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*Nearctic Walshiidæ
Notes and New Taxa
(Lepidoptera: Gelechioidea)*

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Gelechioidea)**

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ABSTRACT

Knowledge concerning the Nearctic members of the Walshiidæ is made current by presenting new information concerning distribution and food plants; describing 14 species (*Periploca hostiata*, *hortatrix*, *P. opinatrix*, *P. devia*, *P. dipapha*, *P. labes*, *Aeaea placatrix*, *Sorhagenia baucidis*, *S. pexa*, *Siskiwitia alticolans*, *Perimede eremos*, *P. parilis*, *P. circitor*, *P. maniola*) and one genus (*Siskiwitia*) as new; presenting new keys to separate species of *Periploca*, *Sorhagenia*, and *Perimede*; and presenting a list of the known species.

When I discussed the members of various genera of Walshiidæ (Hodges, 1961, 1962a, 1962b, 1962c, and 1964), many of the species were known from few localities. During the past few years I have collected and received for study examples of several of the known species as well as 14 new species and one new genus. This additional information necessitates rewriting some of the keys to accommodate the new species. To judge from the number of new species in some genera (*Periploca* Braun, *Aeaea* Chambers, *Sorhagenia* Spuler, and *Perimede* Chambers), it appears as though many new ones remain to be discovered. The small size and relatively uniform maculation make discrimination of many species impossible on the basis of external characters. Also, the rearing of a second species of *Periploca* from cedar-apple galls indicates that host plant information may not be adequate for species determination in this genus. For these reasons genitalic preparations were made for all specimens of *Periploca* (with the exception of the series of *facula* Hodges and *orichalcella* (Clemens)), the females of *Aeaea* species, and all specimens of *Perimede* (except *erransella* Chambers).

Recently, I have had the opportunity to collect rather extensively in several areas. For the sake of brevity in citing localities I use an abbreviated form (indicated in parentheses) for the following: Arizona: Fort Valley, 7,350 feet, 7½ miles NW Flagstaff, Coconino County (Fort Valley); Hart Prairie, 8,500 feet, 10 miles NNW Flagstaff, Coconino County (Hart

Prairie); Hochderffer Hill, 8,500 feet, 12½ miles NNW Flagstaff, Coconino County (Hochderffer Hill); 4 miles ESE Pine, 5,400 feet, Gila County (Pine); Vail Lake Road, 6,500 feet, 9½ miles SE Flagstaff, Coconino County (Vail Lake); West Fork [Oak Creek], 6,500 feet, 16 miles SW Flagstaff, Coconino County (West Fork). Arkansas: Devil's Den State Park, Washington County (Devil's Den); Hartford, Sebastian County (Hartford). Florida: Lake Placid, Archbold Biological Station, Highlands County (Archbold); Fisheating Creek, Palmdale, Glades County (Palmdale); Parker Islands, Highlands County (Parker Islands). Maryland: Plummers Island [in Potomac River about 5 miles upstream from Washington, D.C.], Montgomery County (Plummers Island). South Dakota: Hardy Work Center, T3N, R1E, S30 [about 20 miles SW of Lead on U.S. route 85], Lawrence County (Hardy). Wyoming: 6 miles NW Newcastle, Weston County (Newcastle). In addition Murray O. Glenn of Henry, Illinois, and Charles P. Kimball of West Barnstable, Massachusetts, have furnished me with specimens collected by themselves and by others. The citations [MOG] and [USNM] are used for the collections of Mr. Murray O. Glenn and the United States National Museum, respectively.

I wish to thank Dr. Harold Grant (deceased) of the Academy of Natural Sciences, Philadelphia, and Messrs. John D. Bradley and Allan Watson of the British Museum (Natural History) for allowing me to study specimens in their care. The photographs of maculation were taken by Victor Krantz, staff photographer, Smithsonian Institution.

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Genus *Periploca* Braun

Key to North American Species Based on Genitalia

1. Males 2
Females 19
2. Aedeagus concave dorsally *orichalcella* (Clemens) 3
Aedeagus convex or sinuous dorsally 3
3. Valvae asymmetrical *gulosus* Hodges 4
Valvae symmetrical 4
4. A long, cylindrical extension from inner surface of valva *labes*, new species 5
Valva unarmed 5
5. Vinculum smooth margined or produced posteriorly 6
Vinculum emarginate posteriorly 13
6. Vinculum produced medially *fessa* Hodges 7
Vinculum smooth margined medially 7
7. Valva triangular *ceanothiella* (Cosens) 8
Valva not triangular 8
8. Aedeagus armed externally 9
Aedeagus unarmed 11
9. Costal margin of valva deeply excavated between two-thirds and apex, apex of valva narrowly acute *hastata*, new species 10
Costal margin of valva sinuous or rounded, apex of valva broadly acute 10
10. Costal margin of valva sinuous, 1 or 2 stout setae from costal margin *opinatrix*, new species 11
Costal margin of valva rounded; setae on valva generally uniform in size, none extremely stout *dipapha*, new species 11
11. Apex of aedeagus upturned *hortatrix*, new species 12
Apex of aedeagus straight 12
12. Costal margin of valva strongly indented before apex, apex narrowly acute *gleditschiaella* (Chambers) 13
Costal margin of valva even, apex broadly acute *atrata* Hodges 13
13. Aedeagus unarmed *facula* Hodges 14
Aedeagus armed 14
14. Aedeagus armed dorsally *funebis* Hodges 15
Aedeagus armed laterally 15
15. Aedeagus armed on right side 16
Aedeagus armed on left side 18
16. Armature of aedeagus a long and a short projection *nigra* Hodges 17
Armature of aedeagus several, short spines 17
17. Aedeagus with 5 to 6 readily visible projections, apex sharply constricted and turned to the left *devia*, new species 18
Aedeagus with numerous, very small projections, apex slightly twisted to the right *cata* Hodges 18
18. Aedeagus with a long projection preceded by a few short ones *lata* Hodges 19
Aedeagus with several, short, asymmetrical projections *mimula* Hodges 19
19. Ductus bursae not heavily sclerotized before ostium bursae 20
Ductus bursae heavily sclerotized before ostium bursae 26
20. Posterior margin of 6th sternite invaginated medially *orichalcella* (Clemens) 21
Posterior margin of 6th sternite even 21
21. Ductus bursae nearly straight, relatively broad *ceanothiella* (Cosens) 22
Ductus bursae twisted several times, slender 22
22. A finger-like invagination on anterior portion of lamella antevaginalis 23
No finger-like invagination on anterior portion of lamella antevaginalis 24
23. Width of signum more than one-half basal width of corpus bursae; diameter of invagination on genital plate approximately equal to diameter of ductus bursae *opinatrix*, new species 25
Width of signum less than one-third basal width of corpus bursae; diameter of invagination on genital plate less than one-half diameter of ductus bursae *hortatrix*, new species 25

24. Length of apophyses posteriores more than 5 times maximum width of 9th abdominal segment *gleditschiaella* (Chambers)
 Length of apophyses posteriores less than 2 times maximum width of 9th abdominal segment 25
25. Ostium bursae on anterior margin of 7th segment, lamella postvaginalis a broadly curving script "x," signum less than one-fourth width of corpus bursae *atrata* Hodges
 Ostium bursae at one-third on 7th sternite, lamella postvaginalis a very narrow, open ellipse (open anteriorly), signum approximately one-third width of corpus bursae
 *labes*, new species
26. Posterior margin of 8th abdominal segment with numerous setae 27
 Posterior margin of 8th abdominal segment with few setae 28
27. Heavily sclerotized portion of ductus bursae hookshaped *facula* Hodges
 Heavily sclerotized portion of ductus bursae angulate slightly beyond middle *funebis* Hodges
28. Anterior margin of 7th sternite simple, straight *cata* Hodges
 Anterior margin of 7th sternite modified with lobes, invaginations, or productions 29
29. Anterior margin of 7th sternite produced medially *laeta* Hodges
 Anterior margin of 7th sternite emarginate at center or at least less anterad of immediately adjacent margin 30
30. Anterior margin of 7th sternite emarginate medially *devia*, new species
 Anterior margin of 7th sternite slightly convex anteriorly, flanked by a pair of more anterior lobes 31
31. A transverse row of setae on dorsal surface of 9th abdominal segment usually present.
 *nigra* Hodges
 Dorsal surface of 9th abdominal segment usually lacking a row of setae *mimula* Hodges

***Periploca orichalcella* (Clemens), new combination**

Elachista ?orichalcella Clemens, 1864, p. 430.

Elachista (?) concolorella Chambers, 1875b, p. 55. [New synonymy.]

Periploca purpuriella Braun, 1919, p. 261. [New synonymy.]

I have examined the type of this species and find it to be conspecific with *concolorella* and *purpuriella*. The type is in the Academy of Natural Sciences, Philadelphia.

Continued collecting has turned up specimens from several areas. I judge that *orichalcella* is not an uncommon species but that its size contributes to the adults being overlooked. I have taken a moderate series in northwestern Arkansas and relatively few elsewhere; however, the records (Hodges, 1962b, p. 86 and here) indicate that it occurs across the southern portion of the United States from Florida to California and north to Arkansas and Virginia.

RECORDS.—Florida: Archbold, 1 ♂, 16–22 May 1964; Palmdale, 1 ♂, 7–10 May 1964. Illinois: Putnam County, 1 ♂, 23 July 1963. Arkansas: Devil's Den, 37 ♂♂, 24 May–20 July 1966; Hartford, 2 ♂♂, 9 June 1966.

***Periploca ceanothiella* (Cosens)**

Periploca ceanothiella (Cosens).—Hodges, 1962b, p. 86.

RECORDS.—South Dakota: Hardy, 1 ♂, 11 July 1965. Arizona: Fort Valley, 3 ♂♂, 2 ♀♀, 21 June–6 July 1961; Hart Prairie, 1 ♂, 7 July 1961.

The South Dakota record represents a considerable northcentral extension in the known range of *ceanothiella*.

***Periploca gleditschiaella* (Chambers)**

Periploca gleditschiaella (Chambers).—Hodges, 1962b, p. 88.

A small number of specimens was taken at light immediately adjacent to *Gleditsia triacanthos* L. (honeylocust) in northwest Arkansas.

RECORDS.—Arkansas: Devil's Den, 4 ♂♂, 12 June–22 July 1966. Illinois: Putnam County, 1 ♀, 7 June 1967.

***Periploca hostiata*, new species**

FIGURE 7

A small, shining, gray-black species. Head, thorax, and forewing shining gray black; tongue yellow white; shaft of antenna yellow white overlaid with black; hind wing yellow white; cilia slightly gray. Legs pale yellow gray basally, gray black distally, apices of segments pale. Alar expanse: 8.3 mm. Male genitalia: as in Figure 7 (RWH slide 4459). Costal margin of valva incurved at two-thirds length, apex sharply acute; apex of aedeagus with a short, dorsal flange, a series of small triangular projections ventrolaterally at three-fourths, others dorsally beyond one-half; pos-

terior margin of vinculum truncate. Female genitalia: no specimens available.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, 2.5 mi W Ft. Simcoe, Yakima County, Washington, 31 July 1962, J. F. G. Clarke (RWH slide 4459). USNM Type 69791.

Periploca hostiata is nearest *gleditschiaeella* in characters of the valva and vinculum. It may easily be separated from the latter, however, by having gray-black scales and an armed aedeagus.

Periploca hortatrix, new species

FIGURES 1, 10, 28, 29

A small, dark, shining gray-black species. Head, basal half of antenna, forewing, and legs shining gray black; distal half of antenna, hind wing, coxae, and apices of tibiae and tarsal segments pale yellowish white. Alar expanse: ♂ 9 mm. ♀ 6.5–7.0 mm. Male genitalia: as in Figure 10 (RWH slide 4414). Valva with acute apex, costal margin moderately swollen medially, then slightly depressed at four-fifths; aedeagus unarmed, apex abruptly upturned; vinculum smooth margined posteriorly. Female genitalia: as in Figures 28 and 29 (RWH slides 4096, 4097). Posterior margin of eighth abdominal segment with few setae; ostium bursae near anterior margin of seventh sternite, surrounded by a lightly sclerotized plate, a medial, fingerlike invagination near anterior margin of plate; ductus bursae twisted five or six times; signa paired, each an invaginated unit, appearing broadly elliptical in outline, anterior half of ellipse heavily sclerotized, posterior half lightly sclerotized.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Devil's Den State Park, Washington County, Arkansas, 20 July 1966, R. W. Hodges (RWH slide 4097). USNM Type 69779.

PARATYPES.—Same locality as for type, 1 ♂, 25 May 1966 (RWH slide 4414) [USNM]; 1 ♀, 10 June 1966 (RWH slide 4096) [University of Arkansas]. 2 ♂♂, Putnam County, Illinois, 4, 7 June 1966 and 1967, M. O. Glenn (MOG preparations 10468, 10768) [MOG].

This species seems to be near *atrata* and *opinatrix* but differs from the former in that the male of *hortatrix* has the apex of the valva acute and lacks a triangular projection on the saccular margin. From the latter the males of *hortatrix* differ in having the aedeagus unarmed. The female of *hortatrix* differs from that of *opinatrix* in having few setae (uniserial) at the

posterior margin of the eighth abdominal segment and in having the fingerlike invagination of the lamella antevaginalis slender, nearly twice as long as the opening. In *opinatrix* the setae are numerous and biserial, and the fingerlike process is broad and blunt.

Periploca opinatrix, new species

FIGURES 8, 9, 27

A small, dark, gray-black species. Head, thorax, and forewings shining gray black. Dorsal surface of second segment of labial palpus, base of tongue, and hind wing pale yellowish white. Legs yellowish white overlaid with gray black, apex of fore- and midtibiae yellowish white, hind leg mainly yellowish white, dusted with dark gray black, apices of tarsal segments paler than remainder of segments. Alar expanse: 9–10 mm. Male genitalia: as in Figures 8 and 9 (RWH slide 3953). Costal margin of valva strongly arched with a strong seta at two-thirds length and another at one-third, apex of valva acute; aedeagus sinuous, armed dorsally and on right side at three-fourths with four conical projections (dorsal pair larger than lateral pair); basal margin of vinculum emarginate. Female genitalia: as in Figure 27 (RWH slide 3960). Ostium bursae near anterior margin of seventh sternite, opening nearly one-fourth total length of segment, surrounded by a lightly sclerotized region; ductus bursae coiled five or six times; signa paired, near base of corpus bursae, each heavily sclerotized, shaped as half of an ellipse; anterior margin of seventh sternite produced medially to accommodate opening of stout fingerlike pouch; setae on posterior margin of eighth abdominal segment numerous, multiserial.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, 6 mi NW Newcastle, Wyoming, 13 July 1965, R. W. Hodges (RWH slide 3953). USNM Type 69780.

PARATYPES.—Same locality as for holotype, 2 ♂♂, 6 ♀♀, 13–20 July 1965 (RWH slides 3950, 51, 54–57, 59, 60) [USNM].

Males of *opinatrix* may be separated from those of other species of *Periploca* by having the aedeagus armed with four conical projections at three-fourths, the anterior margin of the vinculum emarginate, and the apex of the valvae acute. Females of *opinatrix* are nearest those of *hortatrix* but may be separated by having the fingerlike pouch at the base of the seventh sternite large and stout; the opening is approximately one-half the width of the ostium bursae.

Variation is expressed mainly by the amount of dark gray-black scales on the hind legs. As specimens become worn, the dark gray-black scales are lost, so the forewings appear very light.

***Periploca atrata* Hodges**

Periploca atrata Hodges, 1962b, p. 90.

RECORDS.—Arizona: Hochderffer Hill, 1 ♂, 16 July 1961; Madera Canyon, Bog Springs Camp Ground, Santa Cruz County, 1 ♂, 1 ♀, 10–26 July 1964; Southwestern Research Station, Chiricahua Mountains, Cochise County, 5,400 ft, 1 ♂, 31 July–2 August 1964; Vail Lake, 1 ♂, 11 July 1961.

***Periploca mimula* Hodges**

Periploca mimula Hodges, 1962b, p. 92.

