

NOTES ON AND DESCRIPTIONS OF SOME AMERICAN MOTHS

By CARL HEINRICH

Entomologist, Bureau of Entomology, United States Department of Agriculture

The notes and descriptions in this paper are offered in response to requests for determinations. One genus, 10 species, and one variety of American moths are described as new. One old species is referred to synonymy, a new food-plant record is given, and the genitalia of seven previously described species are figured.

Family GEOMETRIDAE

Subfamily GEOMETRINAE

GALENARA CONSIMILIS, new species

PLATE 1, FIGURES 2, 3, 4

Description.—Palpus brown, ochereous on inner side. Face ochereous-brown. Thorax brown. Forewing brown faintly shaded with ashy white, the whitish color forming a pale diffused outer border to t. a. line, a rather large pale spot beyond cell, and a pale suffusion near tornus; t. a. line sinuate, rather well defined; median dark band poorly defined, fusing more or less with a broad dark postmedian shade; a distinct blackish-brown incurved line on outer margin of cell and a similar incurved line below from vein 2 to dorsum, but (in the male at least) no defined postmedian line; s. t. line blackish brown, discontinuous (broken between veins 3 and 4), outwardly edged with clear white; area bordering termen slightly paler than ground color of remainder of forewing, but not white; terminal line scalloped, black; cilia pale smoky fuscous. Hind wing pale smoky fuscous, somewhat darker outwardly; terminal line dark brown; a white spot at anal angle margined inwardly by a blackish streak; cilia pale smoky fuscous.

Genitalia figured from type and paratype.

Alar expanse.—34 to 45 mm.

Type and paratypes.—U.S.N.M. No. 43250.

Type locality.—Clouderoft Reserve, Reservoir Cañon, Lincoln National Forest, N. Mex.

Food plant.—Douglas fir (*Pseudotsuga taxifolia*).

Remarks.—Described from male type and four male and one female paratypes from the type locality and reared under Hopkins U. S. No. 18083 from larvae defoliating Douglas fir (H. E. Burke, collector). Moths issued November 20 and 26 and December 1, 3, and 29, 1928. In September of 1928 the caterpillars were reported as doing considerable damage to the trees.

The species is close to and easily confused with *G. livaria* Grote, from which it is distinguished in markings chiefly by the clear white line bordering the dark subterminal line. In *livaria* and *lallata* Hulst the white border of the s. t. line is always more or less speckled with fuscous. The male and female genitalia readily separate *consimilis* from anything in the Cleorine group, the hooked apex of aedeagus and single strong cornutus at once identifying the male. Male genitalia of the other species of *Galenara* have been figured by McDunnough.¹ I add here a drawing of the female genitalia of *livaria* (pl. 1, fig. 1) to show the differences from those of the new species. The venation of *consimilis* is normal except that the forewing has veins 10 and 11 short stalked in both sexes. Unfortunately all the specimens except one male paratype are rubbed and in very poor condition, so the pattern of the female could not be described. It seems to have a rather well-marked, almost straight t. p. line on forewing and a narrow dark transverse line on outer half of hind wing, at least from inner margin to about vein 5. Neither of these is distinguishable in the male.

Family EPIPYROPIDAE

EPIPYROPS CUCULLATA, new species

PLATE 2, FIGURES 5, 7, 8, 9

Description.—A small blackish fuscous species hardly distinguishable from *barberiana* Dyar except on genitalia characters. Fore and hind wings concolorous. Head and thorax a trifle darker.

Male genitalia figured.

Alar expanse.—10 mm.

Type.—U.S.N.M. No. 43251.

Type locality.—Port au Prince, Haiti.

Remarks.—Described from the male type reared by H. L. Dozier from a white semiovoid cocoon found on the leaf of an unidentified vine and sent by him with letter of January 4, 1930. The host of the

¹ Bull. 18, Ent. Branch Canadian Dept. Agr., pp. 14–15, 1920.

larva was not discovered, but it should prove to be a species of Fulgoridae (the normal host of the Epipyropidae). The known species of Epipyropidae are few and easily separated by structural characters. This new species can be recognized at once by its small size and the enlarged cucullate tegumen of its genitalia. Only two other American species could possibly be confused with it, *E. barberiana* Dyar from Texas, which differs strikingly in every detail of the genitalia (pl. 2, fig. 6), and *Oedonia exigua* Hy Edwards from Arizona formerly placed in the Psychidae but recently identified as an Epipyropid by Frank Morton Jones,² who has sent me a sketch of the venation and antenna of *exigua*. They agree substantially with those of *cucullata* and *barberiana*. The type of *exigua* (a female) is in the National Museum collection, and is somewhat larger than the males of either *barberiana* or *cucullata*. Mr. Jones has a couple of other specimens, also females. Unfortunately we know only males of *barberiana* and *cucullata* and only females of Edwards's species.

I am inclined to believe that when a male of *exigua* is discovered it will prove to be a true *Epipyrops* and possibly the same as *barberiana*. The distribution of the two (Texas and Arizona) would suggest this.

Dyar³ has given a good description of the *Epipyrops* larva in his paper on *E. barberiana*, and Jordan⁴ has described and figured the venation and genitalia of several exotic adults; but so far as I know no one has treated the pupa. I, therefore, include drawings (pl. 2, figs. 8, 9) of the pupa of *cucullata*. It shows striking similarity (except in its small size and more dilated antennal case) to that of *Lagoa* in the Megalopygidae. The male genitalia of Epipyropidae resemble most those of the Dalceridae. The two families are closely related, differing in genitalia chiefly in the development of vinculum and anellus. Other obvious genitalic differences in the two families are chiefly of specific or generic significance.

Family PYRALIDAE

Subfamily CRAMBINAE

DIATRAEA CONSIDERATA, new species

PLATE 3, FIGURES 10, 12

Description.—A large species allied to *D. magnifactella* Dyar, the sexes showing marked contrast in color.

Male dark grayish fuscous with concolorous hind wing. Female pale brownish straw color with pure white hind wing. Outer cross

² Texas Agr. Exp. Stat. Bull. 382, p. 8, footnote, 1928.

³ Proc. Ent. Soc. Washington, vol. 5, p. 44, 1902.

⁴ Nov. Zool., vol. 34, pp. 136-140, pls. 1-3, 1928.

line on fore wing distinct in both sexes, consisting of a series of dots on the veins with a thin sharply angulate line between each dot; inner line obscure, somewhat more distinct in the male; discal dot small, terminal dots distinct. Front with a tubercle. Hind tibia of male without hair tuft.

Male genitalia distinguished by the greatly enlarged and coarsely spined projection from costal base of harpe. Lateral lobes of tegumen rounded. Gnathos weakly spined toward apex.

Female genitalia like those of *magnifactella*.⁵

Alar expanse.—Male, 31 mm.; female, 39 mm.

Types and paratypes.—U.S.N.M. No. 43252.

Type locality.—Eldorado, Sinoloa, Mexico.

Food plant.—Sugarcane (*Saccharum officinarum*).

Remarks.—Described from male type and one male and one female paratype from the type locality ("2-11-29," "2-10-29," S. E. Flanders).

DIATRAEA BUSCKELLA ROSA, new variety

A Venezuelan race agreeing with typical *busckella* in genitalia; but with a distinctly pinkish ochereous tint on fore wings of both sexes. Typical *busckella* is pale straw color.

Alar expanse.—Male, 29 mm.; female, 38 mm.

