

coating process enables the observer to follow the movements of the larva as it proceeds with its work. In one instance when the larva had completed its cocoon I made a hole in it by removing a small part of the wall. I then placed the cocoon in the breeding vial with the hole in contact with the sand but the larva failed to repair the damage done and died after a few days. When first finished the cocoon is the same color as the sand composing it but later changes to a light chocolate color.

While feeding the larva passes no faeces. All faecal matter is retained in the posterior part of the alimentary canal until the cocoon is completely formed. It is then discharged in the posterior part of the cocoon to which it adheres in a dark, chocolate-colored, sticky mass. No part of this faecal matter is used in the construction of the wall of the cocoon.

The number of brood chambers a single wasp will provide was not learned since all the nests that were opened were incomplete. The largest number found was eight and of these, four contained only larvae of parasitic flies. In one brood chamber I found twelve mature fly larvae. In what way the fly introduces her eggs (or larvae) into the brood chamber of the wasp was not learned. The first act of these fly larvae, doubtless, is to devour the egg of the wasp. They then devour the grasshoppers. In every brood chamber in which I found one or more fly larvae, no egg or larva of the wasp could be found.

On December 24, 1920, I opened two more nests of *T. brevis*. I found a number of cocoons of which four were removed without any damage, the others being crushed or cracked in digging. In every case these cocoons were empty. The four showed that the wasp had broken out of the cocoon and escaped in the usual way, for, as is the rule in such cases, the anterior end of the cocoon was open and the cocoon was packed full of sand, which had been forced back into it by the wasp as she dugged her way out of the ground. Where do these wasps spend the winter, and how do they spend the time from spring to September while waiting for the grasshoppers to grow to a size that will make them suitable for food for the next generation of wasps?

FURTHER NOTES ON AMBOPOGON HYPERBOREUS GREENE. (DIPTERA.)

BY CHARLES T. GREENE, *U. S. Bureau of Entomology.*

When I described this species¹ I had but one male specimen and was unaware that it was not fully colored. At the present time I have four additional males and a female. Since I have

¹A New Genus in Scatophagidae (Diptera), C. T. Greene, Proc. Ent. Soc. Wash., vol. 21, no. 6, June, 1919.

studied these specimens I find it necessary to make two corrections to my first paper and add the description of the male antennae.

Female.—Resembles the male. Front sub-shining, yellowish red, paler towards the antennae. Ocellar triangle shining black. Antennae short, pale yellow. First joint very short with a row of black bristles along the apical edge; second joint twice the length of the first with numerous black bristles on the outside reaching up to upper inner surface; bristles much longer on lower front edge; one large bristle on upper, apical edge; inner surface covered with numerous short, yellow hairs; third joint rounded apically, slightly infuscated and covered with short yellow pubescence; one and one half times longer than wide. Arista long, black, slightly thickened and reddish yellow at the base; located on dorsal basal third of third joint. Face short, broad, white, with the white extending upon the sides slightly above and below the base of antennae. Numerous, short black bristly hairs along the lower, lateral edge of the head. Dorsum of thorax and pleura shining yellowish red; dorsum of thorax clothed with numerous short, black, bristly hairs; in certain lights the middle and sides are narrowly blackish. Two pairs of dorso centrals. Scutellum yellowish red; two pairs of long bristles. Two sternopleurals, the front one sometimes quite weak and hair like. Abdomen shining black; five segments visible, the sixth very narrowly visible; first segment longer than any of the following segments, reddish at the base; second to fifth about equal in length; dorsum of abdomen with numerous short, black hairs and a very narrow, median, bare line or area. Fifth segment with one large bristle on each side at the apex. Venter with numerous short, bristly hairs. Front coxae long, robust, white pollinose; middle and hind coxae more normal and reddish yellow. Legs more normal, reddish yellow except the apical half of the front femora, tips of front and hind tibiae and front tarsi blackish brown; middle and hind tarsi with a brown infuscation. Length of front metatarsus equal to the remaining four joints; middle and hind metatarsi a little longer than the following four joints. Wings hyaline, a brownish infuscation along the costal edge; veins brown; yellowish at base of the wing. Halteres reddish brown at the base, knobs large, lemon yellow.

Length, 5 mm.

One specimen from Mt. Moscow, Idaho, July 25, 1920, R. C. Shannon, collector. Deposited in the collection of U. S. National Museum.

The male antennae are very much like those described for the above female with the following differences: Bristles on apical edge of first joint more yellowish; second joint with fewer black bristles on the outside surface and very few yellow hairs on inner surface; the bristle on upper, apical edge larger and located more towards the inside; third joint more rounded, whitish yellow and no infuscation. Arista same but paler at the base. The thorax may be variable from reddish to nearly black; pleura is generally darker than the dorsum. Two pairs of dorso centrals. In the type the front pair was so weak that I mistook

them for the hairs covering the surface. Two sterno-pleurals, the front one sometimes very weak.

Four males from Mt. Moscow, Idaho, July 25, 1920, R. C. Shannon, collector. Deposited in the collection of U. S. National Museum.

The following note on the habit of this species was given to the author by Mr. Shannon: "Occurs near summit of Moscow Mountains (Cedar Mountain of government maps,—a name not in local use) where the slope is moist and there is a heavy growth of cedars. The females may be collected by sweeping the undergrowth but the males are found strutting about on the fallen logs, displaying their charms as proudly as the partridge on the log in the drumming season."

THE MALES OF THE ICHNEUMONID GENERA MYERSIA AND THAUMATOTYPIDEA, WITH DESCRIPTIONS OF NEW SPECIES.

(HYM.)

By R. A. CUSHMAN, U. S. Bureau of Entomology.

Among the undetermined Ichneumonidae in the National Collection I have recently found what I am confident are the males of these two anomalous genera together with an undescribed female *Myersia*, and another new species of that genus has been received from C. W. Johnson of the Boston Society of Natural History.

As pointed out in an earlier paper¹ these two genera should be referred to the Stilpnini.

Genus **MYERSIA** Viereck.

The two new species of this interesting genus described below extend the known range of the genus to Maine and British Columbia, and double the number of known species. The females may be separated by the following key:

Key to females.

1. Temples broad, flat and nearly straight behind eyes; first tergite increasing gradually in width from base to apex, the spiracles not prominent; a large species, 6 mm. *grandis*, new species.
Temples narrow, convex and receding; first tergite increasing suddenly in width beyond the prominent spiracles; smaller species. 2.
2. Pale rufous *pallida* Cushman.
Black 3.
3. Subapical flagellar joints fully as long as thick; postpetiole at apex little more than twice as wide as petiole *johnsoni*, new species.
Subapical flagellar joints thicker than long; postpetiole at apex nearly three times as wide as petiole *laminata* Viereck.

¹Proc. U. S. Nat. Mus., vol. 55, 1919, p. 521.