

DESCRIPTIONS OF THE LARVA OF *MELANITIS LEDA*, AND OF THE LARVA AND THE PUPA OF *PAMPHILA MOHOPAANI*.

By HERBERT A. GREEN, F.E.S.

*Melanitis leda.*

Larva. Ground colour yellow, a median dorsal green stripe and some narrower ones on each side from head to tail. The surface of the body is roughened. The head is the only variable feature in the numerous specimens I have had. In some cases this is entirely black except for two small white spots, one on either side of the head at the lower angle close to the mandibles; in others there is only a narrow black line from the base of the horns, or projections, down the side of the head to lower angle. In all cases there is a narrow white line immediately behind and touching black on the head. Horns black in front, reddish-brown behind, and covered with bristles. Caudal processes not as long as cephalic horns, very slightly divergent. Several have been "ichneumonated" by a common dipterous fly.

*Pamphila mohopaani.*

Larva. Pale green with two white lines, divided by an equal width of ground colour, dorsally narrowing gradually at head and tail until they disappear. Head black, with four whitish marks, two small at lower angle of head, two larger extending from crown to half way down head; these two spots are divided by a thin projection of the black. Length about two inches.

Pupa. The pupa is pale greenish white, the head prolonged to a point about an eighth of an inch in length. On the under side is a fine projection starting from the middle and extending nearly to tail. One curious feature about this pupa is that the white efflorescence is deposited on the leaf before pupation and not, as in *keithloa*, appearing after pupation on the pupa itself. Feeds on Bush Guinea Grass.

Durban (Natal).

NOTES AND OBSERVATIONS.

Ephemera PRODUCING LIVING YOUNG.—It seems by the following extracts from well-known books that information with regard to the first stages of *Ephemera* is still wanting.

Leland O. Howard in 'The Insect Book' says of May-flies, "In one case a female has been seen to deposit living larvæ."

Dr. Sharp in the 'Cambridge Natural History,' vol. v., pages 432-3, speaking of the description given by Sir John Lubbock of the metamorphosis of *Cloëon*, says: "His observations were made on

captured specimens, so that it is not certain that what he calls the first stage is really such." With regard to the eggs, Dr. Sharp says, on page 441, "The eggs are very numerous, and it is thought may sometimes remain in the water as much as six or seven months before they hatch."

In view of this want of information, perhaps an experience I had some years ago may be worth recording, although my ignorance at the time of its being anything worth special notice prevented my preserving any of the young in *the very first stages*, by mounting them as micro slides, or taking detailed notes of formation, which I much regret. I may mention that from 1871 I had been much interested in pond-life in Turkey—had several small aquaria always under observation, and as the larval forms of May-flies were to be found in every pond and ditch, I kept aquaria well-stocked with them as food for other forms of pond-life. Those most common agreed with what Wilson in 'Chapters on Evolution' called "*Cloe bioculata*," except that, in the figure given on page 266, the tail-hairs are shown all three-feathered on both sides: my Turkish larvæ had the middle hair feathered on both sides, but the other two only on the inside; the figure of *Cloëon dipterum*, given on page 432, vol. v. of 'Cambridge Natural History,' is *exactly* like the Turkish forms. I frequently had the flies (both male and female) emerge from my aquaria, so I knew them well by sight as *Cloe bioculata*. I find by my note-book that it was on September 27th, 1901, I caught a female May-fly (*Cloe bioculata*) on the glass of my window, by taking hold of her wings. She at once flicked her body round, and deposited a fairly large mass of something on my finger. Thinking it might be her eggs, I put a drop of water on it, and examined it with a pocket lens. To my great surprise I found it was a "squirming mass" of living young ones. I washed them off into a small aquarium, where they found plenty of food, as an hour later when I placed some in a small tank for examination under the microscope, I could see they had been eating freely. They had only *two* tail-hairs, no "gills," five dark spots on the head, two on each side near the top of the head, and one lower down in the centre of the head nearly over the mouth: this looked as if much deeper in the tissue of the head, the others seemed to be on the skin. The next day (28th), I caught another female, she did the same thing, but in this case only a small number were larvæ, the bulk of the mass being eggs; still, on putting some under the microscope, I could see they were on the point of hatching, and some did hatch while I had them under observation. I placed these in the same aquarium with the others. After about a week, in which no changes worth taking note of took place, pressure of business and absence from home prevented my making more observations until November 7th, when on examination of the aquarium I found plenty of the May-flies alive, and grown considerably. They had three tail-hairs and gills. I found a number of cast skins, and have reason to think that at least three moults had taken place since the centre tail-hair had developed, as I found skins with this hair of various lengths. Evidently, having come into the room, these flies were unable to find their way

out again, and, unable to find water, retained their eggs until they hatched in the body, but the speed with which this happened hardly agrees with the idea that, if laid in water, they would have taken "six or seven months to hatch."

I shall be much obliged by information as to name. Are *Cloe bioculata* and *Cloëon dipterum* synonyms? I notice that Miall in his 'Natural History of Aquatic Insects' gives the name as *Chloëon dipterum*. When Doctors and Professors differ, where does the poor student come in? — WILLIAM HARVEY; Eastbourne, July 8th, 1910.

PARASITES OF CALLOPHRYS RUBI.—In the July 'Entomologist,' Dr. Chapman, when recording the breeding of an ichneumon from this species, quotes Mr. Claude Morley as saying that it "is the first parasite ever bred from *Thecla rubi*, so far as I am aware." Mr. Morley was probably thinking of hymenopterous parasites only, as dipterous parasites have been recorded. Brauer and von Berganstamm in the 'Zweiflügler des Kaiserl Museums zu Wien,' part vii., p. 72, give *Exorista confinis*, Fall, and *Exorista tritaniata*, Rond.; and Mr. Verrall has a specimen of the latter species, the laconic label of which reads—if I remember rightly—"ex *rubi* Barrett." — COLBRAN J. WAINWRIGHT; 45, Handsworth Wood Road, Birmingham.

BRITISH SCORPION-FLIES.—I have paid but scant attention to this group of insects, but Mr. Lucas's note in the last number induces me to send you the following jottings from my collection, which is named by McLachlan and Morton. *Panorpa communis* occurs in Suffolk from May 21st, through June to July 5th (once on July 26th); it is abundant, but I have never seen it with prey, always sitting on bushes or swept from herbage at Bentley, Barnby, Assington, Southwold, Henstead, Lavenham, Stanstead, Barham, Woolpit and Monks Soham. Helpston Heath, near Peterborough, June 13th, 1908. On July 2nd, 1910, I saw one in my garden here, sucking blackberry flower and standing vertically in it; on August 8th, 1901, I took one sucking Angelica flower at Matley Bog, New Forest. *Panorpa germanica* occurs in Suffolk from May 11th to June 14th only (though once on August 24th); it is common, but I have never seen it with prey, always sitting on bushes or swept from herbage at Bentley, Bramford, Henstead and Assington. Helpston Heath, near Peterborough, June 13th, 1908; Knight Wood, New Forest, June 14th, 1907. *Panorpa cognata* is very rare, and I have but once met with it; two specimens were beaten from alder bushes in Barnby Broad, Suffolk, along with *P. communis*, on July 5th, 1906. Of *Boreus hyemalis*, I possess but a single female, given me some years ago by Mr. Albert Piffard, who took it at Felden, Boxmoor, Herts; it certainly does not occur about Ipswich, whence I have examined cart-loads of moss and debris, and I should be surprised to learn that it is to be found at all in the Eastern Counties.—CLAUDE MORLEY; Monks Soham.