Type and paratypes.—U.S.N.M. No. 43253.

Type locality.—Carabobo, Venezuela.

Food plant.—Sugarcane.

Described from male type, 6 male and 5 female paratypes from the type locality (H. T. Osborn, 1929) and 3 male and 1 female paratypes from Caracas, Venezuela (A. Ibarra), all reared from larvae boring in sugarcane.

PLATYTES (?) AENIGMATICA, new species

PLATE 3, FIGURE 11

Description.—Labial palpus projecting one and one-half times the length of the head beyond it, porrect; fuscous on outer side, white beneath and on inner side. Head, thorax, and fore wing pale straw color; a conspicuous black dot at end of cell and a sparse scattering of black scales over rest of wing (these black scales very few, widely separated, and noticeable only under magnification); wing otherwise unmarked. Hind wing cream white.

Female genitalia figured from type.

Alar expanse.—26 mm.

Type.—U.S.N.M. No. 43254.

Type locality.—Gunnison, Colo.

Food plant.—Thistle (*Cirsium* sp.)

⁵ For genitalia of the American *Diatraea* see Dyar and Heinrich, Proc. U. S. Nat. Mus., vol. 71, no. 2691, pp. 1-48, pls. 1-20, 1927.

Remarks.—Described from reared female type (August 5, 1924, Henry Bird). Mr. Bird has kindly supplied the following biological note:

In a survey for *Papaipema* larvae through a portion of Colorado, in 1924, thistles were considered a possibility and a large number were examined. The only flagrant lepidopterous infestation noted was at Gunnison, where a large species, seemingly a *Cirsium* of the *undulata* group, but not yet in flower, was infested by Pyralid-like larvae, six or eight often mining a single stem. Their operation causes the top of the plant to blacken and droop, easily advertising infestation. Because of the apparent localization, breeding the moth seemed desirable.

The larvae were active, with tubercles prominent, spinning random strands which helped to retain the frass in the hollow stem at the workings.

Being moist, this residue furnished medium for a dipterous larva, while a hymenopterous species, in puparium, was noted to have worked as primary parasite, undoubtedly upon the miner. Subsequently a sample of both these associated species was reared.”⁶

The moth is easily distinguished by genitalia and pattern. It fits equally badly in *Platytes* and *Chilo*. The front is neither evenly rounded as in typical *Platytes* nor conically produced as in *Chilo* but projects forward and downward. The costa of fore wing is different also, being slightly convex toward apex. The species probably deserves a new generic designation, but this can wait upon the discovery of the male.

Subfamily PYRALINAE

AGLOSSA FURVA, new species

PLATE 4, FIGURES 13, 14

Description.—A moderately sized species with dark fore and hind wings.

Antenna ochereous shaded above with blackish fuscous. Palpus, head, and thorax blackish fuscous more or less spotted with ochereous. Fore wing blackish fuscous with an angulate transverse band from costa beyond base and reaching almost to dorsum, a rounded ochereous black-centered spot near end of cell, a rather conspicuous ochereous spot on costa before apex, and a faint purplish ochereous shading toward termen; cilia smoky, but slightly paler than dark ground color of wing. Hind wing blackish-smoky-fuscous; cilia slightly paler with no dark basal band.

Genitalia figured from male type and female paratype (the latter from Vancouver Island).

Alar expanse.—23 to 28 mm.

Type and paratypes.—U.S.N.M. No. 43255; paratypes also in collection of John F. Clarke.

⁶ The dipteran has been determined by C. T. Greene as *Sphacrophoria sulphuripes* Thomson; and the hymenopterous parasite by R. A. Cushman as *Amblyteles* sp.

Type locality.—British Columbia.

Food plant.—Unknown.

Remarks.—Described from male type and one male paratype from British Columbia but without definite locality label ("9-7-25" and "9-8-25," Blackmore Nos. 85 and 86); one male paratype from Saanichton, British Columbia ("31-VII-1922," John G. Colville, "397"); one male paratype from Departure Bay, British Columbia ("21-7-08," Blackmore No. 598); one male paratype and one female paratype from Quamichan Lake, Vancouver Island ("16-VII-22" and "11-VII-08," Blackmore Nos. 399 and 398).

The new species is at once distinguished by its exceptionally dark hind wings. *A. gigantalis* Barnes and Benjamin, the darkest of previously described species, shows more contrast in fore and hind wings and is a much larger insect. The genitalia of the various *Aglossa* are quite similar, displaying slight but apparently consistent differences. *A. cuprialis* Hübner has a narrow, distinctly chitinized transstilla lacking in the other species. The harpes of *cuprialis*, *cuprina* Zeller, and *baba* Dyar are broader and more abruptly tapering toward apex. The aedoeagus is at least one-third shorter in proportion to its diameter in *baba* than in *cuprina*, *cuprialis*, or *furva*; while *acallalis* Dyar has an aedoeagus of different shape from that of all the other species, the organ being much more slender on basal three quarters. *A. oculalis* Hampson (from Texas) I do not know. This species, however, has pale hind wings.

Family OLETHREUTIDAE

Subfamily LASPEYRESIINAE

GYMNANDROSOMA DESOTANUM Heinrich

PLATE 5, FIGURE 18

Remarks.—In addition to the original female paratype we now have in the National Museum collection two males and a female from Miami Beach, Fla., reared by T. E. Snyder, June 30, August 10, and July 21, 1916, from larvae feeding in red-mangrove seed. The males have the secondary characters (tufted hind tibiae and hair pencil) decidedly less developed than those of *punctidiscanum* Dyar. Vein 5 of the hind wing is also appreciably bent toward the base in both sexes. The male genitalia, however, show that *desotatum* must be associated with *punctidiscanum*, the only striking difference being in the shape of the cucullus of the harpe. This is shorter and has more of a projection at neck in *desotatum* than in Dyar's species.

Male genitalia figured.

Subfamily EUCOSMINAE

THIODIA IMPLICATA, new species

Description.—A white species with pale ochereous-fuscous basal patch and outer fascia.

Palpus, face, head, and thorax white. Fore wing white with dark markings pale ochereous-fuscous; an outwardly angulate basal patch not reaching costa and broken longitudinally by streaks of the white ground color; costa from base to middle pure white, unmarked; from just beyond middle a dark band slanting outward to upper inner edge of ocelloid patch and joining a vertical shade of the same color from tornus, forming with it a complete angulate fascia; on outer half of costa three conspicuous dark spots; ocelloid patch white containing two black streaks and shaded above by ochereous-fuscous; cilia white heavily peppered with fuscous and blackish scales. Hind wing very pale smoky fuscous; cilia white.

Male genitalia as in *striatana occidentalis*.

Alar expanse.—17 to 20 mm.

Type and paratypes.—U.S.N.M. No. 43256; paratypes in Clarke, American Museum, and Canadian national collections.

Type locality.—Rochester, Wash.

Food plant.—Unknown.

Remarks.—Described from male type, seven male paratypes from the type locality ("13-VI-29" and "26-VI-29," W. W. Baker), and one male paratype from Wellington, British Columbia (Theo. Bryant, collector, "Blackmore No. 890), all received from John F. Clarke.

This species is close to and possibly another extreme variety of *striatana* Clemens but differs so markedly from it and its other western variety (*occidentalis*) in pattern that I hesitate to name it anything but a distinct species.

GRETCHENA DULCIANA Heinrich

The food plant of this species is alder (*Alnus*). The larvae tie the tender terminal leaves in a small compact bundle and feed within the tie. From larvae collected by the writer early in July, 1918, near Marlboro, Md., a moth (male) issued July 24.

