

In contrast with this forest is a small detached bush belonging to the Hadfield Estate, about three-quarters of a mile from Paraparaumu. This is fenced against cattle. Although there are many opossums here the undergrowth is everywhere luxuriant. One can find here and there among the undershrubs and young trees marks of biting and breakage by opossums, but they are certainly not menacing the life or even the welfare of the bush. It is to be borne in mind that this bush is detached from the forest and that its proximity to a village renders it liable to poaching. It is therefore little liable to be overstocked by opossums. Yet they are in sufficient numbers to show that reasonable protection of opossums does not in itself constitute a menace to the bush.

Peel Forest, south of the Rangitata River, is now a scenic reserve. In the past milling was carried on there, and cattle evidently had the run of the forest—indeed, some are still there. The bush is now making a satisfactory recovery—as satisfactory as such a recovery can be, almost—and the reserve is a most valuable and charming one. Opossums are numerous—of this the evidence is indisputable and ample—yet I could find no evidence of damage done by them. If damage is done it is so little as to have escaped the notice also of that trained and careful observer, Mr. R. M. Laing, of Christchurch, as may clearly be seen from his interesting notes on Peel Forest published in the *Timaru Herald* of the 24th January last. There is much evidence that a few opossum-brained human beings with pen-knives do more damage in half an hour than the whole opossum population of Peel Forest could do in a decade; and the opossums are of value to the community.

Wainuiomata.—Opossums are numerous, but do no serious damage to the forest, as far as I can find. Very considerable damage is being done by deer in this forest.

Scenic Reserve at Lake Kanieri.—Here, in addition to dead fuchsias, there were many dead trees of rata and of kamahi (*Weinmannia racemosa*). I have already referred to the case of the fuchsia. The dead trees of rata and of kamahi show no discoverable damage by opossums, or even by deer, which are numerous. The trees are not dead throughout the whole of the reserve, but only on certain slopes. In some cases they can be found with all their twigs upon them, and a few were observed from which the withered leaves had not yet fallen.

Leith Valley Reserve.—The Leith Valley Reserve of the Dunedin City Corporation is a waterworks reserve from which during the last ten years or so cattle have been excluded. Where the native bush still survived this is recovering from the damage done by cattle. Opossums are fairly numerous in the bush, but do no damage. This reserve is of especial interest on account of the plantations of imported trees that have been made upon it. These are referred to in Section IV.

Catlin's District.—In the Catlin's district there are still considerable areas of heavy bush, and here opossums are very numerous indeed. Except that in some cases filmy ferns have been killed, probably, I think, by opossums, I could discover no damage.

Otanomomo.—The most instructive instance I have met of the smallness of the amount of damage to bush that opossums do is furnished by a piece of detached bush, about 20 acres in extent, owned by Mr. Thomas Telford, of Otanomomo, near Balclutha. About twenty years ago there was still a homestead—that of Mr. Redpath—in this piece of bush. Cattle ran through the bush freely, and continued to do so until about ten years ago. Then Mr. Telford, into whose hands it had come, fenced it against cattle and rabbits, although a number of rabbits are still within the enclosure. He has always protected opossums with the utmost care, and the result is that to-day, in spite, no doubt, of some poaching, the bush is quite heavily stocked. It is a mixed bush, and, owing in part to its isolation, is rather dry. It shows that the undergrowth had been completely trampled out by cattle. As a result, an unusual amount of bush-lawyer has penetrated, and a few introduced plants such as gooseberry, hawthorn, &c. Most of the sapling trees show barking, more or less severe, by rabbits, the wounds of trees that have survived this treatment having healed with great scars. But the important feature is that seedlings are everywhere springing up of the trees that constitute the bush—totara (*Podocarpus totara*), rimu (*Dacrydium cupressinum*), matai (*Podocarpus spicatus*), broadleaf (*Griselinia lucida*), &c. No important constituent of the original bush is now unrepresented by seedlings, and in some cases, as in that of totara, the seedlings are numerous and are of various ages from several years down to a few months. The bush shows, then, that in spite of the presence of opossums recovery is possible from the original great damage wrought by cattle. This is in some cases more striking in the Hadfield bush at Paraparaumu, for there the original damage had not gone so far and the opossum population is less numerous.

Cairn Forest, Dunvegan, near Clinton.—Mr. James Begg, of Dunedin, gave me the following information about Cairn Forest, on his property: The forest occupies a ridge, and has a length of about ten miles by a width seldom greater than two miles. About 1894 there were liberated in it twenty-one grey opossums. Since they increased in number the bush has probably been poached frequently, if not constantly. When in 1912 protection was lifted the bush was raided heavily by trappers, and probably not less than ten thousand skins were taken. That estimate cannot be regarded as exact, but it is certain that at one time there were twelve camps of trespassing trappers in the bush. In 1913, about six weeks before protection was reimposed, Mr. Begg gave to two men exclusive rights of trapping, if they could enforce them. They were to hand over one skin out of three. They had about five weeks' actual work under this agreement when protection came again into force. The two men then brought in a total of 1,800 skins. Through Mr. Begg's kindness I was enabled to examine a part of this forest. It is a mixed forest, originally continuous with the Catlin's Forest, and having a very large proportion of rata. Cattle and pigs are present in numbers, and they have done much damage to the undergrowth. Opossums are numerous, but do very little damage that I could discover.

VI. EVIDENCE OF THE PRESENCE OF OPOSSUMS.

When opossums are present in bush the fact is easily recognized by the marks of their claws upon trees. These marks are generally very distinctive—a set of oblique marks directed outwards, caused by the claws of the hind feet, and more or less vertical marks made by the claws of the front feet. They are especially easy to see on trees with whitish bark that is not too hard—as, for example, kohekohe, matipo, mahoe, &c. They are difficult to see on trees with flaky bark, such as that of rimu. Trees of all sizes are climbed, and claw-marks may be seen on dead stumps, especially near