Females of *mimula* and *nigra* are nearly inseparable on maculation or characters of the terminalia. A possible point of difference is as indicated in the key to species. Some females of *nigra* have a transverse, dorsal row of setae (6–8) on the ninth abdominal segment, whereas this area has no setae in most examined specimens of *mimula*. Features of the genital plate and the ductus bursae are somewhat variable and so far have been useless to distinguish between the two.

In 1962 the type number was stated incorrectly. It should read "Cornell University type number 3823."

RECORDS.—Arizona: Vail Lake, 1 ♂, 11 July 1961. Arkansas: Devil's Den, 3 ♂ ♂, 19–21 May, 13 July 1966. New Mexico: Gran Quivira National Monument, Socorro County, 6,600 ft, 1 ♂, 1–3 July 1964. Washington: 2 mi W Mazama, Okanogan County, 1 ♀, 29 July 1962. Wyoming: Newcastle, 2 ♂ ♂, 1 ♀, 28 June 18–20 July 1965.

***Periploca cata* Hodges**

Periploca cata Hodges, 1962b, p. 93.

The holotype of *cata* is a female rather than a male as stated on page 94 (Hodges, 1962b).

RECORDS.—Arkansas: Devil's Den, 10 ♂ ♂, 19 May–27 June 1966. Iowa: Shenandoah, 5 ♂ ♂, 3 ♀ ♀, 8 June 1946, reared from cedar rust gall.

***Periploca devia*, new species**

FIGURES 11, 30–32

A small, dark, gray-black species. Head, thorax, and forewing shining gray black. Dorsal surface of second

segment of labial palpus, base of tongue, frons, and coxae shining yellowish white; scape of antenna and base of shaft dark, remainder yellowish white. Hind wing yellowish white, becoming slightly darker distally; ventral surface much lighter than dorsal surface. Foreleg yellowish white heavily overlaid with gray black. Tibia and tarsus of midleg dark, apices of segments pale yellowish white. Hind leg gray brown. Alar expanse: 8–10 mm. Male genitalia: as in Figure 11 (RWH slide 4371). Apex of aedeagus recurved, armed with a row of 6–8 conical projections on right side from approximately one-half to three-fourths; costal margin of valva strongly convex, apex blunt; posterior margin of vinculum emarginate medially. Female genitalia: as in Figures 30–32 (RWH slide 4365). Ostium bursae at approximately one-third distance from anterior margin of seventh sternite; genital plate developed as a narrow, sclerotized band around ostium bursae; anterior margin of seventh sternite slightly invaginated medially, a pair of shallow lobes immediately laterad of this invagination; ductus bursae heavily sclerotized just before ostium bursae, preceded by a short, less heavily sclerotized section, the remainder lightly sclerotized, looped five or six times; signa a pair of linear invaginations near base of corpus bursae, inner margin of each with a pair of inwardly curving hooks.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Fort Valley, 7,350 ft, 7½ mi NW Flagstaff, Coconino County, Arizona, 22 June 1961, Ronald W. Hodges (RWH slide 4371). USNM Type 69781.

PARATYPES.—Same locality as for holotype, 1 ♂, 19 June 1961 (RWH slide 4372) [USNM]; 1 ♀, Hart Prairie, 8,500 ft, 10 mi NNW Flagstaff, Coconino County, Arizona, 14 July 1961, Ronald W. Hodges (RWH slide 4374) [USNM]; 2 ♀ ♀, Hochderffer Hill, 8,500 ft, 12½ mi NNW Flagstaff, Coconino County, Arizona, 16 July and 8 August 1961, Ronald W. Hodges (RWH slides 4365, 4366) [Cornell University, USNM].

The male genitalia of *devia* are nearest those of *cata* in general configuration but differ in having the aedeagus armed with a relatively small number (5–6) of easily visible projections, the apex of the aedeagus sharply constricted and curved to the left and extending but a short distance beyond the posterior margin of the vinculum. The female genitalia are nearest those of *laeta*, differing in having the anterior margin of the

seventh sternite incurved medially and the basal, sclerotized portion of the ductus bursae heavily sclerotized immediately before the ostium bursae, then less heavily sclerotized.

***Periploca nigra* Hodges**

Periploca nigra Hodges, 1962b, p. 94.

RECORDS.—Arkansas: Devil's Den, 11 ♂♂, 2 ♀♀, 20 May–5 June 1966.

***Periploca fessa* Hodges**

Periploca fessa Hodges, 1962b, p. 95.

RECORDS.—Arkansas: Devil's Den, 5 ♂♂, 20 May–3 June and 22 July 1966. Wyoming: Newcastle, 1 ♂, 13 July 1965.

***Periploca facula* Hodges**

Periploca facula Hodges, 1962b, p. 96.

RECORDS.—Arizona: Fort Valley, 2 ♂♂, 22 June 1961. Wyoming: Newcastle, 4 ♂♂, 7 ♀♀, reared from cedar apple galls on *Juniperus* species, collected 23 July, issued 3–18 August 1965; 1 ♂, 13 July 1965.

***Periploca dipapha*, new species**

FIGURES 12, 13

A small, shining, yellowish-brown and pale yellow moth. All surfaces shining yellow at certain angles of light incidence, shining yellowish brown overlying pale yellowish white scales on outer surface of second and third segments of labial palpus, dorsal surface of scape (apex pale) and base of shaft of antenna, thorax, forewing, and femur, tibia, and tarsus of foreleg. Alar expanse: 8.5 mm. Male genitalia: as in Figures 12 and 13 (RWH slide 1060). Aedeagus with three prominent conical projections on dorsal surface between two-thirds and three-fourths length, apex blunt with a dorsal, conical projection just before end; costal margin of valva nearly evenly convex, apex broadly acute; posterior margin of vinculum evenly rounded. Female genitalia: no specimens available.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Madera Canyon, 4,880 ft, Santa Rita Mtns., Arizona, July 27, 1959, R. W. Hodges (RWH slide 1060). Cornell University type number 4268.

