

criminally, and overstock first one town, then another, breaking down the prices generally. Dealers in these towns, where unexpected car lots so often come on consignment, refuse to place their orders for goods at any fixed price, because the next day, for all they know, the market will be broken, and fruit almost given away.

In Ontario the results have become so serious, and have interfered with all legitimate and regular trade to such an extent, that many growers are almost ready to give up the business of growing fruit.

#### THE ONLY REMEDY IS F. O. B. SALES.

With grades established, and cold storage to hold goods, this system of sale is quite practicable. If all the dealers in a town were buying at a fixed price, no more would be ordered than the town could take; no glut would occur; surplus would be carried to some other town. But, you will object, the grower has no time to look up sales; he has enough to do to grow and pick his fruit. True, but all this can be made practicable by co-operation.

I am a member of a company called the Grimsby Co-operative Fruit-growers—six of us—representing about 400 acres of fruit of various kinds, small and large. Our object is to sell as much of our fruit on order, f.o.b., as possible. We have organized with \$2,000 stock, just to give some funds for current use, of which probably no more than 20 per cent. will ever be called. We have a central packing-house, where all fruit is drawn as fast as harvested, and packed to certain grades. We have engaged a manager to conduct the whole business, given him a complete office outfit, with telephone and assistant, and a gang of packers. We pay our manager about \$800 for his services the first year. The manager's first business is to sell our goods, and, to do this, he sends out quotations of prices current about twice each week to a large list of fruit dealers. If orders do not come in for all fruit, the surplus must be sold to some buyer, or to the canning factory, or, as a last resort, sent to the commission market in some one or two of our large cities, such as Montreal or Toronto.

This system of sale seems to be the only sensible one. It is satisfactory both to growers and to fruit dealers. Even the commission houses themselves approve of it. They find their business placed on a better footing, because the fruit is more evenly distributed, and there is less cutting of prices.

Co-operative companies are all the talk with us in Ontario just now. New companies are being formed in various parts, so that we may hope soon to have our whole Province brought into line. Then, when an association of all small co-operative companies reaches some degree of organization, it will be possible, through a central officer, to so direct the distribution of our fruits that all parts of our Province shall be able to secure them at fair prices, and the grower will find a steady market for his goods at prices that will encourage him to grow the best variety, and put them up in the very best manner.

Then, may we not hope to see our fruit industry continue to hold its place as one of the most profitable as well as the most attractive branches of agriculture.

### The Oyster-shell Bark-louse AND CERTAIN SCALE INSECTS OFTEN MIS- TAKEN FOR IT.

The purpose of this article is to place before the fruit-growers and all interested in practical entomology, the main facts regarding the life-history, habits and appearance of the Oyster-shell Bark-louse Scale, and of the scales which are often mistaken for it. The damage done by this scale of late years has attracted so much attention, and so many enquiries have been received concerning the best methods for its eradication, that it is hoped earnest efforts will be made at once by all concerned to get it under control.

The Oyster-shell Bark-louse (*Mytilaspis pomorum*) is widely scattered throughout the orchards of Ontario, and the damage done by it is very

leaves are often infested, and sometimes the fruit itself becomes more or less covered. Last year the fruit on several Maiden's Blush apple trees grown in the orchard of the O. A. C. was noticed to be affected by the scale. This, however, is the exception, rather than the rule.

This insect is one-brooded, and winters over in the egg stage. The eggs can be easily seen if at any time in the fall or winter the old scales be lifted up and examined beneath. Numbers of very small whitish-yellow eggs will be seen. Here beneath this oyster-shaped scale they remain until early in the summer. The young yellow lice escape from the eggs during the last week in May and the first week in June; that is, in the vicinity of Guelph. They wander for a few hours, or for a few days, on the limb, then settle down and secrete a scale. They fix themselves upon the tender bark, which they pierce with their beak-like structures connected with their mouths, and by means of which they are able to suck the sap from the tree. The larvæ moult, or shed their skins, twice in the course of their growth during the summer. These moults can be readily seen on the narrow end of the large scale.

The adult female dies soon after the laying of the eggs, about 60 in number, in the fall. They may be spread from tree to tree to some extent by birds, and also by other insects.

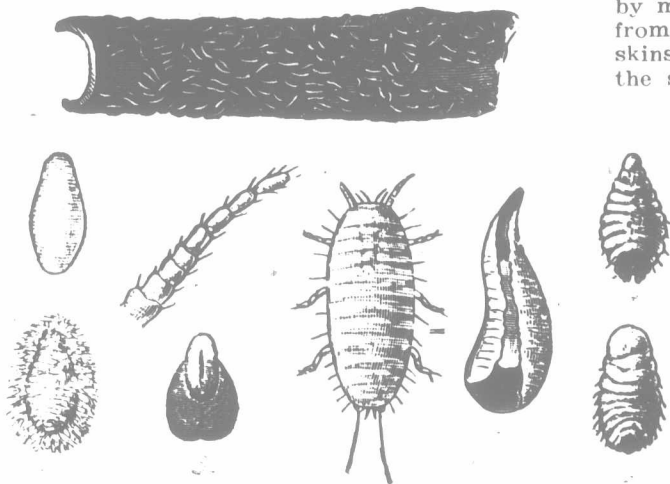
Such is the life-history of the Oyster-shell Bark-louse, and before entering into a discussion as to the best means to adopt for its eradication, it will be as well to briefly mention and describe one or two other species of the commonly-occurring scales which most closely resemble it, and to point out the differences for this purpose cuts are given with the various scales.

