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NORTH AMERICAN STENOMIDAE (LEPIDOPTERA: GELECHIOIDEA)

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Introduction

This is a review of the North American moths of the family Stenomidae, a large family of Microlepidoptera that is especially abundant in Central and South America, where it is represented by hundreds of species of remarkable diversity in size, shape, and color. In North America the family is represented by 24 species in 6 genera, widely distributed throughout the United States and parts of Canada.

Formerly, identification of species in the Stenomidae rested almost solely on coloration and, to a lesser extent, on wing venation. Higher categories, for the most part, were based on wing venation. In recent years, it has been discovered that genitalic characters in the Stenomidae, as in other groups of Lepidoptera, are of value in the separation and definition of closely related species. It seems obvious that the genitalia, in addition to their usefulness in identifying species, have a place of primary importance in characterizing genera. The present study also indicates that the genitalia provide valuable characters for classification at family level.

Busck (1921a) recognized the value of genital characters to higher category concepts and transferred the genus *Setiostoma* Zeller from

Glyphipterygidae to Stenomidae after a careful study of their structures. He also indicated that on the basis of the genitalia, the Stenomidae and Xylorcytidae should be recognized as separate families.

The failure of other workers to accept the evidence available from studies of the genitalia led to controversy and confusion. Meyrick admitted the value of the genitalia as an aid to classification but based his higher categories primarily on wing venation and other characters.

Although the author is convinced that the genitalia are of primary importance in the problems of delimiting higher categories in the Stenomidae, an attempt to solve these problems without first making a detailed study of the Central and South American species would be unrealistic. A generic classification of stenomids is being undertaken presently as a separate study.

The following classification uses structures of both male and female genitalia, as well as color and other adult characteristics. Illustrations of the genitalia of both sexes are given for each species. The terminology used for structures of the male and female genitalia of Lepidoptera is very extensive and complex. Despite this, there is a constant application of new names, as well as misapplication of old ones, by taxonomists who need names for many structures with doubtful homologies. Some workers apply the same name to structures similar in appearance, even in widely separated families, while others hesitate to apply the same name to two structures unless these have been shown to be strictly homologous. The majority of workers do not wish to contribute to further instability of nomenclature but are unable to await the results of morphological studies dealing with the homologies. The nomenclature of the genitalia in this paper follows the recommendations made by Klots in Tuxen's publication (1956) on insect genitalia.

Biological studies and larval host plant records for North American stenomids are few; known records for each species are listed in the text. The larvae of the North American species feed chiefly on trees and shrubs such as oak, maple, and laurel, although one species, *Stenoma mistrella* Busck, has been found on timothy (*Phleum pratense* L.). Exotic species are known to feed on avocado, custard apple (*Annona* sp.), coffee, and cacao.

The literature on the North American species of Stenomidae is somewhat confused because of the uncertainty of many authors as to the relationship of Stenomidae to other closely related families. Much of this uncertainty has come from Edward Meyrick's work (1880, 1889, 1890, 1913, 1915, 1922, 1925, 1928, 1929) in the Stenomidae and related groups.

As mentioned earlier, Meyrick's system of classification was based primarily on wing venation. He also tried to employ a hypothesis, based on a mathematical formula, to provide a convenient artificial system to which he could fit his classification. The desired standard in Meyrick's classification was an average of about 10 species to the genus and 50 genera to the family in the world fauna. His failure to accept classification based on other valuable structures, such as the genitalia, left many unanswered questions concerning relationships of categories within the Stenomidae and relationships of this family to other families.

The relationship between Stenomidae and Xyloryctidae has presented a difficult problem; Busck (1921a) transferred the genus *Setiostoma* Zeller from Glyphipterygidae to Stenomidae. Forbes (1923) evidently felt the two families were not distinct because he listed them as subfamilies under the family Xyloryctidae. Clarke (1955a) recognized them as separate families: the Xyloryctidae being confined principally to the Old World and the Stenomidae to the New World.

The genus *Stenoma* Zeller, upon which the family is based, is still a doubtful entity. The type species, *Stenoma litura* Zeller, is based on a single female now in the British Museum that, according to Clarke (1955a), is unlike any of the approximately 600 species that have been placed as congeners. Clarke (1955a) also states that this great mass of species is still a heterogeneity that will require close study, with the possible delimitation of many new genera based on diagnostic refinements.

Some genera that have been considered to be doubtful with respect to family affinity are herein treated as Stenomidae on the basis of the genitalia, pending a more comprehensive study of generic relationships throughout the family. In this paper, the family Stenomidae in North America includes the genera *Stenoma*, *Antaeotricha*, *Setiostoma*, *Mothonica*, *Menestomorpha*, and *Menesta*. The genus *Menesta* was moved by Forbes (1923) from the family Gelechiidae to the Stenomidae on the basis of the genitalia, as well as other adult and pupal characters.

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Family Stenomidae Meyrick

Stenomidae Meyrick (in part), 1906, Trans. Roy. Soc. South Australia, vol. 30, p. 50; 1909, Trans. Ent. Soc. London, p. 28; 1912, Trans. Ent. Soc. London, p. 706; 1931, Anal. Mus. Nac. Hist. Nat. Buenos Aires, vol. 36, p. 378.—Walsingham, 1912, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), pp. 153–187; 1913, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), pp. 188–190.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lepidop. North America, vol. 4, p. 236.

Stenomatidae Walsingham, 1907, Proc. U.S. Nat. Mus., vol. 33, p. 214.

Cryptolechiidae Meyrick (in part), 1883, Trans. Ent. Soc. London, p. 124.

Xyloryctidae Meyrick (in part), 1925–1934, Exotic Microlepidoptera, vols. 1–4.—Forbes, 1923, Cornell Agric. Exp. Sta. Mem., vol. 68, p. 250.

Cryptophasidae Fletcher (in part), 1929, Mem. Dept. Agric. India, Ent. Ser., vol. 11, pp. 1–244.

Stenomides Meyrick, 1930, Ann. Naturhist. Mus. Wien, vol. 44, p. 233.

Stenominae Janse, 1932, The moths of South Africa, vol. 1, p. 61.

Type genus.—*Stenoma* Zeller.

Male antenna heavily ciliated ventrally, female with slight or no ciliation, basal segment without pecten; labial palpus compressed, curved gradually dorsad and extending above crown of head. Forewing with 12 veins (or 11 by fusion of veins 2 and 3); vein 1b furcate at base; vein 7 separate to termen, apex or costa; veins 2–3 and 4 separate, connate, or stalked; veins 2 and 3 fused, stalked, or separate. Forewing typically much more than twice as long as wide; shorter in *Menesta* and *Setiostoma*. Hindwing with veins 6 and 7 stalked; 3 and 4 connate, stalked, or fused; vein 5 close to, connate, or fused with 4; typically very broad with rounded termen.

Male genitalia: Symmetrical; harpes simple or divided into lobes, bearing bifurcate setae that may be long and straight, long and recurved, or short; socii and transtilla absent; anellus a simple plate or with moderately or well-developed lateral processes. Vinculum band-like, complete or incomplete. Gnathos present; uncus present, well developed or reduced.

Female genitalia: Genital plate variously sclerotized or membranous; corpus bursae with or without signum.

Key to Species of North American Stenomidae Based on Genitalia

1. Male 2
   Female 24
2. Harpes with thumblike projection on costa bearing long, recurved, bifurcate setae . . . . . (Genus *Antaeotricha* Zeller) 3
   Harpes without such a projection 17

3. Anellus with lateral lobes 4
   Anellus without lateral lobes 15
4. Anellus with two lateral lobes 5
   Anellus with four lateral lobes 11
5. Tip of gnathos broad, notched 6
   Tip of gnathos narrow, unnotched 7
6. Left lobe of anellus forked . . . . . 1. **Antaeotricha schlaegeri** (Zeller)
   Left lobe of anellus simple . . 2. **Antaeotricha lindseyi** (Barnes and Busck)
7. Uncus simple; lobes of anellus small, bearing setae at tips; cornuti a long mass of small spines . . . . . 8. **Antaeotricha irene** (Barnes and Busck)
   Uncus not simple; combination of characters not as above 8
8. Aedeagus with cornuti; combination of characters not as below 9
   Aedeagus without cornuti; uncus with dilated tip; lateral lobes of anellus upright, sharply pointed . . . 11. **Antaeotricha haesitans** (Walsingham)
9. Vinculum produced into dorsally projecting process in front.
   13. **Antaeotricha fuscorectangulata**, new species
   Vinculum not produced into dorsally projecting process 10
10. Uncus with broadened tip; aedeagus flaring apically.
   4. **Antaeotricha leucillana** (Zeller)
   Uncus with tip terminating in two short spines; aedeagus short, broad, truncate at tip . . . . . 15. **Antaeotricha manzanitae** Keifer
11. Uncus distinctly notched at tip, aedeagus with cornuti a large irregular group of very small spines; with lateral recurved process.
   7. **Antaeotricha furcata** (Walsingham)
   Uncus without notched tip, aedeagus without cornuti and without lateral recurved process 12
12. Gnathos divided into two lobes at tip 13
   Gnathos not divided into two lobes at tip 14
13. Lobes on tip of gnathos blunt . . 3. **Antaeotricha unipunctella** (Clemens)
   Lobes on tip of gnathos acuminate.
   14. **Antaeotricha vestalis** (Barnes and Busck)
14. Lobes of anellus unequal, dorsal lobe large, laterally curved, with dense, brushlike group of spines on inner margin of apical third; ventral lobes reduced, setiferous; aedeagus without spine.
   6. **Antaeotricha decorosella** (Busck)
   Lobes of anellus approximately equal in size, dorsal ones with heavy spines at tip, ventral ones setiferous; aedeagus with apical spine.
   5. **Antaeotricha osseella** (Walsingham)
15. Anellus V-shaped, uncus dilated at tip, not cleft.
   9. **Antaeotricha humilis** (Zeller)
   Anellus not V-shaped, uncus not dilated at tip 16
16. Uncus attenuate, cleft at tip.
   11. **Antaeotricha thomasi** (Barnes and Busck)
   Uncus truncate, not cleft at tip . . 10. **Antaeotricha agrioschista** (Meyrick)
17. Harpes simple with palmate, multilobed setae on outer part of costa.
   (Genus *Setiostoma* Zeller) 18
   Harpes simple or compound without palmate, multilobed setae on outer part of costa 19
18. Cornuti consisting of more than one large single spine.
   2. **Setiostoma fernaldella** Riley
   Cornuti consisting of one large single spine.
   1. **Setiostoma xanthobasis** Zeller

19. Harpes compound 20
Harpes simple 21
20. Sacculus with prominent bifurcate lobe.
(Genus *Mothonica* Walsingham) 1. **Mothonica kimballi**, new species
Sacculus a large fleshy lobe . . (Genus *Menestomorpha* Walsingham)
1. **Menestomorpha oblongata** (Walsingham)
21. Uncus reduced . . . . . (Genus *Stenoma* Zeller) 22
Uncus large, tapering, curved ventrad, lying parallel to gnathos.
(Genus *Menesta* Clemens) 23
22. Aedeagus large, flared apically; cornuti two clusters of very heavy spines.
1. **Stenoma mistrella** Busck
Aedeagus small, broad; cornuti one small cluster of heavy spines.
2. **Stenoma crambitella** Walsingham
23. Cornuti consisting of two heavy spines.
1. **Menesta tortriciformella** Clemens
Cornuti consisting of one heavy spine. . . 2. **Menesta melanella** Murtfeldt
24. Anterior apophyses fused to genital plate or very reduced.
(Genus *Antaeotricha* Zeller) 25
Anterior apophyses free, well developed 37
25. Corpus bursae with signum 28
Corpus bursae without signum 26
26. Corpus bursae corrugated, genital plate bandlike.
15. **Antaeotricha manzanitae** Keifer
Corpus bursae not corrugated, genital plate not bandlike 27
27. Genital plate reduced, lamella antevaginalis and postvaginalis not differentiated, ductus bursae short, sclerotized, corpus bursae small.
4. **Antaeotricha leucillana** (Zeller)
Genital plate well developed, lamella antevaginalis small, forming triangular flap over ostium . . . . . 12. **Antaeotricha haesitans** (Walsingham)
28. Genital plate reduced to simple band, signum with single large spine. . 29
Genital plate more complex, signum a small- to large-toothed plate . . 32
29. Anterior apophyses fused to genital plate.
11. **Antaeotricha thomasi** (Barnes and Busck)
Anterior apophyses small, not fused to genital plate 30
30. Ostium bursae with a pouchlike evagination between ostium and inception of ductus seminalis . . 13. **Antaeotricha fuscorectangulata**, new species
Ostium bursae without such an opening 31
31. Genital plate excavated along posterior margin, ductus bursae short.
10. **Antaeotricha agrioschista** (Meyrick)
Genital plate not excavated, ductus bursae long.
9. **Antaeotricha humilis** (Zeller)
32. Ostium opening near center of genital plate. 33
Ostium opening near anterior margin of genital plate 36
33. Ductus bursae sclerotized from midpoint to corpus bursae
8. **Antaeotricha irene** (Barnes and Busck)
Ductus bursae not sclerotized 34
34. Posterior margin of genital plate cleft medially.
5. **Antaeotricha osseella** (Walsingham)
Posterior margin of genital plate not cleft 35
35. Genital plate with median T-shaped process extending over ostium.
3. **Antaeotricha unipunctella** (Clemens)
Genital plate without process . . . . . 14. **Antaeotricha vestalis** (Zeller)

36. Genital plate with large, median, elevated area directly posterior to ostium 37
Genital plate without such an area . . 6. **Antaeotricha decorosella** (Busck)
37. Ductus bursae thick, short, approximately same length as corpus bursae.
7. Antaeotricha furcata (Walsingham)
Ductus bursae slender, long, approximately twice length of corpus bursae.
1. Antaeotricha schlaegeri (Zeller)
or **2. Antaeotricha lindseyi** (Barnesand Busck)
38. Genital plate membraneous . . . . . (Genus *Setiostoma* Zeller) 39
Genital plate not membraneous 40
39. Corpus bursae with signum . . . . . 1. **Setiostoma xanthobasis** Zeller
Corpus bursae without signum . . . . . 2. **Setiostoma fernaldella** Riley
40. Genital plate fused to eighth sternum . . . . . (Genus *Stenoma* Zeller) 41
Genital plate not fused to eighth sternum. 42
41. Corpus bursae with one lightly sclerotized signum.
1. Stenoma mistrella Busck
Corpus bursae with two lightly sclerotized, dentate signa.
2. Stenoma crambitella Walsingham
42. Signum large, dumbbell-shaped, dentate.
1. Mothonica kimballi, new species
Signum not as above 43
43. Genital plate reduced to small, median, triangular sclerite.
(Genus *Menesta* Clemens) 44
Genital plate reduced to simple liplike band surrounding ostium.
1. Menestomorpha oblongata Walsingham
44. Corpus bursae with heavily sclerotized, cross-shaped signum with median projecting lobe . . . . . 1. **Menesta tortriciformella** Clemens
Corpus bursae with heavily sclerotized, rectangular signum with median projecting lobe . . . . . 2. **Menesta melanella** Murtfeldt

Genus *Antaeotricha* Zeller

Antaeotricha Zeller, 1854, Linn. Entom., vol. 9, p. 390.

1. *Antaeotricha schlaegeri* (Zeller)

FIGURES 1, 24; PLATE 1a; MAP 1

Cryptolechia schlaegeri Zeller, 1854, Linn. Entom., vol. 9, p. 372; 1855, Linn. Entom., vol. 10, p. 158; 1873, Verh. Zool.-Bot. Ges. Wien, vol. 23, p. 246.
Stenoma schlaegeri Walsingham, 1889, Insect Life, vol. 2, p. 152.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Forbes, 1923, Cornell Agric. Exp. Sta. Mem., vol. 68, p. 252.
Antaeotricha schlaegeri Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 28.

Alar expanse 21–27 mm.