The male genitalia of *dipapha* may be separated

from those of *funebri* by having the costal margin of the valva broadly rounded (sinuous in *funebri*) and only three preapical, conical projections on the dorsal surface of the aedeagus (*funebri* has a series of large projections and many small, triangular ridges in the same location).

The unique specimen of *dipapha* is not fresh, so the description of maculation will probably be modified as others turn up. Dark scales are likely to be more abundant than is indicated in the description.

***Periploca labe*, new species**

FIGURES 14, 33

A small, pale yellow species. Nearly all scaled surfaces shining, pale yellowish white, posterior surface of scape of antenna, tegula, thorax, and forewing dusted with light brown scales. Femur, tibia, and tarsus of foreleg brown, apex of tibia pale yellow, apices of tarsal segments lighter than remainder of segment. Tibia of midleg with a few yellow-brown scales before apex, ventral surface of tarsus yellow brown. Alar expanse: 7 mm. Male genitalia: as in Figure 14 (RWH slide 1163). Aedeagus unarmed, sinuous, tapering to apex; costal margin of valva rounded, apices, rounded, a long, curved, medial projection rising from inner surface extending beyond apex; part of vinculum heavily sclerotized as a narrow band articulating with tegumen, remainder lightly sclerotized. Female genitalia: as in Figure 33 (RWH slide 4377). A single, sparse row of setae on eighth segment; ostium bursae circular, surrounded by an incomplete (open anteriorly), heavily sclerotized ring, located slightly posterad of anterior margin of seventh sternite; ductus bursae membranous with approximately seven loops; corpus bursae lightly sclerotized; a pair of crescent-shaped signa at basal third of corpus bursae.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Vail Lake Road, 6,500 ft, 9½ mi SE Flagstaff, Coconino County, Arizona, 11 July 1961, Ronald W. Hodges (RWH slide 4377). USNM 69782.

PARATYPE.—Male, Madera Canyon, 4,880 ft, Santa Rita Mtns., Arizona, July 17, 1959, R. W. Hodges (RWH slide 1163) [Cornell University].

I have associated the sexes of *labe* because of the similarity in maculation. Inasmuch as no other *Periploca* species is so pale in a fresh condition, this character seems to be diagnostic. The pale yellowish color

of *labes* immediately separates it from other species of *Periploca*. Possession of the long projection from the inner surface of the valva will immediately separate males of *labes* from those of other species of *Periploca*. The presence of crescent-shaped signa, membranous ductus bursae, ostium bursae posterad of anterior margin of seventh sternite, seventh sternite basically simple, and a single row of setae on the eighth segment will, in combination, characterize females of *labes*.

Genus *Synploca* Hodges

Synploca gumia Hodges

Synploca gumia Hodges, 1964, p. 295.

RECORDS.—Arizona: Fort Valley, 1 ♂, 25 July 1961; Pine, 1 ♂, 5 September 1961.

Genus *Walshia* Clemens

Walshia miscecolorella (Chambers)

Walshia miscecolorella (Chambers).—Hodges, 1961, p. 69.

This species becomes moderately common at light over a relatively long period of time. The work of George Manglitz (in litt.) at Lincoln, Nebraska, indicates that the species can be a minor economic pest—in this instance of sweet clover.

When series of specimens are available, several general statements can be made about populations: The California specimens are large and pale, usually the basal dark brown patch contrasts sharply with the rest of the wing which is pale yellow, and the hind wings often are pale yellow. The northern Arizona population is represented by large specimens (average: 16.4 mm, range: 11.8–18.6 mm, 70 specimens measured) with relatively uniform markings; the yellow-brown area beyond the basal, dark brown patch is moderately dark and becomes suffused yellow-brown in a short distance. A series of specimens from northwest Arkansas is distinctly small (average: 11.6 mm, range: 9.4–15.0 mm, 31 specimens measured) and relatively dark, and another series (reared) from Lincoln, Nebraska, is moderate sized (average: 13.5 mm, range: 11.0–15.4 mm, 16 specimens measured) and relatively dark colored.

This species shows more evidence of variation than the other *Walshia* species, but the difference may be a result of more material being collected than for the others.

RECORDS.—Arizona: Fort Valley, 38 ♂♂, 3 ♀♀, 20 June–1 August 1961; Hart Prairie, 85 ♂♂, 7 ♀♀, 23 June–22 August 1961, Hochderffer Hill, 2 ♂♂, 9 July 1961; Vail Lake, 2 ♀♀, 11 July 1961; West Fork, 8 ♂♂, 4–15 July 1961. Arkansas: Devil's Den, 32 ♂♂, 6 ♀♀, 20 May–22 July 1966. Florida: Archbold, 1 ♂, 1–7 May 1964. Nebraska: Lincoln, 7 ♂♂, 9 ♀♀, issued 12–17 March 1967. Nevada: Kernshaw Ruan State Park near Caliente, 1 ♂, 21 June 1963.

Walshia exemplata Hodges

Walshia exemplata Hodges, 1961, p. 73.

RECORDS.—Arkansas: Devil's Den, 1 ♂, 6 July 1966.

Walshia particornella (Busck)

Walshia particornella (Busck).—Hodges, 1961, p. 73.

RECORDS.—Arkansas: Devil's Den, 6 ♀♀, 20 May–13 July 1966.

