

XIX. *On a species of Aphideous insects infesting the bread-fruit trees in Ceylon.* By Prof. J. O. WESTWOOD, M.A., F.L.S., &c.

[Read July 2nd, 1890.]

PLATE XXI.

THE almost universal prevalence of species of the plant-sucking family, *Aphidæ*, will cause no surprise to entomologists in learning that another member of that family should have been found to occur on the bread-fruit tree in Tropical Asia. For a knowledge of this fact we are indebted to Mr. E. Ernest Green, nephew of Mr. Staniforth Green, of Colombo, Ceylon, who has on various occasions supplied me with materials which have enabled me to lay interesting matter before the Entomological Society of London.

*Siphonophora Artocarpæ.*

Læte viridis (vivens et post ultimam exuviationem) vel postea magis infuscata, thorace et fasciis transversis abdominalibus fuscis; oculis sanguineis; alis hyalinis venis gracilibus, anticis ramulo 2do venæ post-costalis pone medium ejus valde arcuato; corniculis melliferis longissimis, divergentibus setosis, obscurioribus. Species magnitudine mediocri.

On the 21st June, 1889, Mr. E. E. Green found a colony of these Aphideans feeding on the young leaves of the Jack-tree (*Artocarpus integrifolia*) in Ceylon. The following is Mr. Green's description, taken from the living specimens, given in his communication to his uncle, and forwarded by him to me:—

“The larvæ and pupæ are of a bright pale green colour (changing to dull buff when placed in spirits); the honey-secreting tubes, cornicles, or nectaries are pale brownish, and the eyes crimson. The imago-state is also bright green immediately after the final moult, but soon darkens to brownish green; with the thorax and bands across the abdomen brown; the eyes are

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bright crimson. The antennæ, legs, and honey-tubes are brownish, and the space below the eyes is brown."

Mr. E. E. Green has sent me a small bottle with specimens of this curious aphid in all its stages; asexual females, winged and wingless nymphs and larvæ, the last-named individuals varying from a very minute size to that of the nymphs or pupæ. Mr. Green watched some of the asexual females producing their living young, which are emitted tail foremost, and seem to commence feeding as soon as they are deposited.

A striking character of the species consists in the enlarged size of the cornicles or honey-secreting tubes springing from the sixth abdominal ring near the extremity of the body, common to many of the species of Aphides, especially in those composing the division to which Koch thence gave the generic name of *Siphonophora*. These tubes are stated by Mr. Green to be carried diverging and elevated at an angle of  $45^{\circ}$ ; they are sometimes as long as the whole remainder of the insect, and are strongly setose, the fine bristles set on nearly at right angles; many of the larvæ carried a drop of milky fluid at the ends of their tubes. When alarmed the insects suddenly dropped from the leaves to the ground. They are very active, and walk rapidly.

The drawings which I have made to illustrate this species are from different individuals, communicated by Mr. E. E. Green.

The first figure (fig. 1) represents a winged viviparous female. The wings are of the ordinary large size of the *Siphonophoræ* (*Aphis rosæ*, &c.), the first branch of the post-costal vein being short and oblique; the next branch is very strongly curved beyond its centre, differing in this respect from the wings of every other known species of the family; the three branchlets of the third branch are of the ordinary character and form. The hind wing is rather narrowly oval, with a minute hooklet beyond the middle of the anterior or costal margin (fig. 4).\* The honey-secreting tubes are exceptionally

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\* The post-costal vein of the hind wings in *Siphonophora* has only two branches. Mr. Buckton ('Brit. Aphides,' i., 28) calls this vein the cubitus, but it clearly represents the branched vein of the fore wing, and not the slender simple veinlet of the fore wings, to which he gives the name of the cubitus.

long and setose. The front of the head is rather irregular and slightly setose. The antennæ are beautiful objects for the microscope, arising from two or three thickened, very short, joints (fig. 2), and followed by long slender joints, each of which is composed of a vast number of minute annuli, very finely setose, the extremity of the terminal joint being shown in fig. 3.

The nymph or pupa (fig. 5) is comparatively narrow, and exhibits the rudimental wings of a small size at the sides of the "alitrunk," as Mr. Kirby styled the two wing-bearing segments conjointly; the body is terminated by a small conical point. The rostrum or proboscis (fig. 6) extends along the breast to nearly the base of the middle pair of legs (which are long and slender). In the accompanying drawing it is extended laterally beyond the sides of the prothorax.

The full-grown apterous viviparous female (fig. 7) has the body much swollen and rounded, without any traces of wings or wing-covers; the antennæ are very long and slender. The front of the head is represented in fig. 8, and the antennæ greatly magnified in fig. 9.

With regard to the destruction of the green aphides on various plants, Mr. Staniforth Green states to me, in a recent letter, that although the use of Paris-green, so strongly suggested by the American economic entomologists, has been hitherto tried in a feeble way, and without producing much diminution of these pests, it being considered that it would be too costly to be applied on a large scale.

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#### EXPLANATION OF PLATE XXI.

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- FIG. 1. The winged viviparous female.  
2. Side of head and base of antenna of ditto.  
3. Extreme tip of the antenna.  
4. Hind wing of ditto.  
5. The pupa.  
6. The proboscis of ditto.  
7. The apterous viviparous full-grown female.  
8. Front of head of ditto.  
9. Side of head and right antenna.

