

Notes on *Phalacrocera* Species, an Aquatic Crane Fly

(Diptera, Tipulidae)

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In November, 1929, two very remarkable creatures, apparently insect larvae, were brought to me with the embarrassing question "what are they?"

They were bright green, exceedingly slow-moving larvae about half an inch in length, living in a culture of pond weed *Nitella*. They adhered tightly to the stems of the plant and resembled these almost exactly in colour. They were equipped with slowly-waving, long, bifurcated, filamentous gills distributed all over the back and sides, of a type which I had never seen in any insect before.

At first I thought they were the larvae of the Pyralid moth sub-family *Hydrocampinae* which are largely aquatic, especially species of the genus *Nymphula* or *Paraponyx*.

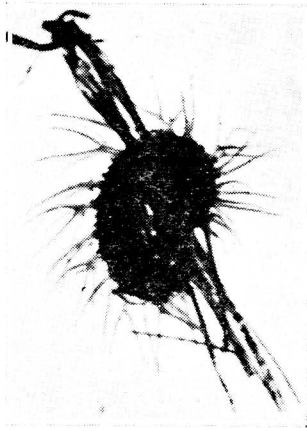
I covered the jar of weed to await developments. The movements of the larvae were so slow as to be barely perceptible. All day long they would remain in one position or alter it very little but by the next day they would be an inch or two away. They remained generally in an area about half, to one inch, below the surface of the water.

In a few days time the larger larvae had pupated and I knew at once that the insect was not a moth. The last larval skin was shed entire and remained loosely attached to weed, while the pupa floated at an angle of about 30° to the surface, with two short pronotal breathing horns extending out from the body. In exactly seven days the pupa split and right in front of me on the table a delicate fly emerged—a Crane fly, and very shortly afterwards climbed up the side of the glass in which it was contained. The empty pupal case floated in the water so I added it to the vial of alcohol containing the last larval skin.

I keyed the fly down to the genus *Phalacrocera* and hunted for mention of it in literature. It belongs to the Group *Cylindrotomini* of the Tipulidae about which Alexander says in the ANNALS (ANNALS Ent. Soc. of America. Vol. XI., 1918, where it is quoted by Cameron) "the structure of the adult flies, especially as regards certain details of the venation, is quite unique, but it is in the immature stages of the different genera that the most interesting distinctions are found. The larvae, instead of living in the mud along the banks of streams, or in rotten wood, as do the majority of the known crane fly larvae, are found on the leaves of various terrestrial and aquatic plants; instead of being brown or grey in colour, they are bright green and usually resemble the leaves of their host plants to a very remarkable degree."

Of the Group **Cylindrotomini** I find that five larvae only are known (belonging to four genera), two aquatic and three terrestrial. Four are Palearctic; one (terrestrial), is Nearctic.

Meantime I photographed the other larva as it lay under water in a Syracuse watch glass, tightly curled around a stem of weed (see illustration). It was done just in time because by next morning, the larva had



Mature larva of PHALACROCERA VANCOUVERENSIS, Alex.
an aquatic Crane fly. Magnification $3\frac{1}{4}$

pupated. The adult in this case also, emerged in exactly seven days under ordinary room temperature. Curiously enough, both adults emerged from the pupal cases between twelve noon and one o'clock.

I sent one specimen to Dr. Charles Alexander of Massachusetts, the international authority on Crane flies and in part, in a letter just received, he says, "I have been able to identify this fly as **Phalacrocerus vancouverensis** Alex. (Can. Ent. Vol. 59. pp. 189-190, Aug., 1927.) I had described this species from a single female taken on April 10, 1922, by W. B. Anderson at Vancouver, and now preserved in the Canadian National Collection. I may say that the specimen you sent differs from the type in the venation of the radial field, though from the tracheation of the veins I feel relatively certain of the identity. If it is not **vancouverensis**, it would be an undescribed species of this genus."

He goes on to say "The only literature available on this genus pertains to the genotype **replicata** Linn. of Europe. Any notes that you may give on the biology of this genus will, therefore, be of extreme interest and value."

I am indebted to Miss Jean Davison, of the Department of Botany, who collected the **Nitella** last autumn and to Miss Josephine Hart, of the Department of Biology, for having picked out the two larvae and for bringing them to me.

Further work on the biology of these flies will be carried on at the first opportunity.