Color: Face white; palpus white, sprinkled with dusky scales. Legs white; foreleg smoky; midleg with dark tarsi ringed with light scales. Thorax white dorsally with brownish-black tuft posteriorly. Abdomen white. Forewings white, basal half with conspicuous, mixed light and dark brown, somewhat raised patch of scales on hindmargin from basal angle almost to middle of wing, apical half with irregular discal area of dusky scales; postmedial and

subterminal bands broad, even; dusky terminal band very narrow, cut into spots; black line, usually broken, in base of cilia. Hindwing very pale tan with white cilia.

Male genitalia: Uncus simple, curved ventrad; gnathos very broad, broadly notched at tip; harpes each with costa bearing a thumblike projection with long, recurved, bifurcate setae; vinculum complete; anellus with two large, upright lateral lobes, one forked, the other simple; aedeagus with apex acute, cornuti absent.

Female genitalia: Genital plate large, lamella antevaginalis a small, semicircular plate; lamella postvaginalis larger, with median elevated area; ostium bursae and ductus bursae membranous; corpus bursae with signum large, dentate; inception of ductus seminalis near ostium. Anterior apophyses fused to genital plate.

Type: In the British Museum (Natural History).

Type locality: New York.

Food plant: *Quercus alba* L.

Distribution: QUEBEC: Meach Lake (May, June). NEW YORK: Allegany State Park (June, July, Aug.); Flatbush (June); Ilion (June). MASSACHUSETTS: Martha's Vineyard (June); Vineyard Haven (June). PENNSYLVANIA: Beaver Co. (May); New Brighton (May, June); Pittsburgh (May). NEW JERSEY: Essex Co. Park (May, June). DELAWARE: New Castle (June). MARYLAND: Plummers Island (May); Riverdale (June). DISTRICT OF COLUMBIA: Washington (June). VIRGINIA: Falls Church (May, Aug.); Grange Camp (May). NORTH CAROLINA: Raleigh (April, June, Aug.). ARKANSAS: Oracle (July). MISSOURI: St. Louis (June). ILLINOIS: Quincy (May); Decatur (May). IOWA: Iowa City (June); Sioux City (May); Homestead (May). TEXAS: Waco (May); Dallas. ARIZONA: Huachuca Mts. (Oct.); Palmerlee; Oracle (July).

This species is very similar to *Antaeotricha lindseyi*. Possibly the two are conspecific, but until series of *A. lindseyi* can be obtained and the variation studied, I prefer to recognize them as distinct species. They may be distinguised by differences in the shapes of the aedeagus and of one of the anellar lobes. Significant differences in the female genitalia have not been found.

2. *Antaeotricha lindseyi* (Barnes and Busck)

FIGURE 2; PLATE 1b; MAP 1

Stenoma lindseyi Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 239.

Antaeotricha lindseyi Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 25.

Alar expanse 25–28 mm.

Color: Face, palpus, and legs white. Thorax white dorsally with brown tuft of scales posteriorly. Abdomen white. Forewing longer,

narrower, and more pointed than in *A. schlaegeri*, and with dark area on hindmargin (which is interrupted near middle of forewing in *A. schlaegeri*) continued to anal angle. Hindwing of male dark brownish, considerably darker than those of *A. schlaegeri*.

Male genitalia: As in *A. schlaegeri*, except anellar lobe hooked instead of forked, and aedeagus shaped differently.

Female genitalia: As in *A. schlaegeri*.

Type: In the United States National Museum.

Type locality: Paradise, Cochise County, Arizona.

Food plant: Unknown.

Distribution: ARIZONA: Prescott (Sept.); Paradise, Cochise Co. (July, Sept.); Gila Co. (June); Palmerlee; Yavapai Co. (Sept.); (Huachuca Mts.; Baboquivarii Mts. (July); Mohave Co. (Sept.); Dewey; Redington. NEW MEXICO: Rincon (June); Ft. Wingate (June).

This species is closely related to *A. schlaegeri;* the distinguishing characters have been noted under that species.

3. *Antaeotricha unipunctella* (Clemens)

FIGURES 3, 25; PLATE 1c; MAP 2

Brachiloma unipunctella Clemens, 1863, Proc. Ent. Soc. Philadelphia, vol. 2, p. 126; 1872, The Tineina of North America, p. 232.—Busck, 1903a, Proc. Ent. Soc. Washington, vol. 5, p. 214.

Cryptolechia lithosina Zeller, 1873, Verh. Zool.-Bot. Ges. Wien, vol. 23, p. 244.

Harpalyce tortricella Chambers, 1874, Canadian Ent., vol. 6, p. 235.

Ide tortricella Chambers, 1877, Bull. U.S. Geol. Surv., vol. 3, p. 122, 141.

Ide lithosina Walsingham, 1889, Insect Life, vol. 2, p. 155.

Stenoma unipunctella Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Forbes, 1923, Cornell Agric. Exp. Sta. Mem., vol. 68, p. 253.

Antaeotricha unipunctella Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 30.

Alar expanse 20–22 mm.

Color: Face and palpus white. Foreleg brownish; mid- and hindleg white. Thorax stramineous dorsally. Forewing stramineous; discal cell with or without one or two brownish dots apically. Hindwing white.

Male genitalia: Uncus a long, narrow stem beyond dilated base, arched and spatulate at apex. Gnathos broad, divided into two rounded lobes at tip; harpes as in *A. schlaegeri;* vinculum complete, arching in front; anellus with four lateral lobes, two on each side of aedeagus, hindlobes longer and with heavy spines apically; aedeagus dilated at base, tapering to smoothly rounded tip, cornuti absent.

Female genitalia: Genital plate wide, short; ostium bursae sclerotized; ductus bursae membranous; corpus bursae with signum large, dentate; inception of ductus seminalis near ostium.

Type: In Academy of Natural Sciences of Philadelphia.

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Type locality: Pennsylvania (*B. unipunctella*), Texas (*C. lithosina*, *H. tortricella*).

Food plant: *Quercus* sp. In the USNM collection there is one specimen that has been reared from chestnut.

Distribution: FLORIDA: Fort Myers (April); Cocoanut Grove; St. Petersburg (Oct.); Enterprise (May); Hastings (Sept.); Oneco (May); Weeki Wachee Springs (May); Sarasota (May). LOUISIANA: Natchitoches Parish (Aug.). TEXAS: Kerrville (April, May, June, Aug.); Burnett Co. (Sept., Oct.); Belfrage; Shovel Mt. (July). ARIZONA: Yavapai Co.; Ft. Grant (July).

This species is very similar to *A. decorosella* in both coloration and genitalia; however, the forewings are stramineous in color, the male genitalia have a much larger and more broadly notched gnathos, the aedeagus is shaped differently, and the female genital opening is in the center of the genital plate rather than on the anterior edge.

4. *Antaeotricha leucillana* (Zeller)

FIGURES 4, 26; PLATE 1d; MAP 3

Cryptolechia leucillana Zeller, 1854, Linn. Entom., vol. 9, p. 370.

Cryptolechia algidella Walker, 1864, List of the specimens of lepidopterous insects in the collection of the British Museum, vol. 29, p. 710. (New synonymy.)

Stenoma leucillana Walsingham, 1889, Insect Life, vol. 2, p. 153.

Stenoma algidella Walsingham, 1889, Insect Life, vol. 2, p. 153.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.

Antaeotricha leucillana Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 25.

Alar expanse 15–23 mm.

Color: Face and palpus white, sprinkled with brown. Legs white; forelegs covered with dark scales. Thorax white dorsally with brownish black tuft posteriorly as in *A. schlaegeri* but former with brown cilia on apical half.

Male genitalia: Uncus with broadened, bifid tip; gnathos simple, slender, ending in a kind of beak; harpes as in *A. schlaegeri*, vinculum complete, anellus with two rounded, lateral lobes; aedeagus large, flaring apically with ventral half extending farther than dorsal and forming a broad lip; cornuti a cluster of many medium-sized spines.

Female genitalia: Genital plate reduced to simple band; ostium bursae and ductus bursae short, sclerotized; corpus bursae small; signum absent; inception of ductus seminalis near ostium.

Type: Unknown.

Type locality: Georgia (*C. leucillana*), Nova Scotia (*C. algidella*).

Food plants: *Pyracantha crenulata* (Roxb.), *Malus* sp., *Vaccinium corymbosum* L., *Acer* sp. Frost (1931) gives an account of the life history of *S. algidella* (= *A. leucillana*).

Distribution: NEW HAMPSHIRE: Hampton (June, July); White Mts. MASSACHUSETTS: Martha's Vineyard (July). NEW YORK:

Orient (Aug., Sept., Oct.); McLean Bogs Reserve (May, June); Ithaca (May, June, Aug.); Boreas River, Essex Co. (July); Mattituck (June); Trenton Falls (June); Rock City (June); West Falls (Aug.); Buffalo (July); E. Aurora (May, June); Horseheads (May); Monroe Co. (June). PENNSYLVANIA: South Gibson (Aug.); Oak Station (May, July); New Brighton (April, May, June); Pittsburgh (May, Aug.); Beaver Co. (May). NEW JERSEY: Reach (Aug.); Anglesea (May); Park (Aug.); Whitesbog (May, Oct.); Oakland (Aug.); New Lisbon (July). MARYLAND: Plummers Island (June, Aug.); Hyattsville (May); Cabin John (June). DISTRICT OF COLUMBIA: Washington (May, June). VIRGINIA: Shenandoah (Aug.); Stafford (May). WEST VIRGINIA: White Sulphur Springs (July). NORTH CAROLINA: Tryon (May); Southern Pines (July, Aug.); White Lake (July). SOUTH CAROLINA: Oconee (Aug.). FLORIDA: Gainesville (July); St. Petersburg (Jan.); Vero Beach (Feb., March, Oct., Nov.); Oneco (June); Weeki Wachee Springs (June); Siesta Key (May, June); Bradenton (Aug.); Pensacola (March). GEORGIA: Savannah (July). ALABAMA: Camp Rucker (April); Flatwood (June); Leroy (June). MISSISSIPPI: Biloxi (June); Ocean Springs (April); Bolton (Aug.). ARKANSAS: Sulphur City (Aug.). MISSOURI: Mountain Grove (July). KANSAS: Lawrence (April, May). ILLINOIS: Decatur (March, April, May). IOWA: Iowa City (July); Sioux City (June, July); Homestead (May). OHIO: Cuyahoga Co. (May); Dayton (May). MANITOBA: Cartwright. TEXAS: Denver (June); Brownsville (June); San Benito (Aug.); Kerrville (June); Tiger Mill; Victoria (Sept.); Shovel Mt. (July); Mathis (Aug.); Laredo (Sept.); Mercedes; Dallas (April). OREGON: Ritter, Grant Co. (June). LOUISIANA: Sam Houston State Park (Aug).

This species is very similar to *A. schlaegeri* in coloration but it is generally smaller. The presence of an uncus with a broadened bifid tip and a broad, apically flared aedeagus in the male genitalia, and a reduced genital plate and small corpus bursae in the female genitalia readily separate this species from *A. schlaegeri*.

The name of this species has been in doubt for a number of years. The type locality for Walker's *C. algidella* is Nova Scotia and for Zeller's *C. leucillana* is Georgia. There is, according to Walsingham (1889), some color variation between the southern and northern limits of distribution and this variation is responsible for Walker's description of *C. algidella*. Although the location of Zeller's type is uncertain, a Zeller specimen from Texas labeled *C. leucillana* in the British Museum is identical to Walker's type of *C. algidella*. Obviously this problem cannot be resolved adequately until Zeller's type of *C. leucillana* is studied and compared with that of Walker's *C. algidella*; however, since indirect evidence indicates that both names

apply to the same species, and, since *C. leucillana* is the older name, the latter is adopted provisionally here.

5. *Antaeotricha osseella* (Walsingham)

FIGURES 5, 27; PLATE 1e; MAP 4

Ide osseella Walsingham, 1889, Insect Life, vol. 2, p. 155.

Brachyloma querciella Busck, 1908, Proc. Ent. Soc. Washington, vol 10, p. 111. (New synonymy).

Stenoma querciella Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Forbes, 1923, Cornell Agric. Exp. Sta. Mem., vol. 68, p. 253.—Busck, 1925, Proc. Ent. Soc. Washington, vol. 27, p. 48.

Stenoma osseella Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 239.

Antaeotricha osseella Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 26.

Antaeotricha querciella Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 27.

Alar expanse 22–24 mm.

Color: Face and palpus whitish sprinkled with brown scales. Legs whitish, forelegs dark fuscous anteriorly. Thorax brown dorsally. Abdomen ochreous. Forewing brown with strong lustre; with two blackish dots at end of cell, anterior one more proximal than posterior one. Hindwing light tan with white cilia.

Male genitalia: Uncus similar to *A. unipunctella*, with spatulate tip, but not as arched. Gnathos broadly notched at tip; harpes as in *A. schlaegeri;* vinculum complete, arching in front; anellus as in *A. unipunctella* but larger and notched medially; aedeagus tapering to rounded apex bearing a small apical spine. Cornuti absent.

Female genitalia: Genital plate wide, short, with median slot. Ostium bursae large; ductus bursae long, membranous; corpus bursae narrow with signum large, dentate; inception of ductus seminalis near ostium.

Type: In the British Museum (Natural History).

Type locality: California (*I. osseella*), Montclair, New Jersey (*B. querciella*).

Food plant: *Quercus alba* L., *Quercus muehlenbergii* Engelm.

Distribution: NEW YORK: Ithaca (July, Aug., Sept.). NEW JERSEY: Lakehurst (Aug., Sept.); Brown's Mills (July). NORTH CAROLINA: Highlands (June, Aug.); Brevard (Aug.). SOUTH CAROLINA: Oconee (Aug., Sept.); Greenville; Anderson (June). WEST VIRGINIA: White Sulphur Springs (July). MARYLAND: Hyattsville (May, June). DISTRICT OF COLUMBIA: Washington (Sept.). MASSACHUSETTS: Newton Highlands. PENNSYLVANIA: New Brighton (July, Aug.). ILLINOIS: Decatur (July). ARKANSAS: Washington Co. (July, Aug.). TEXAS: Burnet Co. MISSOURI: Columbia.

This species is similar in size to *A. decorosella* and *A. unipunctella*, but the coloration is distinct. The spine on the tip of the aedeagus

in the male and the median slot in the genital plate in the female are distinctive genital characters.

The identity of this species has been in doubt for some time. Keifer (1937) discusses the status of the name *osseella* and states: "At the present time I know of no further published elucidation of the application of the name *osseella.*" I have examined the genitalia of Busck's type of *B. querciella* and photographs of the genitalia of Walsingham's type of *I. osseella* and found the two identical. Since Walsingham's is the older name, Busck's *B. querciella* must fall.

6. *Antaeotricha decorosella* (Busck)

FIGURES 6, 30; PLATE 1f; MAP 4

Brachyloma decorosella Busck, 1908, Proc. Ent. Soc. Washington, vol. 10, p. 111.
Stenoma decorasella [sic] Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 256.
Stenoma decorella [sic] Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 256.
Antaeotricha decorosella Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 21.

Alar expanse 22–24 mm.

Color: Face whitish ochreous; palpus brownish ochreous. Foreleg rich brown; midleg a somewhat lighter shade; hindleg white. Thorax dark brown dorsally. Abdomen whitish ochreous. Forewing dark brown; costal edge narrowly light ochreous; cell with barely perceptible darker brown apical spot. Hindwing whitish fuscous with cilia ochreous.

Male genitalia: Uncus curved, dilated at tip and only slightly indented; gnathos well developed and notched at tip; harpes as in *A. schlaegeri;* anellus with four lobes, ventral ones small amd thumblike, bearing several setae at their apex, dorsal ones large, laterally curved, with dense, brushlike group of spines on inner margin of apical third. Aedeagus long, with slightly pointed apex; cornuti absent.

Female genitalia: Genital plate large, lamella antevaginalis a small liplike band, lamella postvaginalis much larger, slightly elevated in center; ostium bursae large, slightly sclerotized; ductus bursae long, membranous; corpus bursae with large, toothed signum; inception of ductus seminalis near ostium.

Type: In the United States National Museum.

Type locality: Montclair, New Jersey.

Food plant: *Quercus ilicifolia* Wang, *Quercus marilandica* Muench.

Distribution: NORTH CAROLINA: Tryon (Aug.). NEW JERSEY: New Lisbon (Aug.); Lakehurst (July, Aug.). FLORIDA: St. Petersburg (April). MASSACHUSETTS: Martha's Vineyard (Aug.).

