Finally, it must be urged that nothing but the best seed be used. No good farmer dreams of using any but the best of seed on his agricultural land. On the mountain pastures seed of high germinating-power is even more essential. From the evidence given before us many failures in surface-sowing in the past must be attributed to the use of non-viable seed.

2. Concerning the Burning of Tussock.

(Part (8) of the Order of Reference.)

During comparatively recent years the question of burning tussock has led to much discussion. One section of the runholders favoured burning, while another section considered that burning should never be practised. Those opposed to burning made out a sufficiently strong case for the Lands Department to take action, so that in the present Acts are sections to the effect that burning tussock—the kinds are not defined—shall take place only in the late winter and early spring (July, August, and September), and that snow-grass is to be burnt under no circumstances. Stated briefly, the reasons for burning and the contrary are as follows:—

For burning: (1.) Unburnt tussock (poa and fescue) is unpalatable, so burning must be practised, as it favours the production of young, palatable leaves. (2.) Non-burning leads to a rank growth of the tussock with many dead leaves and stems which choke out the neighbouring palatable plants. (3.) Burning in early spring does no harm to the tussock. (4.) Burning owes its bad reputation to its having taken place at the wrong season of the year—*i.e.*, during hot, dry periods when the tussock may be killed outright. (5.) If burning is not practised, accidental fires at the wrong season of the year will sweep over the country and do irreparable damage.

Against burning: (1.) Constant burning weakens and gradually kills the tussocks. (2.) The presence of the tussocks is necessary for the protection of the ground-vegetation between them. (3.) The food supplied by the new growth after burning is only available for a comparatively short time. (4.) Burning destroys not merely the tussocks, but also the valuable palatable plants which grow between them. (5.) Burning leads to extension of bare ground and consequent erosion. To the above it might be added that burning leads also to the spread of unpalatable plants, a point already stressed.

Taking the evidence before us together with our personal experience, we are strongly of opinion, as far as evidence and experience go, that burning tussock is desirable. The following two reasons may be adduced in addition to those already cited in favour of burning: (1.) Even if poa-tussock or fescue-tussock is killed, and in consequence the ground becomes occupied by more palatable plants, burning is beneficial. Thus the danthonia pastures of Marlborough, and areas of meadow-grass (*Poa pratensis*) in many places, have replaced tussock after burning, greatly to the benefit of the pasture through its increase in palatability. (2.) Burning is a most valuable adjunct to surface-sowing.

Now, in supporting burning it must be understood that we are altogether opposed to *indiscriminate burning*. Burning, indeed, requires carrying out with the utmost discretion. First and foremost comes in the matter of climate: and in this regard it may be stated that the danger of damaging the pasture increases in proportion to an increase of dryness in the climate. Thus it is absolutely safe to burn near the forest area of the west, and most dangerous to burn in the extremely dry areas.

The matter of burning is indeed closely wrapped up in climate. It would be dangerous to propose any hard-and-fast rule regarding burning, as is done in the Land Act. Each district, and in some instances an individual run, should have its special rules regarding burning. In other words, the skilled sheep-farmer should know when to burn his run better than any other man.

But the above dictum must be modified by the fact that not sufficient is yet known regarding burning *per se*. Experiments are urgently demanded so as