Of the six specimens taken in Arkansas, one was extremely fresh and has patches of raised scales on the forewings. It appears as though *particornella* does fit better in the genus *Walshia* with this character being present. These particular scales must be extremely deciduous to be lost while specimens still appear fresh.

Genus *Aeaea* Chambers

Aeaea venifica Hodges

FIGURE 36

Aeaea venifica Hodges, 1964, p. 301.

The first recognized females of *venifica* were taken by Mr. Glenn. Subsequently, a large series of males and females was collected in northwestern Arkansas. As seems to be true for many of the small species of Microlepidoptera, *venifica* can be relatively common, but it is not collected by most workers.

The following description of the female genitalia is given to supplement the original statement concerning the species. Female genitalia: as in Figure 36 (RWH slide 4415). Ostium bursae at or slightly beyond middle of seventh sternite; genital plate with a low ridge from anterior margin to ostium bursae flanked by a shallow, depressed, elliptical, sclerotized region, latter with a series of concentric, semicircular lines laterally; ductus bursae narrow at base then expanding at level of anterior margin of seventh sternite, coiled once;

corpus bursae nearly membranous, walls with fine spicules, signa a pair of inwardly pointing thorns.

The series of concentric ridges on the genital plate of *venifica* ally it with *A. dulcedo* Hodges; however, the genitalia of the former have a median ridge on the genital plate, the ostium bursae on the seventh sternite (not the margin), and the posterior margin of the seventh sternite even (not emarginate).

RECORDS.—Arkansas: Devil's Den, 62 ♂♂, 19 ♀♀, 24 May–10 July 1961. Illinois: Putnam County, 2 ♂♂, 2 ♀♀, 30 May–5 June 1962. Maryland: Plummers Island, 3 ♂♂, 5 ♀♀, 20–28 July 1962.

Aeaea ostryaella Chambers

Aeaea ostryaella Chambers.—Hodges, 1964, p. 302.

RECORDS.—Arkansas: Devil's Den, 13 ♂♂, 4 ♀♀, 4 June–6 July 1966. Maryland, Plummers Island, 1 ♂, 20 July 1962.

Aeaea quadricustatella Chambers

Aeaea quadricustatella Chambers.—Hodges, 1964, p. 303.

RECORDS.—Arkansas: Devil's Den, 56 ♂♂, 11 ♀♀, 5 June–22 July 1966. Florida: Archbold, 31 ♂♂, 26 ♀♀, 1 May–8 June 1964; Parker Island, 1 ♀, 26–29 May 1964.

Aeaea placatrix, new species

FIGURE 35

A small, dark gray-black species. Maculation as for *A. juvantis* Hodges. Alar expanse: 7 mm. Male genitalia: no specimens available. Female genitalia: as in Figure 35 (RWH slide 4141). Genital plate relatively complicated, a pair of flanges running from anterior to posterior margins of seventh sternite, commencing near lateral margin, terminating medially in a pair of pointed, free-standing ridges; ostium bursae in anterior section of seventh abdominal segment, opening to exterior near or at end of segment; ductus bursae broadest at ostium bursae, tapering to slightly beyond half length, then gradually broadening to corpus bursae, basal one-fourth moderately sclerotized; corpus bursae nearly membranous, wall with fine spicules; signa a pair of inwardly pointing spines.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Devil's Den State Park, Washington County, Arkansas, 20 June 1966, R. W. Hodges (RWH slide 4141). USNM Type 69783.

Females of *placatrix* are closest to those of *A. victor* Hodges but may be separated by having the pair of flanges starting near the lateral margins of the seventh abdominal segment rather than near the middle.

Genus *Chrysopeleia* Chambers

Chrysopeleia purpuriella Chambers

Chrysopeleia purpuriella Chambers.—Hodges, 1964, p. 315.

Males of *purpuriella* can be identified by examination of the abdomen without resorting to genitalic preparation. The modified scales of the eighth abdominal sternite are easily visible.

RECORDS.—Arkansas: Devil's Den, 10 ♂♂, 10 ♀♀, 1–19 July 1966. Maryland: Plummers Island, 2 ♀♀, 20 July 1962.

Genus *Stilbosis* Clemens

Examination of male genitalia of additional *Stilbosis* species has shown that *Aeaea* and *Stilbosis* are very close if not the same. The character of the saccular margin of the valva being heavily sclerotized is good for some but not all species of *Stilbosis*. An extremely obvious difference is the nature of the scales: *Stilbosis* has metallic scales that are shades of yellow and brown; *Aeaea* has scales that are dull gray-black and white. Differences in the nature of the scales are usually not important enough to separate genera; however, until I have had the opportunity to study the numerous Neotropical representatives of *Stilbosis*, I prefer to maintain the two genera as distinct.

Stilbosis lonchocarpella Busck

FIGURES 2, 15, 34

Stilbosis lonchocarpella Busck, 1934, p. 157.

This species has been taken commonly by Mrs. Spencer Kemp at Key Largo, Florida. Busck cites *Lonchocarpus sericeus* as the host of the larva; however, this plant is not known to occur in Florida, so another legume probably serves as host there.

RECORDS.—Florida: Key Largo, Monroe County, 28 ♂♂, 14 ♀♀, 16 December–20 April.

