

The tawa, *Nesodaphne tawa*, often forms large portions of the forest on the lower slopes of the Rimutaka and Tararua Ranges. Its black trunk is frequently 3 feet in diameter, and its elegant spray and light-green foliage are unique in the New Zealand forest flora. Unfortunately its wood lacks durability, but it is applicable to all the purposes for which birch, *Betula alba*, is used in Europe.

36. In the valley of the Rangitikei numerous clumps of forest trees comprise a large proportion of titoki, *Alectryon excelsum*, a remarkably handsome tree 40 feet high, with a trunk 1 to 2 feet in diameter, and large pinnate leaves resembling those of the European ash. The timber is remarkably tough and elastic, and is much valued for tool handles, &c. In other parts of the Rangitikei the ngaio, *Myoporum laetum*, forms a small but graceful tree 30 feet high, or more, with a trunk 12 in. to 18 in. in diameter, affording a dark-coloured timber, valuable for fencing purposes, &c., &c.

37. About Wellington, and in other localities, the hinau, *Elæocarpus dentatus*, clothes many of the low ranges. It has a round head, and attains the height of 50 feet, with a trunk about 2 feet in diameter. The timber is extremely durable, and greatly superior to that of the allied pokako. It is valued for fencing posts, and has been used in bridges with good results.

The pukatea, *Atherosperma Novæ-Zelandiæ*, is a noble tree, attaining the height of 150 feet, with a trunk 3 to 6 feet in diameter, yielding a compact brown-coloured timber, which appears to have come into general use in Taranaki, although not highly valued elsewhere. In Auckland it was formerly used for boat-building. Puriri and pohutukawa are restricted to the vicinity of New Plymouth. The rewarewa, *Knightia excelsa*, is abundant in the red pine district, and attains its maximum dimensions. Its red finely marked timber, not being durable, has scarcely been utilized in the colony, but might form a profitable export for cabinetwork.

38. Several trees are confused under the name maire: the chief are the sandalwood, *Santalum Cunninghamii*, which, however, does not occur in the red pine district, and the fine olives, *Olea lanceolata* and *O. Cunninghamii*, which appear to be rare, if, indeed, the former has been observed so far south. The black maire, *Olea apetala*, attains its maximum abundance and largest dimensions in this district, the trunk being sometimes 4 feet in diameter, although usually smaller. The timber is extremely compact, fine-grained, and of great durability. It has been advantageously used for wood engraving, and might form an article of export for that purpose.

#### IV.—The South Lowland or Red Pine District.

39. The geological characteristics of the two forest districts of the South Island may be briefly stated. From D'Urville Island to the Waitaki Valley the Southern Alps consist chiefly of palæozoic or mesozoic slates and sandstones of similar character to those forming the chief mountain range of the North Island, and attain their greatest height in Mount Cook, somewhat under 13,500 feet. On the eastern side a low tract of post-tertiary silts, shingles, and gravels forms the Canterbury Plains, having a total length of about 120 miles, with an extreme breadth of 45 miles, rising from the sea level to 1,000 feet at the Malvern Hills. North and south of the Canterbury Plains are limited areas of tertiary clays and marls. On the western slope of the range is a large extent of schistose rocks, which is continued southwards to Jackson's Bay, when it crosses the island in a broad band to the East Coast, covering the entire area between Shag Point and the Clutha. Small areas of post-tertiary drift gravels, &c., occur in Blind Bay, the Grey Valley, and at other points on the coast and inland. This schistose area is succeeded by an irregular narrow belt of palæozoic slates crossing the island. Between the mouth of the Clutha and the Mataura Valley, palæozoic slates, sandstones, quartzites, and conglomerates again occur. The extensive area between Milford Sound and Preservation Inlet is chiefly composed of syenitic gneiss, flanked on the east by foliated schists, of which an outlying area extends from the Waiau River to Riverton. The Southland Plains are chiefly composed of post-tertiary shingle, sands, and clay.

40. The southern red pine district comprises those portions of the South Island below 1,000 feet of elevation. The chief peculiarities of the climate of this district are the excessive rainfall on the western side, 115·418 inches at Hokitika, and the arid climate of the eastern side and southern portions of the interior. At Oamaru the annual rainfall is under 20 inches per annum.

The mean annual temperature at Nelson is 54°·8; Christchurch, 52°·8; Hokitika, 52°·3; Dunedin, 50°·7; and of Southland, 50°·3; so that the mean difference between the northern and southern extremities is only 4°·5. The greatest difference between the hottest and coldest months is at Christchurch, 18°·7; the least at Hokitika, 14°·7. The mean annual rainfall at Nelson is 68·068 inches; Cape Campbell on the East Coast, 24·830 inches; Christchurch, 25·821 inches; Dunedin, 31·346 inches; Southland, 41·090 inches: and at Hokitika, as above, 115·418—the means being for the five years, from 1871 to 1875 inclusive, as per tabular statement further on. The prevailing winds at Hokitika are E. and N.E.; Dunedin and Southland, N.E. and S.W.; Christchurch, S.W. and N.E.; at Nelson, N.E., N., and S.E. The winter temperature of the East Coast is 2° below that of the West; Southland, 3° lower.

41. A luxuriant forest growth extends along the western coast of the South Island, running inland for a varying width, but nowhere of great extent except in the wider river valleys, such as the Tere-makau, the Grey, &c. In many valleys, as the Waitaha, the forest assumes a subalpine aspect at a very short distance from their mouths; but usually the lowland district exhibits luxuriant forest of the densest growth from West Wanganui to Catlin's River, being broken only in few places and for short distances.

42. On the eastern side the forest areas are extremely limited and far between. Totara, white, black, and red pines, &c., occur in the lower parts of the Kaikouras, intermixed with beeches. Banks Peninsula, although containing much beech in the higher parts, has a large extent of red and white pine, miro, and other lowland timbers. The Oxford Bush in the Canterbury District consists of black, white, and red pine, with a little totara and the beeches. There are also several small tracts of forest at the Ashburton, Mount Somers, Mount Peel, Geraldine, the Waimate, composed of the same trees, with occasional patches of tea-tree and beech in the higher portions. Similar patches occur at Otepopo; and again there is some extent of mixed forest on the hills north of Dunedin, with the addition of