower portions fairly flat floors where the rivers are flanked by high, narrow-topped drift terraces, which are covered with good commercial forest, but of no great local extent. Small flats and narrow level-surfaced well-timbered areas on the immediate banks of the rivers are ordinary features, but these have become much reduced in extent, owing to the continued damage by floods. Consequently, it may be confidently affirmed that while in all the inland valleys there are large quantities of fine milling-forest on the bottom-lands, the flanking terraces, and lower hillsides, yet these timbers are only available at present for mining purposes, bridge and road works, or for the scattered homesteads of such settlers as dare the reclamation of the wilderness,