

**LIFE-HISTORY OF PERIGRAPHA PRÆSES GRT.**

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A female taken at shallows on the flats near Cowichan Bay, in 1916, laid 60 to 70 eggs on the 2nd of April. The eggs were laid somewhat regularly in a patch on the lid of a chip box attached by the base and mostly touching each other. The colour was light green and continued the same until the eggs hatched out. Shape, spherical—very slightly flattened at apex and base—the usual striations running from base to micropyle. Hatched 22nd April. Young larvae 3 mm. long. Colour of body a dirty green. Head very bright brown and wider than body. Both body and head look spotted with black. On the body it is the warts that are black, and on the head, black marks arranged irregularly. The warts extend across each segment but appear irregular—the young larvae would not keep still enough to notice particularly. The larva has four pairs of pro-legs, but uses only two pairs and the anal claspers in walking, which is a decided looping motion. The two pairs of legs are some distance away from the anal claspers. The young larva rests on the two pairs of pro-legs with the rest of the body elevated. Short hairs are emitted from the warts.

On the 9th of May, when at the end of the 2nd or 3rd instar, the larvae were about eleven millimeters long—most of them of a watery sage-green colour, with five longitudinal white stripes, of which the widest contains the spiracles; the next widest is the central dorsal line, and the others (narrower) between this and the spiracles, but rather nearer the spiracular line than the central line. There are slight black dots across each segment—the four on the dorsal area being situate on the green stripes and the other four on the white spiracular stripes. Head now small and spotted, of a lighter colour than the body, and with a tinge of light brown. The larvae vary considerably—the greens in the intensity of colour and density of the white stripes. Others have a tendency to be darker in ground colour in the direction of purplish brown. The ventral area is much the same colour as the dark stripes. They seem to prefer spirea to willow as food, but will eat both. Make use of all their legs at this stage, but still make a decided loop when walking.

On the 15th of May, at the end of the third (or fourth) instar, the white stripes are still discernable under a hand lens, but the spiracular lines are the only conspicuous ones. The general colour is a dirty brown, though some larvae are greyer. The dorsal area on each side of the central lines, as far as the two second lines, is lighter in colour than the outer area between the second lines and the light spiracular areas just mentioned. On each segment (dorsal area) are four eye-like marks with a black pupil on the inside, making the eyes look like someone squinting. The foremost pair are closer together than the hind pair. The conspicuous light spiracular line is rust colour along the middle of it.

The ventral area, including the legs, are lighter than the dorsal area, and of a greeny brown colour.

On 28th May (36 days old), having just changed skins, the general appearance considerably changed. Length 25 mm. Prevailing colour a dark umber-brown on the dorsal area, with lighter orange-brown along the spiracles and all over the ventral area, only the underside lacks the orange tinge. The dorsal central area is a lighter shade of brown than the area between this and the spiracular stripes. The central area (or stripes) on each segment, is wider on the head side than on the tail side, and makes a pattern (especially towards the tail) like a chain of shields. There are various light dots, the most conspicuous of which are those on the forward points (one on each) of the shield-like markings. Head light brown.

On the 13th June (52 days old), length 35 mm. General markings much the same as before, only the colour is rather darker brown and the shield-like markings, especially towards the tail, are outlined with very dark brown triangular markings. At this stage the larvae appear to be nearly full-fed and thicken for pupation. There is more uniformity in appearance, inter se, in the later stages.

After the early stages all the legs are used in progressing, and the larvae appear as regular noctuids. Rolls in an incomplete ring when disturbed, but is soon active again.

With regard to general habits, the larvae mostly rest during the day, either amongst the twigs of the food-plant or at bottom of their feeding cage among debris (in my case, moss was supplied). During the night they eat most voraciously.

All my larvae disappeared for pupation during the week following the 13th of June, being near about 8 weeks in the larvae stage, a firm compact cocoon was formed among the debris and moss at the bottom of the tin. The cocoon is lined with a kind of glutinous silk, and fits the enclosed pupa rather closely. The pupa is very dark brown, almost black, and of the usual noctuid shape, fairly plump and blunt, with a pair of small anal hooks.

Three moths appeared on 4th of March, 1917, while snow was still on the ground. The weather, however, was becoming mild after a long spell of snow and frost. Emergencies continued until 24th of March (forty in all). What mortality there was occurred principally in the pupa stage. I kept the pupae in an outhouse under cover, and I suppose they did not get sufficient moisture. However, the success was about 60 per cent., which is not bad.

The moths varied considerably in the markings, but could be roughly divided into these groups:

	No. of Specimens
1. Uniform dark chocolate brown, markings indistinct.....	18
2. Very dark, with the band on outer margin and the reniform and orbicular spots showing distinct but dark	9
3. Dark, with the same markings lighter and more contrasting .....	13
Total.....	40

The female parent of the brood belonged to group No. 2. It is curious that there should be fewer of this type than the others.

### A REVISION OF THE BRITISH COLUMBIA SPECIES OF THE GEOMETRID GENUS *HYDRIOMENA* HUB.

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During the past four years I have endeavoured to try and straighten out this most difficult and perplexing group, as far as it concerned our British Columbia species. I have given papers on this genus at some of our previous meetings, bringing the changes up to date as our knowledge became more extended. In consequence of further additional research, other changes have been made which brings this particular genus pretty near perfection. What has made this genus so perplexing in the past is the fact that many species which could not be conveniently placed in any other genera, were all dumped in here, with the result that there was a heterogenous mass of species which bore no apparent relationship to each other; either in maculation or generic structure.

In 1892, Mr. Meyrick, of London, England, published a "Classification of Geometrina of the European Fauna" (Trans. Ento. Socy. London 1892, Part 1, pp. 53-140), in which he endeavoured to arrange the family on the basis of invariable structure. This classification was not entirely adopted, as he had not taken into account the known existence of intermediate forms in nature. The strictest application of his fundamental rules of classification, made some of his genera, especially the one we have under consideration, cover almost sub-family differences.

The Rev. Geo. Hulst, some four years later, published a "Classification of the Geometrina of North America" (Trans. Am. Ent. Socy., Vol. XXIII., pages 245-386), and while following Meyrick's classification in the main, he made several changes, notably in this genus *Hydriomena*, separating from it five other genera which Meyrick had placed with it, viz.: *Mesoleuca*, *Cænocalpe*, *Triphosa*, *Euchoria* and *Gypsochroa*. Even then, Hulst admitted that he had drawn an artificial line in this genus, as he says: