from uniform. Nor are precise particulars available concerning the actual plant contents of these areas in the valleys at the time of their enclosure, and their subsequent histories. For instance, a most important and fundamental point is whether the new vegetation has arisen, in the first instance, from seed, or from plants which were already in the ground when it was enclosed, though hardly visible through their close cropping by rabbits. In other words, would spelling, as so many believe, alone suffice to bring about regeneration? In the summary to the article just cited the opinion is expressed that "Most likely a good deal of regeneration arises from seeds being blown on to the enclosed area, though in many cases it arises from plants already on the ground" (*loc. cit.*, p. 94).

But even if spelling would suffice it did not seem to me, in view of the capabilities of the rich mica-schist soil, that a mere return to the original pasture of low feeding-value ought to be the destiny of the depleted lands. Rather, if regrassing were feasible, would it not be possible to clothe the now barren slopes with plants of high rather than of low pasture-value? Even if none of the pasture-plants at present in New Zealand were suitable, there would be the pastures of the whole world available for material. These facts, and others detailed under the next head, clearly show that experiment was most desirable.

This view I laid before the Director-General of Agriculture in a report. After due consideration he arranged that experiments on the lines therein indicated should be carried out. These have been in progress since the end of January, 1920, so far as spelling is concerned, but with regard to sowing, &c., only since the middle of May, 1920—that is, for about two years and two months. Here, and in Part III of this article, the results of the experiments up to 16th May, 1922, are dealt with.

About twelve years ago the Department of Agriculture commenced a series of experiments on the Mackenzie Plain and near Clyde, but of a kind fundamentally different from those described below. A fair amount of surface-sowing on depleted ground exposed to stock and rabbits was also carried out. This sowing showed that usually no grass was established; nevertheless in specially favoured spots, as I have noted, more or less grass, evidently due to this sowing, is still to be seen. The Clyde experiments, which alone concern this article, have clearly demonstrated that many grasses, clovers, and other plants can be successfully established, and will increase, if sown in a well-prepared seed-bed on ploughed or cultivated ground and kept free from stock and rabbits.* Of course, this was already known from ordinary farm practice in the district; but the important part of the work near Clyde was the establishing of many species possessing pasture-value which had not hitherto been grown in Central Otago, as also was the successful growing of lucerne and cocksfoot for ten years or more under conditions apparently of extreme aridity. The area has since proved of great value in grazing experiments and subsequent spelling,† and in demon-

* For an account of the Earnscleugh experimental area, Clyde, its condition in February, 1920, and a list of its plants, see No. VIII of this series in this *Journal*, Vol. xxi, Oct., 1920, pp. 178, 180, and 187–88.

† See No. IX of this series in this *Journal*, Vol. xxi, Dec., 1920, pp. 324–34; and No. X, *ibid.*, Vol. xxii, Mar., 1921, pp. 148–57. In the last-named article there are certain details regarding the climate of depleted Central Otago, pp. 149 and 151.