

Endlicheriana, (5). *Lomaria filiformis*, (10) —2000. *L. discolor*, (10). *L. nigra*, (3) 1800–2500. *L. Fraseri*, (10). *Asplenium falcatum*, (20) —2000. *A. bulbiferum*, (20). *A. flaccidum*, (20) —2000. *Aspidium coriaceum*, (15). *Nephrodium velutinum*, (20). *N. decompositum*, (10). *N. de.*, var. *pubescens*. *N. hispidum*, (15). *Polypodium australe*, (10) —2700. *P. Grammitidis*, (15) —2500. *P. tenellum*, (2). *P. sylvaticum*, (3) 800–1700. *P. rugulosum*, (5). *P. pennigerum*, (20). *P. rupestre*, (15) —2500. *P. Cunninghamii*, (20) —2500. *P. pustulatum*, (20) —2000. *P. Billardieri*, (20) —2500. *Leptopteris hymenophylloides*, (20). *Lygodium articulatum*, (15) —2500. *Lycopodium Billardieri*, (15) —2500. *Tmesipteris Forsteri*, (15) —2700.

NATURALIZED PLANTS.

Nasturtium officinale. *Erysimum officinale*. *Senebiera pinnatifida*. *Capsella Bursa-pastoris*, *Sinapis arvensis*. *Brassica rapa*. *B. napus*. *B. oleracea*. *Raphanus sativus*. *Vitis vinifera*. *Silene quinquevulnera*. *Stellaria media*. *Cerastium vulgatum*. *C. viscosum*. *Malva rotundifolia*. *M. Caroliniana*. *Erodium cicutarium*. *Trifolium repens*. *T. pratense*. *T. medium*. *T. procumbens*. *T. minus*. *Melilotus arvensis*. *Medicago lupulina*. *M. maculata*. *M. denticulata*. *Acacia lophantha*. *Amygdalus persica*. *Prunus cerasus*. *Fragaria elatior*. *Rubus Idæus*. *Rosa micrantha*. *R. rubiginosa*. *R. multiflora*. *Oenothera stricta*. *Cucurbita*, sp. *Erigeron canadensis*. *Bellis perennis*. *Senecio vulgaris*. *Carduus lanceolatus*. *Hypochoeris radicata*. *Taraxacum Dens-Leonis*. *Helminthia Echioides*. *Anagallis arvensis*. *Solanum tuberosum*. *Physalis peruviana*. *Verbascum*, sp. *Veronica arvensis*. *V. serpyllifolia*. *Mentha viridis*. *Prunella vulgaris*. *Plantago major*. *P. lanceolata*. *Rumex viridis*. *R. obtusifolius*. *R. crispus*. *R. Acetosella*. *Chenopodium murale*. *Euxolus viridis*. *Euphorbia Peplus*. *Ricinus Palma-Christi*. *Ficus Carica*. *Colocasia antiquorum*. *Iris Germanica*. *Allium*, sp. *Alopecurus pratensis*. *Phalaris canariensis*. *Holcus mollis*. *H. lanatus*. *Anthoxanthum odoratum*. *Digitaria sanguinalis*. *Poa annua*. *P. pratensis*. *Briza minor*. *Dactylis glomeratus*. *Bambusa arundinacea*. *Lolium perenne*.

ART. XVI.—*An account of the PUKA (Meryta Sinclairii, Seem.)* By T. KIRK.

[Read before the Auckland Institute, June 7, 1869.]

THIS rare plant was originally discovered at the head of Whangururu Bay by Mr. Colenso, who sent specimens of the foliage to Kew; specimens from the same locality were forwarded also by the late Dr. Sinclair, to whom it was pointed out by Mr. Colenso, and these appear to have formed the only material for the original description of the plant by Dr. Hooker, in the "Flora Novæ Zelandiæ," under the name of *Botryodendrum Sinclairii*. Only a single tree was found, which was protected by a fence, and tabued by the natives, by whom it was stated to have been brought from the Poor Knights' Islands, and who were greatly astonished at Mr. Colenso's frequent visits to the locality, during several successive years, in the vain hope of procuring flowers and fruit.

Mr. William Mair subsequently found the tree, and after several visits succeeded in procuring specimens of the leaves and fruit, which were given by him to Dr. Sinclair, who forwarded them to Dr. Hooker at Kew, and from these specimens the still-imperfect description in the "Handbook of the New Zealand Flora," was drawn.

At a later date, Dr. Sinclair again visited the locality, and found that the

tree,—the only one known to Europeans prior to the recent discovery—had been cut down.

In a recent visit, made in company with Captain Hutton to the Taranga Islands, specially to search for the Puka, I had the good fortune to find a few trees in various stages of inflorescence and fruit, and have drawn up the following notes, illustrative of the specimens now exhibited from that locality.*