EPINOTIA OPPOSITA, new species

PLATE 6, FIGURE 21; PLATE 7, FIGURE 26

Description.—A species allied to *patriciana* Walsingham, with different wing pattern in male and female, a costal fold inclosing a strong scale tuft on male fore wing, and conspicuous black sex scaling on hind wing, abdomen, and hind tibiae of the male.

Male.—Antenna, palpus, head, and thorax dark grayish fuscous; the scale ends paler; a black spot on basal segment of antenna; inner side of palpus whitish. Fore wing grayish fuscous with dorsal half somewhat paler; a rather broad costal fold, not reaching to middle of wing, inclosing a thick tuft of yellowish scales interspersed with a few black scales; a very sparse dusting of black scales on costal half of wing; costa faintly striated; a blackish dot at apex and a curved black line over ocelloid patch; latter consisting of two obscure vertical metallic bars inclosing two faint black dots on a pale ground; veins 3, 4, and 5 approximate toward termen; termen concave. Hind wing pale smoky fuscous; hair on cubitus in the form of a thick pale tuft (similar to that of *Crocidosema plebeiana*) at base followed by a line of whitish hairs beyond; a long yellow hair pencil from extreme base; black sex scaling on anal area to and including vein 1b, on area between cell and costa and along upper and lower veins of cell; the sex scaling repeated upon the same areas on under side of hind wing; cell clear, somewhat paler than remainder of wing; cilia pale with dark basal band, whitish at inner angle. Under side of fore wing with area of the fold distinctly ocherous and rough scaled; costal half of wing (except for area under the fold) from dorsal margin of cell and to end of cell covered with black sex scaling. Similar black scaling on dorsum of abdomen and on tibia of metathoracic leg. Throughout, the black sex scales are overlaid but not obscured by a scattered dusting of white scales.

Female.—Differs from the male in having no black sex scaling; in having the costal area of fore wing paler than the dorsal and the head and thorax darker. Fore wing with a blackish-brown incomplete basal patch on dorsum; a similarly colored patch on dorsum before tornus; area between them whitish or whitish ocherous; on disk above this an oblong dark (brown or blackish) patch; remainder of wing pale ocherous-brown with a faint rosy tint; costal striae brown interspaced beyond middle with sordid white; apical dark dot conspicuous. Hind wing very pale smoky fuscous, darker toward apex and termen; cilia slightly paler, with a dark basal band.

Genitalia figured from type (male) and paratype (female) from the type locality.

Alar expanse.—12.5 to 15.5 mm.

Type and paratypes.—U.S.N.M. No. 43257; paratype also in Cornell University collection.

Type locality.—Lima, Peru.

Food plant.—Alfalfa (*Medicago*), cowpeas (*Vigna*).

Remarks.—Described from male type and 3 male and 11 female paratypes reared from larvae boring in stems of cowpeas and referred by Dr. Johannes Wille under No. 154-29; 1 male and 1 female paratype labeled "On Palms, E. Gandron, collector;" 1

male and 1 female paratype reared from buds of alfalfa, February 15, 1915 (E. Gandron), all from the type locality; also 1 male paratype from Matucana, Peru (Cornell University Expedition, lot 607, collected May 27, 1920).

In addition to the above I have examined a male from Purulha, Guatemala, a male from La Florida, Costa Rica, and three females from Costa Rica that are presumably conspecific, certainly nothing more than a local race of this species. In the fore wings of both sexes there is a black streak extending back to the cell from the curved line over the ocelloid patch much as in *aporema* Walsingham. I am unable to find any trace of this in the Peruvian specimens. There are no other differences and the genitalia (male and female) of the two forms agree.

This species is very close to *patriciana* Walsingham and the following new species (*accessa*). All three have similar sex scaling in the male, a similar pattern scheme, and similar scale tufts under the costal fold in male fore wing. They differ rather strikingly in genitalia and in several male characters. In *accessa* the costal fold extends to well beyond middle of costa, the thick hair tuft on cubitus of hind wing is dark smoky fuscous, and the hair pencil from base of hind wing is lacking. In *patriciana* the costal fold is short as in *opposita*, but the hair pencil and cilia at inner angle of hind wing are black and the pecten on cubitus is not developed into a tuft as in the other two species.

EPINOTIA ACCESSA, new species

PLATE 6, FIGURE 20; PLATE 7, FIGURE 24

Description.—Similar to *E. opposita* in pattern and color; but showing important genitalic and other differences.

The fore wing of the male has a rolled-over costal fold, which extends to well beyond middle of costa; a black suffusion on dorsum at base; an extended blackish suffusion over costal half of wing from base to beyond cell. Hind wing dark brown with black sex scaling on anal area and more or less along veins; a blackish fuscous scale tuft on cubitus near base; no appreciable hair pencil from extreme base of wing. Black sex scaling on under side of fore and hind wings, abdomen, and hind tibiae, as in *opposita*.

Female as in *opposita*, except for a very slight olive-green shading on dorsal dark areas of fore wing and for the position of the genital opening, the latter being more caudally placed in *opposita* (compare pl. 7, figs. 24 and 26). In superficial appearance females of *accessa* also resemble those of *Crocidosema plebeiana* Zeller and *Epinotia lantana* Busck. Both of these are easily separated on genitalic characters (see pl. 7, figs. 23 and 25). Their males need not be confused.

as they lack the characteristic black sex scaling of *accessa*, *opposita*, and *patriciana*.

Genitalia figured from type (male) and paratype (female) from the type locality.

Alar expanse.—12.5 to 15.5 mm.

Type and paratypes.—U.S.N.M. No. 43258.

Type locality.—Trinidad River, Panama.

Food plant.—Unknown.

Remarks.—Described from male type and 1 male and 1 female paratype from the type locality (March, 1912, August Busck); 1 female paratype from Cabima, Panama (May, 1912, Busck); 1 male paratype from La Florida, Costa Rica (William Schaus); 1 female paratype from Tuis, Costa Rica (Schaus); and 1 female paratype from Vera Cruz, Mexico (December 14, 1907, Frederick Knab).

EPINOTIA PATRICIANA (Walsingham)

PLATE 6, FIGURE 22

Eucosma patriciana WALSINGHAM, Biol. Centr. Amer. Lepid. Heter., vol. 4, p. 232, 1914.

Remarks.—Male genitalia figured from paratype in the United States National Museum from Jalapa, Mexico. In addition to this specimen I have examined a male from Volcan Santa Maria, a male from Palin, and a male from Cayuga, Guatemala (Schaus and Barnes, collectors). I do not know the female. The male is easily distinguished from other *Epinotia* that have the black sex scaling by its characteristic genitalia, by the black cilia on inner margin of hind wing, and by the long black hair pencil on the base of the hind wing.

Alar expanse.—12 to 14 mm.

Type.—In British Museum.

Type locality.—Teapa, Mexico.

Food plant.—Unknown.

EPINOTIA LANTANA (Busck)

PLATE 6, FIGURE 19; PLATE 7, FIGURE 25

Crocidosema lantana BUSCK, Proc. Ent. Soc. Washington, vol. 12, pp. 132-133, 1910.

Eucosma lantana (BUSCK) WALSINGHAM, Biol. Centr. Amer. Lepid. Heter., vol. 4, p. 233, 1914.

Remarks.—Genitalia figured from male type and female paratype from Tantalus, Oahu, Hawaii. The male genitalia are similar to those of *opposita*, showing only a trifling difference in the shape of the cucullus of harpe. The female organs, however, are quite different, and the males are otherwise distinct. *E. lantana* has no

black sex scaling, and the front is curiously modified, being deeply grooved to hold the closely appressed, upturned palpi.

Alar expanse.—9 to 12 mm.

Type.—In National Museum collection.

Type locality.—Tantalus, Oahu, T. H.

Food plant.—Lantana (*Lantana*).

CROCIDOSEMA PLEBEIANA Zeller

PLATE 7, FIGURE 23

Female genitalia figured from specimen in National Museum collection reared from *Malvaviscus drummondii*, Smith Point, Tex., December 10, 1918 (H. S. Barber).

ANCHYLOPERA BRAUNI, new species

PLATE 5, FIGURE 16

Description.—A whitish ocherous species with argus-brown basal patch and a black shading on costa beyond middle; close and similar to *definitivana* Heinrich, but easily distinguished by male genitalia.

Palpus sordid white, the outer side sparsely dusted with blackish fuscous. Head and thorax argus-brown; tegula whitish ocherous at base. Fore wing with basal half of costa and tornal area whitish ocherous, the white in tornal area more or less suffused with brown; a few indistinct short brown strigulae on costa before middle; on costa beyond middle an outwardly slanting blackish band suffusing with a pair of longitudinal black streaks at end of cell, these latter occupying the upper third of a slanting, oblong, brown patch, which extends below the cell to vein 2; dark basal patch with a black shading toward costal margin, with costal margin sharply angled at middle and with outer margin decidedly slanting and slightly notched; cilia fuscous with a whitish band at base. Hind wing dark smoky fuscous, pale toward base; cilia pale smoky fuscous with a dark basal band.

Male genitalia figured from type.

Alar expanse.—12 to 14 mm.

Type and paratypes.—U.S.N.M. No. 43259; paratypes also in American Museum of Natural History and Miss Braun's collections.

Type locality.—Beaver Pond, Adams County, Ohio.

Food plant.—Buckthorn (*Rhamnus lanceolata*).

Remarks.—Described from male type and 2 male and 4 female paratypes from the type locality (labeled "V-11-27," "VII-10-27," "VII-12-27," "VII-13-27," "VII-14-27" under number "B1305"); 4 female paratypes from Clermont County, Ohio (labeled "IV-1" and "IV-4-16" under number "B897"); and 3 male paratypes from Champaign County, Ohio ("V-11-29"). We are indebted to Dr.

Annette Braun for all the above and for the text figure that accompanies this description. The Adams and Clermont County specimens were reared by her from larvae feeding on leaves of *Rhamnus lanceolata* and the three males from Champaign County were taken resting on *Rhamnus alnifolia*. Regarding the Beaver Bond specimens Doctor Braun writes as follows:

The young larva makes a characteristic fold in the leaf toward its tip, by bringing the outer margin at one point close against the midrib; feeding takes place beyond the fold toward the tip of the leaf (fig. 1, A). As it consumes the leaf in front of it the larva extends the fold backward toward the base of the leaf (fig. 1, B). The larva is pale yellowish, rather translucent, with head about the same color as the rest of the body. Pupa (in breeding jar) in fold, usually at edge of leaf. These notes apply more particularly to the first generation of larvae; by the time the fall generation appears in

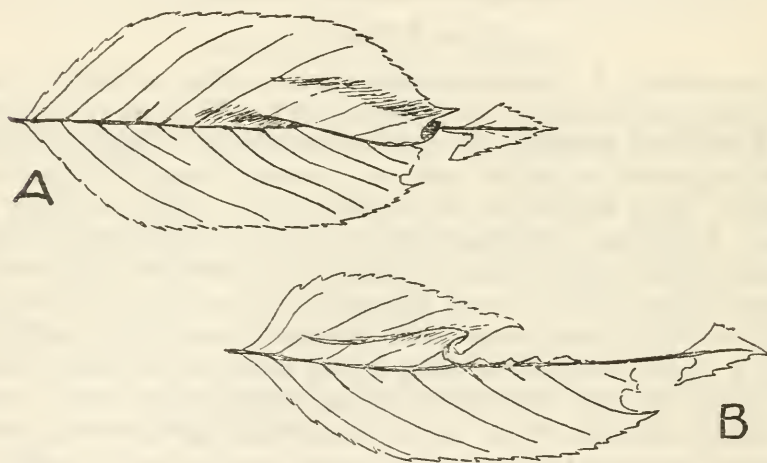


FIGURE 1.—Work of *Anchylopera brauni* on buckthorn (*Rhamnus*) leaf: A, Characteristic fold and beginning of feeding; B, same leaf a week later

September and October, the leaves are usually in rather poor condition from the feeding of other species, specially *Apothysis pullata* and *Nepticula rhamnicola*, and the mode of feeding of the *Anchylopera* is not as characteristic, as the larva may feed at either end of the fold or irregularly.

The species is easily recognized and not to be confused with anything else in the genus except the western *definitivana* from which it is at once separated by its shorter, stouter aedoeagus and differently shaped harpe, the lower margin of the cucullus being convex and evenly rounded in *brauni* and distinctly concave in *definitivana*. The uncus is also proportionally shorter in *brauni*.

ANCHYLOPERA SPIRAEIFOLIANA Clemens

Through the kindness of Miss Braun we now have authentic specimens of this species reared from larvae taken feeding on *Spiraea*

opulifolia. These specimens prove that the so-called "type" at Philadelphia is spurious. They agree with Clemens's original description and except in size with *burgessiana* Zeller. The latter may possibly be retained as a race of *spiraeifoliana* on its food plant difference and slightly larger size. I doubt, however, that it is anything more than a synonym. This identification leaves the species previously identified as *spiraeifoliana* and which I figured under that name in my Revision of the Eucosminae⁷ without a name. Until we are better informed it may go as *metamelana* Walker. It is quite possible that the name *discigerana* Walker has been incorrectly applied to western specimens. In that case it probably would apply to the *spiraeifoliana* of authors. We shall never clear the muddle of Walker names until his types are reexamined and their genitalia studied.

The Fernald "homotype" of "*spiraeifoliana*" now in the National Museum is a specimen of *angulifasciana* Zeller.

Subfamily OLETHREUTINAE

SATRONIA TANTILLA Heinrich

PLATE 4. FIGURE 15

I have examined a large series of this species reared from longleaf pine (*Pinus palustris*) from Starke, Fla. (May 28 to June 1, 1929, O. L. Harper). The males have all veins in fore wing present and 7 and 8 separate. The genus *Satronia* was described from an abnormal specimen with 7 and 8 united. Since this character does not hold, *Satronia* can only be retained separate from *Goditha* on the subparallel rather than separate and parallel condition of veins 6 and 7 of hind wing. The only other American genus without pecten on the lower median vein of hind wing (*Sereda*) has veins 6 and 7 approximate (tortriciform) toward base. I hesitate to lump *Satronia* with either *Goditha* or *Sereda* on account of its quite differently formed male genitalia, which, except for the absence of socii, most closely resemble those of *Ricula*, a genus easily separated on male and female characters.

The female genitalia of *Satronia* have two thornlike signa in bursa and the ductus bursae strongly chitinized and bent (as in *Sereda*). The female of *Goditha* is unknown.

Female genitalia of *S. tantilla* figured from reared specimens from Starke, Fla.

