are obtained by the combination of potash with phosphate and lime. Bell(3) comments on this freely in his review of potash responses in Auckland Province.

### Characteristics of Potash Effect.

In the subsequent remarks the effectiveness of potash refers to that brought about by 30 per cent. potash salts in addition to phosphate as compared with phosphate alone. The general effects of potash on the sward described by Bell are typical of those in most trials where this material has given visible results. Firstly, there is an increase in growth of all the clovers present. Secondly, the white clover eliminates the annual species and covers bare-ground spaces. Finally, the better grasses, if these were originally present, are improved as a result of the vigour of the white clover, forming a well-balanced sward of grass and white clover. This, in effect, is the same process of improvement wrought by phosphates in building up a sward after initial top-dressing. On a good sward the amount of growth is sometimes increased, and this is apparent when some of the trials are closed for hay. Almost invariably where there is a potash response a definite preference is shown to those particular plots by grazing animals. This palatability must not be confused with the partiality shown by stock to pasture immediately after it has been dressed with 30 per cent. potash salts or kainit, since the latter is largely due to the sodium chloride (present as impurity), which is particularly appetizing. The real ultimate palatability is probably associated with a higher potash content of the herbage as well as a greater clover content of the sward, and this takes place some time after application. Potash responses may be distinctly regional in their occurrence, sometimes they can be correlated with a definite soil type, in other cases climatic conditions play a large part, since heavier rainfall conditions appear to exert some influence.

### "Potash-response" Districts.

*North Auckland.*—Some good results from potash top-dressing have occurred on the peaty sands, on the red-brown soils derived from basalts, and on some of the mature podsols known as sandy gum lands. These types are scattered throughout the North Auckland Peninsula.

*South Auckland.*—Soil types similar to the North Auckland ones mentioned are found in the Manukau and Franklin Counties, and similar results have been obtained from potash except on the volcanic soils, where there is considerable variation in regard to response. In one or two experiments striking results have been obtained; in others, apparently on the same soil type, the results have been negligible.

*Waikato.*—As the soil types of the Waipa County have been accurately mapped by the soil survey, it has been possible to lay down a number of trials on given types. So far results favourable to potash have been secured on three trials on the Horotiu sandy loam, one trial on Kaipaki sandy peat, and one trial on the Hamilton clay loam.

*Waihi.*—Potash responses in this district have probably been more marked than in any other area surveyed, not only by the degree but also by the quickness with which they become apparent. Bell(3) considers