NOTES ON A NEW DIPTEROUS INSECT BELONGING TO THE FAMILY *CECIDOMYIDÆ* INFESTING GRASS; ALSO ON TWO HYMENOPTEROUS INSECTS PARASITIC UPON THE FORMER.

By Frederick A. A. Skuse.

At our meeting in May last, Mr. Macleay exhibited some malformed grass, which he described as infested with a minute grub, which lived in the stem and caused a thickening of it, and which he suspected to be the grub of a minute dipterous insect, probably belonging to the family *Cecidomyidæ* or gall-gnats. Subsequently Mr. Macleay handed the grass over to me for investigation. When I first saw it I recognised the larvæ and habits of the *Cecidomyidæ*, and I have since carefully watched for the advent of the perfect insect. On December 5th, the first imagines emerged, and they have continued to come out in a very irregular manner up till the present time. Only a small number of the flies have emerged compared with the quantity still remaining in the larval state. This evening I have for exhibition a box of specimens illustrating almost the whole life-history of the insect in question.

The fly belongs to the genus *Lasioptera*, and although the habits of this species are in some particulars similar to those of the so-called "Hessian-fly" (*Cecidomyia* (*Diplosis*) *destructor*), which has for more than a century proved exceedingly destructive to wheat in America and elsewhere, the two insects are very distinct in appearance and belong to totally different genera. It is not at all likely to attack wheat, or in fact anything but the species of grass upon which it has been discovered, as most of the larvæ of the gall-midges live exclusively in a certain species of plant only. Further than this —each species always attacks the same part of a particular plant;

and every part of the plant, from the root to the flower, is liable to an attack from a distinct form of *Cecidomyidæ*. The "Hessian-fly" lays its eggs on the leaves of the wheat, and the larvæ when hatched make their way down the leaf and congregate within the sheath. Although my acquaintance with the insect before our notice dates only from an advanced stage of the larval state, I feel convinced, from the appearance of the stem, that the eggs are deposited in that situation in the first instance and not on the leaf or spathe. The larvæ are found concealed in the stalk under the spathe (without any other indication of ingress than a microscopic puncture which I presume to have been made by the female ovipositor), where they form delicate white filmy cocoons previous to assuming the pupa state. The larvæ are of a bright saffron or orange colour, and are in length about a line and a-half when full grown. I exhibit specimens of these dried, and in spirit, also the cocoons and pupæ. I have also made enlarged sketches of the insect in larva, pupa and imago states, in order that you may be better enabled to distinguish their appearance, the specimens themselves being so diminutive. I am unable to state the length of time this insect remains in the larval state. These particular individuals were for some time enclosed in a dark box, but emerged a few days after having been transferred to another case with a glass cover, and placed in the sun. From what I have remarked with reference to the cocoon, it will of course be inferred that the insect undergoes its metamorphoses in the grass. Many larvæ of the *Cecidomyidæ*, however (including the genus *Lasioptera)*, leave the food-plant and conceal themselves under ground to undergo their transformations.

I refrain from now giving a description of this interesting insect, which I propose to call *Lasioptera vastatrix* (in allusion to its destructive character), as it will be included in a monograph of the Australian *Cecidomyidæ* which I hope to read at our next meeting.

Two small species of Hymenopterous insects belonging to the *Proctotrupidæ* emerged with the specimens of *L. vastatrix*, and are evidently parasitic upon it. They appear to be species of

Platygaster. Like the *Ichneumonidæ* the members of this group are parasitic in their habits, the females depositing their eggs in the eggs and larvæ of other insects, and attacking especially the larvæ of the *Tipulidæ*, *Aphides*, and *Lepidoptera*. They are particularly serviceable in checking the over-production of some of the *Cecidomyidæ* infesting cereal plants. There exists an enormous number of species spread all over the globe, and the German forms alone are referred to 150 or more genera.