PHAECASIOPHORA INSPERSA, new species

Description.—A pale tawny ochereous species with a very faint ferruginous tint in fresh specimens and no definable basal patch or outer band on fore wing.

⁷ U. S. Nat. Mus. Bull. 123, p. 236, 1923.

Palpus ochereous blotched on outer side with fuscous. Basal joint of antenna fuscous. Face and head tawny-ochereous. Thorax and fore wing pale tawny-ochereous peppered with blackish scales, the latter arranged in transverse lines on fore wing and but faintly visible to the naked eye, most conspicuous as a dark shading at end of cell; cilia pale ochereous-ferruginous. Hind wing but slightly darker than fore wing, a trifle more fuscous.

Male genitalia as in *niveiguttana* Grote, except that cucullus of harpe is somewhat more slender.

Alar expanse.—18 to 19 mm.

Type and paratypes.—U.S.N.M. No. 43260.

Type locality.—St. Petersburg, Fla.

Food plant.—Unknown.

Remarks.—Described from male type and two male paratypes from the type locality ("3-3-15," R. Ludwig).

A distinct and easily recognized species. It lacks altogether the strong pattern markings and white cell dot of the other two species of the genus and has the hind tibia even less tufted than that of *niveiguttana*. Its genitalia, however, are distinctly of *Phaeasio-phora* type and scarcely distinguishable from those of *niveiguttana*.

TSINILLA, new genus

PLATE 5, FIGURE 17

Genotype.—*Eucosma lineana* Fernald (North America).

Description.—Thorax with posterior tuft.

Fore wing smooth; termen concave; 12 veins, all separate; 7 to termen; 8 and 9 approximate at base; upper internal vein of cell from between 9 and 10; 3, 4, and 5 not approximate at termen; 2 strongly bent and running up to termen parallel to 3; 1c indicated by a distinct fold in the wing in both sexes, the fold running into vein 2.

Hind wing with 8 veins; 6 and 7 approximate toward base; 3 and 4 connate; 5 approximate to 4; termen slightly sinuate below apex; in male a chitinous ridge on inner margin.

Hind tibia of male with hair pencil from base.

Male genitalia with harpe narrowly elongate, rather evenly spined from sacculus to apex; cucullus small, less than half the length of the harpe; cornuti a cluster of long deciduous spines; uncus weakly spined.

Female with two thornlike signa in bursa; ductus bursae moderately long, strongly chitinized toward genital opening.

A monotypical tropical genus extending into southern Florida. Shows affinities to *Eumarozia*, *Zomaria*, and *Hedia*.

Remarks.—In my Revision of the Olethreutinae,⁸ I placed *lineana* provisionally in *Hedia*, calling attention to its aberrant character (concave termen of fore wing, the strongly bent condition of vein 2, and the origin of upper internal vein of cell from between 9 and 10). At that time we knew only the female. Since then Frank Morton Jones has collected a number of the larvae in southern Florida and reared a series of males and females, which are now in the National Museum collection.

The male genitalia, except for the weakly spined uncus and short cucullus, would not bar the species from *Hedia*, but on other characters it does not fit. The only other American olethreutine genus with concave termen (*Episimus*) lacks the tufted thorax and has veins 3, 4, and 5 decidedly approximate at termen.

Male genitalia figured from specimen reared from larva feeding on *Anona* in southern Florida (issued March 8, 1930, F. M. Jones). Mr. Jones writes of the larval habits as follows:

Almost invariably feeding begins at the tip of the leaf, which is pulled together at the margins, leaving the basal portion of the leaf open and flat; as feeding proceeds and the larva grows larger, the folded-together portion is extended toward the base, until the entire leaf is neatly folded together, its margins meeting more or less evenly; and within the flattened cell thus formed the larva makes transverse partitions of white silk, these partitions more or less evenly spaced. Usually only one larva inhabits a leaf, and when more are present, they are of different ages. Probably one leaf usually suffices for the growth of the larva, but when two leaves are in contact, the infested one is sometimes joined with silk to the adjacent leaf, and both are fed upon. No cocoons or pupae were found in the leaf-nests, though the small white cocoons of a parasite were frequently present. * * * The *Anona* leaf tier makes its cocoon by cutting a flap in a leaf-margin (not the leaf it has fed upon) and folding it over.

EXPLANATION OF PLATES

The plates herein were drawn under the author's supervision by Mrs. Eleanor A. Carlin, of the Bureau of Entomology. They are much enlarged but not drawn to a definite scale.

Explanations of symbols applied to genitalia:

Ac. aedoeagus.

An. anellus.

Cn. cornutus.

Gn. gnathos.

Go. genital opening (female).

Hp. harpe.

Si. socii.

Tg. tegumen.

U. uncus.

Vm. vinculum.

Vm. a. bent arm of vinculum forming attachment to tegumen (in *Epipyrops*).

⁸ U. S. Nat. Mus. Bull. 132, p. 165, 1926.

Explanation of symbols applied to pupa :

<i>ao.</i> anal opening.	<i>l</i> ² . mesothoracic leg.
<i>at.</i> antenna.	<i>l</i> ³ . metathoracic leg.
<i>cx</i> ¹ . coxa of prothoracic leg.	<i>lb.</i> labrum.
<i>cx</i> ² . coxa of mesothoracic leg.	<i>lp.</i> labial palpus.
<i>go.</i> genital opening.	<i>md.</i> mandible.
<i>l</i> ¹ . prothoracic leg.	<i>mx.</i> maxilla.

PLATE 1

- FIGURE 1. *Galenara lizaria* (Grote) : Female genitalia (ventral view).
 2. *Galenara consimilis* Heinrich : Male genitalia (ventral view).
 3. *Galenara consimilis* Heinrich : Female genitalia (ventral view).
 4. *Galenara consimilis* Heinrich : Part of male abdomen (ventral view) showing intersegmental sex tufts between seventh and eighth segments.

PLATE 2

- FIGURE 5. *Epipyrops cucullata* Heinrich : Male genitalia (ventral view).
 6. *Epipyrops barberiana* Dyar : Male genitalia (ventral view).
 7. *Epipyrops cucullata* Heinrich : Venation of wings (male).
 8. *Epipyrops cucullata* Heinrich : Pupa, ventral view.
 9. *Epipyrops cucullata* Heinrich : Pupa, dorsal view of two segments, greatly enlarged to show characteristic scobinations.

PLATE 3

- FIGURE 10. *Diatraea considerata* Heinrich : Female genitalia (ventral view).
 11. *Platytes acnigmatica* Heinrich : Female genitalia (ventral view).
 12. *Diatraea considerata* Heinrich : Male genitalia ; *a*=tegumen, uncus, and gnathos (three quarters view) ; *b*=harpes, vinculum, and anellus (ventral view) ; *c*=aedeagus.

PLATE 4

- FIGURE 13. *Aglossa furva* Heinrich : Female genitalia (ventral view).
 14. *Aglossa furva* Heinrich : Male genitalia ; *a*=aedeagus ; *b*=genitalia with aedeagus omitted (ventral view).
 15. *Satronia tantilla* Heinrich : Female genitalia (ventral view).

