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NOTES ON THE EMERGENCE OF SUB-IMAGOES AND IMAGOES OF
THE MAYFLY *SIPHONURUS ARMATUS* EATON

THE LATE H. WHITEHEAD AND H. M. RUSSELL

THE observations set out below were initiated by the late Mr. H. Whitehead, and carried out jointly with Mr. H. M. Russell, during May 1954.

On the 18th May, 1954, eight nymphs (Nos. 1-8) were obtained by Mr. H. M. Russell, from the Scarcroft Fishpond, and placed in a large soup plate filled with pond water. Regular observations took place, and on the 25th May, 1954, two nymphs were seen at 4.30 p.m., trying to crawl out of the water. Air bubbles could be seen in the thorax and in the wing sheaths, giving these organs a silvery appearance. As the sides of the plate were slippery, a piece of filter paper was introduced and they crawled up it.

The larger specimen (No. 1) a female, emerged first. Air could be seen under the skin of the abdomen and a longitudinal fissure appeared on the dorsal surface of the thorax. Rapid pulsations then took place, sometimes on the left side of the tergite and sometimes on the right. These appeared to be due to some fluid under pressure and resulted ultimately in the longitudinal fissure widening and the thorax of the sub-imago emerging. This was followed by the head. By slowly wriggling from side to side the wings were cleared, but the abdomen was still enclosed. The 1st and 2nd legs on the left-hand side, followed by those on the right-hand side were freed. The sub-imago then pulled itself forward and drew out the abdomen. The median cercus was not present. The wings were shaken and inflated very quickly. In the female the whole process from the nymph leaving the water to the complete inflation of the wings took 15 minutes.

A similar series of events took place with No. 2 (a male); in this case the time taken was five minutes.

In both sexes it was noticed that a small drop of fluid appeared at the posterior and ran along the cerci without wetting them. This fluid may have played a part in the pulsations observed.

Times of emergence, etc., of the other specimens are set out below:

Number of Specimen	Sex	Sub-imago	Imago	Duration of sub-imago
1.	Female.	25th May. 4-30 p.m.	28th May. 11-5 p.m.	3 days.
2.	Male.	25th May. 4-30 p.m.	During night of 28th 29th May.	3 or 4 days.
3.	Female.	26th May. Between 8 a.m. and 6 p.m.	29th May. 9-15 p.m.	3 days.
4.	Male.	27th May. Between 8-30 a.m. and 3-30 p.m.	During night of 29th 30th May.	About 3 days.
5.	Female.	28th May. Between 8-30 a.m. and 1-30 p.m.	30th May.	2 days.
6.	Female.	28th May. Times as for number 5.	30th May.	2 days.
7.	Male.	28th May. Times as for numbers 5 and 6.	30th May.	2 days.
8.	Female.	31st May. 3 p.m.	Died as sub-imago.	

An addition to the Yorkshire Diptera List.—While collecting diptera from decomposing sap exuding from a wound in the trunk of a Horse Chestnut *Aesculus hippocastanum* L. in Kidhurst Wood, Scarcroft (V.C. 64) on July 21st, 1955, I took two specimens of *Periscelis* (*Microperiscelis*) *annulata* Flin. This species is an addition to the Yorkshire List. Members of the Periscelidae are uncommon and according to Colyer and Hammond, *Flies of the British Isles* (1951) usually occur at tree wounds, in the decomposing exudations from which the larvae are said to develop. Of the five species known from the Palaearctic Region only one, *Periscelis* (*Microperiscelis*) *heegeri* Duda, appears to have been described completely from egg to adult.—H. M. RUSSELL.