This species is similar to *A. unipunctella,* but it differs in the presence of a dense, brushlike group of spines on the dorsal lobes of the anellus

in the male genitalia and in the location of the genital opening at the anterior edge of the genital plate in the female.

7. *Antaeotricha furcata* (Walsingham)

FIGURES 7, 28; PLATE 2a; MAP 4

Stenoma furcata Walsingham, 1889, Insect Life, vol. 2, p. 153.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.

Antaeotricha furcata Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 23.

Alar expanse 27–30 mm.

Color: Face and palpus white. Legs whitish, unspotted. Thorax whitish slightly sprinkled with dusky scales dorsally, without tuft of dark scales posteriorly. Abdomen cinereous. Forewing white; patch of dark, raised scales at base of posterior edge as in *A. schlaegeri;* with brownish-grey scales extending from this to anal angle behind discal cell; with faint greyish clouds and spots at apex of cell and brownish-grey transverse line between this and apical margin. Hindwing dark cinereous in male; pale greyish ochreous in female. Cilia white, shaded with grey at tip; few divided black scales present.

Male genitalia: Uncus curved, widened, and distinctly notched at tip; gnathos somewhat reduced in size, notched at tip; harpes as in *A. schlaegeri;* anellus with four lobes, ventral ones small with pointed apex bearing several setae, dorsal ones larger, truncate, bearing several setae at apex; aedeagus long, a long recurved process near apex, apex pointed; cornuti a large cluster of very small spines.

Female genitalia: Genital plate large, lamella antevaginalis moderately large and liplike, lamella postvaginalis with two lateral depressions and median elevated area; ostium bursae large; ductus bursae short, membranous; corpus bursae with toothed signum; inception of ductus seminalis near ostium.

Type: In the British Museum (Natural History).

Type locality: Arizona.

Food plant: Unknown.

Distribution: ARIZONA: Paradise, Cochise Co. (May, June); Madera Canyon, Santa Rita Mts. (Aug., Sept., Oct.); Morrison; Nogales (May). NEW MEXICO: Ruidosa Canyon (July).

This species is similar to *A. schlaegeri* and *A. lindseyi* in color, but the distinctive aedeagus and notched uncus serve to separate the males, while the characteristic genital plate and the short, thick ductus bursae separate the females.

8. *Antaeotricha irene* (Barnes and Busck)

FIGURES 8, 8a, 29; PLATE 2b; MAP 5

Stenoma irene Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 239.

Antaeotricha irene Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 24.

Alar expanse 19–20 mm.

Color: Face white; palpus white sprinkled with brown exteriorly. Legs white; foreleg with dark scales on outer side, mid- and hindlegs with dusky tarsi. Thorax ranging from dark fuscous to white dorsally with somewhat large, dark, rounded tuft posteriorly. Abdomen white sprinkled dorsally with dusky scales. Females with forewing white, extreme base of posterior edge fuscous; conspicuous dark spot at apical two-thirds; more distal, lighter, irregular band extending to posterior edge; and still more distal, very faint, narrow, transverse, outwardly curved line across apical part of wing. In some specimens a cloudy spot at midlength of posterior edge. Male with entire basal portion of forewing blackish brown and, in addition to markings of female, with additional cloudy, ill-defined, more or less transverse areas on middle of forewing and across apical third; also an interrupted line of small black marginal dots on apex. Hindwing light whitish fuscous; cilia white.

Male genitalia: Uncus simple; gnathos well developed and pointed at tip; harpes as in *A. schlaegeri;* anellus narrow, with two small lobes; aedeagus large, sharply pointed at apex; cornuti a long mass of small spines.

Female genitalia: Genital plate a small band; ostium bursae sclerotized, opening near center of genital plate; ductus bursae long, membranous from ostium bursae to midlength, sclerotized from midlength to corpus bursae; corpus bursae with dentate signum; inception of ductus seminalis near ostium.

Type: In the United States National Museum.

Type locality: Brownsville, Texas.

Food plant: *Sida* spp.

Distribution: Texas: Brownsville (Jan., June,; San Benito (July, Aug., Sept.).

This species is intermediate between *A. leucillana* and *A. vestalis* in color, differing, in the male genitalia, by the presence of a simple uncus and a large cornutus in the aedeagus, and, in the female, by the lower part of the ductus bursae being sclerotized.

9. *Antaeotricha humilis* (Zeller)

Figures 11, 31; Plate 2c; Map 5

Cryptolechia humilis Zeller, 1855, Linn. Entom., vol. 10, p. 156.
Cryptolechia nebeculosa Zeller, 1873, Verh. Zool.-Bot. Ges. Wien, vol. 23, p. 245.
Harpalyce canusella Chambers, 1874, Canadian Ent., vol. 6, p. 235.
Stenoma humilis Walsingham, 1889, Insect Life, vol. 2, p. 154.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.
Antaeotricha humilis Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 24.

Alar expanse 12–15 mm.

Color: Face white sprinkled with brown; palpus white, sprinkled with brown exteriorly. Foreleg brown, tarsi ringed with white;

midleg white sprinkled with brown; hindleg white. Thorax brown dorsally, without posterior tuft. Abdomen whitish ochreous. Forewing ash grey with three diffuse brown spots on anterior margin; three dark dots in midline, middle dot less distinct; two transverse bands on posterior margin; faint, curved subterminal band and row of dark terminal dots. Hindwing light tan; cilia tan.

Male genitalia: Uncus curved, dilated at tip; gnathos well developed, somewhat pointed at tip; harpes as in *A. schlaegeri;* anellus V-shaped, without lobes; aedeagus small, with slightly pointed apex; cornuti absent.

Female genitalia: Genital plate small, lamella antevaginalis and lamella postvaginalis not differentiated. Ostium bursae sclerotized, opening at posterior margin of genital plate; ductus bursae long, membranous; corpus bursae with large sclerotized signum; inception of ductus seminalis near ostium; anterior apophyses short, not fused to genital plate.

Type: Not known.

Type locality: South Carolina (*C. humilis*), Texas (*C. nebeculosa, H. canusella*).

Food plant: *Quercus* sp. This species has been reared by the author from larvae collected on oak in North Carolina in July. The larvae tie two leaves together and feed between them. Pupation occurs in the space between the two tied leaves. These observations are casual and a more thorough study of the life history of this species is planned.

Distribution: NORTH CAROLINA: Brevard (June); Tryon (June); Southern Pines (May, June, Sept.); Kinston (July). SOUTH CAROLINA: Oconee (Aug., Sept.). FLORIDA: Gainesville (July); Venice (Dec.); Lake Alfred (July); Royal Palm State Park; Paradise Key (March); Miami; Glenwood; Vero Beach (Feb.); St. Petersburg (May); Panacea (Aug.); Pensacola (Sept.). MISSOURI: Kirkwood (April). MISSISSIPPI: Bay St. Louis (June); Clinton (May). TENNESSEE: Monteagle (July). VIRGINIA: Cape Henry (Aug.); Falls Church (Aug.). ILLINOIS: Oconee (July, Aug.). MARYLAND: Plummers Island (May); Hyattsville (July). TEXAS: Waco; Kerrville (April). INDIANA: Hessville (May). NEW JERSEY: Anglesea (May, June); Lakehurst (May). LOUISIANA: Vowell's Mill (April).

This species is similar to *A. vestalis* in size and coloration, but closer to *A. thomasi* in structures of the male and female genitalia. It is readily separable by the V-shaped anellus without lateral lobes in the male and by the presence of free anterior apophyses in the female.

10. *Antaeotricha agrioschista* (Meyrick)

FIGURES 10, 10a, 34; PLATE 2d; MAP 5

Stenoma agrioschista Meyrick, 1927, Exotic Microlepidoptera, vol. 3, p. 365.—Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 32.

Antaeotricha agrioschista Clarke, 1955b, Catalogue of the type specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick, vol. 2, p. 16, pl. 8, figs. 1–1b.

Alar expanse 20–21 mm.

Color: Antennae mixed brown and white. Face white, lightly shaded with brown; palpus white sprinkled with brown, base of second segment and subapical band of apical segment brown. Legs white, shaded with brown, progressively lighter to rear. Thorax and tegula white heavily shaded with brown. Abdomen white shaded with brown. Forewing white overlaid brown, sprinkled with fuscous; short transverse fuscous line from base of costa; three oblique transverse fuscous lines from costa, one at basal fourth, one at middle and one at apical fourth; cilia white mixed with brown. Hindwing light brown; cilia whitish with brown subbasal line.

Male genitalia: Uncus arched, area near middle expanded ventrally and laterally flattened; gnathos broad, rounded at tip; vinculum complete, arched in front, notched at apex of arch; anellus without lateral lobes; aedeagus slender; cornuti a long cluster of heavy spines.

Female genitalia: Genital plate with excavation on posterior margin. Ostium bursae large, sclerotized; ductus bursae short, membranous; corpus bursae with large sclerotized signum; anterior apophyses short, not fused to genital plate.

Type: In the British Museum (Natural History).

Type locality: Alpine, Texas, 5000–8000 ft.

Food plant: Unknown.

Distribution: TEXAS: Alpine, 5000–8000 ft. (April, May, June).

This species is nearest *A. humilis*, as noted by Meyrick in the original description. The presence of cornuti in the aedeagus and the notched vinculum in *A. agrioschista* readily separate the males, while the excavation on the posterior margin of the genital plate separates the females.

11. *Antaeotricha thomasi* (Barnes and Busck)

FIGURES 12, 32; PLATE 2e; MAP 6

Stenoma thomasi Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 240.

Antaeotricha thomasi Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 29.

Alar expanse 21–24 mm.

Color: Face and palpus creamy white. Legs white sprinkled with dusky scales; tarsal joints dusky. Thorax and abdomen creamy

white. Forewing yellowish creamy white. Hindwing creamy white. Cilia white.

Male genitalia: Uncus curved, attenuated, and cleft at tip; gnathos somewhat pointed at tip; harpes as in *A. schlaegeri;* anellus without distinct lobes, aedeagus bluntly pointed at apex; cornuti a group of heavy spines.

Female genitalia: Genital plate small, bandlike; lamella antevaginalis and postvaginalis similar in size and shape forming liplike structure; ostium bursae and ductus bursae sclerotized; ductus bursae short; corpus bursae large, membranous, with large signum; inception of ductus seminalis near ostium.

Type: In the United States National Museum.

Type locality: Palmerlee, Arizona.

Food plant: Unknown.

Distribution: ARIZONA: Paradise, Cochise Co. (Aug.); Huachuca Mts. NEW MEXICO: Albuquerque (July). COLORADO: Rock Creek Canyon (Aug.).

This species is similar to *A. vestalis* in size and color, but the attenuated cleft uncus in the male distinguishes *A. thomasi* from all other described North American species of this genus.

12. *Antaeotricha haesitans* (Walsingham)

FIGURES 13, 35; PLATE 2f; MAP 6

Aedemoses haesitans Walsingham, 1912, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), p. 154.

Aedemoses hessitans [sic] Heinrich, 1921, Journ. Agric. Res., vol. 20, p. 816.

Antaeotricha hesitans [sic] Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 23.

Alar expanse 12 mm.

Color: Face and palpus ochreous, palpus shaded with fuscous; legs pale ochreous. Thorax ochreous dorsally. Abdomen ochreous. Forewing pale ochreous with two oblique fuscous lines on apical half, more basal one extending from origin of costal cilia directly to tornus, apical one extending from dot near tornus obliquely to costa; minute fuscous spot at base of cell and another at its apex; a few minute fuscous dots at wing apex near base of cilia. Hindwing ochreous, cilia ochreous.

Male genitalia: Uncus long, broadened apically, somewhat indented, gnathos well developed, sharply pointed at tip; harpes as in *A. schlaegeri;* vinculum complete; anellus with two upright, sharply pointed lobes curving laterad, one on either side of aedeagus; aedeagus long, thin, with many sharp processes at apex; cornuti absent.

Female genitalia: Genital plate short, lamella antevaginalis small, forming triangular flap over ostium, lamella postvaginalis larger, smooth; ostium bursae and ductus bursae membranous; corpus bursae

membranous, without signum; inception of ductus seminalis near ostium.

Type: In the British Museum (Natural History).

Type locality: Presidio, Durango, Mexico.

Food plant: *Pitheoellobium flexicaule* Benth. Heinrich (1921) states that the larva is a leaf-tyer, feeding on the food plant by binding together several leaves and feeding within the tie, eating first the epidermis and later all but the veins of the leaves. Pupation occurs within the tie, the pupa being naked and attached to one of the leaves by a strand of silk.

Distribution: TEXAS: Brownsville (March, April, June, Aug.).

Walsingham described a new genus, *Aedemoses*, and a new species based on a unique female with hindlegs missing, collected at Presidio, Durango, Mexico.

13. *Antaeotricha fuscorectangulata*, new species

FIGURES 14, 14a, 33; PLATE 3a; MAP 7

Alar expanse 17–19 mm.

Color: Antenna brown, irregularly shaded with white. Face whitish, shaded lightly with brown; second segment of palpus white; exterior brown basally; apical segment white. Legs whitish shaded with brown, tarsi fuscous, inner side of foreleg fuscous. Thorax ochreous, tegula whitish. Abdomen fuscous dorsally; ochreous ventrally. Forewing white shaded with ochreous, rectangular fuscous area along inner margin of middle third; two fuscous costal spots, one near middle and one at apical fourth; from latter a row of black dots extends from apex along termen to tornus; apical fourth flecked with black scales; two fuscous dots on cell, one basal, one distal; cilia brown basally and apically, white medially. Hindwing light fuscous with whitish costal margin; cilia light fuscous basally, white beyond.

Male genitalia: Uncus arched, spatulate at apex; gnathos rounded at tip; vinculum complete, produced into dorsally projecting process in front; anellus with two laterally curved, pointed lobes; aedeagus long, slender; cornuti a cluster of heavy spines.

Female genitalia: Genital plate small, undifferentiated. Ostium bursae sclerotized, opening at posterior margin of genital plate, pouchlike evagination between opening and inception of ductus seminalis; ductus bursae long, membranous; corpus bursae with large sclerotized signum; anterior apophyses short, not fused to genital plate.

Type: South Fork of Cave Creek, Chiricahua Mts., Arizona. USNM 65824.

Food plant: Unknown.

Distribution: ARIZONA: South Fork of Cave Creek, Chiricahua Mts. (July); Madera Canyon, 4880 ft., Santa Rita Mts. (July).

Described from the male holotype, July 4, 1939, collected by A. F. Braun, South Fork Cave Creek, Chiricahua Mts., Arizona; one male paratype, July 17, 1959, and four female paratypes, July 18, 19, 20, 25, 1959, collected by Ronald W. Hodges, Madera Canyon, 4880 ft., Santa Rita Mts., Arizona.

This species is nearest *A. haesitans*, but it is readily separable by the vinculum produced into a dorsally projecting process in front in the male genitalia and by the pouchlike evagination of the ostium bursae in the female genitalia.

14. *Antaeotricha vestalis* (Zeller)

FIGURES 9, 9a, 36; PLATE 3b; MAP 7

Cryptolechia vestalis Zeller, 1873, Verh. Zool.-Bot. Ges. Wien, vol. 23, p. 247.
Ide vestalis Walsingham, 1889, Insect Life, vol. 2, p. 155.
Stenoma vestalis Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Meyrick, 1922, *in* Genera insectorum, vol. 180, p. 82.
Antaeotricha vestalis Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 30.

Alar expanse 15–21 mm.

Color: Face white; palpus white with dusky scales on exterior sides in male. Legs white sprinkled with dusky scales. Thorax white dorsally. Abdomen white. Forewing white, costal edge slightly ochreous. Hindwing white; cilia white.

Male genitalia: Uncus curved, dilated at tip; gnathos large, divided into two distinct, sharp-pointed lobes; harpes as in *A. schlaegeri*; anellus with four lobes, ventral ones small and thumblike, bearing several setae at their apex, dorsal ones larger, blunter, bearing numerous heavy setae. Aedeagus long, rounded at apex; cornuti absent.

