

turity the yellow spots are quite faint and a blackish shade extends up from the eyes widening to the vertex. Jaws black; antennae white. Body smooth, the conical piliferous elevations represented by brown spots. The processes on joint 2 are relatively much smaller and without spines. A slight dorsal elevation on joint 3 posteriorly, just covered by the end of the first dorsal patch. Tails spined as before and marked the same. The extensile threads are dark purplish black, once annulated with purplish white. Dorsal patches much as before, the second, third and fourth strongly confluent, the second and third most so. The second is marked centrally with many dark crimson spots, with which color all the patches are narrowly edged inside the yellow border. At maturity the color of all the patches fades to lilac and a number of yellow spots appear in the second one, its outline anteriorly becoming irregular. Body yellowish green with a transverse row of purple-brown spots on each segment, more numerous subventrally, and a number of whitish spots, which are thickest at the spiracles giving the appearance of a stigmatal line. These are also found on the dorsal patches, and on the anal plate are partly confluent, replacing the purplish brown. The spots on the patch on joint 2 are yellowish like those on the head. Spiracles dark reddish brown, partly surrounded by a similarly colored but paler spot. Venter whitish, at maturity green, a reddish ventral line on joints 12 and 13. Purple spots on the bases of the legs and on the legless

segments. Feet green, marked with brownish.

At the anus, beyond the upper anal plate, are two erect spiny hairs which serve to project the frass to a considerable distance. Length of larva 35 mm.; of tails 5 mm.

Cocoon. Formed on a piece of wood first of gummy silk which is strengthened by many little pieces of wood bitten off from inside. When finished, it is elliptical, quite hard and of the color of the wood or bark on which it is made. Length about 30 mm.; width, 13 mm.

Pupa. Cylindrical, tapering slightly at both extremities, somewhat flattened. Color pale brown, venter yellowish and a dark dorsal line. Wing and leg cases greenish. Abdomen very minutely punctured. Wing cases creased. Length 18 mm.; width 6 mm.

The duration of the first larval stages was from three to six days, the last two seven days. The pupa state lasts through the winter.

Food plant. Probably Willow (*Salix*).

Larvae from Los Angeles Co., California.

TWO NEW TACHINIDS.

BY C. H. TYLER TOWNSEND, LAS CRUCES, N. M.

The following two species of Tachinidae, recently received from Professor F. L. Harvey, of Orono, Maine, among a lot of other Diptera for determination, prove to be new. As he desires to use

the names in a future paper of his, I submit descriptions of them.

Tachina clisiocampae n. sp. ♂. Eyes brown, very thinly and indistinctly hairy;

front at vertex about one-half the width of the face below, at base of antennae about one-third the width of the head; frontal vitta black, of equal width, with a row of black bristles on each side extending fully half-way down the cheeks, the front on each side golden, this color extending nearly as far down on the cheeks as do the frontal bristles; vertex blackish with longer and stouter bristles, three on each side posteriorly inclined, and a pair on the ocellar area anteriorly inclined; antennae blackish, a little shorter than the face, second joint elongate, the third joint about twice the length of the second; arista 3-jointed, basal half somewhat thickened; vibrissae removed from the oral margin, the facial ridges with a few bristles which do not extend quite half way up the face, but usually as far as the lowermost frontal bristles; proboscis blackish, palpi reddish-brown, black bristly; face and cheeks silvery, in places with a golden sheen, lower cheeks cinereous with short black bristles; occiput blackish or cinereous, covered with dense, coarse, whitish hair except a narrow bare space opposite the vertex, the edge with a fringe of black hairs. Thorax black above with six gray vittae, the middle pair sometimes coalesced, covered with short black hair and with rows of black bristles; humeri and pleurae more or less cinereous, black pilose; scutellum dark flesh-red, somewhat black at base, with black hair and eight marginal macrochaetae which reach at farthest about to the middle of the second abdominal segment. Abdomen long oval, somewhat conical, black, thickly covered with rather short black bristles becoming longer behind, the basal half of the second, third and fourth segments cinereous usually more distinct on the sides, the second segment usually with a flesh-red tinge on the sides; the first and second segments each with one dorsal pair of macrochaetae near the hind margin, the third segment with two pairs, the anal segment with many stout bristles; venter black, the bases of the segments cinereous

except the anal, black hairy. Legs black, black hairy, femora somewhat cinereous, femora and tibiae with black bristles and a few macrochaetae; claws black, elongate, pulvilli dirty yellowish. Wings hyaline, costo-basal portion tinged with yellowish, curvature of the fourth vein with a wrinkle appearing like a stump; veins black, very stout towards the base of the wing, the base of the costa with black bristles, the third vein bristly above and below at its origin; tegulae white with yellowish margin, halteres very dusky, nearly black.

