Article VIII.—NOTES ON TRICHOBIUS AND THE SYSTEMATIC POSITION OF THE STREBLIDÆ.

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The genus Trichobius was erected by Gervais in 1844 for the reception of T. parasiticus from South America. Since that time two other species have been added: T. molossus Gigl. from eastern Asia, and T. major Coq. from the southern part of the United States.

The American Museum has recently come into possession of a number of specimens of T. major Coq., collected last March by Prof. J. H. Comstock and Mr. Carl Hartmann in a cave at McNeil, near Austin, Texas. All of the specimens were found on bats belonging to the species Myotis incautus Allen. As this Dipteron has never been figured, I take this opportunity to present some of the details of its structure and to give a more complete description than that given by Coquillett.

Trichobius major Coq.

Canadian Entomologist, 1899, p. 334.

Head small, scarcely one third as wide as the thorax, rounded in front and much constricted behind, provided above with numerous large bristles, below clothed with more delicate hairs. Eyes very small; each composed of eight ommatidia, a central one and a single circle of seven others. All the ommatidia are distinctly separated and of hemispherical form. The integument surrounding the eyes is white and membranous, while the remainder of the head is darker and much more thickly chitinized. Palpi large, greatly flattened, and hairy, each with a single very large macrochaeta at the tip, projecting far beyond the front margin of the head. Proboscis short, its basal segment of soft consistency and much swollen, the terminal portion sharply pointed and apparently adapted to piercing. Antennae composed of two joints of nearly equal size; the first slightly cup-shaped and partially enclosing the second on the dorsal side.

Thorax nearly circular in outline when seen from above, divided at the middle by a transverse suture which is marked by a sharp black line; the anterior half is also divided laterally by a median longitudinal suture similarly marked. Dorsum shining, finely hairy at the middle, and growing bristly toward the sides. Scutellum rhomboidal, bare, except for a transverse row of eight long, backwardly directed macrochaetae.

Abdomen considerably longer and narrower than the thorax, distinctly angulated at the sides near the base, the angulation provided with a dense brush of reddish bristles; at the tip with finer and less distinct bristles, these latter, however, quite conspicuous in the male.

Legs very stout; the femora considerably swollen, hairy, especially above where the hairs are very long. Tibiae gradually dilated toward the apex. Tarsi with the four basal joints of nearly equal length, together hardly longer than the large fifth joint; claws sharp, with a large lobe at the base; empodia large, fleshy.

Wings oval, slightly longer than the body, tinged with brown, the veins yellowish brown. Costal vein extending as far as the tip of the third vein, the cilia at its base very weak. All the wing veins of nearly equal strength, beset with fine bristles.

In all of the specimens which I have seen (some 25), the color is deep reddish yellow everywhere, except on the discal portion of the abdomen, where it is light grayish yellow.

The males and females are very similar in size and form, and can be distinguished only by the contour of the external genital organs. Some sections through the abdomen of a male specimen show large bodies of irregular polyhedral shape which fill out almost the entire cavity. These seem to consist of a gelatinous, yolk-like substance, and at first sight might easily be mistaken for maturing eggs. The testes are, however, plainly visible, extending along each side of the median line in the anterior portion of the abdomen.

The three families, Nycteribiidae, Streblidae, and Hippoboscidae, have always been considered as more or less closely related forms, and the three are usually separated and regarded as quite distinct from other Diptera.

Recently Speiser has summarized the more important characters of the Streblidae, which serve to distinguish them from the Hippoboscidae on the one hand and from the Nycteribiidae on the other. Briefly stated they differ from the former

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1 Archiv f. Naturg., Band L (1900), p. 33.
by the relatively large and freely movable head; the small size and degenerate structure of the eyes, or even their complete absence in some forms; by the large, dorso-ventrally flattened palpi, which do not form a sheath for the proboscis as in the Hippoboscidae; and by the wholly different wing venation. Differences from the Nycteribiidae are not so evident. They rest principally on the different form of the head, thorax, and legs.

An examination of the wings of *Trichobius* reveals the fact
that they are of a very generalized type, since the veins are
distributed evenly throughout the entire extent of the wing.
There are six longitudinal veins, all nearly parallel; and three
cross-veins, anterior, posterior, and anal, the latter much fur-
ther from the base of the wing than in other Muscidea. This
is in sharp contrast to the Hippoboscid wing, in which the
veins are all shifted forward toward the anterior margin, leav-
ing their whole posterior portion devoid of venation. From
this it is plainly evident that the Streblid wing cannot be de-
rivered from one of the specialized Hippoboscid type. With
regard to the condition of the eyes in the two groups, exactly
the reverse is true. The Hippoboscidae still retain these organs
in a comparatively large and complex form.

If derived from a common stem, therefore, the two groups
must have been separate since the time when both possessed
generalized wings and eyes, the Hippoboscidae later developing
their characteristic wing venation, and the Streblidae under-
going a degeneration in the structure of the eyes. Of these
changes the alteration of the venation is by far the more pro-
found. Such a form must have been quite different from
either of the two modern groups.

The different habits of the two can hardly be urged as a dis-
tinction of importance, since the Hippoboscidae are known to
be parasitic on both birds and mammals, showing a greater
diversity among themselves, than from the Streblidae, which
are confined almost exclusively to bats.

It seems on the whole, however, that we have to deal with
a most anomalous group, which is certainly quite different
from the Hippoboscidae and more generalized.