All the figures are highly magnified.



long and slender. The front of the head is rather irregular and slightly convex. The antennae are beautiful objects for the microscope, arising from two or three distinct, very short joints (fig. 2), and followed by long slender joints, each of which is composed of a vast number of minute anelli, very finely setose, the extremity of the terminal joint being shown in fig. 3.

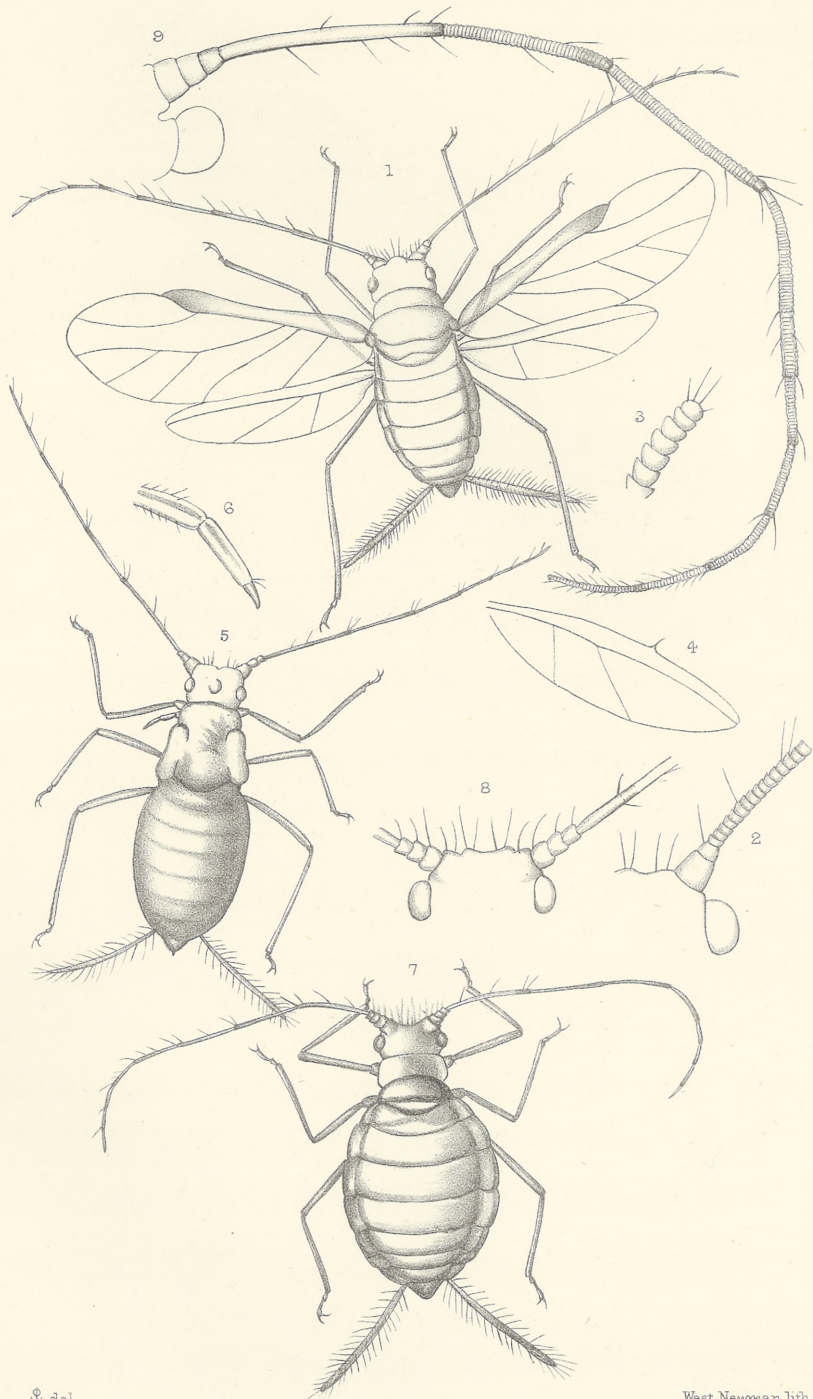
The nymph or pupa (fig. 4) is comparatively narrow and exhibits the abdominal wings of a small size at the sides of the "allium," as Mr. Kirby styled the two wing-bearing segments conjointly; the body is terminated by a small conical point. The restum or prothoracic pit is situated along the breast to nearly the base of the middle pair of legs (which are long and slender). In the accompanying drawing it is extended laterally beyond the sides of the prothorax.

The full grown aphid is a very minute insect (fig. 5), the body much swollen and rounded, without any trace of wings at any season; the abdomen has very long and slender joints, the front of the head is represented in fig. 6.

With regard to the description of the green aphid on various plants, Mr. Stålford's Green states that, in a recent history, that although the use of Paris-green is already suggested by the American economic entomologists, the green aphid is a serious pest, and without producing much diminution of these pests, it being considered that it would be too costly to be applied on a large scale.

Figures of the Great Fruit Tree of Ceylon

- 1. The whole of the Great Fruit Tree of Ceylon.
- 2. Side of head and base of antenna of the aphid.
- 3. Extremity of the antenna.
- 4. Nymph or pupa of the aphid.
- 5. The aphid on the Great Fruit Tree of Ceylon.
- 6. Front of head of the aphid.
- 7. Side of head and first antenna of the aphid.
- 8. The aphid on the Great Fruit Tree of Ceylon.



W. del.

West, Newman lith.

*Siphonophora arctica larpi*.

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