

NOTES ON THE EARLY STAGES OF EPIRRITA DILUTATA DENIS & SCHIFF.

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A female moth was found at rest on tree trunk in the Duncan District of Vancouver Island on 12th October, 1913. It was confined in chip box and laid eggs 13th to 16th October. Eggs laid in irregular masses, some singly, attached to box. In general appearance like minute bunches of light green, oval grapes. Size of egg, .66 by .60 mm. Under hand lens the surface looked pitted all over.

When examined on 14th March, 1914, after wintering outside, the eggs were cayenne-coloured in mass and shiny. Sides a little flattened and indented. The "pitting" still distinct. Under hand lens the colour of individual eggs was a reddish light brown. Began to hatch out March 18th and majority out by the 20th. Larva at first a sooty olive green, no apparent markings; head and first segment rather swoolen; anal claspers fairly spreading. The anal claspers and the segment behind head a lighter green than the rest of the body. Head brown. The larva would eat buds of sallow and the common species of *vaccinium*, but preferred the latter, on which it fed well. All other food offered (including alder, which I had an idea might be its food-plant) was rejected. Larva continued to be of the dull olive colour without marking until 1st April, when those which had newly shed their skins (I am not sure whether for the first or second time), developed a chrome yellow colour with inconspicuous lines running the whole length of the body. At this date these larvae were 5 mm. long. The lines were not very distinct, but I could make out a median dorsal line and two others each side of it on the dorsal area, making five lines altogether. The space between the median line and the first side line, slightly wider than between the second and third. In the next instar, the appearance of the larva much the same, except that the colour becomes a glaucous green, similar to that of the leaves on which the caterpillar feeds, and the longitudinal lines are rather more distinct, with a decided whitish line just below the spiracles—this line runs along (above) a kind of ridge. The ventral surface has a tendency to whitish, and in the next instar, this whiteness is much more pronounced, becoming a characteristic distinction. The whitish spiracular lines are more marked towards the anus. At this stage (18th April), the larvae were 15 to 17 mm. long. On 29th April they had increased to 25 mm. in length, and some had already commenced to pupate, spinning chambers in the frass collected at the bottom of the breeding jar. The cocoons were fairly strong, for I scraped some masses of frass out before I discovered there were larvae pupating in it. Larvae when full fed, much the same in appearance as already described, only the white

lines have disappeared with the exception of some remains of the spiracular line from the anal clasper to last pair of legs more distinct than ever. Head small, greenish, and there are some white dots on each segment, from which are emitted short single hairs. Belly strikingly greenish white.

All the larvae had disappeared for pupation by 4th May. Fed, healthily, all through, on vaccinium.

Seven moths (all females) emerged about the middle of September. In the natural state the time of appearance here is October.

THE OYSTER SHELL SCALE.

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In view of the fact that the Oyster Shell Scale (*Lepidosaphes ulmi*) is one of the most common insects in our orchards, I wish to record for our Proceedings a list of host plants that I have observed in British Columbia infested by this insect. I am perfectly well aware that this insect has been reported on from many sections of Canada and the United States, and that several papers have appeared recording its full life history, habits and destructiveness. The United States Bulletin No. 121 of the Bureau of Entomology, in particular, forms a complete record of this insect, and a long and probably complete list of host plants is mentioned in the text. So far as British Columbia alone is concerned, we have no full record of host plants of our own; consequently to record these, from my own experience, is the main object of this paper. Possibly also I may be able to add a few more host plants to the list in Bulletin 121.

Among the different scale insects which infest our orchards and forests, none has such a large and varied "bill of fare" as the Oyster Shell Scale, and, judging from the different parts of the world in which it is found, few have such a wide geographical range.

We are apt to look on our orchards as the principal place to find the different insect pests, probably because they come closest under our observation; but in many cases our natural forests harbour many of them. Where the original home of the Oyster Shell scale was, it would be difficult or impossible now to determine. It has a world-wide distribution at present, but it is believed that it was first imported into the Eastern United States in the 18th century, from where it has covered the greater part of the North American Continent. It seems to be able to adapt itself to very different climatic conditions, as is evidenced by the fact that it thrives as well here in the neighbourhood of Vancouver as it does on Vancouver Island and in the "dry" country of the