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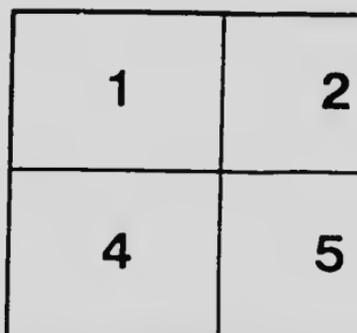
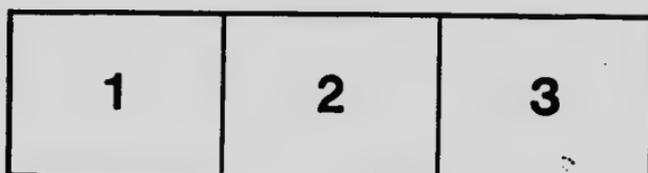
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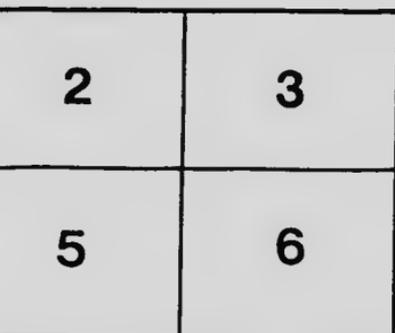
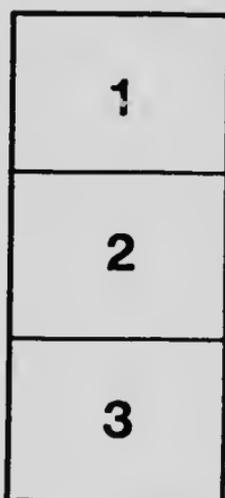
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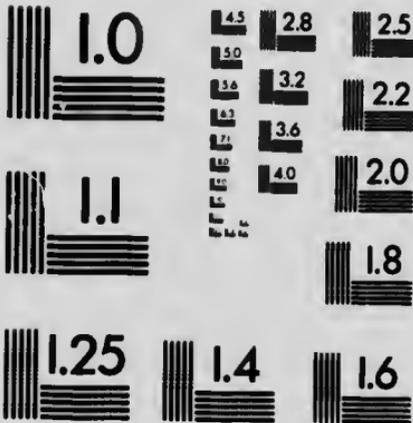
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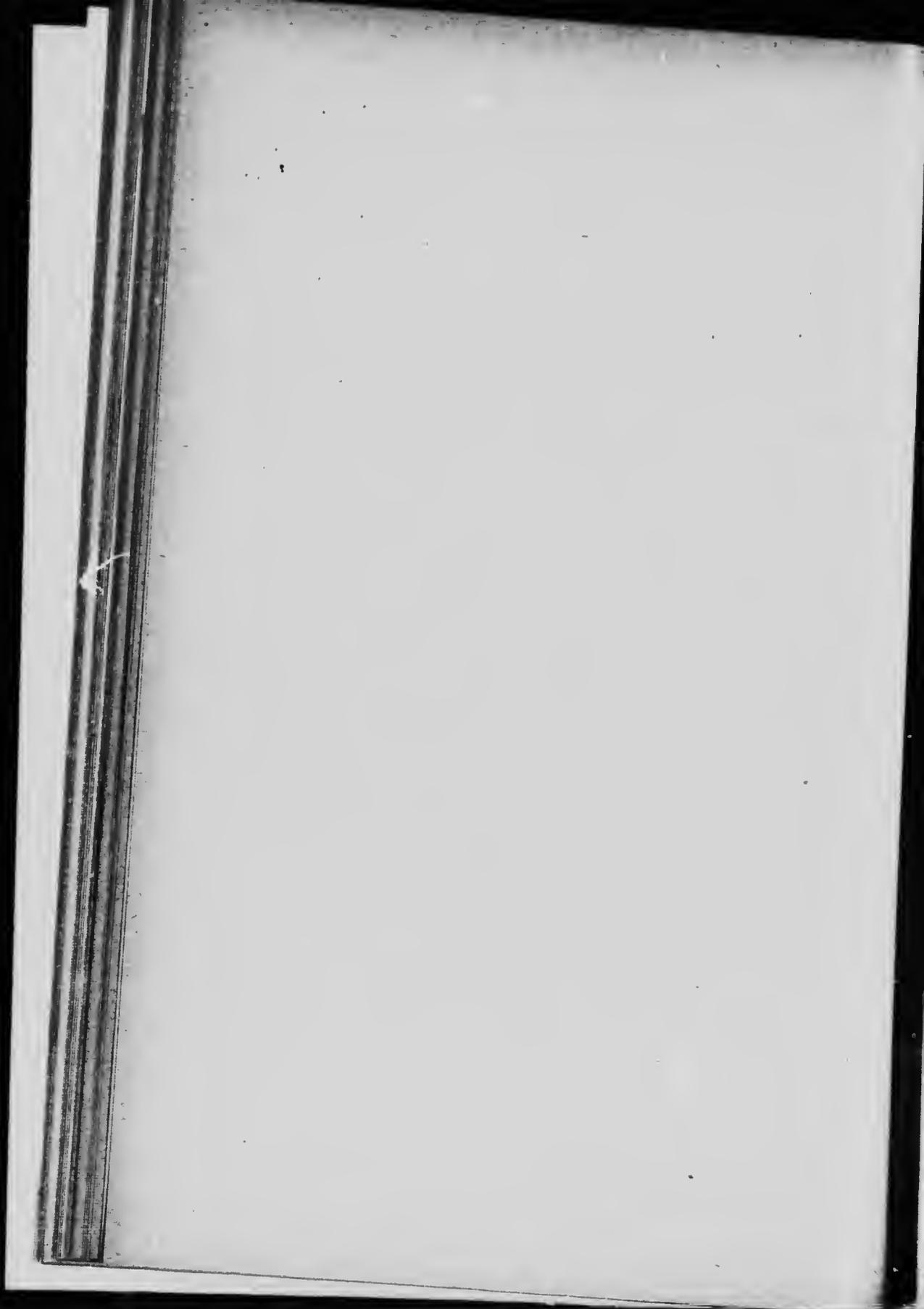
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PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE
(HORTICULTURAL BRANCH).