PLATE 5

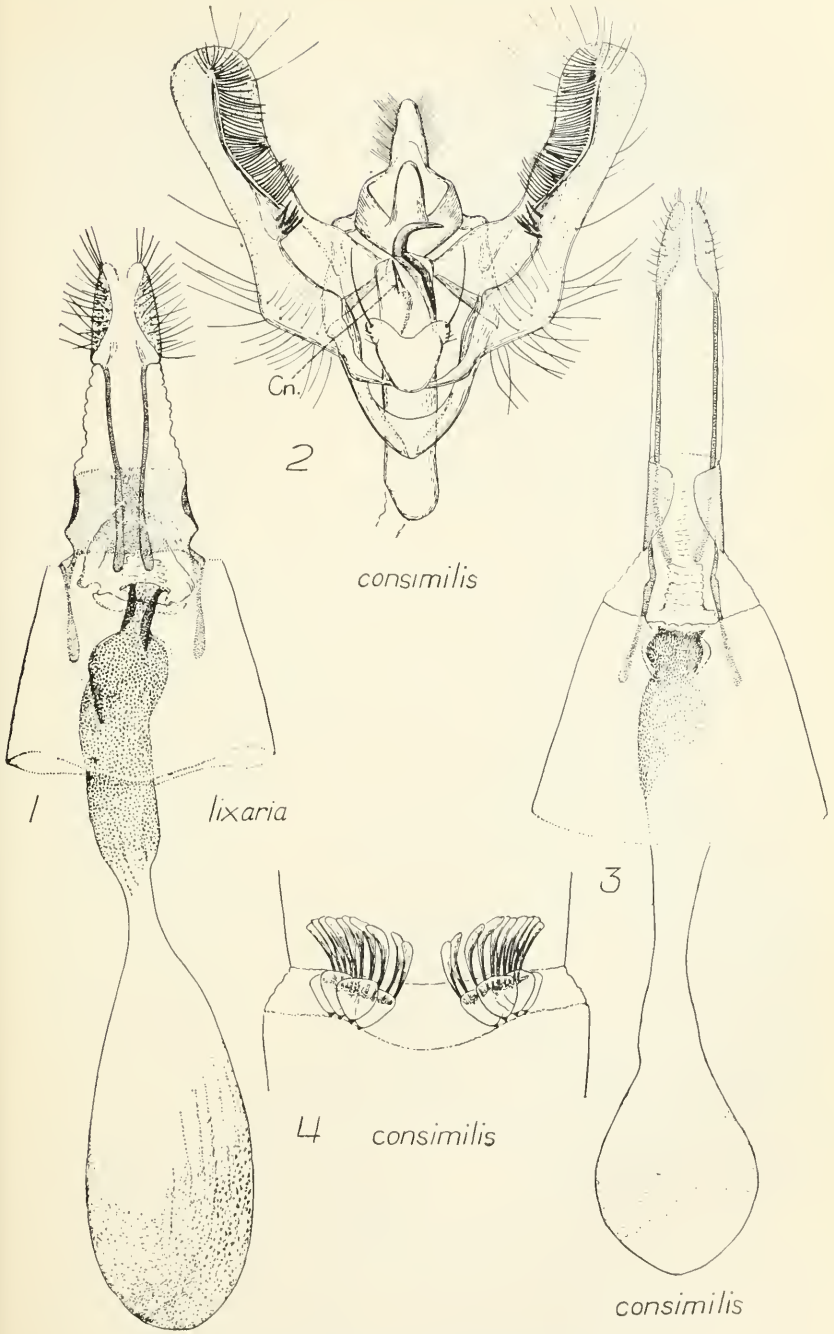
- FIGURE 16. *Anchytopera brauni* Heinrich.
 17. *Tsinilla lineana* (Fernald).
 18. *Gymnandrosoma desotatum* Heinrich.

PLATE 6

- FIGURE 19. *Epinotia lantana* (Busck).
 20. *Epinotia accessa* Heinrich.
 21. *Epinotia opposita* Heinrich.
 22. *Epinotia patriciana* (Walsingham).

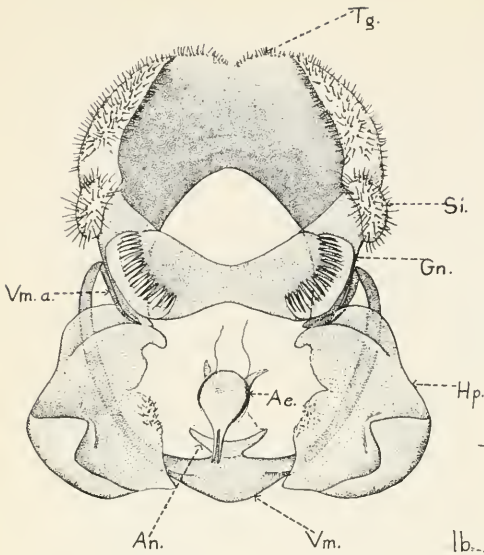
PLATE 7

- FIGURE 23. *Crociosema plebciana* Zeller.
 24. *Epinotia accessa* Heinrich.
 25. *Epinotia lantana* (Busck).
 26. *Epinotia opposita* Heinrich.

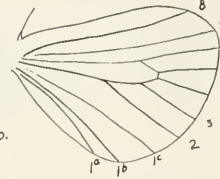
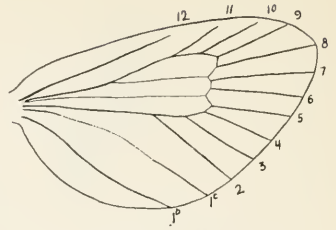


STRUCTURAL CHARACTERS OF GALENARA

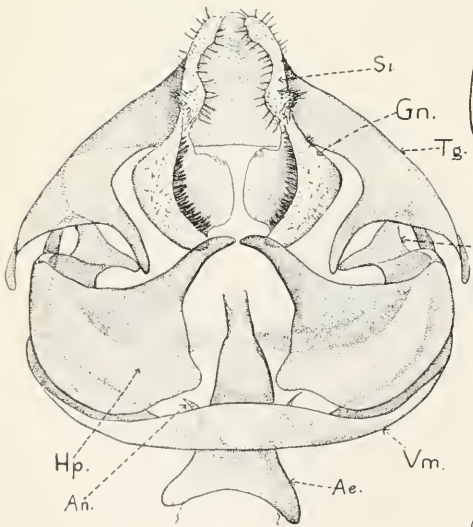
FOR EXPLANATION OF PLATE SEE PAGE 16.



