

Worms, or Warbles), reside in tumours beneath the skin of the animal attacked, for example the ox bot-fly; *Cervical*, when the grubs burrow into the maxillary and frontal sinuses, through the nostrils, as is the case with the sheep breeze-fly; or *gastric*, when the grubs, called in this case bots, are introduced into the stomach, like those of the horse gad-fly.

We gather from various sources that the horse, sheep, ox, ass, reindeer, rhinoceros, stag, antelope, camel, hare, rabbit, rat and mouse are subject to the attacks of these insects, and it is mentioned as a singular anomaly that some of the genera which contain the largest species among them, inhabit the smallest animals.

These insects whose habits are so formidable, and whose economy is so extraordinary, have the appearance of large hairy flies, the hairs being often coloured in transverse bands.

Having thus learned something of the general history of the breeze-flies, let us now take them in order and more minutely examine the three several species we have alluded to.

1.—THE HORSE BREEZE-FLY (*Estrus [gasterophilus] equi*, FAB).

Fig. 25. Male.



M. Joly thus describes this fly. The head is large and obtuse, the face light yellow with whitish silky fur, the eyes blackish, the antennae ferruginous, the thorax grey, and the abdomen of a reddish yellow, with black spots. The wings are whitish, not diaphanous, with a golden tint, and divided by a winding band of blackish colour; the feet are palish yellow. The body of the female, fig. 26, is long, tapering and sharp pointed, while that of the male is round and obtuse.

No quadruped is more infested by the breeze or bot-fly than the horse. During the months of July and August when horses are generally turned out to grass, the *Estrus* frequents the pastures for the purpose of laying its eggs. We will refer here to Mr. Newman's description of extracts from Mr. Clark's masterly essay.

Fig. 26. Female.



The female *Estrus* in approaching the horse for the purpose of depositing her eggs, carries her body nearly upright in the air, the protruded ovipositor being curved upwards and inwards. Suspending herself for a few seconds before the part of the horse on which she intends to deposit it is covered. She then leaves the horse at a small distance, and poising herself before the part deposits it in the same way: the liquor dries, and the egg becomes firmly glued to the hair. This is repeated until four or five hundred eggs are sometimes placed on one horse. The skin of the horse is usually thrown into a tremulous motion on the touch of the insect, which merely arises from the very great irritability of the skin and cutaneous muscles at this season of the year, occasioned by the heat and continual teasing of the flies, till at length these muscles appear to act involuntarily on the slightest touch of any body whatever.

The fly does not deposit her eggs at random on the horse's body, but selects those parts which are most likely to be nibbled by the horse. The inside of the knee is frequently chosen, but all naturalists must have remarked how commonly the eggs of the bot are deposited on that part of a horse's shoulder which he can never reach with his mouth, and thus to a casual observer it would seem they must perish and fail in the object for which their parent designed them. Now there is a provision of nature which exactly counteracts this difficulty. When horses are together in a pasture and one of them feels an irritation on any part of the neck or shoulder which he cannot reach with his mouth, he will nibble another horse in the corresponding part of his neck and shoulder, and the horse so nibbled will immediately perform the kind office required, and begin nibbling away in the part indicated.

posit the egg, she suddenly darts upon it, and leaves the egg adhering to the hair. She hardly appears to settle, but merely touches the hair with the egg held out on the projected point of the abdomen or ovipositor as it is called, the egg adhering by means of the glutinous liquor with which