

GRASSLAND PROBLEMS OF OTAGO & SOUTHLAND.

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At this the first representative conference meeting of the New Zealand Grassland Association it is fitting that a good deal of attention should be directed in a general way to the major problems in the advancement of grass-farming whether our interests lie in the direction of research, of education, or of practice. This paper deals especially with the Provinces of Otago and Southland, though many of the problems mentioned are not peculiar to the Southern Provinces and will no doubt be again brought before you by speakers from other districts. The limits of a short paper make it, I am afraid, neither exhaustive nor detailed. I set before you problems some of which can in the light of present knowledge be answered, at least from a theoretical point of view, in a few words, and some which can only be solved by years of specialised research.

A few statistics given in round figures may be helpful in providing a proportionate sense of the present state of agricultural and pastoral occupation in the South. The occupied area of Otago and Southland is given as approximately 11 million acres of which 8½ million or 75% is classified as unimproved; this includes nearly 7 million acres stated to be tussock and native grasses, 600,000 acres of fern, scrub, and second growth (actually, I am certain, a very low estimate) 400,000 acres of virgin bush and 500,000 barren and unproductive. Sown grassland amounts to over 2½ million acres, i.e. 21% of the occupied area; forage crops, particularly turnips and rape, account for 2½% and cereal crops for only 1½%.

The supreme importance of our tussock grasslands, at least from the point of view of their extent, will be apparent, and yet how little is attempted in the direction of pasture management on this 7 million acres! A certain run is described as "carrying" so many ewes and so many dry sheep - a good season means a good clip and a surplus of stores for sale - a bad season a high death-rate. Many of the runs have been improved enormously over the past ten, or fifteen years by subdivision, spelling of blocks, more rational methods of burning, and most of all by the virtual elimination of that great pest of the run-holder, the rabbit. Strychnine has proved a most effective weapon of control, but the slump years have demonstrated how rapidly they can multiply when left alone although the present winter has seen a renewal of the campaign against them.

From an agrostological point of view if we except the monumental work of Dr. L. Cockayne some 14 years ago we must admit that the tussock grassland has been almost entirely neglected by the scientific worker, and yet this country is in a very direct sense the nation's heritage since almost all of it is held on lease from the Crown. Surely the time is overdue for an expert economic and agrostological survey of our South Island grazing country.

In the classification of grassland problems the usual arrangement is either by soil types, or, by surface covering and the latter probably provides the better approach in an area such as Otago and Southland where climatic conditions are so variable within comparatively short distances; parts of Central Otago have normally less than 15 ins. annual rainfall while some of the occupied coastal areas receive over 50 ins. The natural