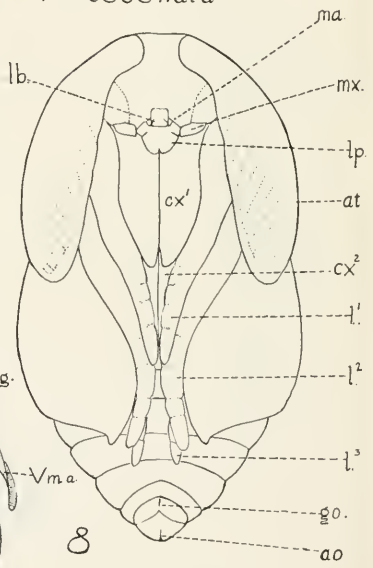
5 *cucullata*



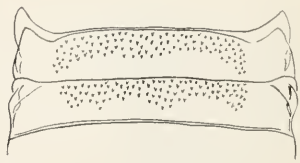
7 *cucullata*



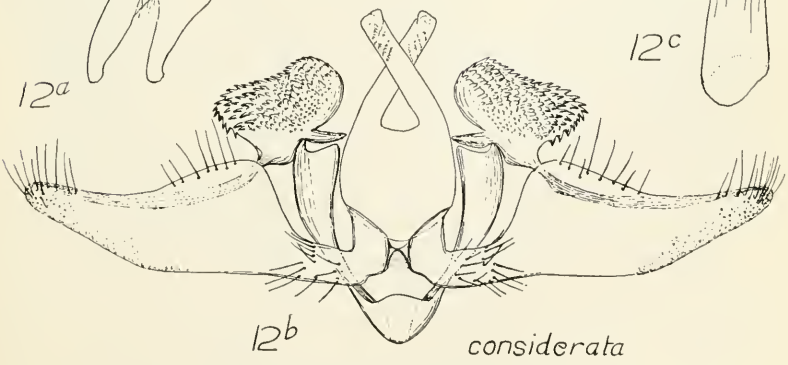
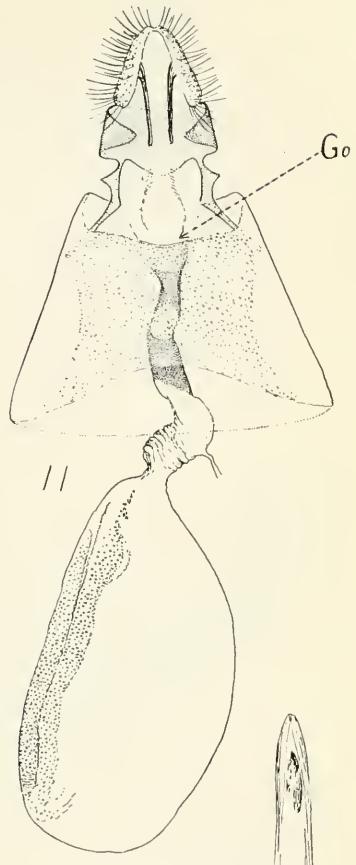
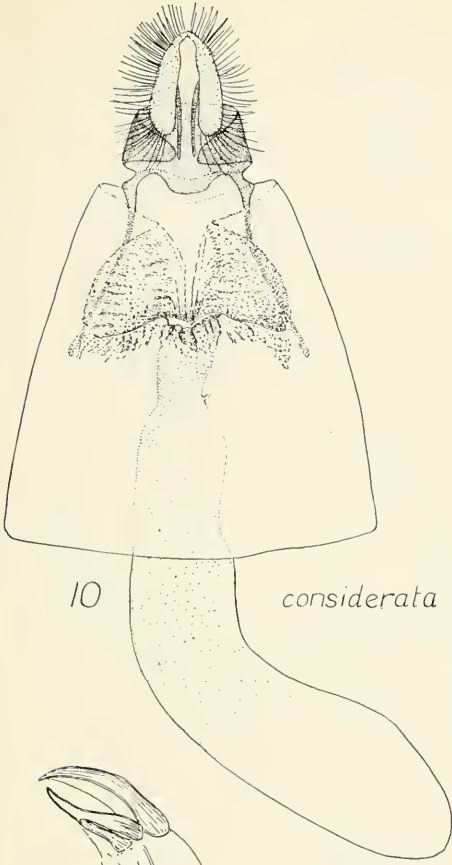
6 *barberiana*



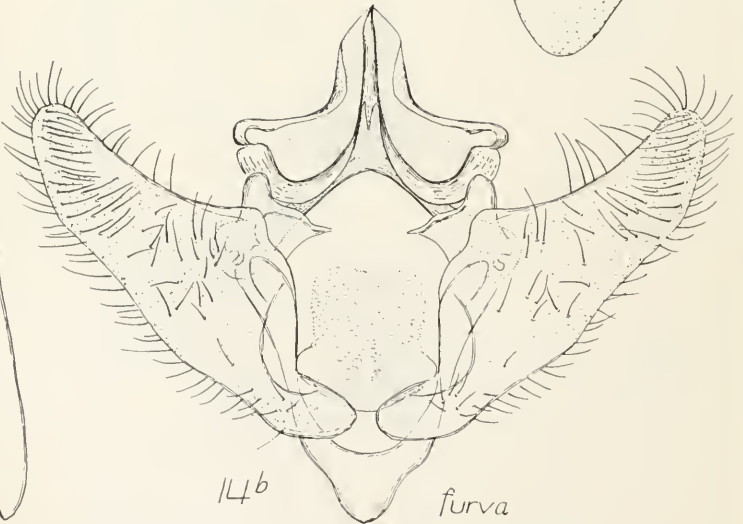
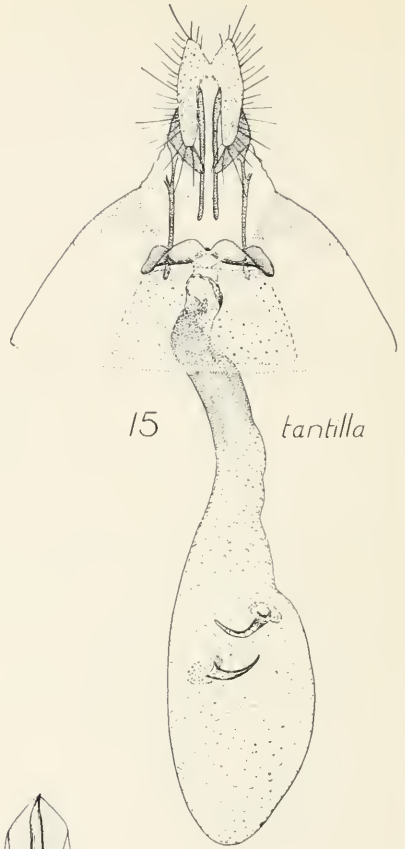
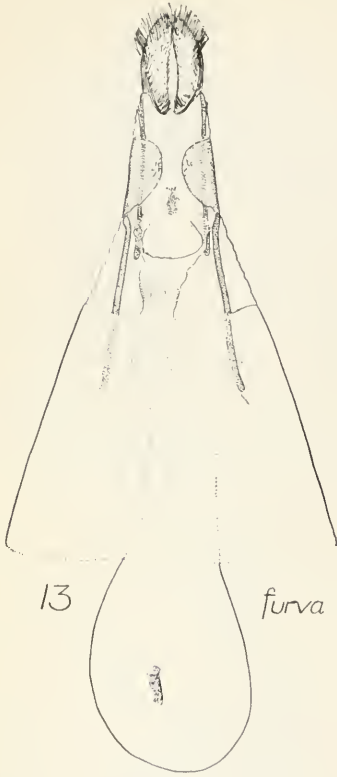
8 *cucullata*



