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MISCELLANEOUS.

Note on the Hop-fly. By FRANCIS WALKER, Esq.

THE alternate generation of Aphides, or the succession of winged to wingless broods, is an interesting part of their history, and the more so, for its consequence in many species is the migration and change of food of the winged insects. Thus the Hop-fly (*Aphis Humuli*) is hatched on the sloe, and the second generation passes thence to the hop, which is much exhausted by the third and fourth broods, but these decrease in number or disappear after awhile, and then the *Aphis* returns to the sloe.

On the Parasitical Nature of the Rhinanthaceæ. By J. DECAISNE.

Since DeCandolle established by ingenious observations and accredited by the authority of his name the separation of parasitic plants into two groups, physiologists have generally admitted it as a well-established law. It is known in fact that the phanerogamous plants which are parasitic upon the stems of other vegetables have green leaves, while those upon roots do not possess true leaves, contain no green colouring matter, but are generally of a whitish, yellowish or violet colour: in other words, they appear blanched or sickly when compared to other plants; their leaves, or the scales with which their stems are provided, are generally without epidermic pores. The absolute character of the law advanced by DeCandolle has however been recently modified by the observation of Mr. W. Mitten of a plant (*Thesium Linophyllum*) parasitic upon roots and nevertheless provided with green leaves.

The observation of Mr. Mitten immediately called to mind a fact I had long noticed, that is, the impossibility of cultivating plants belonging to the group of the true *Rhinanthaceæ*. Wishing to introduce into cultivation the purple cow-wheat (*Melampyrum arvense*), I frequently sowed the seed, which however all perished a few days after their germination without my being able to account for this want of success. The same applies to species of *Pedicularis* and *Euphrasia*: removed with care from the field and transferred with every possible caution into our gardens these plants soon dry up, in a few hours they become black and so brittle that they appear to have been scorched. Bearing in mind these facts, the question suggested itself, whether the uncultivable *Rhinanthaceæ* might not be parasitic plants; in fact, their rapid death in our gardens and their injurious effects upon the neighbouring plants, a fact well known to cultivators, led me to suspect their parasitic nature. The observation which I have the honour to bring before the Academy settles this question. The species of *Alectorolophus*, *Melampyrum* and *Odontites* are true parasitic plants which fix themselves to the roots of grasses, shrubs or even trees by numerous suckers. These suckers are arranged on the branched and delicate rootlets of *Melampyrum* in the same manner as on the filaments of *Cuscuta*; the parasitic rootlets are in close contact with the young roots of the plants upon which they feed; the point of contact is indicated by a swelling.

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