

but bearing in mind the observations of many years, it may confidently be asserted that indiscriminate burning is a dangerous practice even when carried out at what is considered the best time—the month of August or thereabouts. There appear to be definite cases in which burning is indefensible. Some of such cases are the following: (1) Where the tussocks are obviously weakly and small; (2) on stony slopes readily turned into shingle-slip; (3) in the subalpine or alpine belts; (4) in the neighbourhood of rabbit-warrens; (5) where there is a chance of greatly increasing an unpalatable plant, especially the swamp-lily (*Chrysobactron Hookeri**).

(d.) *The Rabbit Question.*

That a sheep-run may be rendered valueless by "overstocking" with rabbits need not be emphasized. Nevertheless there is much to be learnt regarding the control of the rabbit and the relation of this pest to high-mountain sheep-farming. That so much of Central Otago is "depleted" is not altogether the effect of the rabbit. There has been indiscriminate burning and more or less overstocking with sheep. But the climate is the driest in New Zealand, and this to no small extent is also responsible for the state of affairs in Central Otago.

In parts of the Upper Awatere Valley (Marlborough) the progress of damage by the rabbit may readily be studied. On the rather loose side of gentle slopes where there are thickets of the wild-irishman† (*Discaria toumatou*) are many rabbit-warrens, where every stage of grassland destruction may be observed. Taking the case of a piece of ground closely occupied by tussocks, the bare earth stands out conspicuously dotted with rabbit-holes and surrounded by a wall of tussocks, which in many places, owing probably to the heavy manuring they undergo, are more or less moribund, especially where bare ground and tussock meet. The first stage of depletion by no means removes all the vegetation, but the primitive tussock-association is replaced by somewhat the following combination of species: Sorrel (*Rumex Acetosella*) in great abundance, and forming the groundwork of the new induced association; the small rosettes of the mountain cranesbill (*Geranium sessiliflorum* var. *glabrum*) dotted here and there, a remnant of the primitive plant-covering not eaten even by rabbits; the pale-leaved willowherb (*Epilobium novae-zealandiae*), a slender, small, semi-prostrate herb, also not eaten; sage-green, more or less circular mats of the mountain pipiripi (*Acaena sanguisorbae* var. *pilosa*); brown, flat, circular mats of the spineless pipiripi (*Acaena inermis*); the small, grass-like sedge *Carex breviculmis*; some Scotch thistle (*Carduus lanceolatus*); chickweed (*Stellaria media*); and the larger mouse-ear (*Cerastium triviale*). The three last-named species and the sorrel are introduced plants, the remainder are indigenous. The oldest part of the infested ground is distinguished by the rabbit's unmistakable trade-mark—the great circular, silvery or green, dense, low cushions of the scabweed (*Raoulia lutescens*), between which, especially where exposed to the wind, there may be no other plants. Where no depletion is taking

* Acres and acres on many sheep-runs are now occupied and rendered useless by this pretty but economically worthless plant.

† To some better known as "Matagowrie," a corruption of the Maori *tumatukuru*.