The furrow is here within coalesced with the inner side of the
labium, and though I see in the entire structure of the head the
inner edge of the ligula tube
extended under the epipharynx
as far as the mandible, I must
also accept the fact that here
also the hypopharynx extends to
the mouth-opening as in all other
sucking insects with a well-developed
under-lip, viz. the Diptera
and Hymenoptera. A portion of the inner surface
of the tube-like ligula is
covered by a furrow-like band which, close to the inner side, is
coalesced with it, and in position, shape, as well as its appendages
or teeth on the edge, may be
regarded as nothing else than
the hypopharynx.
A hypopharynx is also present
in the highest Lepidoptera,
Burgess having detected it in
Danais archippus. He states
that the hypopharynx forms
the floor of the pharyngeal
cavity; “it is convex on each
side of a median furrow (Fig.
78, hph) and somewhat resembles
in shape the human breast.
The convex areas are dotted over with little papillæ, which possibly
may be taste-organs.
As a piercing organ the hypopharynx reaches its greatest development
in the Siphonaptera and Diptera, where the chitinous parts are
greatly hypertrophied, the fleshy tongue-like portion so developed in
the mandibulate orders being greatly reduced. The chitinous parts are
alike on each side of the median organ, being bilaterally symmetrical.
In the fleas the hypopharynx is a large, slender, unpaired, long,
chitinous trough, as long as the mandibles, and toothed at the end.
Figures 79 and 80 show its relations to the other parts of the mouth;
in Fig. 79, x, is seen where the salivary duct opens into the pharynx.
Although this organ is not unanimously referred to the hypopharynx,
yet from the description of Landois and others, it is evident that
this structure does not correspond to the labrum or epipharynx, but
belongs to or arises from the floor of the mouth, and, being in close
relation to the labium, and also receiving the salivary duct, must be
a true hypopharynx
This membrane, after passing towards the sides of the tongue, returns to the
angle of the nucleus, or rod, over the under surface of which it is probably continued.
The rod passes through the tongue from end to end, gradually tapering
towards its extremity, and is best studied in the queen, where I trace many
nerve threads and cells.
It is undoubtedly endowed
with voluntary
movement, and must
be partly muscular,
although I have failed
completely in getting

any evidence of striation. The rod on the underside has a gutter, or trough-like hollow