Length of body 12 mm; of wing 9½ mm.

Described from two specimens, bred from larvae of *Clisiocampa sylvatica*. Orono, Maine. The eyes in this species cannot be said to be hairy, although thin, scattered hairs are distinctly visible with a high-power lens. I base my generic reference of this species particularly on the strongly elongated second antennal joint as compared with the third, and the wrinkle at the curvature of the fourth vein, characters of the true *Tachina* sens. Schiner. This species agrees exactly with Schiner's description, except the one remark, "eyes bare." Some authors seem inclined to abandon this much patronized genus, but I think we can not do better than accept it as restricted by Schiner (Faun. austr., Dipt., I, 472.)

Phorocera promiscua n. sp. ♀. Eyes brownish, thinly, indistinctly hairy; front broad, a little more than one-third the width of the head; frontal vitta nearly black, of equal width, cleft behind where a prong widens outward on each side of the ocelli; a row of bristles on each side of the vitta, extending about three or four bristles below the

base of the antennae, two orbital bristles outside each row; a long pair of bristles directed backwards on the vertex, and a shorter pair directed forwards on the ocellar area; the front golden on each side, this color extending as far down on the cheeks as do the frontal bristles, the rest of the cheeks and face gray; facial ridges with bristles extending fully or more than half way up the face; antennae not quite so long as the face, blackish, second joint short, the third joint nearly or quite three times as long as the second; arista black, two-jointed, the basal half thickened; vibrissae somewhat removed from the oral margin; proboscis blackish, palpi light reddish-yellow, black bristly; lower cheeks dark gray, with black bristles; occiput ashy, gray pilose, with black bristles on the borders. Thorax above leaden gray, with four black lines, with numerous black bristles becoming longer behind, and covered with short black hairs; humeri and pleurae gray, the bristles and short hairs of the dorsum extending below on the sides of the thorax; scutellum dull gray, darker at the base, covered with short black hairs, and with eight marginal macrochaetae, the longest pair reaching the base of the third abdominal segment, a shorter decussate pair between them. Abdomen ovate, first segment black above; second and third segments leaden gray, densely covered with short black bristles, each one arising from

an opaque black dot; anal segment obscure golden pollinose, edges of segments black; a dorsal pair of weak macrochaetae near the hind margin of the first segment, a stronger pair on the second, four pairs on the third, and about twice as many on the anal segment; venter dull gray, anal segment obscure golden as above, incisures and median line black. Legs black, femora and tibiae black bristly; claws short, pulvilli dusky. Wings grayish hyaline, fourth vein without wrinkle or stump, third vein bristly above and below at its origin; tegulae white, halteres dusky brown.

Length of body 7 to $7\frac{1}{2}$ mm; of wing $5\frac{1}{2}$ to 6 mm.

Described from three specimens, bred from larvae of *Clisiocampa sylvatica*. Orono, Maine. I believe I am right in referring this species to Phorocera, although in some specimens the bristles on the facial ridges do not extend more than half way up the face. This species seems to be near *Tachina (Masicera) armigera* Coquillett (Insect life, 1, 332), which however is said to have the eyes bare. I would not be surprised if the latter should prove to be a Phorocera.

EDWARDS'S BUTTERFLIES OF N. AMERICA.

The eleventh part of the Butterflies of North America, just issued, is in every way equal to its predecessors. For the first time in this third series, each of the three large quarto plates, with the accompanying text, is given up to a single and relatively little known species of butterfly, two of them to species of Satyrinae, a group which nowhere in the world has found so complete a treatment as in America, at the hands of our

author. Excepting for the intermediate larval stages of *Satyrus meadii*, every single stage of the creature's life is represented, usually by more than a single figure, and all in that exquisite and finely exact style we have become accustomed to in this work, but which can never be too highly praised or too fully appreciated. Such illustrations lie at the very foundation of the exact knowledge of butterflies, and are the key to any proper understanding of their real relationships.

The butterflies treated of are *Apatura*



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