Injurious Farm Insects.

The Grass-grub (Odontaria).—This has been very severe in its attack this season, not only on perennial pastures, but also on the young grass, and in some cases fear has been entertained for the early-sown wheat. The general policy seems to be to let this insect alone to the starlings, gulls, and sea-swallows (or terns), which certainly do an inestimable amount of good. The little white-eye (Zosterops) even has been seen swallowing the grubs whole. I believe, however, that experiment might show the practicability of dealing with the attack, to a certain extent, at any rate, by either broadcasting some cheap noxious dressing at the egg-laying season, to render the ground distasteful to the beetles, or by heavily rolling the pastures when the grub is in them feeding close to the surface. The latter treatment would not only kill many of the grubs, but also give the attacked plants a better chance to root again.

The Diamond-back Turnip-moth (Plutella conciferarum).—The attack by the caterpillar of this insect was also very severe this season. A noticeable feature was that the caterpillars, after (with the assistance of the turnip aphis) destroying the leafage, descended to the exposed part of the root, and in some cases completely honeycombed them. Of late years they have attacked the spring cabbage in the same way, sometimes completely mining through the hearts and rendering them nearly unfit for use. At the present time (22nd July) they may be found in the larval stage on winter cabbage, probably owing to the comparatively mild winter, and it seems reasonable to expect that, should the weather continue dry, the attack will be worse next turnip season than the last. Though the attack seems to have been very general this year, I was informed by a resident of the Rakaia district that, of two fields divided by a road, one had been attacked and the other not. This seems unaccountable. A study of this insect, with a view to finding means of dealing successfully with it, is much needed. Considering the way in which turnips are usually fed off, it seems impossible that any of the chrysalids should be left alive. Perhaps there may not be, and the attack may extend to the next season's turnips from off the summer cabbages. It is noticeable that a crop of white mustard was destroyed by them here in the summer of 1890. The starlings may be seen in countless flights in the attacked turnip-fields, but the caterpillars are too numerous for any impression to be made.

The Turnip-fly.—Although this insect is often spoken of, I believe few are aware that it has no connection with the English turnip-fly or flea-beetle (*Haltica nemorum*). Our "fly" is a minute globular-bodied Collembolan insect, and belongs to the genus Smynthurus. The terms "ground-flea" and "springtail" are applied to all the insects of the order Collembola, from the fact of their possessing a special hopping-organ attached to the lower side of the abdomen. On this account the term "turnip ground-flea" seems more suitable to designate the ones referred to here. Sir John Lubbock has written very fully on them in his "Monograph of the Collembola and Thysanura," issued by the Ray Society in 1873; but the species here seem to be quite distinct to any described by him. The photo-micrograph attached will give a slight idea as to their general appearance. They are of a fairly uniform colour all over—some being orange and others purple. They are always wingless, have no metamorphosis, and have a chewing mouth. They may usually be found in countless numbers, from about the middle of September to the end of February, on paddocks of grass, grain, seedling turnips, &c. They have been found congregating on the young turnips in their seed-leaf stage, the leaves being much mutilated and eaten, and in some cases merely the stump of the plant being left. The danger seems to be over as soon as the rough leaves come out; and, consequently, any means to hasten this—such as good cultivation and the water-drill with manures—will be desirable as a prevention. No experiments have been made to find a remedy, but means somewhat similar to those used against the English Haltica would probably be useful.

Mealy Bug (*Dactylopius poæ*, Maskell) is quite common, and apparently increasing on various grasses here, and seems to do an appreciable amount of damage. It is a small oval pink-coloured insect, more or less imbedded in a white mealy matter, and lives by sucking the juices from the underground parts of the stems and from the roots. A small plot of cocksfoot just dug up showed them sprinkled all through it to the full depth of a spade. Cultivation would seem to be the only practical remedy.

New Forms of Insect Attack.

The Bean Aphis (Aphis rumicis).—This aphis, popularly known as the "collier" or "black dolphin," was reported from Ohoka last season. It may readily be known by its black colour. Cutting off and destroying the top shoots, with the aphis on them, seems the best remedy.

Horse Bot Fly (*Œstrus sp.*).—One of these appeared in great numbers last season, and caused much trouble among the horses. The eggs were deposited upon the tips of the hairs under the jaws, and about the throat, chest, and forelegs. It seems a feature of these flies to frighten the animals they attack; and there seems no reason to suppose that the horses were in any way punctured, as many think. Washing the horses coat daily with some noxious dressing (sheep-dip, &c.) would probably prevent attack. There is no remedy. The larval stage of these flies is passed in the stomach and intestines; when full grown it is passed out, and the pupa stage is taken in the ground, the perfect fly appearing again next summer.

Apiculture.

Scientific bee-keeping was recommenced at the school in connection with this department last season. It was decided to use the Langstroth hive, and a start was made by transferring and uniting two weak colonies from old Cox hives. Another colony was obtained and transferred later on, and six swarms were obtained from various sources. Full sheets of foundation were used in all cases. The season was a very poor one for bees, swarming not beginning till the second week in November; but, still, 100lb. of surplus was taken from four hives, and most of them seem wintering well. The ordinary black bee was obtained to start with; but it is proposed to Italianise these later on, as the Italian (or Ligurian) bees are considered more tractable, and better honey-gatherers.