Female genitalia: Genital plate without distinct division into lamella antevaginalis and lamella postvaginalis, ostium bursae small, opening near center of genital plate; ductus bursae long, membranous; corpus bursae with small, dentate signum; inception of ductus seminalis near ostium.

Type: In the Museum of Comparative Zoology, Harvard University.

Type locality: Texas (*C. vestalis*).

Food plant: Unknown.

Distribution: FLORIDA: Lake Placid (April, Dec.); Florida City (March); Royal Palm State Park (March, Sept.); Everglades (April); Fort Myers (April); Marco (April); St. Petersburg (Oct.); Paradise Key (March); Lakeland (March); Miami; Panacea (Aug., Oct.); Altamont; Glenwood. GEORGIA: Billy's Island, Okefenokee Swamp (June, July); Spring Creek (July). MISSISSIPPI: Ocean Springs

(Aug.). SOUTH CAROLINA: no locality (Feb.). TEXAS: Burnet Co. (Oct.); Kerrville. NEW JERSEY: Lakehurst (July, Sept.).

This species is similar to *A. irene* but it is distinguishable by the apically dilated uncus, by the gnathos with two sharp-pointed lobes, and by the anellus with four lobes in the male genitalia. The absence of specialized structures around the ostium serves to distinguish the females.

Walsingham (1889) synonymized *Harpalyce albella* Chambers with *I. vestalis;* however, examination of Chambers' type located in the Museum of Comparative Zoology reveals that *H. albella* belongs in the genus *Durrantia* Busck and is so transferred.

15. *Antaeotricha manzanitae* Keifer

FIGURES 15, 37; PLATE 3c; MAP 7

Antaeotricha manzanitae Keifer, 1937, California Dept. Agric. Bull., vol. 26, p. 334.

Alar expanse 25–30 mm.

Color: Face whitish ochreous; palpus overlaid with fuscous. Legs white, overlaid with fuscous; foreleg darkest, mid- and hindleg progressively lighter. Thorax white dorsally with brownish-black tuft posteriorly. Abdomen white. Forewing white, irregularly shaded fuscous scales; two patches of dark scales at anal angle; apical margin with row of faint, transverse, fuscous dots. Cilia fuscous, white tipped. Hindwing light fuscous: cilia lighter.

Male genitalia: Uncus curved, dilated at tip, terminating in two short spines: gnathos well developed, ending in short blunt tip; harpes as in *A. schlaegeri*; anellus with two lobes, one on each side of aedeagus. Aedeagus short and broad; cornuti a small cluster of spines.

Female genitalia: Genital plate small, bandlike; ostium bursae and ductus bursae membranous; corpus bursae corrugated; inception of ductus seminalis near ostium.

Type: In the California Academy of Science.

Type locality: Shingle Springs, El Dorado Co., California.

Food plant: *Arctostaphylos* sp. Keifer (1937) gives a thorough account of the life history of this species with numerous illustrations.

Distribution: CALIFORNIA: Shingle Springs, El Dorado Co. (April); Palm Desert (Apr.); Big Basin (July); Mt. Shasta City, Siskiyou Co. (July); Hat Creek, Shasta Co. (June). OREGON: Tiller (June). BRITISH COLUMBIA: Wellington (July).

This species is similar in size and color to *A. schlaegeri*, but it is separable by the presence of two small spines on the tip of the uncus in the male and by the corrugated corpus bursae in the female.

Genus *Stenoma* Zeller

Stenoma Zeller, 1839, Isis von Oken, vol. 32, p. 195.

1. *Stenoma mistrella* Busck

FIGURES 16, 39; PLATE 3d; MAP 8

Stenoma mistrella Busck, 1907, Proc. Ent. Soc. Washington, vol. 8, p. 93.—Walsingham, 1913, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), p. 183.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Busck and Dampf, 1929, Estud. Ofic. Fed. Agric. Mexico, vol. 2, p. 13.—Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 49.

Alar expanse 20–23 mm.

Color: Face white; palpus light fuscous. Legs ochreous; forelegs dark anteriorly. Thorax light ochreous dorsally. Abdomen dark fuscous. Forewing ranging from light ochreous, minutely speckled and overlaid with darker brown scales, to uniform dark fuscous; small, conspicuous, round black dot at apex of cell; costa nearly straight, apex pointed. Hindwing dark fuscous; cilia light ochreous.

Male genitalia: Uncus reduced, knoblike; gnathos incomplete in front; harpes simple, somewhat pointed at apex, bearing short, stiff, bifurcate setae; vinculum complete; anellar lobes broad, pointed apically; aedeagus large, flared apically; cornuti two clusters of very heavy spines.

Female genitalia: Genital plate small, lamella postvaginalis fused medially with eighth sternite; ostium bursae large, somewhat sclerotized; ductus bursae membranous; corpus bursae with lightly sclerotized signum. Inception of ductus seminalis near ostium.

Type: In the United States National Museum.

Type locality: St. Louis, Missouri.

Food plant: *Phleum pratense* L., bromegrass, and Kentucky bluegrass. Miller (1940) reports that the larvae construct sheltered tubes at the base of grass similar to *Crambus* sp. and feed on the edge of the neighboring grass blades.

Distribution: MISSISSIPPI: Jackson (July, Sept.); Pearl (June, Sept.). MISSOURI: St. Louis (April, July). OHIO: Cincinnati (July). ILLINOIS: Chicago (June); Decatur (June, Aug., Sept.); Lacon (Sept.). TEXAS: Victoria (July). KANSAS: Onaga. PENNSYLVANIA: Pittsburgh (Sept.). NEW MEXICO: Frijoles Canyon (Sept.). MANITOBA: Winnipeg.

This species is readily separated from *Stenoma crambitella* by the flared apex of the aedeagus in the male and by the presence of only one lightly sclerotized signum in the female.

2. *Stenoma crambitella* Walsingham

FIGURES 17, 40; PLATE 3e; MAP 8

Stenoma crambitella Walsingham, 1889, Insect Life, vol. 2, p. 154.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 38.

Alar expanse 22 mm.

Color: Face and palpus white, palpus shaded with pale brownish ochreous scales. Legs whitish, shaded with brown scales. Thorax white dorsally. Abdomen whitish ochreous. Forewing white, few grayish fuscous scales on extreme costal margin basally and single dot of same color at apex of cell, apex somewhat pointed. Hindwing white, tinged with ochreous; cilia white.

Male genitalia: Uncus reduced in size, but not as much as in *S. mistrella;* gnathos complete in front, forming a band; harpes as in *S. mistrella,* but blunt at apex; vinculum complete; anellar lobes long, slender; aedeagus short, broad; cornuti a small cluster of heavy spines.

Female genitalia: Genital plate small, lamella postvaginalis fused laterally with eighth sternite; ostium bursae large; ductus bursae long, membranous; corpus bursae with two lightly sclerotized, dentate signa. Inception of ductus seminalis near ostium.

Type: In the British Museum (Natural History).

Type locality: Arizona.

Food plant: Unknown.

Distribution: ARIZONA: Palmerlee; Redington; Santa Rita Mts. (June); Santa Catalina Mts.; Chiricahua Mts. (Aug.). TEXAS: Kerrville (June).

This species differs from *Stenoma mistrella* in the differently shaped aedeagus in the male and in the presence of two lightly sclerotized signa in the female.

Genus *Setiostoma* Zeller

Setiostoma Zeller, 1875, Verh. Zool.-Bot. Ges. Wien, vol. 25, p. 324.

1. *Setiostoma xanthobasis* Zeller

FIGURES 18, 18a, 41; PLATE 3f; MAP 9

Setiostoma xanthobasis Zeller, 1875, Verh. Zool.-Bot. Ges. Wien, vol. 25, p. 324.—Busck, 1925, Proc. Ent. Soc. Washington, vol. 27, p. 48; 1934, *in* Lepidopterorum catalogus, vol. 67, p. 2.

Alar expanse 12–14 mm.

Color: Face and palpus lemon yellow. Legs dark brown; foreleg with coxa entirely white, tarsi ringed with white; midleg with two tibial rings; tibial spurs and tarsal rings white. Thorax brown

dorsally except tegulae, which are lemon yellow. Abdomen brown with patches of white scales laterally. Forewing deep brown, with lemon yellow triangular area, continuous with yellow tegula, occupying basal third except short costal lenticular spot and longer, narrower spot along posterior wing margin, both spots concolorous with ground color. Apical two-thirds of forewing with inconspicuous area of white scales near midlength of costal margin and similar, smaller area slightly more distad; broad transverse band, parallel to distal margin of yellow spot, small group of scales behind more basal white area, short curved band extending caudolaterad from more distal white area, submarginal longer straight band parallel to outer wing margin, iridescent blue. Cilia blackish brown. Hindwing dark brown with patch of white on basal half of anterior margin; cilia brown edged in white.

Male genitalia: Uncus pointed; gnathos a simple band; harpes simple with palmate multilobed hairs on outer part of costa; vinculum narrow, incomplete in front, anellus with two flattened, upright lobes; aedeagus large with apex pointed; cornuti a large cluster of small spines and one large single spine.

Female genitalia: Genital plate membranous; ostium bursae large, trumpet-shaped; ductus bursae membranous; corpus bursae with signum large, dentate; inception of ductus seminalis near ostium.

Type: In the Museum of Comparative Zoology, Harvard University.

Type locality: Texas.

Food plant: *Quercus* sp. According to Forbes (1923), the larva is found in a nest about two centimeters in diameter, formed by an oval wall of silk between two slightly separated oak leaves, and it feeds on the lower parenchyma only.

Distribution: MASSACHUSETTS: Martha's Vineyard. NEW JERSEY: Lacy (July). MARYLAND: Annapolis (Aug.). DISTRICT OF COLUMBIA: Washington (July). NORTH CAROLINA: Southern Pines (Aug.). GEORGIA: Spring Creek (July). FLORIDA: Enterprise (April); Lakeland (May). ILLINOIS: no locality. MISSOURI: no locality (May).

This species is very closely related to *S. fernaldella* Riley, but it is distinguished readily by its single large spine and by a cluster of small spines in the aedeagus of the male, and by its heavily sclerotized, dentate signum in the corpus bursae of the female.

2. *Setiostoma fernaldella* Riley

FIGURES 19, 19a, 42; PLATE 4a; MAP 9

Setiostoma fernaldella Riley, 1889, Proc. Ent. Soc. Washington, vol. 1, p. 155.—Busck, 1934, *in* Lepidopterum catalogus, vol. 67, p. 1.

Alar expanse 12–13 mm.

Color: Face yellow sprinkled with brown; palpus yellow. Legs

blackish brown; foreleg with coxa white or yellowish, tarsi ringed with white; spurs of midtibia white, with few dusky scales, and midtarsi ringed with white; hindleg with two tibial rings, spurs and tarsal rings white. Thorax greenish yellow dorsally sprinkled with brown scales. Abdomen dark brown with metallic iridescence. Forewing with triangular marking of basal third as in *S. xanthobasis* but greenish yellow, concolorous and continuous with greenish yellow of thorax, and with darker spot along posterior margin much shorter and more restricted to anal region. Apical two-thirds dark brown with iridescent bronze-to-violet markings, in reflected light, in transverse band across middle third of wing and an area that curves near wing apex and extends parallel to outer wing margin. Hindwing as in *S. xanthobasis*.

Male genitalia: As in *S. xanthobasis* with exception of anellus, which bears upright, median, dentate process in addition to two lateral flattened upright processes, and cornuti, which consist of several large single spines.

Female genitalia: As in *S. xanthobasis* with exception of absence of signum in corpus bursae and presence of sclerotized plate at junction of ostium bursae and ductus bursae.

Type: In the United States National Museum.

Type locality: Los Angeles, California.

Food plant: *Quercus wislizenii* A. DeCandolle and *Quercus agrifolia* Nee.

Distribution: CALIFORNIA: Forest Home, San Bernardino Co. (June); Los Angeles Co. (July); San Diego (June, July); Baldy Mts. (June); Pasadena (June); Santa Clara. ARIZONA: Madera Canyon, Santa Rita Mts. (July, Aug., Sept.); Pena Blanca Canyon (Sept.).

This species is readily distinguished from *S. xanthobasis* by its cornuti that consists of more than one large single spine in the aedeagus of the male and by the absence of a signum in the corpus bursae of the female.

Genus *Mothonica* Walsingham

Mothonica Walsingham, 1912, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), p. 153.

1. *Mothonica kimballi*, new species

FIGURES 20, 20a, 38; PLATE 4b; MAP 10

Alar expanse 17–19 mm.

Face ochreous shaded with fuscous; palpus white sprinkled with fuscous, apical segment tipped with fuscous, second segment shaded with fuscous basally. Legs creamy white, hindtibia with long hairs above, fore- and midleg shaded heavily with fuscous. Thorax

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smooth, white sprinkled with fuscous dorsally. Abdomen white, shaded to various degrees with fuscous. Forewing long, somewhat narrow; ground color white, with three large fuscous areas along costa; marginal and submarginal transverse row of fuscous dots at apex, marginal row darker and giving sinuated effect to termen; another area of dark fuscous raised scales at anal angle. Anterior half of cilia light fuscous, posterior half white. Hindwing very light fuscous; cilia fuscous basally, white apically.

Male genitalia: Uncus simple, short, with group of setae at apex; gnathos two lateral plates flanking tuba analis; harpes with pincer-shaped costa, apex somewhat pointed and recurved, bearing heavy bifurcate setae; sacculus with prominent bifurcate lobe; vinculum complete; anellus a large rectangular plate with large upright lateral lobes; aedeagus large basally, tapering apically to a point, cornuti two large clusters of heavy spines.

Female genitalia: Genital plate large, with large median slot. Ostium bursae sclerotized, ductus bursae short, membranous; corpus bursae large, with large dumbbell-shaped, dentate signum; anterior apophyses long, not fused to genital plate.

Type: Siesta Key, Sarasota County, Florida. USNM 65825.

Food plant: Unknown.

Distribution: FLORIDA: Siesta Key, Sarasota County (Jan., Feb., March, April, May, Nov.); Vero Beach (April).

Described from the male holotype, Jan. 24, 1954, two male paratypes, Feb. 26, 1954, Jan. 15, 1954, collected by C. P. Kimball, Siesta Key, Sarasota County, Florida; two male paratypes, April 2, 1941, collected by J. R. Malloch, Vero Beach, Florida; one female paratype, March 4, 1953, collected by C. P. Kimball, Siesta Key, Sarasota County, Florida.

This is the first species of the genus *Mothonica* to be described from North America. It is very similar to *Mothonica fluminata* (Meyrick), a Colombian species. The bifurcate lobe on the harpe of *M. kimballi* readily separates the males. No females of *M. fluminata* were available for comparison.

This species is named in honor of Mr. C. P. Kimball of West Barnstable, Massachusetts, who provided material from his personal collection for description.

Genus *Menestomorpha* Walsingham

Menestomorpha Walsingham, 1907, Proc. U.S. Nat. Mus., vol. 33, p. 214.

1. *Menestomorpha oblongata* Walsingham

FIGURES 21, 43; PLATE 4c; MAP 11

Menestomorpha oblongata Walsingham, 1907, Proc. U.S. Nat. Mus., vol. 33, p. 215.—Barnes and Busck, 1920, Contrib. Nat. Hist. Lep. North America, vol. 4, p. 238.—Busck, 1934, *in* Lepidopterorum catalogus, vol. 67, p. 4.

Alar expanse 15 mm.

Color: Face and palpus white flecked with brown scales, palpus brown at tip. Legs white flecked with brown scales, tarsi ringed with brown. Thorax white flecked with brown scales. Abdomen with mixed brown and white scales. Forewing white with two transverse brown bands converging at anal angle forming V-shaped mark on basal third, middle third with indistinct brown shading blending into indistinct brown streaks in apical third that follow lines of veins beyond cell to termen and costa; with row of five or six indistinct brownish dots along termen reaching to apex; cilia brown tipped in white. Hindwing light brown; cilia lighter, with light greyish-fuscous line along margin at base and two parallel shades running through it.

Male genitalia: Uncus very small bearing several small setae at apex; gnathos with two small processes beneath uncus; harpes with large lobe basally, median forked structure, and somewhat pointed apical lobe bearing short, bifurcate setae; vinculum complete; anellus with two large, pointed processes surrounding and extending above aedeagus; aedeagus short, pointed laterally; cornuti a small cluster of heavy spines.

