

5. *White Scale (Icerya purchasi).*

This unwelcome scale-insect was first observed by Dr. Purchas on kangaroo acacia, near Auckland, in 1876, and the female insect was described by Mr. W. M. Maskell, in 1878, as *Icerya purchasi*. It was supposed to have been introduced with wattles from Australia, but it is not a native of that continent. In all probability it came to our shores with imported citrads from the Fiji Islands or from California. In some localities in the colony it is common on citraceous plants and on wattles, less frequently on furze, manuka, &c.; more rarely it may be found in the apple, plum, and peach, but I have never seen it in quantity on either. It usually forms linear masses on the twigs and small branches of lemons, citrons, &c., and on the under surface of leaves. In some cases it forms superficial patches, covering two or three square inches on the stem.

The mature female insect is fully one quarter of an inch in length. In the young state it is of a reddish-brown colour, and is furnished with a pair of short antennæ, a pair of eyes, a short beak adapted for piercing the epidermis of plants and extracting their juices, and three pairs of short legs. In this state it is oval in form and exhibits a certain amount of activity. In a few days the reddish-brown colour is obscured by a flexuous cottony growth, and the oval shape is to some extent lost. Minute tufts of blackish hairs are arranged around the lower margin of the body. The insect loses the power of locomotion and becomes attached to the twig by its suctorial beak. The nest is formed between the abdomen and the surface of the twig. The eggs are deposited in the nest to the number of fifty and upwards, and are hatched in a few days. I have not seen the male insect, but have been assured that it is not uncommon in the spring, and exhibits considerable activity, the slightest movement of a branch being sufficient to start a number of them on the wing.

Plants attacked by white scale present an uninviting appearance, but, unless suffering from foot-rot, borer, or other plagues, do not appear to become so much exhausted as might be expected from the vast numbers of the insect. No instances of fatal results from its ravages have come under my notice.

Prevention and Cure.—Young trees should be carefully examined before planting, in order to remove any scale that may have attacked them. Planted trees should be frequently inspected, so that the first appearance of the pest may be promptly detected and the insect destroyed. In this way it may be prevented from establishing itself at but little cost, but, should the orchard become thoroughly infected, its extirpation will involve a considerable expenditure of time and labour. All affected branches removed when pruning should be promptly destroyed. Syringing with a weak solution of caustic potash would be highly effective, and would scarcely need to be repeated more than once to clean the infected trees, however numerous the insects. Washing the affected parts with boiling water is one of the best modes of destroying the insect that can be adopted, but has the disadvantage of being inapplicable to young shoots during the period of active growth. Syringing the tree with hot water in which soft-soap has been dissolved is highly beneficial. Painting the affected parts with castor-oil, containing a small quantity of soot, would doubtless prove effective. All preparations containing oil must, however, be applied carefully, and laid on with a light hand. Castor-oil is an insecticide of great value, and, properly applied, is not injurious to vegetable tissue. The central portions of the tree should be kept open by early summer pruning, so as to permit the free circulation of air. In the lemon plantations of Reader Wood, Esq., of Parnell, some trees having a southern aspect are infected with *Icerya* to a great extent; others with a northern aspect are almost exempt, doubtless owing to their being in the shade for the greater part of the day at this period of the year. On account of the rapidity with which this insect increases, it must be looked upon as one of the most dangerous enemies which the lemon-grower has to encounter.

6. *Orange Aphis.*

The young shoots and leaves are frequently attacked by myriads of this minute depredator, and at first sight present a similar appearance to shoots affected by black blight: this, however, usually attacks fully-developed leaves. The colour of the insect is a brownish black, the male insect being winged. This pest is most destructive during the early spring and the late autumn, but its effects may be observed at all periods of the year. It is readily destroyed by syringing with tobacco-water, or with soft-soap dissolved in hot water, or by dusting the leaves with sulphur or lime.

7. *Snail (Helix aspersa).*

This European intruder is a dangerous enemy to all citraceous plants, and in some localities is found in large numbers: from thirty to fifty snails may be found crowded together on the stems of a single plant. It checks growth by feeding on the epidermis of the young branches and leaves, and is especially fond of the epidermis of the young fruit, which it speedily disfigures and renders unfit for market. In spring they are clustered together in large numbers, and may be easily collected and pounded for the benefit of pigs and poultry.

8. *Leaf-scale.*

Of these insects two species, if not three, have been observed on the leaves and young twigs of oranges and lemons, but, so far as I am aware, not in sufficient quantities to cause serious injury. I must reserve my remarks upon them for a future occasion. They may be destroyed by washing with castor-oil containing soot, or with soft-soap dissolved in hot water.

Other enemies of the lemon and its allies in the colony are thrips, the grass-grub, caterpillars of several small moths, cicada, phasma, wood-lice, and lichen, but their attacks are rarely injurious to any great extent. I purpose referring to them at greater length on my return to Wellington.