ENTOMOLOGICAL.

A few experiments have been made to try and find a satisfactory remedy for the apple-scale insect. This pest can be attacked at two seasons of the year—either in winter, when the eggs are lying dormant under the scale, or else towards the end of spring, when the eggs hatch out. In the first case the dressings must be strong enough to penetrate or destroy the leathery scale, and so reach the eggs. In the second case, the larvæ, being naked, are killed by a weaker dressing, but the difficulty is that the eggs will continue hatching out for from a month to six weeks, and, as the larvæ are only naked for about three days, the trees would have to be dressed some ten times over, unless some adhesive dressing can be found which will remain on the tree and kill the insects as they hatch out. Perhaps some resin soap mixture may effect this.

It is obvious that if a dressing can be found which will destroy all the eggs in winter time, without hurting the tree, it will be most satisfactory, on account of the ease of application at this time. Such a dressing must be cheap and sufficiently liquid to use with a spray.

The following experiments have been tried :—

A.—Winter Season.

Castor-oil.—This thinly brushed on is very successful, but the cost of application is too great. Care should be taken to apply this dressing only in midwinter as, if the sap is moving at all, it is likely to kill the part dressed. One-fifth part of kerosene makes it easier to apply, and perhaps more effective.

Greenbank Caustic Soda, 98 per Cent.—One pound to the gallon, sprayed on at a temperature of 130° Fahr. This promises fairly well; it turns the scales quite white, and loosens their hold on the tree. Some of those, however, that seem to have been quite destroyed were found to have some sound eggs beneath them; perhaps a slightly stronger solution might be used in midwinter. The soda cost about 8½d. per pound, and perhaps half a gallon of solution would dress a medium-sized tree.

Sheep-dips—Little's, Carbol Crystal, and perhaps Others.—Strong dressings of these (1 in 10?) may be effective, and further experiments will be made.

Kerosene Emulsion (1 in about 5) has been used with good results elsewhere.

B.—Summer Season.

Sheep-dips (1 in 100) and Kerosene Emulsion (1 in 20?).—These would probably be effective if persevered with.

Sulphur-and-lime wash, formed by boiling 1lb. of sulphur and 2lb. of lime in from four to six gallons of water for half an hour. This would have to be persevered with also. In the experiments here the proportion of lime was increased, as much of the residue, after boiling, was pure sulphur and sand.

Soap.—This was used 4oz. to the gallon, warm. The solution was found to choke up the nozzle (cyclone) of the spray if it cooled too much. Common hard soap was used; probably the soft soap would be better. It is believed, as stated above, that some form of soap-dressing would be satisfactory, and further experiments will be made.

Greenbank Caustic Soda, 98 per Cent.—This was tried 2oz. to the gallon, but was thought to have more effect on the tree than on the larvæ. Even if successful, it would have to be repeated at short intervals.

Carbolic Acid (No. 5).—1 in 240 and 1 in 120 were tried on a pear-tree, but seemed to have no effect on either larvæ or tree.

It has been suggested to give time for all the eggs to hatch out, and then to dress the freshly-formed scales with kerosene emulsion or sheep-dip, using stronger washes than for the naked larvæ. This was tried with emulsion 1 in 14, and dip 1 in 80; but, though some good seemed to have been done, the result was not at all satisfactory. Further experiments might be made in this direction.

American Blight.—It was thought that this would be killed by the castor-oil used for the apple-scale, but it came again next spring very strong; possibly the oil had not been brushed sufficiently well into the crevices. It is believed that the greenbank soda sprayed on in winter, as for apple-scale will be effective.

Red Spider.—It does not seem to have been yet recorded that the red spider, common in Canterbury, is not the *Tetranychus telarius*, as is usually supposed. Our species differs considerably in its much greater size, its more angular shape, the absence of so much web, the red colour of the egg, and other points, and does not seem to agree with any described by Mr. Andrew Murray in his "Economic Entomology." Dressings that will be successful for the apple-scale, will probably be so also for the red spider, only that as some hibernate under logs, &c., winter dressings to destroy the eggs may not be wholly effective in clearing the orchard. The sulphur-and-lime wash, before mentioned, was tried specially for it, but some days afterwards the tree was found to have some spiders moving about on the leaves, notwithstanding that these were more or less covered by a thin deposit of free sulphur.

The Currant-borer.—This has done much harm at the school and elsewhere—seemingly general—through its habits of boring out the pith of the stems. Specimens of the mature insect have not yet been seen, but, from the size and general appearance of the caterpillar, it is thought that it must be the currant clearwing (*Algeria tipuliformis*). A magnified photograph of two larvæ and chrysalis cases is attached. The usual remedy recommended is to thoroughly prune out and burn the infected branches; but the attack might be prevented by spraying the plants with some obnoxious or poisonous dressing at the time of egg-laying—about the New Year, or after the fruit is gathered—though after a tree has once been badly attacked the old branches are so weakened as to break off freely in the fruiting season, and it would be better to start with new wood.