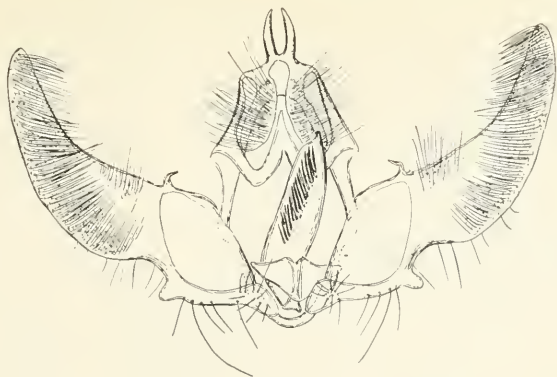
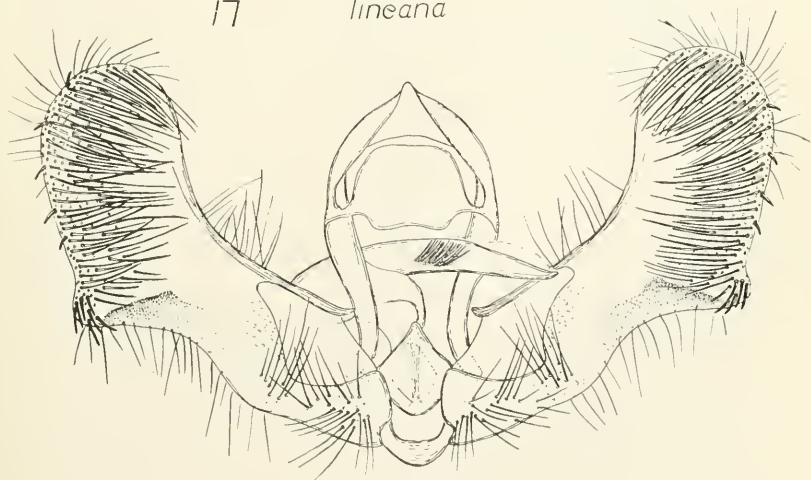
9 *cucullata*



GENITALIA OF PYRALIDAE
 FOR EXPLANATION OF PLATE SEE PAGE 16.

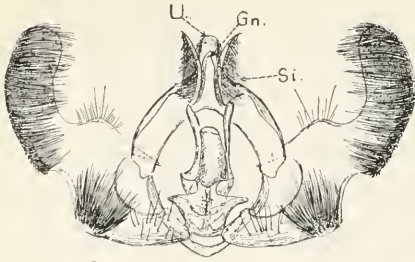


GENITALIA OF PYRALIDAE AND OLETHREJTIDAE
FOR EXPLANATION OF PLATE SEE PAGE 16.

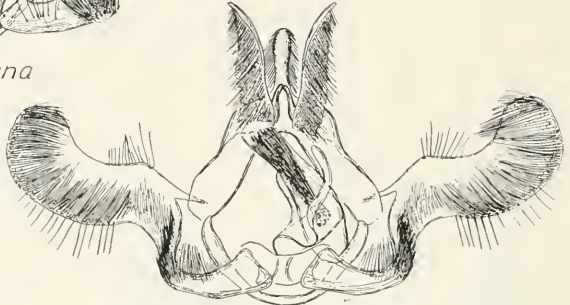
16 *brauni*17 *lineana*18 *desotatum*

MALE GENITALIA OF OLETHREUTIDAE

FOR EXPLANATION OF PLATE SEE PAGE 16.



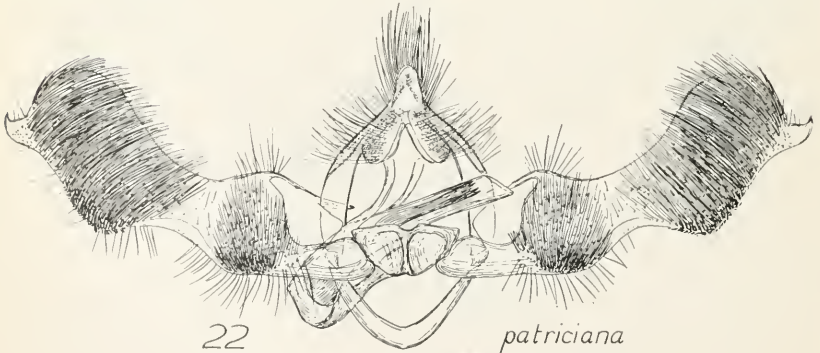
19 *lantana*



20 *accessa*



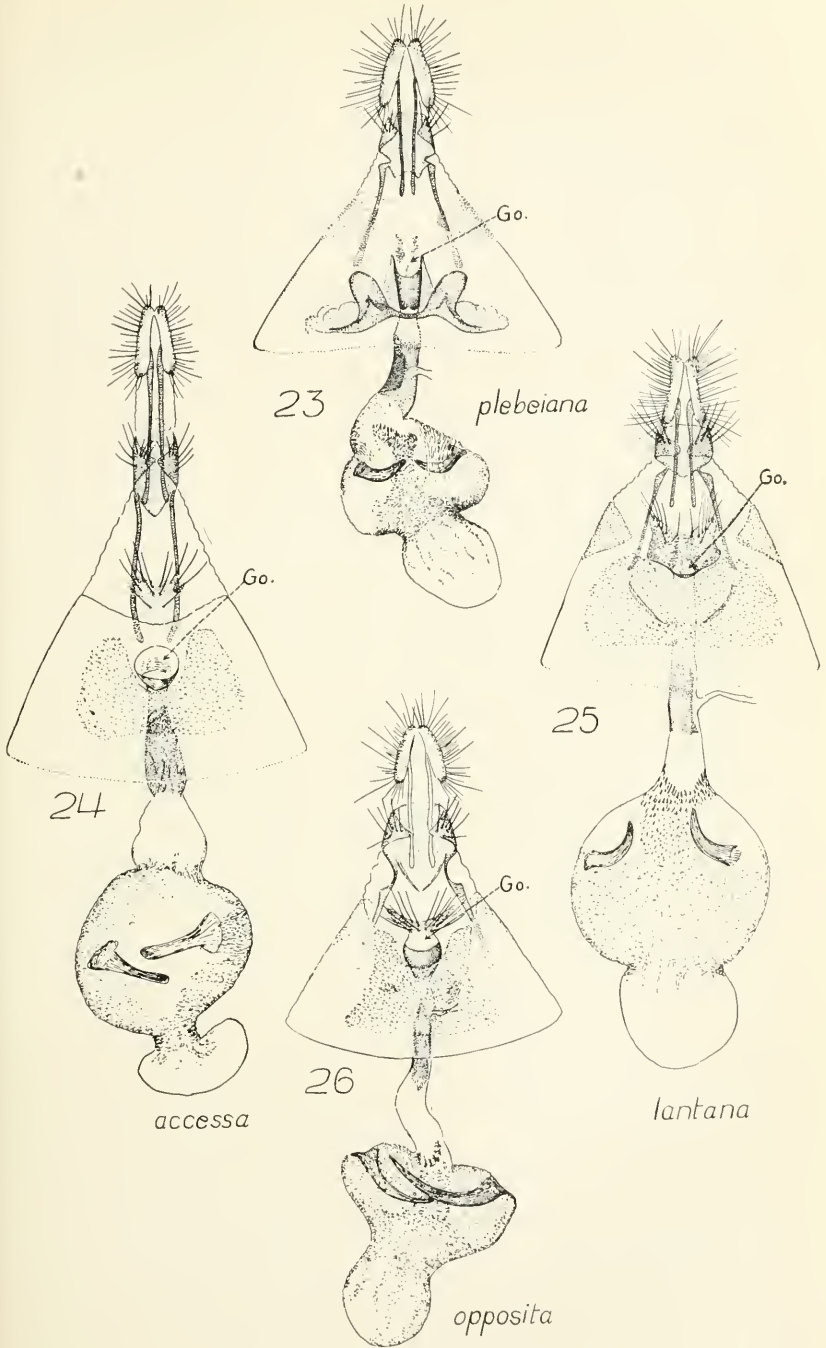
21 *opposita*



22 *patriciana*

MALE GENITALIA OF OLETHREUTIDAE

FOR EXPLANATION OF PLATE SEE PAGE 16.



MALE GENITALIA OF OLETHREUTIDAE
FOR EXPLANATION OF PLATE SEE PAGE 16.