Female genitalia: Genital plate reduced to simple band surrounding ostium; ostium bursae and ductus bursae membranous; corpus bursae large; membranous, with two dentate, lightly sclerotized signa.

Type: In the British Museum (Natural History).

Type locality: Fort Grant, Arizona.

Food plant: The type series was reared from a cynipid gall on *Quercus* sp.

Distribution: ARIZONA: Fort Grant (April); Baboquivari Mts. (Oct.); Madera Canyon, Santa Rita Mts. (July, Aug., Sept., Oct.). CALIFORNIA: San Bernardino Co. (June).

Genus *Menesta* Clemens

Menesta Clemens, 1860, Proc. Acad. Nat. Sci. Philadelphia, vol. 12, p. 213.

1. *Menesta tortriciformella* Clemens

FIGURES 23, 44; PLATE 4d; MAP 12

Menesta tortriciformella Clemens, 1860, Proc. Acad. Nat. Sci. Philadelphia, vol. 12, p. 213; 1872, The Tineina of North America, p. 151.—Chambers, 1878, Bull. U.S. Geol. Surv., vol. 4, p. 157.—Walsingham, 1881, Proc. Zool. Soc. London, p. 319; 1889, Insect Life, vol. 2, p. 154.—Busck, 1903b, Proc. U.S. Nat. Mus., vol. 25, p. 903; 1934, *in* Lepidopterorum catalogus, vol. 67, p. 5.

Gelechia liturella Walker, 1864, List of the specimens of lepidopterous insects in the collection of the British Museum, vol. 29, p. 591.

Hyale coryliella Chambers, 1875, Cincinnati Quart. Journ. Sci., vol. 2, p. 242.

Strobisia albaciliaeella Chambers, 1878, Canadian Ent., vol. 10, p. 77. (New synonymy.)

Menesta albaciliaeella Busck, 1903b, Proc. U.S. Nat. Mus., vol. 25, p. 903; 1934, *in* Lepidopterorum catalogus, vol. 67, p. 5.

Menesta albiciliella [sic] Walsingham, 1911, Lepidoptera-Heterocera, vol. 4 (vol. 42 *in* Godman and Salvin, Biologia Centrali-Americana), p. 104.

Menesta albaciliella [sic] Braun, 1915, Ent. News, vol. 26, p. 160.

Alar expanse 9–10 mm.

Color: Face and palpus white, palpus shaded with fuscous. Legs white, shaded anteriorly with fuscous, especially apex of tibia and apices of tarsi, hindtibia with long hairs. Thorax brown dorsally, with grayish hue. Abdomen brown dorsally, white ventrally. Forewing blackish brown with greenish-violet reflections; few white scales just beyond middle forming indistinct, short, transverse line; apical cilia white or brown, remainder brown. Hindwing much lighter brown; cilia brown, tipped with white apically.

Male genitalia: Uncus simple, large basally, tapering to point apically, curved ventrad parallel to gnathos; gnathos well developed, very long, blunt apically; harpes simple, bluntly rounded at apex, bearing large cluster of small, stiff, bifurcate setae; vinculum complete, anellus with two lateral lobes partially encircling aedeagus, aedeagus pointed apically; cornuti consisting of two large, heavy spines.

Female genitalia: Genital plate reduced to small median triangular sclerite; ostium bursae slightly sclerotized; ductus bursae with dilated area before inception of ductus seminalis; corpus bursae with large, heavily sclerotized, cross-shaped signum with outwardly projecting median lobe; inception of ductus seminalis approximately halfway between ostium and corpus bursae. Anterior apophyses free, arising ventrally.

Type: In the Academy of Natural Sciences of Philadelphia.

Type locality: Pennsylvania (*M. tortriciformella*), Kentucky (*H. coryliella*), Nova Scotia (*G. liturella*), Cincinnati, Ohio (*S. albaciliaeella*).

Food plant: *Rubus Villosus* Ait. and *Corylus americana* Walt. Chambers (1875) and Braun (1915) give accounts of the life history of this species.

Distribution: OHIO: Cincinnati (May, June, July). PENNSYLVANIA: Harvey's Lake (June). NEW JERSEY: Essex Co. (June). NEW YORK: Buffalo (June); Peru (June); Protection (June). MARYLAND: Cabin John (May). VIRGINIA: Ocean View (July). ONTARIO: Kearney (July).

This species has been known previously only from its type, which Busck (1903) incorrectly reported as being without an abdomen. The genitalia of the type of *M. tortriciformella* has been studied and found to be identical with those of *S. albaciliaeella*. This synonymy is not surprising because the only characters used in the past to separate the two species were slight differences in the color of the head

and the presence or absence of white apical cilia on the forewing.

This species closely resembles *M. melanella* in both superficial appearance and in structure of the genitalia; however, *M. tortriciformella* lacks on the costa of the forewing the white spot that is present in *M. melanella*. The genitalia differ from those of *M. melanella* in that the cornuti in the aedeagus of the male consist of two large heavy spines and the signum in the corpus bursae of the female is cruciform.

2. *Menesta melanella* Murtfeldt

FIGURES 22, 45; PLATE 4e; MAP 12

Menesta melanella Murtfeldt, 1890, Insect Life, vol. 2, p. 304.—Busck, 1903b, Proc. U.S. Nat. Mus., vol. 25, p. 903; 1934, *in* Lepidopterorum catalogus, vol. 67, p. 5.

Alar expanse 10–12 mm.

Color: Face and palpus white. Legs white shaded lightly with fuscous. Thorax blackish brown dorsally. Abdomen blackish brown dorsally, white ventrally. Forewing blackish brown with greenish-violet reflections, triangular patch of white scales on costa about midway between base and apex; cilia brownish black, white apically. Hindwing with broad white streak extending along costa from base to beyond midpoint; cilia brown with patches of white near outer angle and near base.

Male genitalia: Uncus as in *M. tortriciformella* except apex not as sharply pointed; gnathos as in *M. tortriciformella* except apex, which ends in a sharp point; harpes and vinculum as in *M. tortriciformella*; anellus with two lateral lobes as in *M. tortriciformella* but larger and not encircling aedeagus; aedeagus slightly pointed apically; cornuti consisting of one large heavy spine.

Female genitalia: Genital plate, ostium bursae, and ductus bursae as in *M. tortriciformella;* corpus bursae with heavily sclerotized, rectangular signum with median lobe; inception of ductus seminalis near ostium, anterior apophyses as in *M. tortriciformella.*

Type: In the United States National Museum.

Type locality: Missouri.

Food plant: *Quercus stellata* Wangh. Murtfeldt (1890) gives an account of the life history of this species.

Distribution: SOUTH CAROLINA: Oconee (Aug.). NEW JERSEY: Lakehurst (June). MASSACHUSETTS: Martha's Vineyard (June). FLORIDA: Dade City (April). VIRGINIA: Falls Church (Aug.). ARIZONA: Madera Canyon, Santa Rita Mts. (Aug.).

From *M. tortriciformella*, which it resembles, this species differs by a white spot being present on the costal edge of the forewing, by the cornuti consisting of one large heavy spine in the male genitalia, and by the signum being rectangular in the female genitalia.

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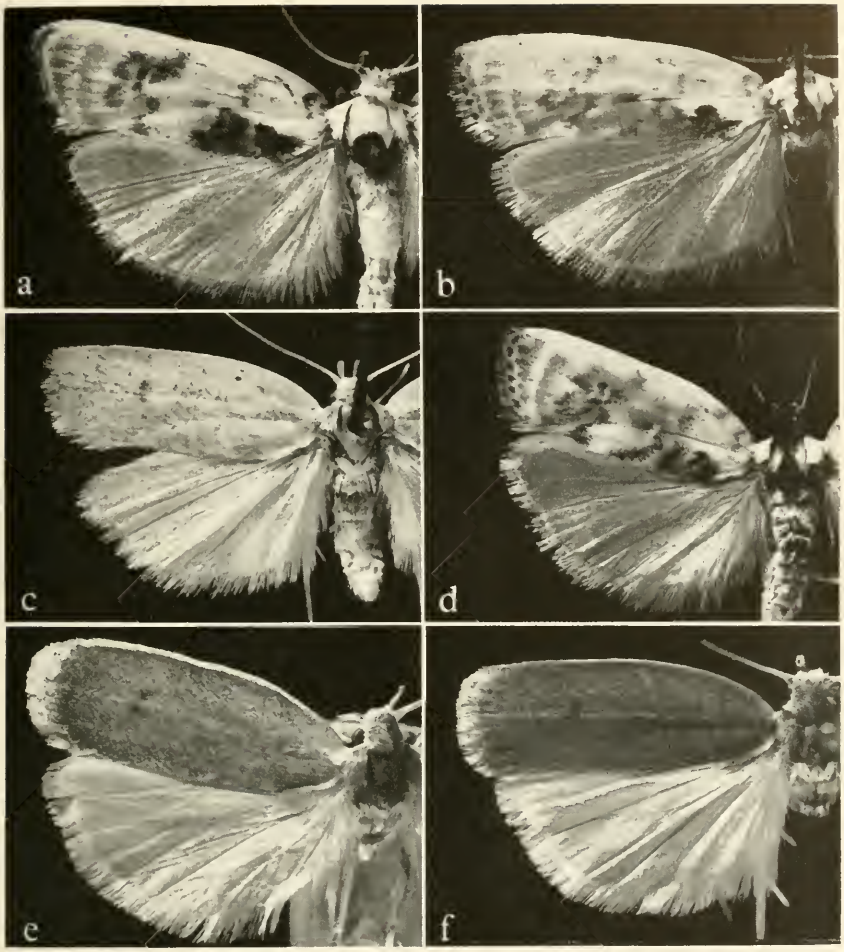

PLATE 1.—a, *Antaeotricha schlaegeri* Zeller; b, *A. lindseyi* (Barnes and Busck); c, *A. unipunctella* (Clemens); d, *A. leucillana* (Zeller); e, *A. osseella* (Walsingham); f, *A. decorosella* (Busck).

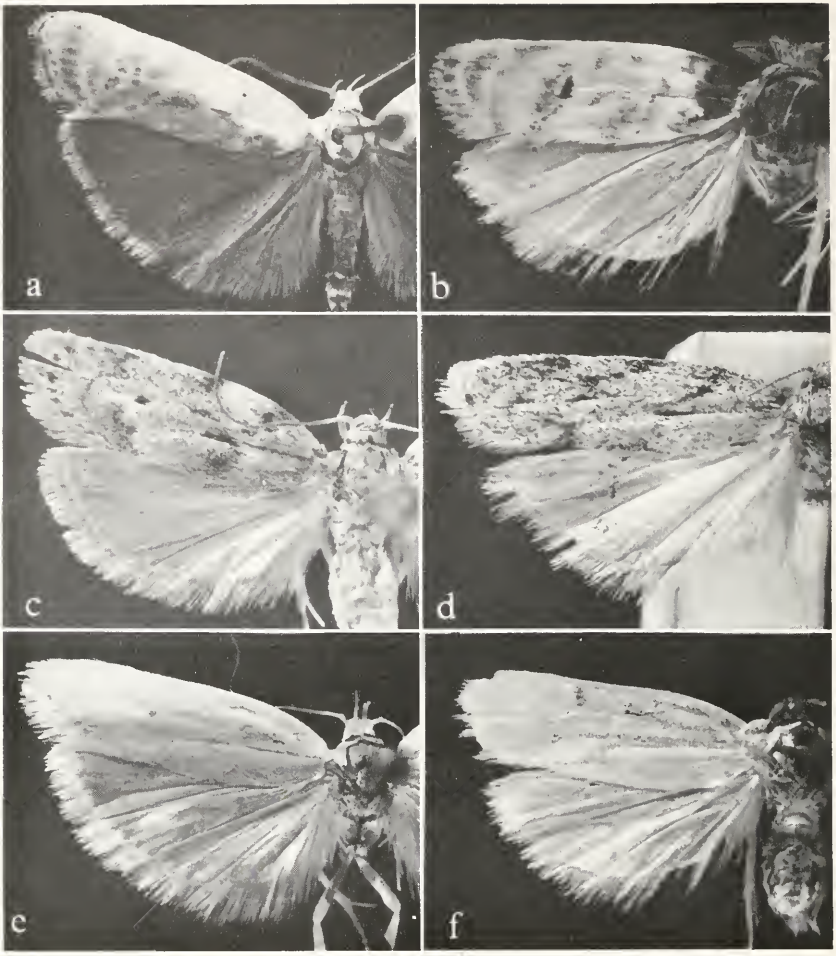

PLATE 2.—a, *Antaeotricha furcata* (Walsingham); b, *A. irene* (Barnes and Busck); c, *A. humilis* (Zeller); d, *A. agrioschista* (Meyrick); e, *A. thomasi* (Barnes and Busck); f, *A. haesitans* (Walsingham).

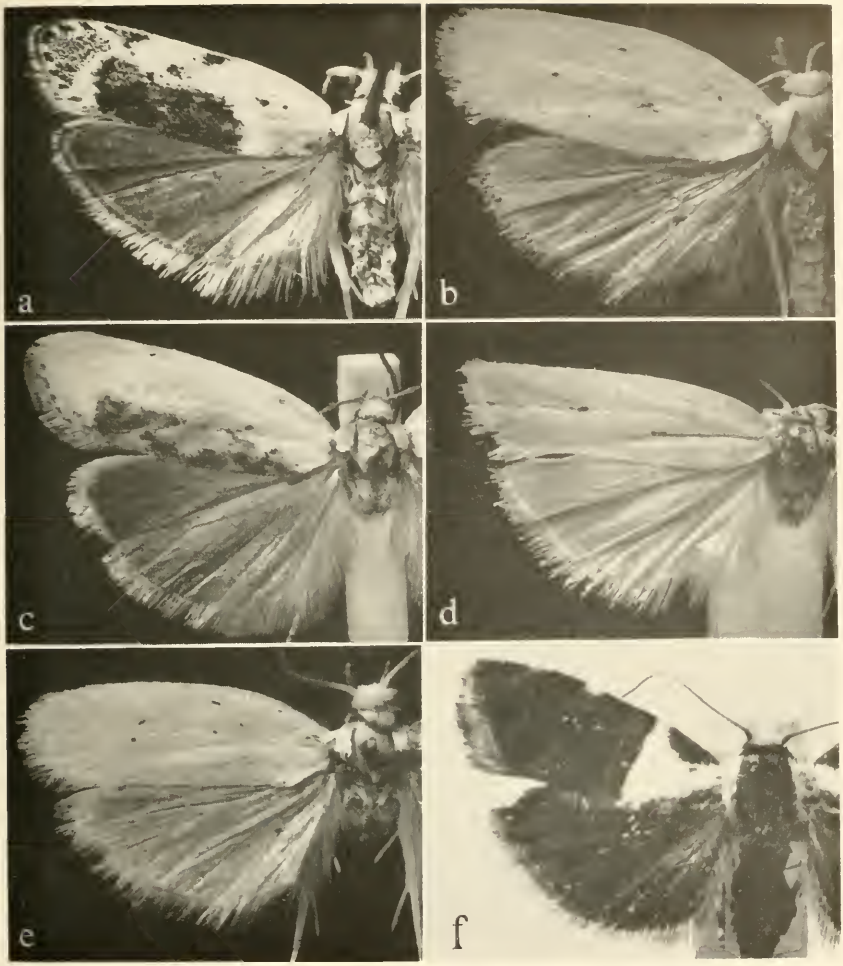

PLATE 3.—a, *Antaeotricha fuscorectangulata*, new species; b, *A. vestalis* (Zeller); c, *A. manaznitae* Keifer; d, *Stenoma mistrella* Busck; e, *S. crambitella* Walsingham; f, *Setiostoma xanthobasis* Zeller.

