

8. CEDAR—PAHAUTEA. (*Libocedrus bidwillii*.)

A handsome, conical tree, 60 to 80 feet high, 2 to 3 feet in diameter, producing a dark red close-grained timber of great durability but rather brittle. Found on the central ranges of the North Island, and sparingly throughout the South Island: most abundant in Otago, but never descends below 1,000 feet.

For my knowledge of the value of this timber for constructive works I am entirely indebted to Mr. W. N. Blair, who is now using it for sleepers on the Otago railways. He showed me a fencing post, taken up at Tokomairiro after having been in the ground sixteen years. The post showed slight symptoms of decay, but would probably have lasted two or three years longer. The timber is now largely employed in the district for fencing purposes, and is preferred to totara.

Mr. J. E. Brown, engineer to the Southbridge Highway Board, in a letter to Mr. Blair, states that a bridge constructed chiefly with this timber over the Tokomairiro River in 1868, having the piles driven 12 feet into the bed of the river, is still in good condition, but has had the roadway renewed, the 3-inch planking originally laid not having proved equal to the heavy traffic.

Other bridges of the same material in the same district, but laid with 4-inch road planking, have withstood the effects of heavy traffic without requiring repairs.

It appears to be a timber well adapted for railway sleepers, if cut of somewhat larger scantling than usual; but I should be inclined to question the propriety of employing it for the bearing timbers of bridges of large span subject to heavy traffic.

Mr. Blair suggests that many of the prostrate logs found on the Otago mountains in all probability belong to this species.

NOTE.—In the North Island the native kohe-kohe (*Dysoxylum spectabile*), which yields a tough reddish-coloured wood, useful for the manufacture of furniture, but liable to be injured by insects when exposed, is also called cedar by the settlers.

9. MANUKA—RAWIRI—TEATREE.—(*Leptospermum ericoides*.)

A well known tree, 40 to 50 feet high, with the trunk 15 to 30 feet in length and 1 to 2 feet in diameter, wood hard and dense, much used for house blocks, fencing-rails, and especially valued for small marine piles.

This timber has been largely used throughout the colony for piles in the construction of jetties, wharves, &c., where timber of large dimensions is not required. It exhibits greater durability in marine structures than when driven for land or fresh-water bridges, &c. House blocks, even in dry situations, rarely continue in good condition for more than ten years. Used for land piles it usually decays at the ground level in six years, although that part of the pile above ground may remain perfectly sound. On the other hand, piles in marine works in Auckland and Dunedin have remained sound after twenty years use, which may probably be taken as the average limit of its durability. In Lyttelton Harbour a piece of shore piling is perfectly sound after being constructed fourteen years.

In Otago, it is considered to resist the attacks of teredo better than any other timber, but I observed some fender piles at Port Chalmers much perforated. In Auckland I have seen it attacked within two years and seriously injured in less than four years. Mr. D. E. McDonald, engineer to the Auckland Harbour Board, informs me that he has found manuka piles cut during the growing season, resist the attacks of teredo much longer than those cut in the winter.

In the North it is generally used for fencing-rails, for which it is considered superior to all other timbers.

10. PURIRI.—(*Vitex littoralis*.)

This tree attains a height of from 40 to 60 feet, with a trunk from 3 to 5 feet and upwards in diameter. It does not occur south of a line drawn from the East Cape to Stoney River, Taranaki, and although often found solitary or in groups, forms the greater part of the forest in some localities on the west coast of the Kaipara. It has been appropriately styled the New Zealand teak: it is, in fact, closely allied to the Asiatic teak, and affords a timber of great density and extreme durability, closely resembling lignum vitæ in general appearance. In durability it probably excels all other New Zealand timbers.

The growing tree is subject to the attacks of the larva of the puriri moth, which bores holes sometimes three-eighths of an inch in diameter, but the durability of the timber is not directly affected, and the timber is never attacked when worked up.

It is in general use for house blocks in all districts where it can be procured. In the oldest houses taken down in Auckland, the blocks are almost invariably in a perfectly sound condition, after having been in use from twenty to thirty years.

It is extensively used for fencing-posts, which always command the highest price in the market on account of their great durability. Even the sap-wood alone of old trees will last several years, and it is no uncommon thing to see fencing posts without a particle of heart-wood. Heart posts which have been in the ground twenty years are still sound and good.

It has been used for piles for bridges, and in all cases known to me, the piles are as good as when first driven, but the dates of erection are too recent to allow of its durability being tested. No instance of its use in marine structures has come under my notice. Small logs exposed in situations where other timbers have been attacked by teredines, remained untouched for several years.

Railway sleepers, split about 1864 or 1865, were largely used on the Tararu and Grahamstown Railway about four years ago, and will afford evidence as to the durability of puriri for this purpose at some future day.

On account of its great strength it is highly valued on the Thames Gold Fields for mine props, caps, &c., but the supply is not nearly equal to the demand.