DISCOVERY OF THE LARVA OF NYMPHOMYIA IN JAPAN AND ITS MORPHOLOGY

Tsukane YAMASAKI

Department of Natural History, Faculty of Science, Tokyo Metropolitan University, Fukazawa, Setagaya-ku, Tokyo, 158 Japan

In the spring of 1932, Dr. M. Tokunaga collected a small peculiar fly with wings like those of thrips and with a body like that of a certain trichopteran larva. In the same year, he described this fly as a new genus and species under the name of Nymphomyia alba belonging to the new family Nymphomyiidae (Tokunaga, 1932). Then, a splendid and complete morphological work on this fly was given by him (Tokunaga, 1935a). This species seems to be so rare in Japan that it has been collected by only a few entomologists since Tokunaga's discovery.

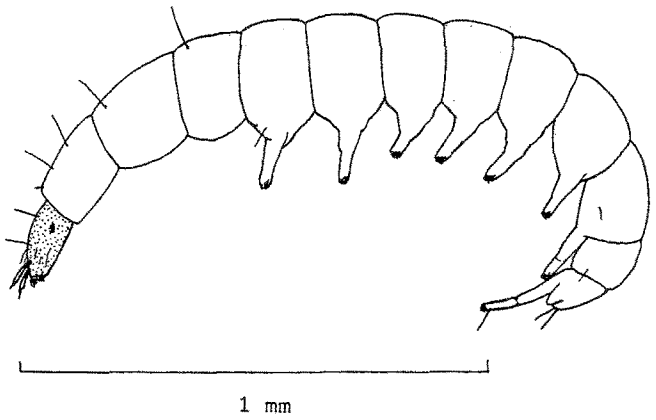
This nymphomyiid fly shows the characters of Cyclorrhapha rather than Orthorrhapha, while its antennae are of Brachycera and the structure of abdominal end is of Nematocera. These states may be compared to those of Epiophlebiidae in Odonata. In the autumn of 1934, a dozen of pupal exuviae of N. alba were also taken by Dr. Tokunaga. From the study of pupal structure, it became clear that this fly belongs to Nematocera (Tokunaga, 1935b), but its affinity in Diptera remained unclear. Therefore, it was considered that if larval form of this fly is known, some informations to show affinity will be obtained. However, any larva was not discovered in Japan.

In 1965, 33 years after Tokunaga's discovery of N. alba, another new genus and species, Palaeodipteron walkeri, belonging to Nymphomyidae was discovered in Canada (Ide, 1965), and then, in 1970's, one more genus and two new species were added to the family from eastern Asia (Cutten and Kevan, 1970; Rohdendorf, 1974). Of these, larva was confirmed in Palaeodipteron of Quebec and in Nymphomyia of Maritime Territory of USSR, but larval morphology has not solved the problem of affinity in Diptera.

I have paid attention to this fly in relation to analogical pattern with distribution of Notoptera (Grylloblattodea). Recently I had an opportunity to examine a nymphomiid larva from Hokkaido through the courtesy of Mr. N. Kobayashi, Tokyo. He took this larva from the back of an ephemeropteran nymph when sorting aquatic insects. This seems to be an example of phoresy shown by ephemeropteran insect. The record from Hokkaido may be the first one of Nymphomyiidae in this district, though the larva can not be identified to be conspecific with N. alba. The habi-

tus of this larva (Fig. 1) is more closely related to Nymphomyia than Palaeodipteron. Details of larval morphology and collecting site will be reported elsewhere.

Fig. 1.



Finally, it is pointed out that embryological study of this fly may give important informations suggesting its affinity among dipteran families.

References

Cutten, F.E.A. and D.K.McE. Kevan (1970) Can. J. Zool., 47:1-24.

Ide, F.P. (1965) Can. Entmol., 97:496-507.

Rohdendorf, B.B. and N.S. Kalugina (1974) Entomol. Obozr., 53:686-694.

Tokunaga, M. (1932) Annot. Zool. Jpn., 13:559-566.

----------. (1935a) Philip. J. Sci., 56:127-214.

----------. (1935b) Mushi, 8:44-52.