

38.—TORO.—(*Persoonia toro*.)

A small tree, 20 to 30 feet high, confined to the Province of Auckland. Wood dense, dark red, and apparently durable, but has only been used for inlaying.

APPENDIX.

I.—ON THE BEST SEASON FOR FALLING TIMBER IN NEW ZEALAND.

CONSIDERABLE misapprehension on this subject has arisen from the prevalence of the erroneous idea that trees have no period of rest in this colony—that they continue to grow alike at all periods of the year; an idea which may have been caused by certain fancied resemblances between the climate and vegetation of New Zealand and of tropical countries, but for which there is very slight foundation.

It is true, that on the coast north of the Auckland Isthmus, especially on the eastern side, frosts are but little known, so that vegetation does not receive the sudden check which is felt in other places on the approach of winter; but it by no means follows from this, that trees are growing as freely as during the spring and summer months. Even at the Bay of Islands, deciduous trees shed their leaves. The oak, ash, elm, sycamore, &c., &c., are as bare of leaves during winter as in any part of Europe: it is, therefore, obvious that a complete cessation of growth takes place.

At Mangere, only eleven miles from Auckland, I have seen transplanted specimens of the Native puriri, which chanced to make late autumnal shoots, much injured by frost, while older trees in the immediate vicinity were untouched. At Pokeno, the pohutukawa, under similar circumstances, is cut back to the old wood, while small established specimens sustain no injury; and in the adjacent forest, the kauri, the most tender of all our native trees, does not exhibit the slightest discolouration. It is, therefore, evident that at least a vast diminution in the activity of arboreal growth must take place during the winter months, and this is demonstrated by an examination of the terminal shoots of any forest trees, when it is found that the soft pulpy condition characteristic of summer growth has become hardened in a greater or lesser degree. Some portion of the herbaceous and fruticose vegetation, under the favouring shelter of the larger forest trees, is doubtless in a more active condition; but even here growth is often reduced to a minimum, and many winter-flowering shrubs do not produce new leaves until the spring.

The prospects exhibited by summer-felled totara, of resisting the attacks of teredines for a longer period than that felled in the winter, appears to be dependent upon causes connected with the greater activity of the sap at the former season as compared with its dormant condition in the latter.

There can, therefore, be no question that, even in the warmest parts of the colony, the circulation of the sap in trees is in a much less active condition in the winter season than in the summer, and consequently that the durability of timber felled in the winter is much less likely to suffer from the process of fermentation than that felled during the spring or summer months.

With regard to the southern parts of the colony, an examination of the arboreal vegetation at Nelson, Christchurch, Dunedin, and the Bluff, shows that the growth of trees is arrested in the months of April, May, June, and probably July. So obvious is this that I can only suppose observers have been so deeply impressed with the occasional flowering of certain herbs and small shrubs, during the winter months, in places near the sea, as to lead to the inference that a similar state of activity must of necessity pervade the forest vegetation—an inference scarcely more reasonable than it would be to suppose that the winter flowering of certain plants in favourable localities in the British Islands, evidenced similar activity in the oak, ash, elm, and pine of northern countries.

A partial exception to the general rule may perhaps be found in the case of the kauri, which evinces a decided preference for growing in sheltered places, even in the warm and limited area to which it is naturally restricted. This appears, in ordinary seasons, especially when growing in rocky soils, to suffer an arrest of growth immediately after the hot weather and diminished rainfall usually experienced in January and February. In compensation for this, it usually commences its spring growth earlier than the totara, black birch, rata, &c., &c., in its immediate vicinity. This arrest of growth in the kauri is probably facilitated by the comparatively shallow depth to which its roots penetrate, and the absence, in kauri forests, of the dense shrubby vegetation so abundant under all other northern trees.

I have therefore no hesitation in recommending, as a general rule, that timber should not be felled before April or later than July, except in the case of the kauri, which in many situations may be felled from March to June; but much must be left to the judgment of the forester.

II.—ON THE NEW ZEALAND TEREDO, OR SHIP-WORM.

Only one species, *Teredo antarctica*, Hutton, has at present been described as a native of New Zealand: it is distinguished from all kinds known to me by its beautifully sculptured pallets. The animal has a worm-like body, terminating on the exterior in two siphonal tubes, one of which takes in water containing food and air, the other serving for the discharge of the minute particles of wood which the animal is continually excavating. The animal lives in a tube from a few inches to two feet in length, and sometimes half an inch in diameter at the inner extremity, excavated in timber exposed to the influence of salt water, and invariably lined with shelly matter. The outer extremity of the tube is scarcely larger than the head of a pin, and the body of the animal is attached just within its mouth in such a way that it can be slightly protruded at pleasure. The entrance to the tube itself can be barred by two curious shelly processes, called pallets, shaped something like sheath-knives with narrow hafts. At the inner extremity of the animal are two convex shelly valves, somewhat triangular in shape, and curiously lobed or toothed, so that they fit into each other, completely surrounding the body. These valves are popularly supposed to form the boring apparatus, but, I think, erroneously. The rapidity with which timber exposed to the ravages of this little animal is rendered useless is most