THE OYSTER-SHELL SCALE

(*Lepidosaphes ulmi* Linn.).

THE oyster-shell scale is a familiar object to fruit-growers. It occurs commonly in the Lower Kootenays, in the Lower Fraser Valley, and in the developed sections of Vancouver Island. It is



Twig infested by oyster-shell scale. (Author's illustration.)

present also in the Dry Belt fruit areas of the Okanagan, but it finds circumstances more suited to its taste in districts where the atmospheric conditions are moist and humid.

It derives its name, first, from the fact that it belongs to that class of insects which develops a waxy shield over its body, so-called a "scale," under which it lives, protected from any adverse conditions; secondly, from the fact that the waxy scale resembles an oyster-shell in shape. In colour this insect may be one of several shades of brown, depending very largely upon the colour of the bark upon which it is living. Fruit-growers, therefore, will be able to identify this scale by its colour, by its shape, by its size, which is approximately $\frac{1}{8}$ inch in length, and from the fact that it often occurs in great numbers on a piece of bark, often overlapping and forming deep encrustations. At times the fruit itself may possess an occasional specimen.

Food-plants.

With this insect, possibly more so than with any other insect which attacks cultivated fruit-trees in this Province, it is correct to agree with the common expression that the "woods are full of it." It is known to attack a wide variety of native plants, among which may be mentioned, Nuttall's dogwood, broom, willow, poplar, vine-maple, hawthorn, amelanchier, flowering currant, mountain-ash, and the cascara-tree. It is essentially, however, a fruit-infesting insect, attacking varieties of apple, crab-apple, pear, peach, apricot, cherry, and currant. Its presence is noted more often in apple-orchards than in plantations of the other fruits, and in certain sections of the Province its numbers have increased to such an extent that apple-trees, naturally weakened by several contributing causes, have finally succumbed to its attacks.

Life-history.

In the Province of British Columbia the oyster-shell scale has only one generation in the year. Its life-history is as follows: If during winter some of the familiar scales are overturned on the point of a penknife, a number of shining, white, oval objects will be seen, varying in number from 20 to 100. These are eggs, and it is in this stage that the winter is passed. As the spring arrives these eggs commence to hatch, and usually at the time the apple-trees are in blossom, small white or cream-coloured objects may be seen issuing from beneath the scale. These are the larvæ, or young scale-insects. Owing to differences in climate, which the various fruit districts of the Province present, and owing very often to a marked dissimilarity in the spring seasons at any one locality, one year with another, the period of hatching varies considerably. However, at some time in the four weeks surrounding the period of full bloom, hatching takes

place and the young larvæ become discernible to the naked eye as small cream-coloured dots, moving, in proportion to their size, comparatively rapidly over the bark. They are wingless and very delicate at this stage, and their sole object is to find a suitable spot upon which to settle and feed. After a few hours' activity they establish themselves, insert minute sucking mouth-organs, with which they are provided, into the bark and commence to suck the sap. Once the female has settled on a particular spot she never moves again to take up any other position on the tree. The young larvæ gradually excrete a waxy substance over their bodies which forms and hardens into the familiar scale or protective shield. In the autumn or during the winter the female, which remains for ever wingless, dies beneath the scale she has constructed, leaving behind her complement of eggs. The male insect undergoes a similar metamorphosis in the early part of the summer, but later in the year, about July, emerges with wings which apparently are only strong enough to enable it to reach and fertilize the stationary female.

Means of Control.

A study of the life-history of this insect reveals the facts (1) that it is single-brooded, (2) that it has a reproductive capacity of an approximate average of 60 eggs, and (3) that it is not capable of much movement. Thus a commercial orchardist has no right to claim this insect as an important fruit-tree pest, on the understanding that practical horticulture to-day demands proper attention to timely applications of spray. A thorough application of lime-sulphur, 1-30 or 35 (specific gravity 1.009), immediately after the petals fall, under ordinary circumstances suffices to hold this insect in check. Moderately severe cases of infestation may be treated also with a winter strength lime-sulphur solution at the time the buds are bursting, to act as an additional means of control.

In some of the older orchards of the Province, where trees are encrusted with superfluous bark and growth of lichens (locally referred to as "moss"), an application of Gillett's lye at the rate of 1 lb. to 4 gallons of water will be found advantageous. This may be performed in the autumn and applied direct to the trees by the most convenient method.

Victoria, B.C., issued March, 1918.

This circular has been prepared by R. C. Treherne, Field Officer for British Columbia, Entomological Branch, Dominion Department of Agriculture, at the request of the Horticultural Branch.

Copies of this circular may be obtained free of charge on application to the Horticultural Branch, Department of Agriculture, Victoria, B.C., or from local branch offices of the Department.

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