discrepancy in numbers exists between the sexes. In speaking of the probable or possible life history of the species, Mr. Scudder says (page 1110): "Mr. Fletcher obtained them (the eggs) July 16-24, and they hatch in seven days. This gives ample time for the caterpillars to attain maturity and pass into pupa for the winter; but what the creatures actually do, and how winter is passed, is unknown. There is, however, certainly but one brood anywhere." It seems to me, however, that it may be mathematically demonstrated that any species of which there is only one brood in the year and which does not appear on the wing till July or the very end of June must pass the winter in the larval condition not more than half-grown.

THE LIFE HISTORY OF *EPIRRANTHIS OBFIRMARIA*, HBN.

BY REV. THOMAS W. FYLES, SOUTH QUEBEC.

Epirranthis obfirmaria is a swamp insect. I take it in "The Gomin" near Quebec, where, in ordinary seasons, it is on the wing from early in June till the close of that month. The following is a brief description of this beautiful insect:

♂. Expanse of wings one inch; length of body half an inch; length of antennæ three-tenths of an inch. Colour a rich, warm brown. The primaries have a broad ochreous band, widest at the costa, outlined with dark brown. In this band, not far from the costa, is a dark brown spot. The secondaries have the outer third of the same warm brown as the primaries, with an ochreous patch at the outer angle of it. The rest of the wing is ochreous, clouded towards the base. The marginal dark brown line of this ochreous portion is somewhat angulated. In the part of lightest colour in the wing is a conspicuous dark brown spot. The antennæ are pectinated.

♀. Expanse of wings an inch and one-fifth; length of body nine-twentieths of an inch; length of antennæ two-fifths of an inch. The marks in the wings are similar to those in the wings of the male, except that there are no brown dots in the primaries. The colours are much brighter: the darker portions are of a rich brick-red, and the lighter of a clearer yellow than in the male. The brown spots in the secondaries are small. The antennæ are filiform.

Eggs of E. obfirmaria.

The eggs of *E. obfirmaria* are laid dispersedly and unattached. They are pale greenish-yellow, small, and bluntly oval in outline. They

have minute granulations on the surface. A batch of the eggs, laid on the 14th of June in the present year, hatched on the 27th of the same month. The larvæ fed on *Vaccinium*, *Cassandra*, etc.

Newly-hatched larva.

A "looper," one-tenth of an inch long, suspended itself by a line. It was black with white patches on each segment, and presented a strangely checkered appearance. The head was large and black; the mouth-organs white. The feet also were white. The claspers were wide apart—beside them it had but one pair of prolegs. There were a few bristles at the anal extremity, and along the sides of the larva. It moulted July 3rd.

Larva after first moult.

One fourth of an inch long; brownish-green in colour; had five conspicuous brown warts on each side of the body. The head was light brown, and the legs brownish-green.

[NOTE.—The habit the larva has of eating its *exuvia* makes it exceedingly difficult to follow its changes. The insect I am telling of, however, certainly moulted on July 16th.]

Larva after moult of July 16th.

Length three-fifths of an inch. Colour brownish-ash above, with fine paler lines. The fourth and terminal segments were somewhat lighter in colour. Underneath the larva was of an Indian yellow shade. The face was flat, outlined with brown, and had two white spots near the upper edge. The spiracles were dark brown and appeared in a line of folds or broken ridges. The larva moulted July 24th. After moulting it ate its old skin all but the mask.

Full-grown larva.

Length four-fifths of an inch. Colour brownish-ochreous. It had a dorsal line faintly outlined with brown, and on either side of this a row of dark brown spots. It had also a row of similar spots just above the spiracular line. This line was pale ochreous and warty. Below it was a row of oblong, dark brown patches. The spiracles were dark brown.

The larva ceased to feed in August, and towards the middle of that month gathered a few leaves together and spun a light cocoon somewhat after the manner of *Caterpa catenaria*.