Genus *Sorhagenia* Spuler

Key to Nearctic Species Based on Genitalia

- 1. Males 2
 Females 5
- 2. Costal lobe of valva longer than saccular lobe 3
 Costal lobe of valva shorter than saccular lobe 4
- 3. Costal lobe of valva broadly rounded at apex; saccular lobe relatively evenly sclerotized, more heavily sclerotized than costal lobe *baucidis*, new species
 Costal lobe of valva acute at apex, more heavily sclerotized than saccular lobe *nimbosa* (Braun)
- 4. Medial lobe of valva relatively constant in width, slightly expanded at apex; costal lobe slightly expanded before apex, then tapering to sharply pointed apex *pexa*, new species
 Medial lobe of valva expanded distally, more than twice medial width; costal lobe tapering evenly to narrowly rounded apex *daedala* Hodges
- 5. Signa absent *pexa*, new species
 Signa present 6
- 6. Pregenital plate rectangular *nimbosa* (Braun)
 Pregenital plate triangular 7
- 7. Ductus bursae slender, width nearly uniform; sclerotized, anterior arms of pregenital plate narrow, posterior margin excavated *daedala* Hodges
 Ductus bursae moderate, anterior portion nearly twice as wide as posterior, sclerotized portion; sclerotized, anterior portion of pregenital plate broad, posterior margin truncate. *baucidis*, new species

Sorhagenia baucidis, new species

FIGURES 3, 16-17, 37-38

A small, dark gray species. Head and thorax dark gray, scales tipped with pale gray to off-white, thorax darker than head; apex of third segment of labial palpus off-white; apex of antenna with five half-segments pale gray, each pale half-segment separated by one and one-half dark gray segments. Scales of forewing much as for thorax, dorsal half from just beyond base to one-half pale gray, a few completely dark gray scales at base and some on middle third near costa; five patches of raised scales, a costal and dorsal pair at one-fourth, a costal and dorsal pair at one-half, and a medial one at end of cell, first pair and outer one unicolorous dark gray, middle pair lighter and tipped with pale gray; a row of three dark gray (almost black) spots on outer margin; cilia gray, scales of costal portion tipped with pale gray, dorsal ones unicolorous. Hind wing unicolorous gray. Legs gray to dark gray, scales tipped with pale gray; foreleg with apex and middle of tibia and apices of tarsal segments 1, 2, 4, 5 pale gray; midlegs absent on type; tibia of hind leg with pale oblique streaks subbasally, medially, and apically, apices of tarsal segments off-white; legs darker distally than basally. Alar expanse: 10.0-10.5 mm. Male genitalia: as in Figures 16 and 17 (MOG slide 25). Costal lobe of valva expanded for distal two-thirds, apex broadly rounded, medial

lobe short with sinuous ventral margin; costal lobe heavily sclerotized, margins nearly parallel, apex rounded; juxta roughly "T" shaped. Eighth abdominal sternite moderately heavily sclerotized. Female genitalia: as in Figures 37 and 38 (RWH slide 4529). Pregenital plate triangular, apex truncate; basal portion of ductus bursae sclerotized, distal half with transverse ridges, spiculate; corpus bursae spherical, two signa present. Apophyses anteriores and posteriores subequal in length.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Putnam County, Illinois, June 17, 1965, M. O. Glenn (MOG slide 25). USNM Type 69784.

PARATYPES.—Same locality as for holotype, 2 ♂♂, 2 ♀♀, 25 June-2 July 1966 and 1967 (MOG preparation 20468, RWH slides 4528, 4529) [MOG, USNM].

Sorhagenia baucidis is similar in maculation to both *nimbosa* and *daedala* but differs in having a patch of raised scales on the costal portion of the forewing at one-fourth; the latter two species lack this patch.

Sorhagenia pexa, new species

FIGURES 4, 18, 20, 39

A small, light brown moth. Maculation as in Figure 4. Scales of head and inner surface of labial palpus pale orange, a row of brown (tipped with pale orange)

scales bordering eye from base of antenna to tongue, occiput slightly darker than frons; outer surface of second segment of labial palpus mottled brown, apex grayish yellow and pale orange, basal two-thirds of third segment grayish yellow and pale orange, apical third mottled brown; antenna mainly brown to four-fifths then pale orange, apex mottled brown and pale orange, ventral surface of scape pale orange. Thorax pale orange with tegula, apex of mesothorax, and sides of mesothorax brown. Forewing with 4 patches of raised scales, 1 between fold and dorsal margin at one-fourth, 1 just beyond one-half, 1 between fold and costa at one-half, and 1 at end of cell, base of wing and several streaks on costal half brownish black, an oblique pale orange band from costa to tornus, beyond this a series of 5 brown-black dots on costal margin and 2 on outer margin, cilia gray brown with pale orange streak from end of oblique band at tornus. Hind wing gray. Abdomen mottled brown and brownish orange dorsally, brownish orange ventrally. Foreleg brown, apex of coxa and tibia pale yellow, base of first and second tarsal segments mottled brown, third segment brown, remainder pale orange. Midleg with yellow-white coxa; femur gray brown, apex brown; tibia mottled light brown, grayish orange, and orange white, apices of scales pale; base and apex of 1st, 2d, and 4th, base of 3d, and all of 5th tarsal segments orange white, remainder brown. Hind leg with yellowish white coxa and femur, upper margin of femur gray brown; tibia with oblique, brown band from two-fifths to four-fifths, a brown streak near base and one just before apex, remainder of scales grayish orange tipped with orange white, spurs mottled gray brown and orange white; base and apex of first 4 tarsal segments and all of 5th orange white, remainder brown. Alar expanse: 12–14 mm. Male genitalia: as in Figures 18 and 20 (RWH slide 4055). Costal lobe of valva slender, slightly expanded before apex, medial lobe uniformly slender, slightly enlarged at apex; saccular lobe with a broad base then spatulate, inner surface densely covered with long setae; uncus minutely trilobate; eighth sternite sclerotized as horseshoe. Female genitalia: as in Figure 39 (RWH slide 4056). Ostium bursae at three-fourths, projecting from seventh sternite; basal third of ductus bursae heavily sclerotized, smooth walled, distal two-thirds with granulose walls, corpus bursae lightly sclerotized, walls with numerous spicules, signa absent, but spicules more closely set in one region.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Devil's Den State Park, Washington County, Arkansas, 20 June 1966, R. W. Hodges (RWH slide 4055). USNM Type 69785.