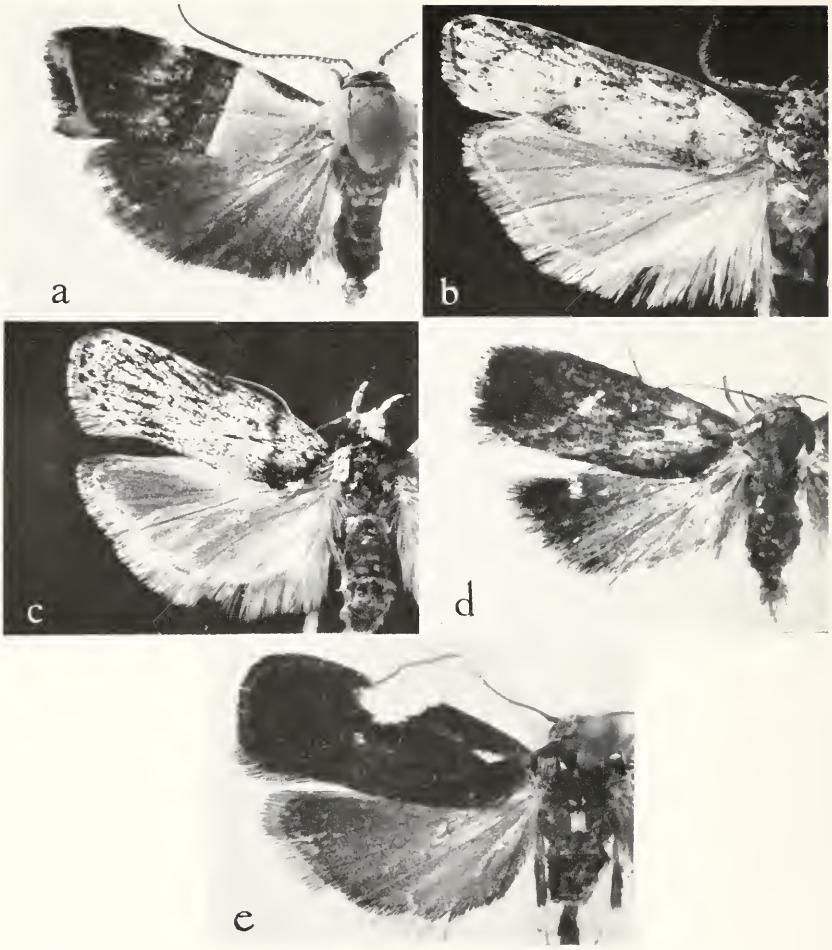

PLATE 4.—a, *Setiostoma fernaldella* Riley; b, *Mothonica kimballi*, new species; c, *Menestomorpha oblongata* Walsingham; d, *Menesta tortriciformella* Clemens; e, *M. melanella* Murtfeldt.

MAP 1.—Distribution of *Antaeotricha schloegeri* (Zeller) and *A. lindseyi* (Barnes and Busck).

MAP 2.—Distribution of *Antaeotricha unipunctella* (Clemens).

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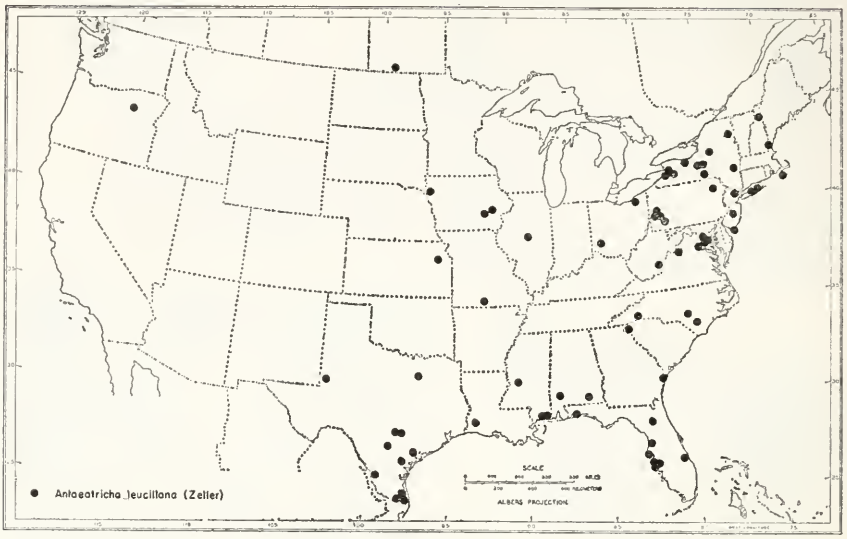
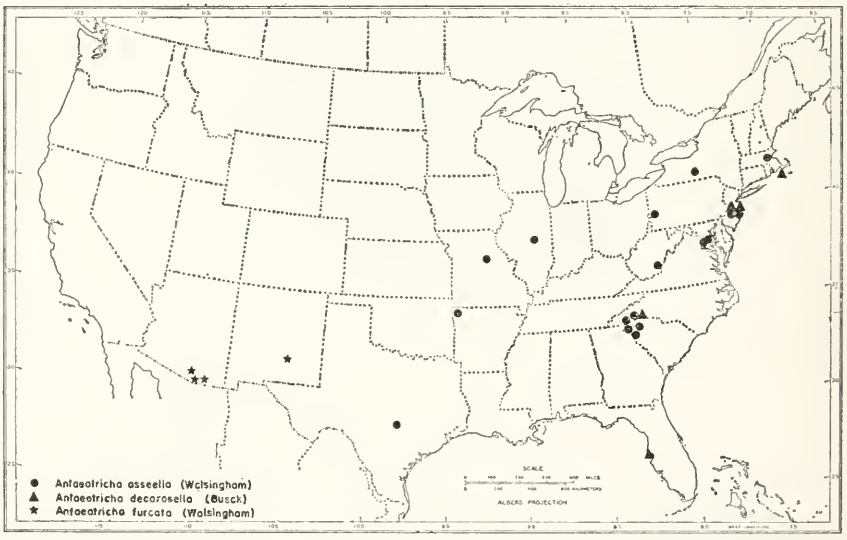


MAP 3.—Distribution of *Antaeotricha leucillana* (Zeller).

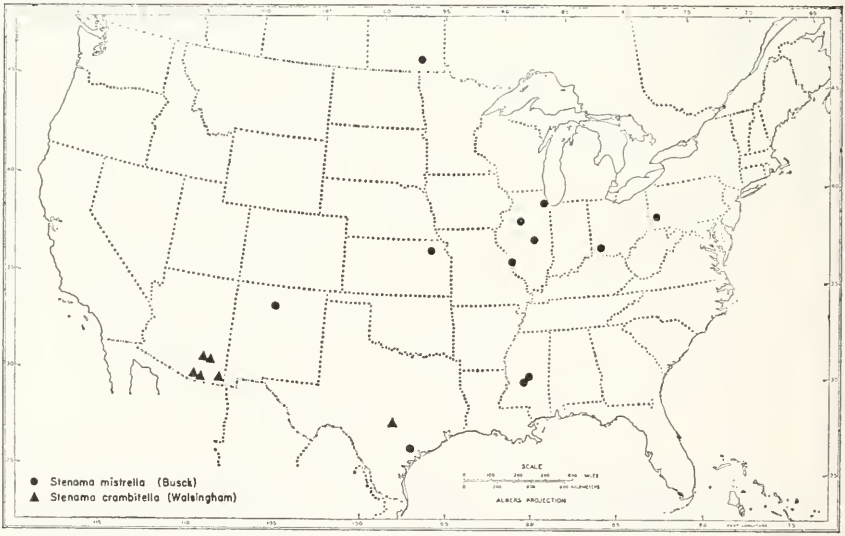


MAP 4.—Distribution of *Antaeotricha osseella* (Walsingham), *A. decorosella* (Busck), and *A. furcata* (Walsingham).

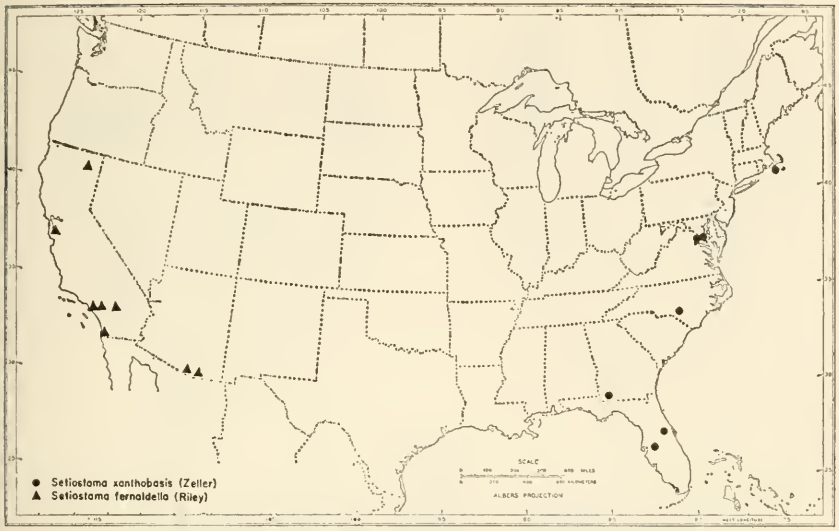
MAP 5.—Distribution of *Antaeotricha irene* (Barnes and Busck), *A. humilis* (Zeller), and *A. agrioschista* (Meyrick).

MAP 6.—Distribution of *Antaeotricha thomasi* (Barnes and Busck) and *A. haesitans* (Walsingham).

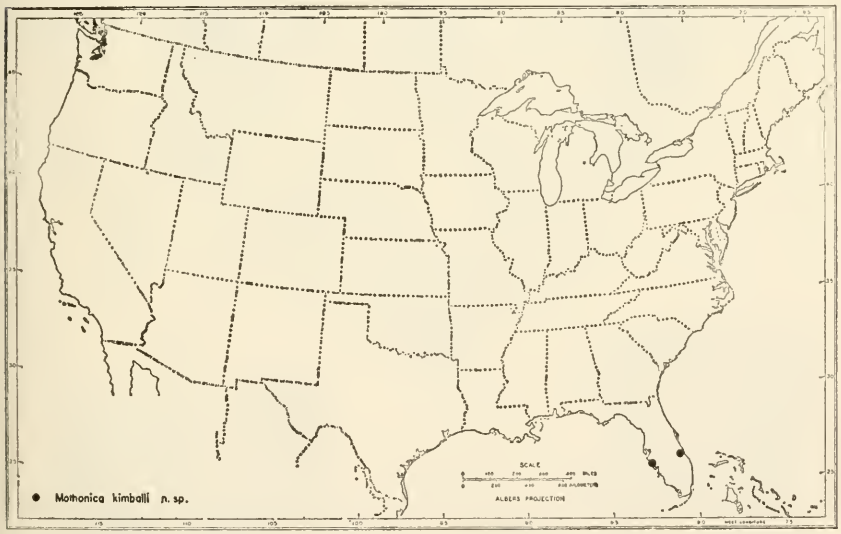
Map 7.—Distribution of *Antaeotricha fuscorectangulata*, new species, *A. vestalis* (Zeller), and *A. manzanitae* (Keifer).



Map 8.—Distribution of *Stenoma mistrella* (Busck) and *S. crambitella* (Walsingham).



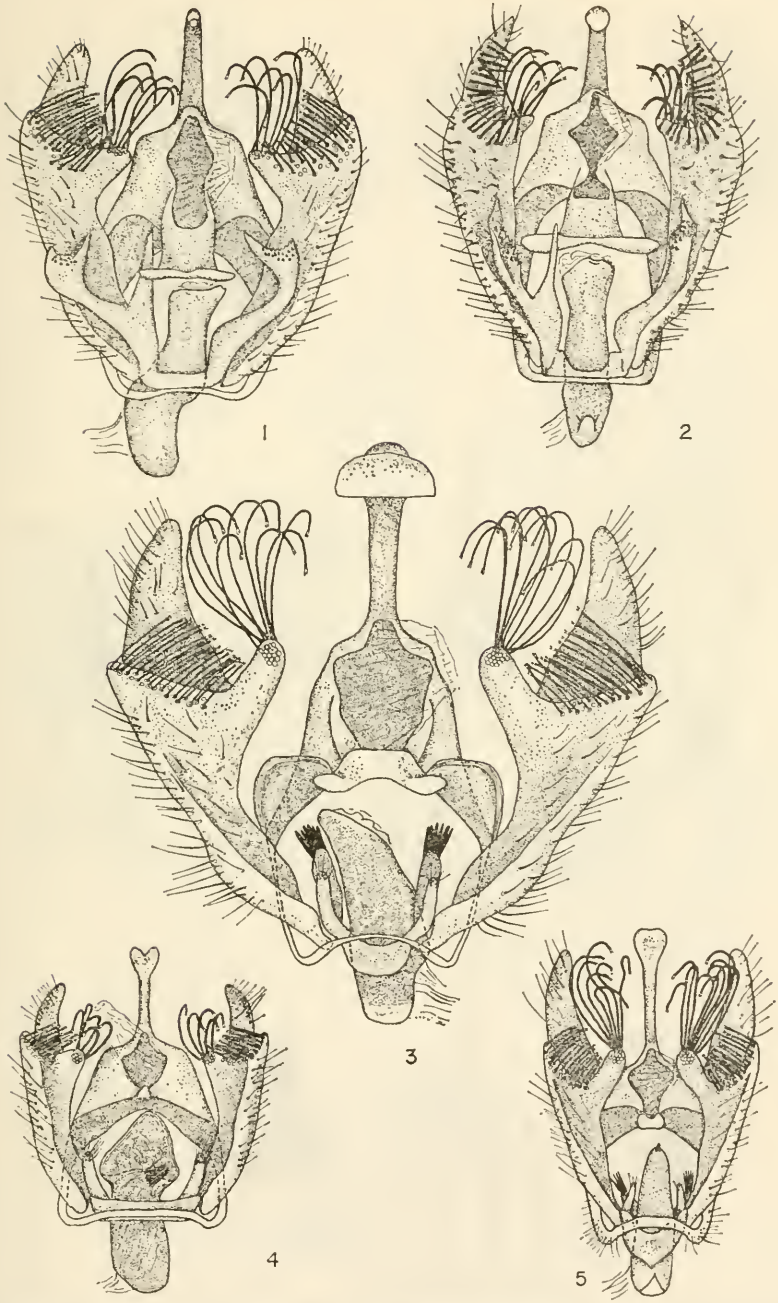
MAP 9.—Distribution of *Setiostoma xanthobasis* (Zeller) and *S. fernaldella* (Riley).



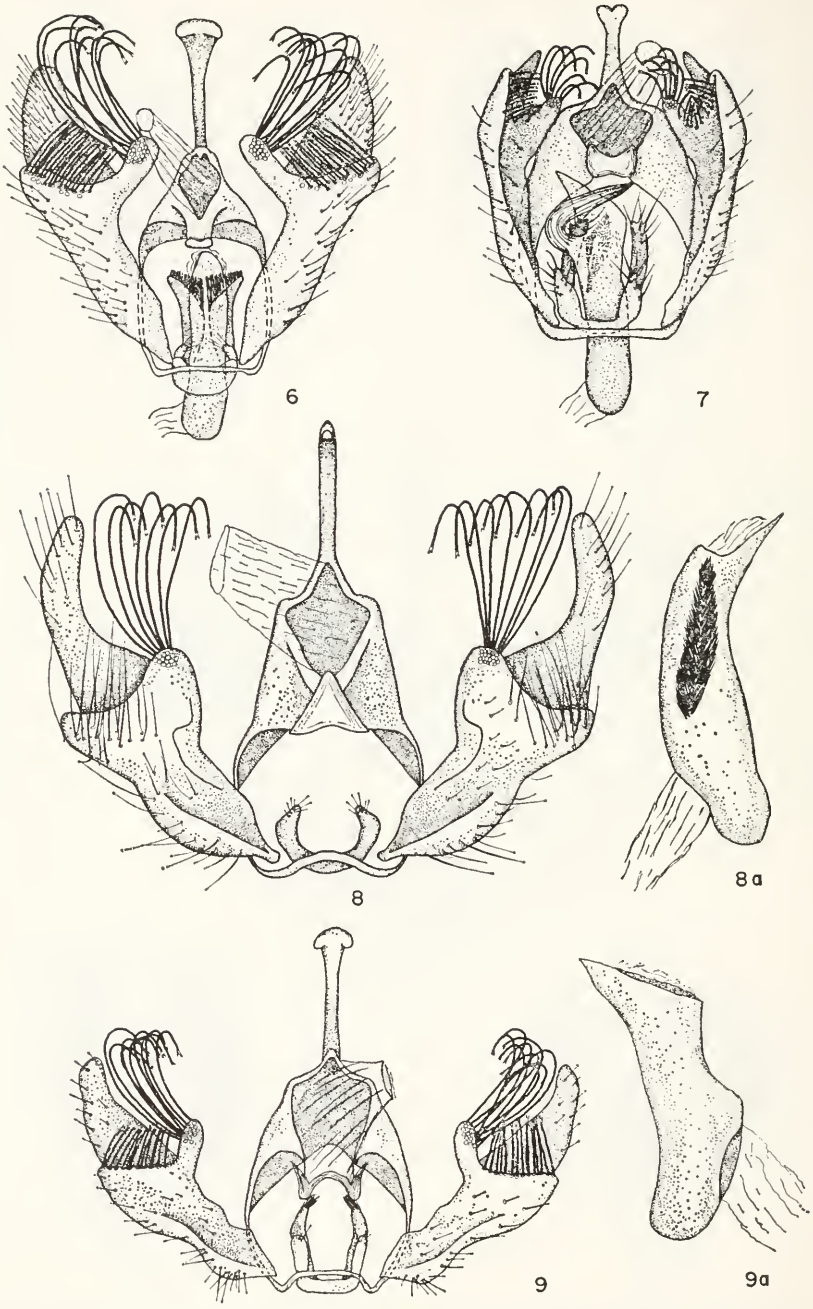
MAP 10.—Distribution of *Mothonica kimballi*, new species.

