again proves the benefit of sowing maizes, &c., in drills and giving a little cultivation as against the broadcast method.

Various Plots.—Soya beans were sown on the 26th November. They germinated fairly well, and if sown earlier would, I think, produce a fair crop. The hares, however, did great damage, and as, owing to drought, all growth was at a standstill no beans were obtained this season. Soya beans are probably more suited to a light soil—a soil lighter than that of Marton Junction.

Velvet Beans and Cow Peas were also sown about the same date, but owing to the season experienced it is impossible to report upon them.

The Soils round Marton Junction

consist of a medium loam, which in many parts was to no great depth upon a stiff cold clay. The winter causes them to become sodden and sour, and little growth is made once that condition has been reached. In spring the undrained land is wet, and cold, and sour, and growth is late to start, while upon the advent of dry weather the soil speedily parts with its moisture and a hard, dry, baked pan is the result. This was what took place upon the ill-drained portion of the pea-plots at Marton. Such conditions materially limit the variety of crops which can be grown successfully upon such a soil should the winter prove a rather wet one or the summer somewhat dry. Especially is this the case with oats or wheat, which make half their growth during the autumn or winter and complete the same before the advent of summer. Should the subsoil be untractable and poor, some farmers maintain that therefore it should be left undisturbed, and in consequence from 4 in. to 5 in. remains the depth of cultivated soil upon such a farm. Taken as a whole the top soils of New Zealand are somewhat shallow, and little solid improvement will be made therein until the necessity for deepening the top soil becomes not only an acknowledged fact but also a principle of practice in New Zealand.

There are several ways of deepening a top soil: one is by turning up with the plough just a very little every year. It is not, however, necessary to bring it to the surface and to mix it with the true soil until it has in some measure altered its character. When the land is ploughed by a special attachment to the plough, the subsoil may be only stirred and left where it is; the plough-drains should be put in sufficiently deep to allow of the same being done without damage to them. By such a method a portion of the subsoil becomes sweeter and better drained. Seeking after moisture in dry weather, the plant-roots penetrate this sweetened and pulverized area, and it thus becomes mixed with root matter, and fitted to be brought to the surface by deeper ploughing without material injury to the true top soil, and consequent diminution of the crop. By