

country." This is highly inaccurate and misleading. I have already stated that in the North Island the plant exists under the same circumstances as those which surround it in the British Islands, manifesting a decided preference for cultivated land, but found also in widely different situations, on mountains and in forests. When the Thames gold-field was first opened, before tracks had been made to any great extent, it was to be seen sparingly in the wildest and most untrodden spots up to 1,900 feet, exactly under similar circumstances to those under which it occurs in the centre of the island, where I had the pleasure of collecting it last summer, and I may state that I have received specimens of the var. *dryandri*, collected with *Veronica tetragona* and other sub-alpine plants on the all but untrodden slopes of Ruapehu and Tongariro by my valued friend, Captain Gilbert Mair.

Mr. Travers' opinion respecting the introduction of *Azolla rubra* will not be generally accepted unless supported by stronger evidence. I shall peruse with interest anything he can offer in support of his theory.

ART. XLI.—Notes on the Naturalized Plants of the Chatham Islands.

By T. KIRK, F.L.S.

[Read before the Auckland Institute, 17th August, 1872.]

ISOLATED localities offer peculiar facilities for studying the diffusion of introduced plants, and ascertaining their effects in the displacement of native species. In the Chatham Islands this process possesses unusual interest, arising from the striking peculiarities exhibited by the indigenous flora.

The following enumeration of the naturalized plants of this interesting group has been prepared from a packet of dried specimens collected by Mr. H. H. Travers during his recent visit, and kindly communicated by him, together with valuable notes on their relative abundance and diffusion.

From the great distance of these islands from the main land and the comparatively limited amount of intercourse that has taken place, only a small number of species has become naturalized, as will be seen from the appended list. All the species are amongst the common naturalized plants of the colony; but on the other hand the absence of *Nasturtium officinale*, *Senebiera pinnatifida*, *Ærodium cicutarium*, *Æ. moschatum*, *Erigeron canadensis*, *Erythraea centaureum*, *Veronica arvensis*, *V. serpyllifolia*, *Stachys arvensis*, *Euphorbia peplus*, *Festuca bromoides*, and others which have become established weeds from the North Cape to Invercargill, is very striking. It may however be partly accounted for by the comparatively short period during which cultivation has been carried on to any considerable extent, while the limited

amount of intercourse with other places, as already stated, has not afforded much scope for the introduction of many of those viatical plants which follow the footsteps of the traveller. These remarks are illustrated by Mr. Travers' notes; for instance, referring to *Hypochaeris radicata*, he writes, "Only found in grass fields in a few localities on the main island," so that it is evidently of very recent introduction, although within the past fifteen years it has become a complete pest in cultivated and waste lands throughout the colony. Most of the plants enumerated are said to occur either in 'grass fields,' 'grassy places,' or 'on abandoned cultivations;' only a single species, *Rumex acetosella*, is said to be generally distributed. All the species are of European origin, with the exception of the prairie-grass, *Bromus unioloides*, which is American, and, from its value as a nutritious grass adapted to a wide range of soil and situation, is proving a welcome addition to our naturalized flora.

Ranunculus repens, L.—Old cultivations on main island.

Fumaria officinalis, L.—Grass fields on both islands.

Capsella bursa-pastoris, DC.—Amongst grass and in bush on both islands.

Sinapis nigra, L.—Common about Waitangi.

Silene anglica, L., b. *quinquevulnera*.—Seen only on Pitt Island; amongst weeds and grasses on a newly made road.

Stellaria media, With.—Common amongst grass on both islands.

Cerastium viscosum, L.—Common amongst grass.

Geranium molle, L.—In grass, chiefly on Pitt Island. (There can be little doubt of this being indigenous, although its area has doubtless been extended by the progress of agriculture, *T.K.*)

Trifolium minus, Sm.—Common amongst introduced grasses.

Sherardia arvensis, L.—Only seen amongst cultivated grasses on Pitt Island.

Bellis perennis, L.—Common in grass fields on main island; not common on Pitt Island; prefers clay land.

Hypochaeris radicata, L.—Only seen in grass fields in a few places on the main island.

Sonchus oleraceus, L.—Common amongst grass in both parts of the island. (The specimens are too imperfect to allow of my determining the variety to which they belong, but I am inclined to refer them to *S. asper*, Hoffm., which is certainly indigenous, *T.K.*)

Anagallis arvensis, L.—Common in cultivations; especially on the banks of the great lagoon.

Solanum nigrum, L.—Common in cultivated ground; said to have been brought by the natives from the main land. (Baron F. von Mueller considers this to be of recent introduction; it was, however, collected in New Zealand by Banks and Solander.)

Prunella vulgaris, L.—Common on both islands; especially in water-courses.

- Plantago major*, L.—Common in cultivations.
- „ *lanceolata*, L.—Common amongst grass on both islands.
- Polygonum aviculare*, L.—Only seen in old cultivations on the main island; not common. (Possibly introduced from the main land, but most probably indigenous, T.K.)
- Rumex obtusifolius*, L.—Chiefly in grass fields on Pitt Island; supposed to have been introduced from Tasmania.
- R. acetosella*, L.—Common all over the islands, and in all soils.
- Phalaris canariensis*, L.—Chiefly on Pitt Island.
- Dichelachne crinita*, Hook. f.—Common; chiefly in old cultivations on Pitt Island. (Certainly indigenous, and has increased in a remarkable manner with the progress of agriculture in the North Island, T.K.)
- Holcus lanatus*, L.—Chiefly in swamps on main island.
- Poa annua*, L.—Chiefly on Pitt Island, about old tracks.
- „ *pratensis*, L., var. *sub-cærulea*.—Common on Pitt Island; not noticed elsewhere.
- Dactylis glomerata*, L.—In a few places on main island; common on Pitt Island.
- Bromus unioloides*, Humb.—Most common on Pitt Island.
- Lolium perenne*, L.—Common on both islands.

ART. XLII.—Notes on the Flora of the Lake District of the North Island. By T. KIRK, F.L.S.*

[Read before the Auckland Institute, 24th June and 22nd July, 1872.]

TAURANGA.

THE immediate vicinity of the township of Tauranga presents but few plants of interest to the botanist. The naturalized grass *Cynodon dactylon*, the doab-grass of India, forms a dense sward, and during the excessive drought of the last season afforded a good supply of herbage when other kinds were scorched up. *Carduus marianus* is abundant on the cliffs, and in many places the sweet-briar forms troublesome thickets. *Plantago coronopus* is established in one spot on the beach, the only instance so far as I am aware of its naturalization in the colony.

Between Matapihi, on the opposite side of the harbour, and Otupapora the neglected cultivations of the Maoris are literally covered with *Ænothera*

* This paper embodies the results of an examination of the natural vegetation and agricultural capabilities of the district, made by the author for the Geological Survey Department in the autumn of 1872. See also *N. Z. Gazette*, No. 43, 4th Sept., 1872, for official report.—ED.