MAP 11.—Distribution of *Menestomorpha oblongata* (Walsingham).

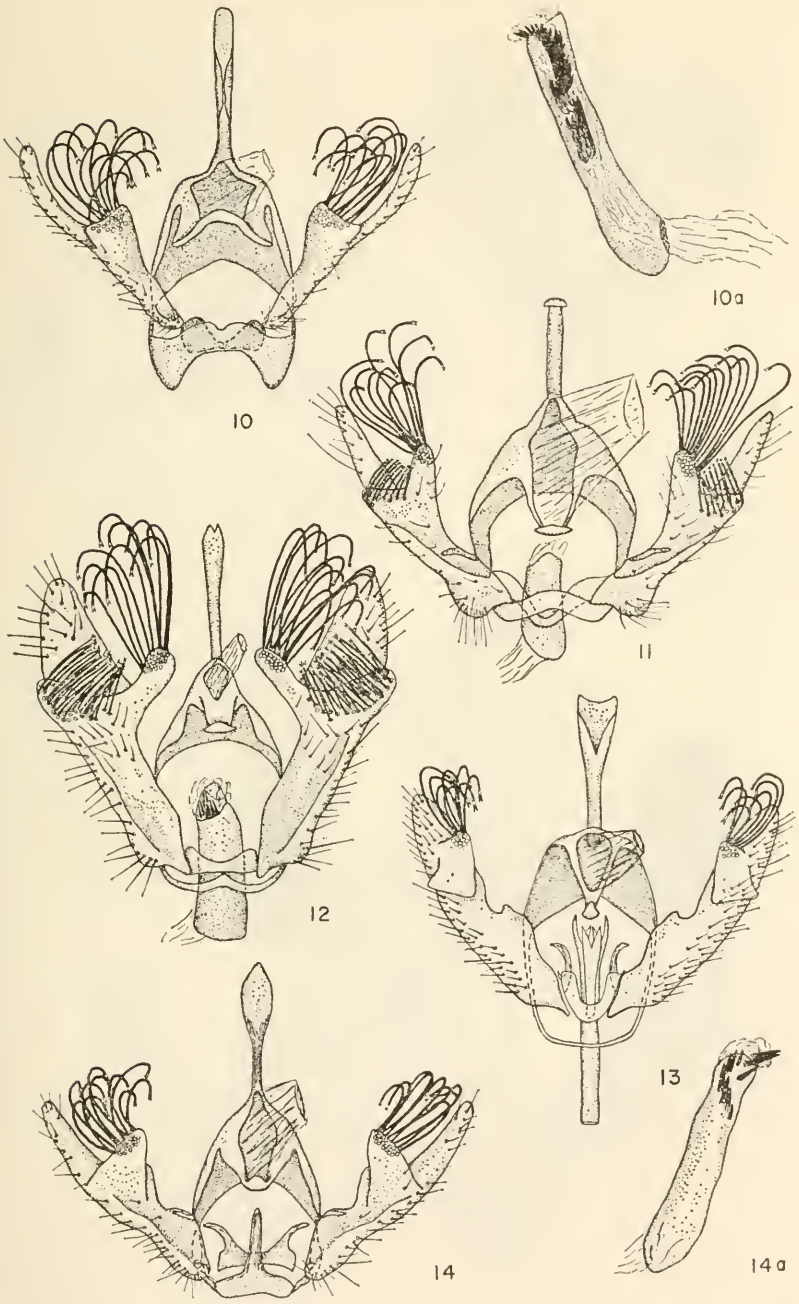
MAP 12.—Distribution of *Menesta tortriciformella* (Clemens) and *M. melanella* (Murtfeldt).



FIGURES 1–5.—Ventral view of male genitalia: 1, *Antaeotricha schlaegeri* (Zeller); 2, *A. lindseyi* (Barnes and Busck); 3, *A. unipunctella* (Clemens); 4, *A. leucillana* (Zeller); 5, *A. osseella* (Walsingham).



FIGURES 6–9.—Ventral view of male genitalia: 6, *Antaeotricha decorosella* (Busck); 7, *A. furcata* (Walsingham); 8, *A. irene* (Barnes and Busck); 9, *A. vestalis* (Zeller). Lateral view of aedeagus: 8a, *A. irene;* 9a, *A. vestalis.*



FIGURES 10–14.—Ventral view of male genitalia: 10, *Antaeotricha agrioschista* (Meyrick); 11, *A. humilis* (Zeller); 12, *A. thomasi* (Barnes and Busck); 13, *A. haesitans* (Walsingham); 14, *A. fuscorectangulata*, new species. Lateral view of aedeagus: 10a, *A. agrioschista;* 14a, *A. fuscorectangulata.*

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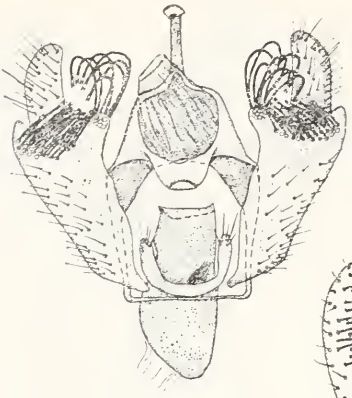

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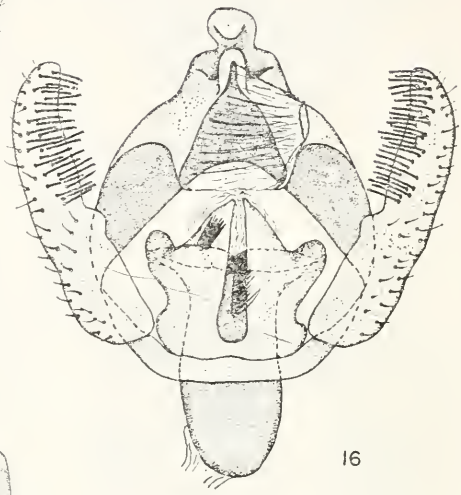

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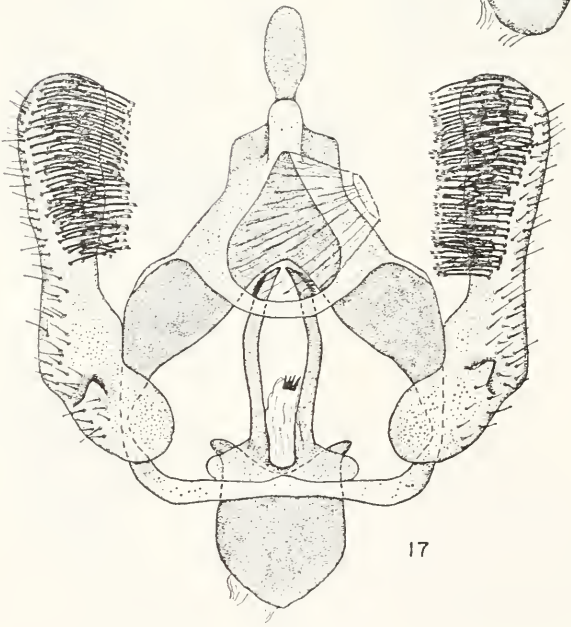

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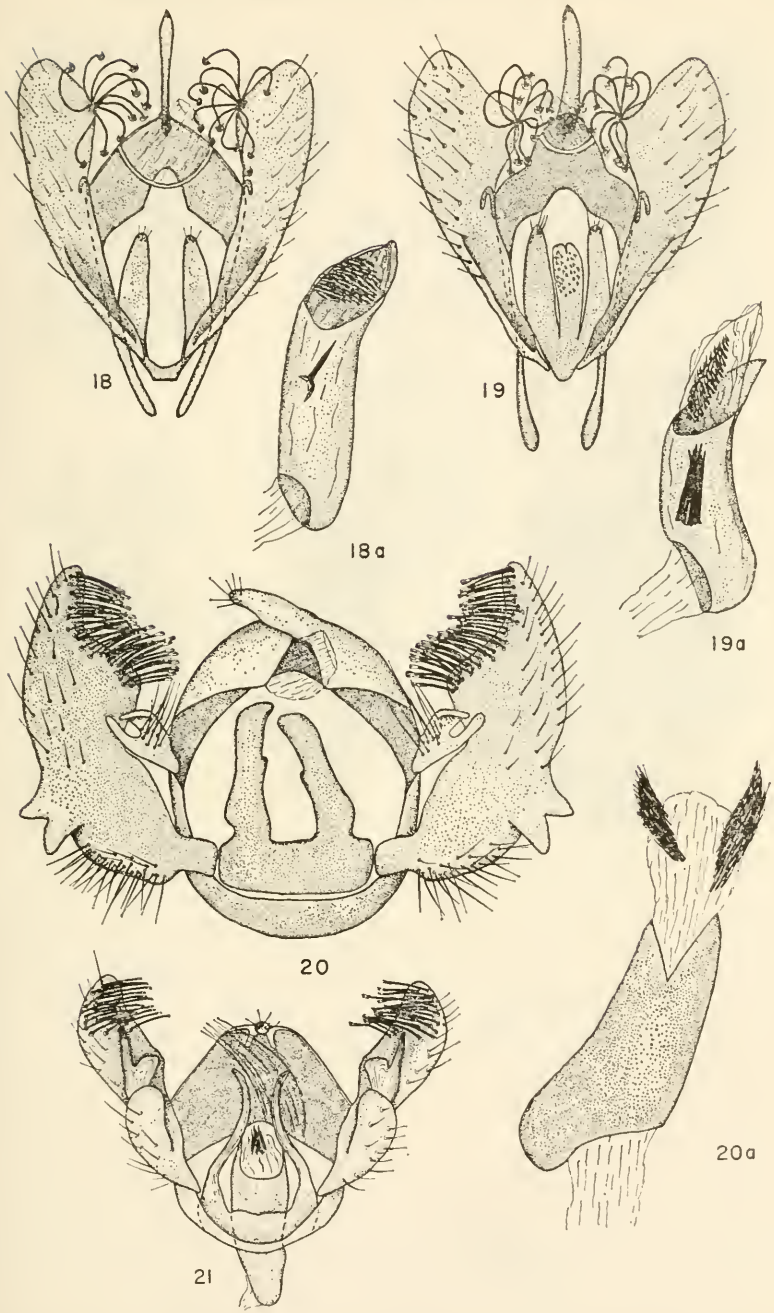
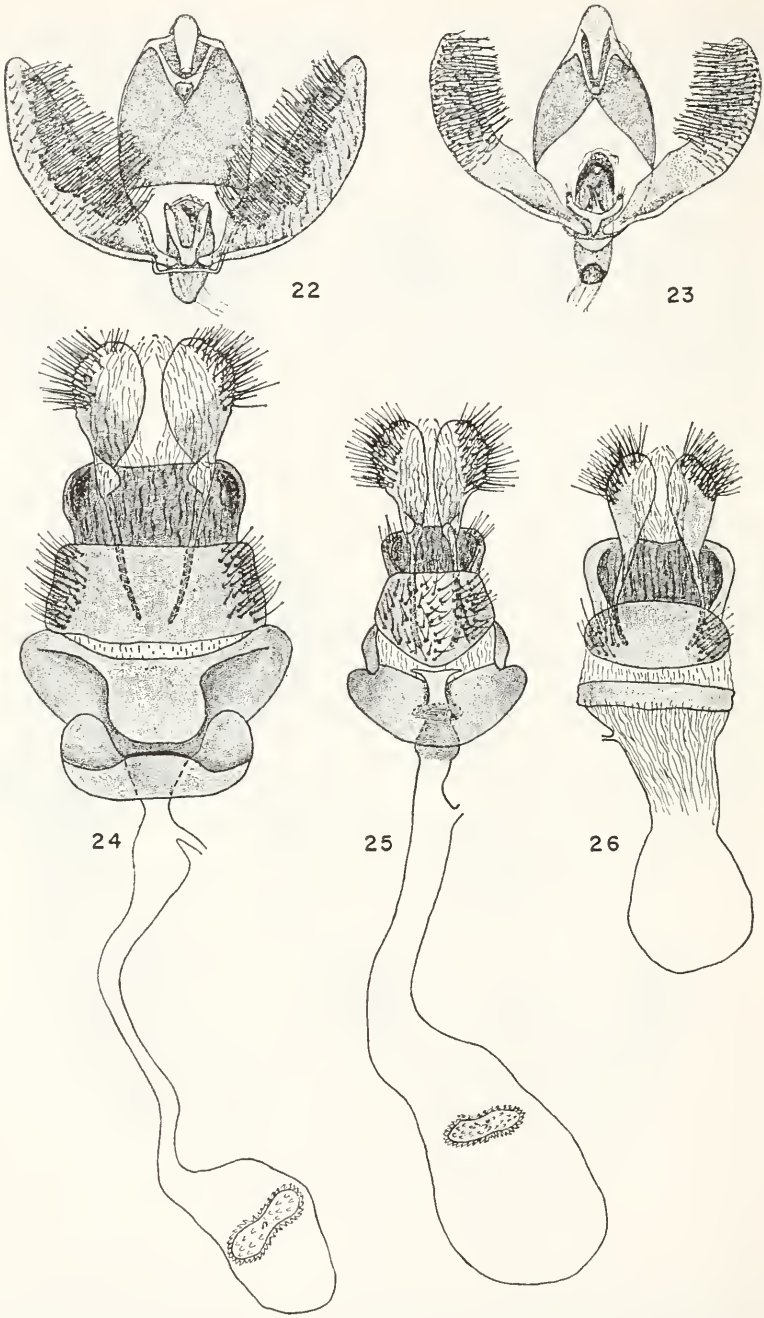
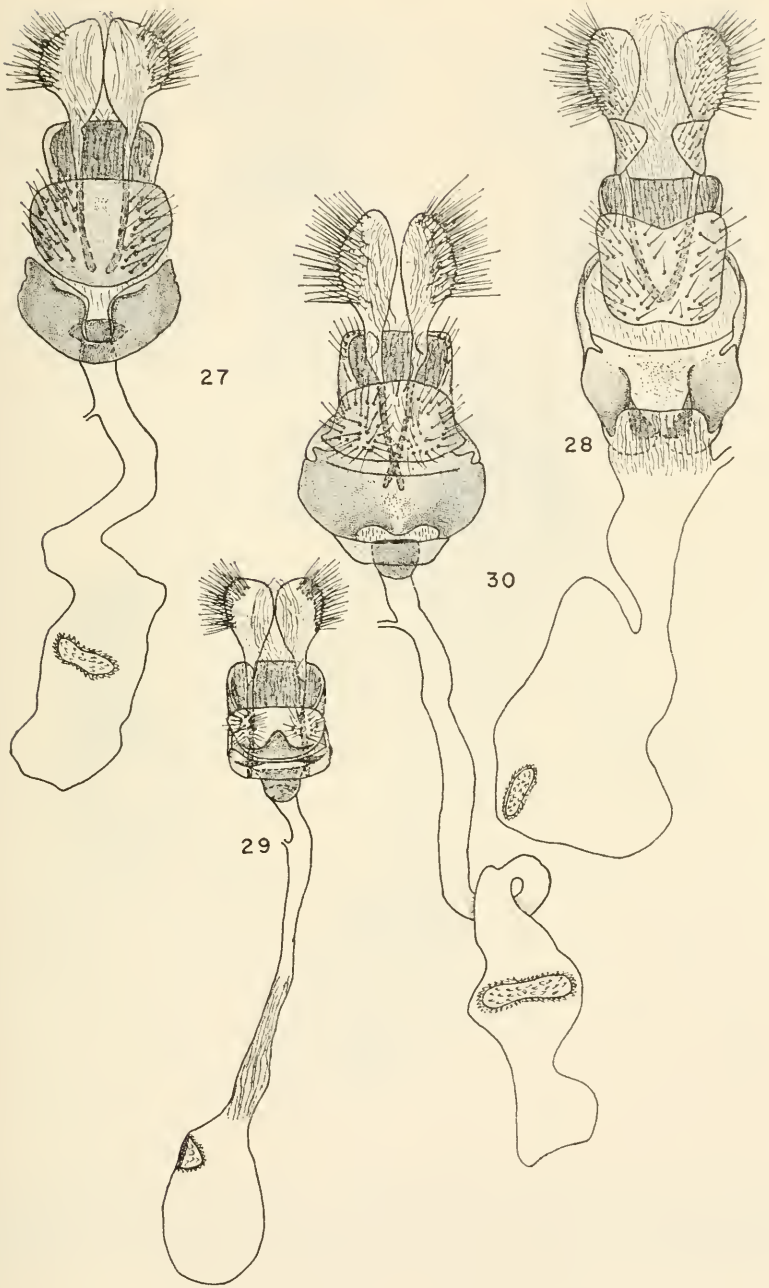
FIGURES 15–17.—Ventral view of male genitalia: 15, *Antaeotricha manzanitae* Keifer; 16, *Stenoma mistrella* Busck; 17, *S. crambitella* Walsingham.