The Puka differs (so far as is known) from other members of the genus *Meryta*, in its strictly dioecious character, all the other species being described as polygamous. It is a small tree, attaining the height of from twelve to twenty-five feet; trunk, stout or slender, irregularly and sparingly branched; bark, dark-brown, with numerous warty excrescences; branches, very stout, showing the scars of fallen leaves; leaves, densely crowded, twenty to thirty together, at the tips of the branches, with a few large deciduous scales amongst the petioles of the youngest, 9" to 30" long (including the petioles), 4" to 10" wide, very coriaceous, obovate-oblong, rarely oblong, usually contracted below the middle, with stout lateral veins, margin slightly waved, with a few large crenatures, the whole edged with a remarkable marginal nerve; petioles, stout, 4"-14" long, with a broad attachment, irregularly striated, not jointed with the blade. Panicles, stout, terminal, much branched, from 8"-16" long, branches jointed. Male—Primary branches about eight, more slender than in the female; secondary branches 1"-3" long, flowers sessile, crowded in tetramerous clusters, with an ovate bract at the base of each cluster, and two minute bractlets below each flower; sepals, 4-valvate, ligulate, ultimately somewhat flexuose, petals 0; stamens, 4 inserted beneath a corrugated glandular disk, anthers lobed, oblong. Female—Stouter and shorter than in the male, branches crowded, primary branches 10-15; flowers solitary or crowded, with a bullate, notched bract at the base of each; ovary ovate, with 3-6, usually 4-5, stigmas, united below, tips recurved, staminodia invariably present. Fruit roundish-oblong, black, shining, slightly angled when young, becoming even as it approaches maturity; seeds 5, curved, much compressed, about three-eighths of an inch in length, black, or dark-brown, intensely hard.

The entire plant is more or less resinous, and the bark is easily wounded, producing large callosities as it heals, wood white and brittle. Not more than eight plants were observed, of which six were in various stages of flower and fruit. These grew in situations fully exposed to the violent south-westerly gales, but owing to the remarkable marginal nerve, not a leaf was found torn or injured in any way; in this respect presenting a strong contrast to *Pisonia umbellifera*, which grew with it, and of which scarcely a leaf could be found entire; in fact the external leaves were often torn into shreds from the violence of the wind.

It is not unlikely that a true *Botryodendrum* may be found on the Kermadec Islands, and it would be highly interesting to ascertain if our plant is found on the Three Kings' group, of the botany of which we are entirely ignorant. The Puka must, in any case, be considered one of the rare plants of the world. As far as we have seen, the solitary plant found on the main land was not indigenous; and it is only known to Europeans in the locality now placed on record. Its existence upon the Poor Knights rests solely upon Maori authority, and it is known not to be found in an indigenous state on the Fanal Islands, or on the Kawau. The only unsearched localities in which there is even a slight probability of its occurrence, are the north-west side of the Little Barrier, and the Three Kings.

* I was unable to obtain good drawings from the recent specimens, owing to their having been spoiled by sea-water, from exposure in an open boat during a severe gale on our return.

It is a matter for congratulation that the plant is already established under cultivation, as the specimens found at the Taranga Islands grow in situations where they are peculiarly open to destruction.

The Maoris at Ohora stated that they, some years back, planted a young tree on one of the Fanal Islands, which is still living although it has grown but little.

ART. XVII.—On GRASSES AND OTHER PLANTS adapted for pasturage in the Province of Auckland, especially with regard to indigenous kinds.
By T. KIRK.

[Read before the Auckland Institute, August 16, 1869.]

So few kinds of grasses have yet been made subservient to pastoral purposes in this province, that a difficulty presents itself at the outset, not in finding kinds likely to prove of permanent value, but in making a judicious selection from those of proved value in other countries, and from those which are truly indigenous to the colony. Rye-grasses (*Lolium perenne* and *L. italicum*), meadow-grass (*Poa pratensis*), timothy (*Phleum pratense*), round cocksfoot (*Dactylis glomerata*), sweet-vernial (*Anthoxanthum odoratum*), with the common red and white clovers (*Trifolium pratense* and *T. repens*) in variety, comprise the kinds usually cultivated. The black medick, spotted medick, and toothed medick (*Medicago lupulina*, *M. maculata*, and *M. denticulata*), which afford such an abundance of grateful food on some of our volcanic hills and waste places; the dogs-tail (*Cynosurus cristatus*), the common bent grass (*Agrostis vulgaris*), the soft brome grass (*Bromus mollis*), and others naturalized in many places do not appear to have attracted the attention of the agriculturist, although amongst the commonest of cultivated grasses in Europe. Nor have the available native grasses been brought under cultivation, notwithstanding the avidity with which certain kinds are sought after by cattle, a fact which ought, long ere this, to have drawn attention to their cultural value, the more especially from their being less subject to the attacks of caterpillar than most of the introduced kinds. Still less has any attention been paid to the many valuable plants possessing condimental properties, stimulant and aromatic, such as the burnet (*Sanguisorba officinalis*), burnet saxifrage (*Pimpinella Saxifraga*), stone parsley (*Petroselinum segetum*), ferugreek (*Trigonella Fœnum-Græcum*), yarrow (*Achillæa millefolium*), which form so large a portion of nearly all natural pastures, and which are so eagerly devoured by all kinds of cattle. But, in truth, the attention of the most advanced agriculturists has been directed too exclusively to grasses and clovers as pasturage plants, and it is mainly owing to the ravages of the terrible rinderpest, which has caused greater attention to be turned, amongst other things, to the green food of cattle, that these condimental plants have been brought into prominent notice.

If we examine a piece of natural pasture, such as the sheep-downs of the south of England, we find a close compact growth of various fine-leaved sheeps' fescue grasses, small-growing meadow-grasses, bent-grasses, dogs-tail grass, with numerous small trefoils, and medicks, and especially, with dwarfed plants of burnet-saxifrage, stone-parsley, yarrow, and other stimulant or aromatic plants, which furnishing an agreeable variety to the sheep feeding upon them, are greedily sought after. In richer lands the small sheep-fescues, and meadow-grasses, are replaced by the various meadow-fescues, and the larger meadow grasses, with foxtail, catstail, red and white clovers, black and spotted medicks, cowparsley, mayweed, burnett, and others. The grasses are rarely found alone. Even in the natural pasture of the southern parts of New