

requires renewing from time to time. At present it is in many cases impossible to do this, as the young crops are partially or wholly destroyed.

Loss through the displacement of stock is costing the Dominion thousands annually. Many instances have been quoted to me—that of Dr. R. G. Adams, of Blenheim, being the worst, he having last year to abandon a grazing-run of 23,000 acres at Lake Rotoiti, Nelson. His explanation to the Commissioner of Crown Lands was that the place was overrun with deer, leaving no feed for stock. I have a letter from Mrs. Woods, of Beaumont, who occupies the Blue Mountain run. It states: "I used to shear 10,000 sheep off the run and carry 100 head of cattle on that portion known as Siberia. Last year I shored 6,500 and cannot now carry any cattle." Estimated in cash, this displacement assumes a large amount. I have assessed the sheep at 7s. per head and the cattle at £2, which shows that the annual loss on this run alone is £1,425. Mr. Goodyer, of Tarras, estimated his loss at over £1,000 per annum, and said others were affected equally. Mr. McColl, of the Dingle Station, Lake Hawea, assured me that his land should carry one sheep to 10 acres, but owing to the depletion of the low country by rabbits and the high land by deer it only carries one to 20 acres. This applies throughout this mountain country.

It is indeed depressing to these farmers to find that their efforts to control the rabbit pest are nullified by the fact that as they are got under no increase in carrying-capacity is evident, because deer are ever on the increase. Even in its present state the carrying-capacity of this land could be increased greatly were it possible to grow crops in the valleys for winter. This, however, is impossible excepting in the vicinity of the homesteads. The yearly carrying-capacity is governed by that of the low country in winter. Could this be cropped, the number of stock would probably be more than doubled. To have his crops ruined is a great discouragement to the agriculturist, and is distinctly detrimental to the national interest. To keep down the ravages of a pest is a distraction from his legitimate work. Moreover, in the control of this particular pest he is hampered on every side by restrictions which cater for an infinitesimal proportion of the population—the deer-stalker.

DEPLETION OF MOUNTAIN PASTURES.

Deer are taking a part in the depletion of much of the indigenous flora of the mountains. Many of these plants are incapable of standing heavy grazing: snow-grasses (*Danthonia flavescens* and *D. Raoulii*) and blue-grass (*Agropyron scabrum*) are such as these. Stock can be controlled to the stage where the full production from the pastures is maintained, but deer cannot. The fundamental principle in management of mountain pastures entails the removal of stock from time to time—that is, periodic spelling. This is accomplished by moving the stock from one portion of the run to another. At present, as soon as moving of stock has allowed the feed to grow, deer occupy the spelling portions and the land is grazed continually. The best of pastures will deteriorate under a system of continuous heavy grazing. Mountain pastures are extremely subject to its effects, the time being shortly reached when irreparable damage is done and the mountains become denuded of their flora, allowing free access to the agencies which cause erosion.

EFFECTS IN INDIGENOUS AND EXOTIC FORESTS.

Varying degrees of damage are manifest in the forests of the deer-country. Where deer are not numerous little damage is apparent, excepting in the thinning of the palatable species of undergrowth and an occasional barked tree. In places where the herds are big and food in short supply all undergrowth is eaten out as high as the animal can reach, saplings are ring-barked, and regeneration is at a standstill. Accompanying photographs taken in Southland and Otago give an idea of the destruction wrought—it is indeed a depressing sight. I have stated, and will state again, that in some of these areas it is a matter of deer or forests.

Grazing of forests is a delicate art not to be compared with the grazing of pastures. Stock must be strictly limited in number or regeneration becomes an impossibility. Nature has produced a forest-floor suitable to the propagation of seedling trees. Should this be destroyed and the soil exposed to the drying winds seed will not germinate. Enough is not known at present of the necessity of associations of trees in the forest in their effect on regeneration. To the lay mind certain species are weeds of no commercial value, and, being palatable, are better eaten by stock than let grow. This is a fallacy. All natural productions are of a delicately balanced order, and the less we upset that balance the greater chance have we of reproducing our forests. The statement is often made in regard to certain forests of no use for timber-producing purposes, "What does it matter if the undergrowth is killed out? The forest will still be there for climatic and water-conservation purposes." Yes, it will certainly be there, but for how long? A tree has a certain period of life, and should regeneration be stopped the forest has just that remaining period, a space of time measured by the life of the trees already in it. Protection forests with all the undergrowth destroyed, the soil dried by the winds, are very little more protection than the bare hills surrounding it. The Hunter Valley in Otago gives an instance. Floods in the river have been heavier and more erosion of the banks has taken place of late years than ever before, although the forest has not diminished appreciably, if at all, in area. The only apparent reason that can be seen is that the floor of the forest is bare, the soil is almost as hard as the surrounding country, and on this also the flora has diminished. No obstruction is offered to the waters of heavy rains and melting snows; they rush to the valley, producing heavy floods which cause erosion. Grazing of stock and game animals in forests dedicated to the conservation of climate and of stream-flow for our great hydro-electric and other waterworks