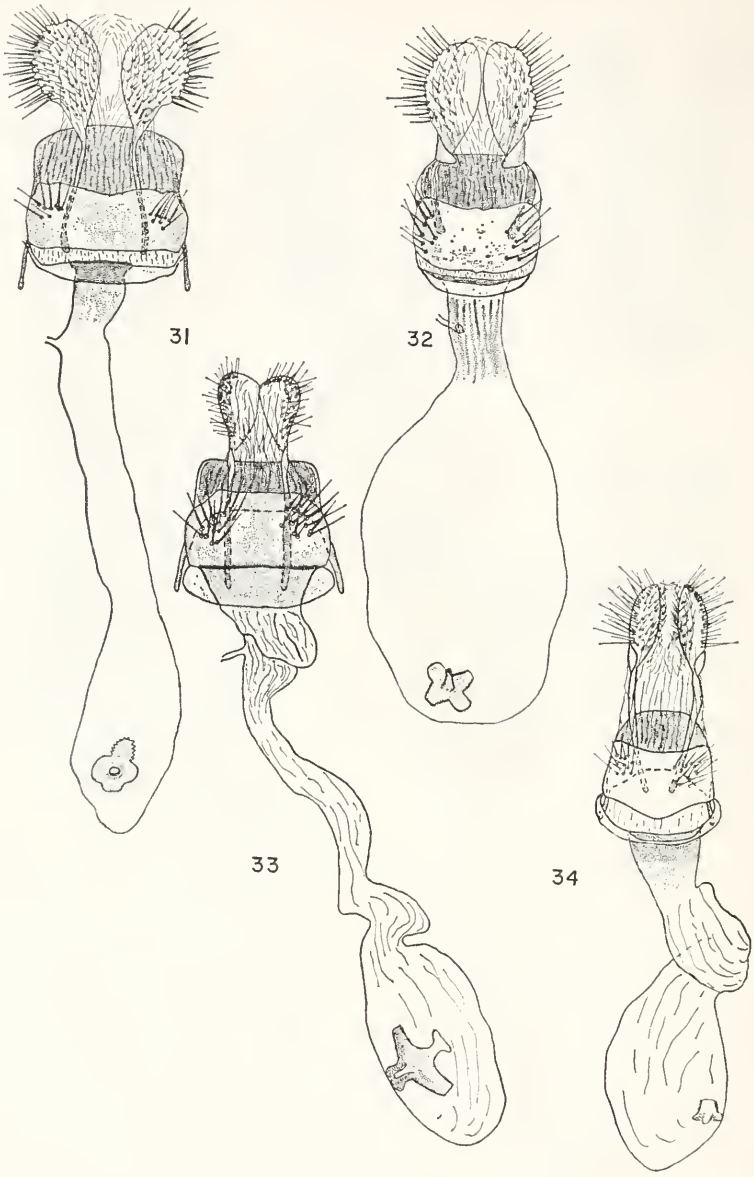
FIGURES 18–21.—Ventral view of male genitalia: 18, *Setiostoma xanthobasis* Zeller; 19, *S. fernaldella* Riley; 20, *Mothonica kimballi*, new species; 21, *Menestomorpha oblongata* Walsingham. Lateral view of aedeagus: 18a, *S. xanthobasis;* 19a, *S. fernaldella;* 20a, *M.* kimballi.



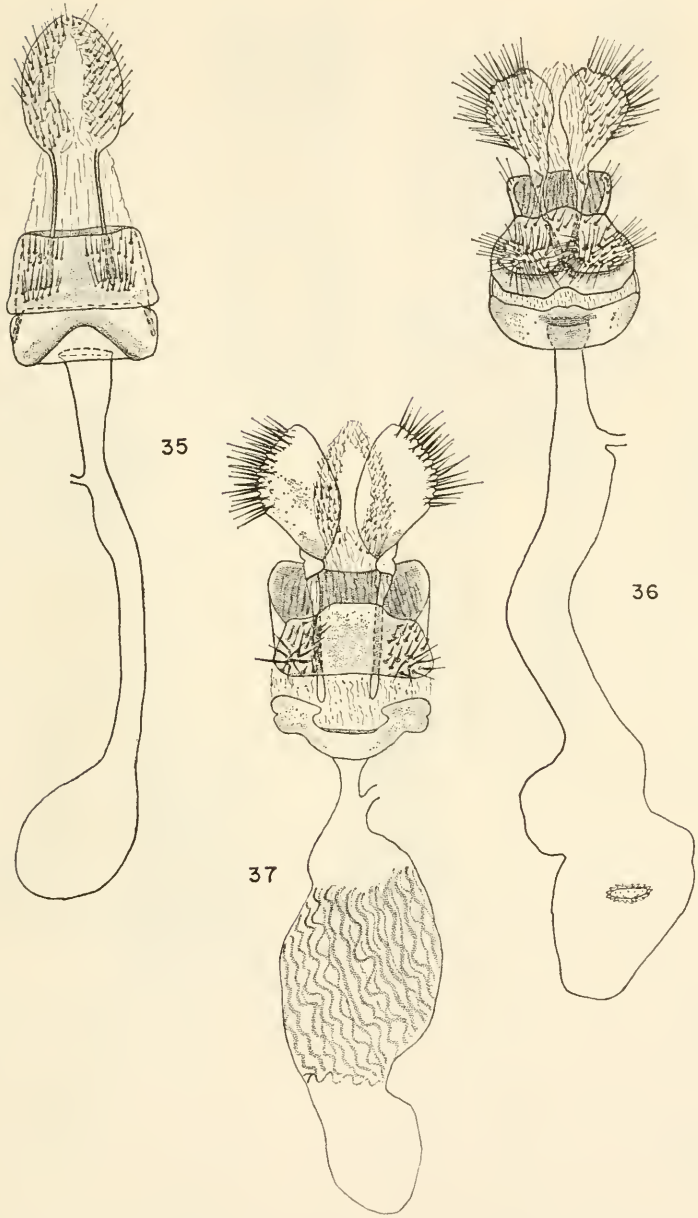
FIGURES 22–26.—Ventral view of male genitalia: 22, *Menesta melanella* Murtfeldt; 23, *M. tortriciformella* Clemens. Ventral view of female genitalia: 24, *Antaeotricha schlaegeri* (Zeller); 25, *A. unipunctella* (Clemens); 26, *A. leucillana* (Zeller).



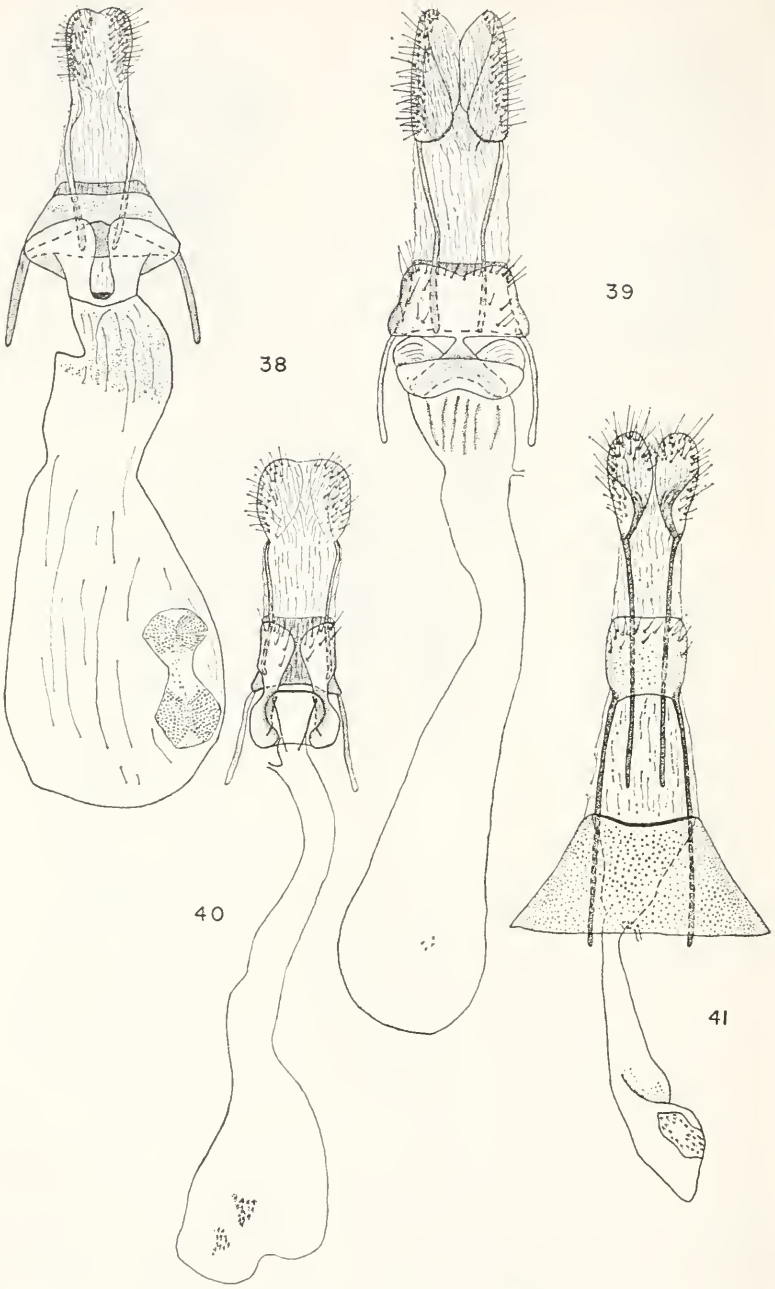
FIGURES 27–30.—Ventral view of female genitalia: 27, *Antaeotricha osseella* (Walsingham); 28, *A. furcata* (Walsingham); 29, *A. irene* (Barnes and Busck); 30, *A. decorosella* (Busck).



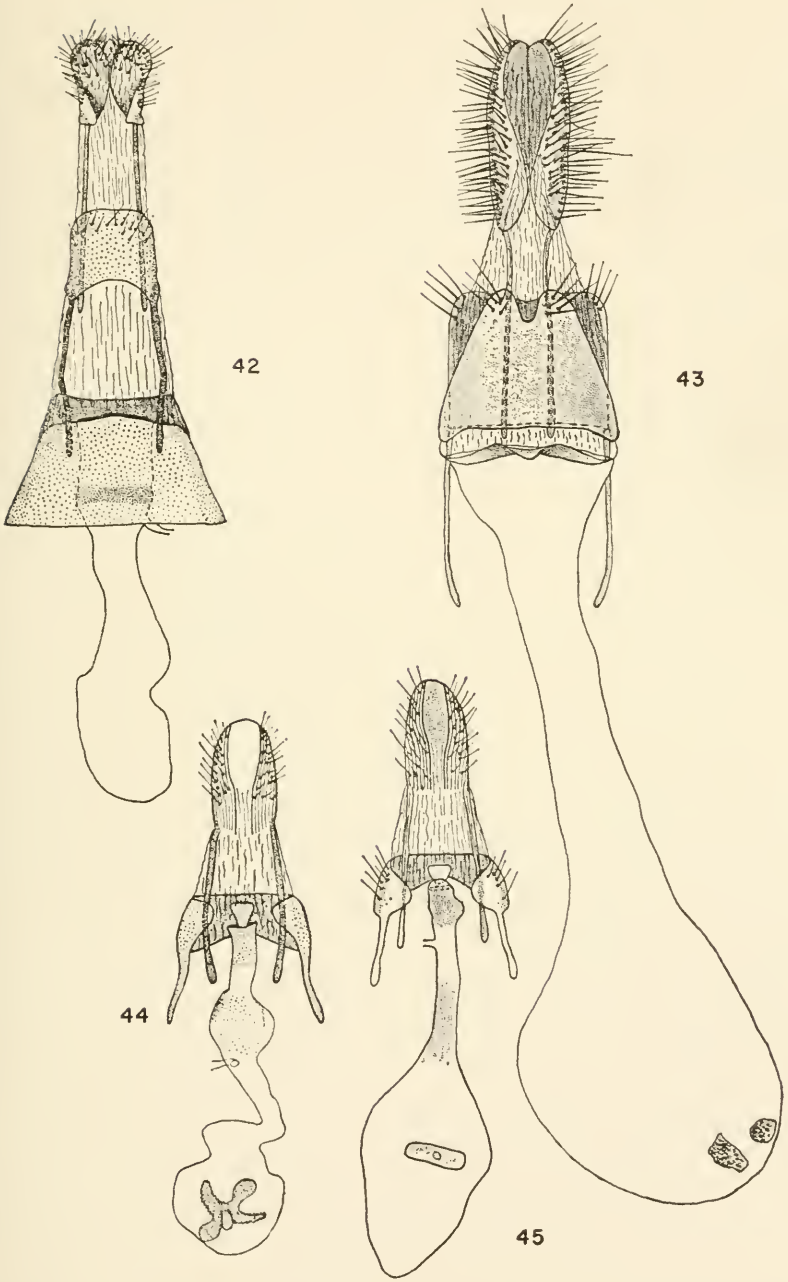
FIGURES 31–34.—Ventral view of female genitalia: 31, *Antaeotricha humilis* (Zeller); 32, *A. thomasi* (Barnes and Busck); 33, *A. fuscorectangulata*, new species; 34, *A. agrioschista* (Meyrick).



FIGURES 35–37.—Ventral view of female genitalia: 35, *Antaeotricha haesitans* (Walsingham); 36, *A. vestalis* (Zeller); 37, *A. manzanitae* Keifer.



FIGURES 38–41.—Ventral view of female genitalia: 38, *Mothonica kimballi*, new species; 39, *Stenoma mistrella* Busck; 40, *S. crambitella* Walsingham; 41, *Setiostoma xanthobasis* Zeller.



FIGURES 42–45.—Ventral view of female genitalia: 42, *Setiostoma fernaldella* Riley; 43, *Menestomorpha oblongata* Walsingham; 44, *Menesta tortriciformella* Clemens; 45, *M. melanella* Murtfeldt.