

until by the time they are all laid, it is so small that it can be seen only with difficulty, at the small end of the scale, close to the eggs. She dies soon after, and the life cycle of the species is complete.

We have but one generation of these insects per year, though in countries farther south there are said to be two broods.

The San Jose Scale.

The San José (pronounced, San Ho say) Scale should also be mentioned at this time, as it is one of the worst pests known to fruit growers, and has lately found its way into the Maritime Provinces.

This scale has its native home in China, and was first introduced into San José, California, about 1870, whence it soon unwittingly spread throughout the United States, chiefly on nursery stock. It has been in southern Ontario for over twenty years, but does not seem to make much headway in the colder climate of the northern part. As a rule it is said to flourish in any place where the peach grows. Too much care cannot be exercised when receiving nursery stock from infested regions. Note the fruit laws providing for the inspection and fumigation of such stock. All young trees from such sources should be further inspected as they grow, from year to year.

Fig. 2, shows the San Jose Scale both in its natural size and enlarged. The largest scales

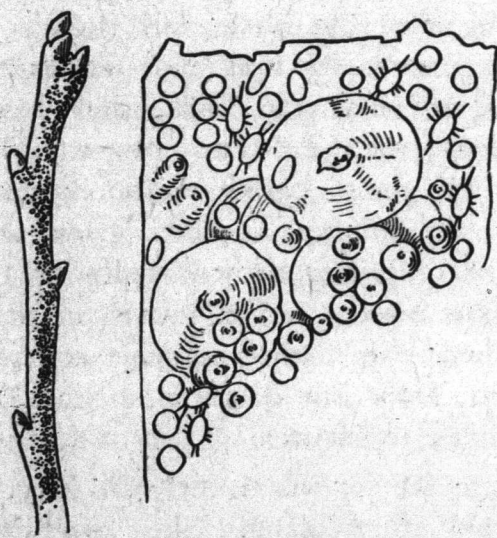


Fig. 2. The San Jose Scale. The twig to left with scales natural size; drawing to right, scales much enlarged.

shown in the picture are the adult female scales and average about 1.5 millimeters in diameter.

They are of an ashy-gray color, and with a minute prominence near the centre. The male scales are somewhat oval in shape, about twice as long as broad, and in length about half the diameter of the female. The other tiny black specks are the scales in which it winters, and are called the black or winter stage scales.

In the spring these small black scales develop into male and female scales respectively. Upon maturity the males back out from beneath their cover as tiny two-winged forms, similar to those of the Oyster-shell Scale. The females do not lay eggs, but bring forth their young alive, producing several young every day for a period of about fifty days, so that the total number of young from each may be over four hundred. Now, since there are four or five generations in a season, it is easily seen that a single pair may be the progenitors of an immense host by late summer; the number has been given as 3,216,080,400. With all these forms sucking up its life sap the poor plant has no chance for growth and little for life.

Careful search should be made for these scales on all recently imported fruit trees and all cases of their occurrence reported at once to the Department of Agriculture for your Province.

Lime-sulphur wash, properly applied, will readily control these two species of scale insects. Directions for making and applying this wash may be obtained from the Department of Agriculture, Ottawa.

Other Scale Insects.

There are more than eight hundred species of scale insects known, and among them many of interest and value to man. Notably the cochineal insect, found on the cactus in Mexico, is the source from which cochineal and carmine are derived; to another, of India, we are indebted for shellac; and a Chinese species yields a white wax. The manna mentioned in the Book of Exodus was probably the secretion of a scale insect, as a similar sweet substance secreted by a scale is used to-day by the Arabs as food.

Fig. 1 is copied from General Zoology by Linville and Kelly; Fig. 2, from Nature Study and Life by Hodge, with the kind permission of their Publishers, Messrs. Ginn & Co., Boston.

Since the Panama Canal was opened, more than a million dollars has been received in tolls; but the amount is not sufficient to pay the running expenses, to say nothing of the interest on the cost of the canal.