

alence of the notion that the Aphides eject the honey-dew through the cornicles; Kyber, Kaltenbach, Forel and others, who held to the views of Bonnet.

It can, however, be easily ascertained that the honey-dew is excreted exclusively through the anus and never by the cornicles. When an ant strokes an Aphis with its antennæ, a clear drop appears, always at the end of the abdomen, whilst the cornicles excrete nothing. On the other hand, if an Aphis be picked up in the fingers, or if it be touched with a straw, a tiny drop at once appears at one or both cornicles, which is always coloured.

Certain authors have held that these appendages formed part of the respiratory system, a theory clearly erroneous. Witlaczil has even thought that they appertained to the urinary system, but, on the one hand, the product of the basal glands of the cornicles does not show any of the uric acid reactions; and, on the other hand, Kowalevsky has demonstrated that in the Aphides the end of the intestine is functional as an urinary organ in the absence of the Malpighian tubes. Professor Knor's analysis, published by Büsgen, proved that the viscous liquid excreted through the cornicles is a waxy substance.

"In order to understand the object of this waxy matter, one should observe a colony of living Aphides. It can then be seen that the colony rids itself of its excreta through the anus in the form of clear drops, especially when they are stroked by their friends the ants; during this operation their cornicles are quiescent and inactive and show no change. But if an aphidophagus insect, particularly a Coccinellid or the larva of a Chrysopa, approaches a plant louse, the latter puts out at the tip of one or the other cornicle a tiny viscous drop, aims the cornicle towards its enemy and endeavours to apply the drop to the head, the jaws or the thorax. If this manœuvre is successful, the enemy retires at once and does all it can to rid itself of the adherent drop, which dries at once, and which is apparently extremely disagreeable to it." Hence Dr. Horvath defines the cornicles thus:

"The cornicles of the Aphides are the excretory canals of wax-producing glands differentiated in a special manner, and the product of which is a means of defence against the Coccinellidæ and the Chrysopidæ."

Those unfurnished with cornicles do not need this protection, since some live underground and others are covered with a waxy secretion. There are few Aphides unprovided with either of these means of defence.