The Scurfy Bark-louse (*Chionaspis furfur*).—The Scurfy Bark-louse is not so widely distributed through Ontario as the Oyster-shell Bark-louse, and does less damage. It occurs most commonly on pear, apple, gooseberry and black currant. This scale resembles the Oyster-shell Bark-louse closely in shape and size, the main points in which they differ being in the color of the eggs and in the adult scale.

The eggs of the Scurfy Bark-louse are of a purplish color, whilst those of the Oyster-shell are a whitish-yellow. The adult scale of the Scurfy Scale is also white in color. The female scale is much larger and more oval than the male scale.

The same remedies may be employed against the Scurfy Bark-louse as are advised in this article as most suitable for the Oyster-shell Bark-louse.

San Jose Scale (*Aspidiotus perniciosus*).—The San Jose Scale is readily distinguished by the characteristic shape of the female scale. They are round and nearly white, with generally a clearly-defined central nipple. After the first moult the scales become almost black, with a conspicuous depressed ring around the nipple. The adult male scale is oblong in outline, with the nipple near one end, and is much smaller than the female.



Oyster-shell Bark-louse.

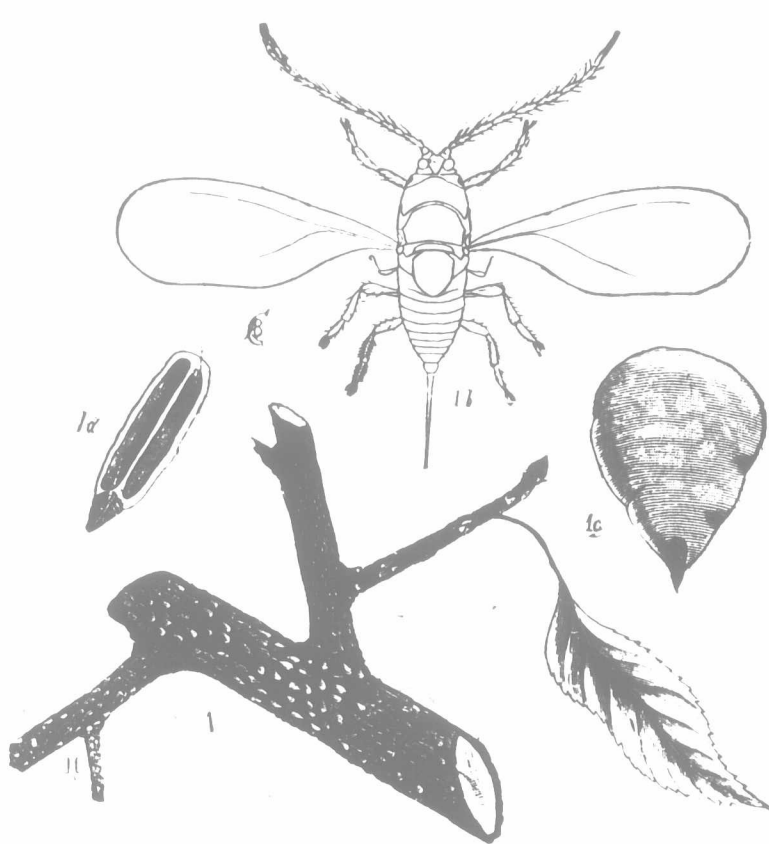
considerable over the Province, and rapidly on the increase.

Although of European origin, it has been known in America for more than a century, and had gradually spread throughout the larger portion of North America.

This scale is a very serious pest in orchards which are neglected and badly treated, but experience has shown that with careful treatment it can be readily kept in check. It has been found to occur on the apple, plum, pear, wild red cherry, currant, rose, maple, poplar, ash, birch, and various others.

In order to combat this scale, it is first absolutely necessary that one should be well acquainted with its life-history.

Life-history.—This minute insect, found upon the bark of the small twigs, and also upon the branches and trunks of the above-mentioned trees, is readily identified by its oyster-shell-shaped scale, about one-sixth of an inch in length. It is of a brown color, and, thus disguised by the bark, is not seen unless by close observation. Usually a good many are clustered together, and their shape is so marked that orchard men should soon recognize them. The scales sometimes cover twigs and large branches completely; even the



The Scurfy Bark-louse (*Chionaspis furfur*).



A



B

San Jose Scale.

Appearance of scale on bark; a, infested twig—natural size; b, bark as it appears under hand lens, showing scales in various stages of development and young larvæ.