PARATYPES.—Same locality as for holotype, 2 ♀♀, 9, 13 July 1966 (RWH slide 4056) [University of Arkansas, USNM]. 3 ♀♀, Putnam County, Illinois, 6–10 July 1963 and 1964, M. O. Glenn (MOG slide 24, RWH slide 3166) [MOG, USNM].

Sorhagenia pexa may easily be separated from the other species of *Sorhagenia* by the light brown color of the forewings; gray to gray-black is the predominant color of the latter. Genitalic differences are as given in the key.

Genus *Siskiwitia*, new genus

TYPE-SPECIES.—*Siskiwitia alticolans* Hodges, new species.

Head: smooth scaled, labial palpus porrect, third segment three-fourths length of second segment, apex acute; tongue short; maxillary palpus short; antenna about three-fifths length of forewing, simple, pecten absent. Forewing: broadly lanceolate, apex pointed; 11 veins present, Cu_2 absent; M_2 short stalked with $R_4 + R_5 + M_1$; R_4 , R_5 , and M_1 stalked, M_1 to outer margin, R_5 to costa. Hindwing: linear; 8 veins present; M_1 and R_5 stalked. Male genitalia: valva with a moderately heavily sclerotized, slender lobe from costal margin at two-thirds length of valva; articulating mechanism between aedeagus and bases of valvae short; vinculum apparently absent, valvae articulating medially with one another; uncus heavily sclerotized, rod shaped. Female genitalia: not known.

Siskiwitia is nearest *Nepotula* Hodges on characters of the male genitalia but differs in having a well-developed uncus. The venation differs from that of *Nepotula* in that M_2 is stalked with $R_4 + R_5 + M_1$ in the forewing and that R_5 and M_1 are stalked in the hind wing. Raised scales are absent on the forewings of *Siskiwitia*, present on those of *Nepotula*.

Siskiwitia alticolans, new species

FIGURES 5, 19

A minute, shining black (forewing with a white bar) species. Head: shining metallic silver and yellow silver at certain angles of light incidence, otherwise nearly

black; tongue pale yellow. Thorax and forewing black, shining dark bronze at some angles of light incidence, individual scales with nonlustrous margins, a transverse, white band at two-thirds length of wing. Hind wing shining dark gray. Legs: (not all present) shining dark gray to black, apex of hind tibia and all of tibial spurs white. Alar expanse: 6 mm. Male genitalia: as in Figure 19 (RWH slide 4423). Valva somewhat triangular, a moderately heavy sclerotized, slender lobe from costal margin at two-thirds length of valva, costal

margin swollen, saccular margin nearly straight; aedeagus concave dorsally; uncus stout, pointed, heavily sclerotized. Female genitalia: no specimens available.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Arizona, Santa Cruz County, Madera Canyon, 5,100 ft, Bog Spring Camp Ground, Santa Rita Mts., July 10–26, 1964, D. R. Davis (RWH slide 4423, wing slide 111). USNM Type 69786.

Siskiwitia alticolans looks like a small *Periploca* that has a white, transverse band on the forewing.

Genus *Perimede* Chambers

Key to the Species

- 1. Males 2
- Females 8
- 2. Spines on glands associated with genitalia symmetrical 3
- Spines on glands associated with genitalia asymmetrical 6
- 3. Glandular spines shorter than valvae 4
- Glandular spines equal to or longer than valvae 5
- 4. Apex of valva drawn to point ventrally, spine curved at one-half to two thirds
- *circitor*, new species
- Apex of valva rounded; spine nearly straight, slightly curved at one-third *parilis*, new species
- 5. Glandular spines sinuate, apex of valva rounded *latris* Hodges
- Glandular spines straight, apex of valva drawn to point ventrally *erransella* Chambers
- 6. Right glandular spine coiled *battis* Hodges
- Right glandular spine not coiled 7
- 7. Apices of uncus blunt; valva narrow, saccular margin with an expanded shoulder near base. *ricina* Hodges
- Apices of uncus acute; valva broader, saccular margin without a distinct shoulder near base. *falcata* Braun
- 8. Seventh sternite symmetrical 10
- Seventh sternite asymmetrical 9
- 9. Ostium bursae at middle of 7th sternite *ricina* Hodges
- Ostium bursae at apex of 7th sternite *latris* Hodges
- 10. Ostium bursae extending beyond posterior margin of 7th tergite, on raised prominence. *falcata* Braun
- Ostium bursae not extending beyond posterior margin of 7th tergite, on raised prominence or not 11
- 11. Lamella antevaginalis narrowly triangular, extending beyond anterior margin of 7th sternite. *parilis*, new species
- Lamella antevaginalis variously shaped, not extending beyond anterior margin of 7th sternite. 12
- 12. Ostium bursae open to ventral surface, lamella antevaginalis a sclerotized rim 13
- Ostium bursae not immediately open to ventral surface, lamella antevaginalis extending beyond ostium bursae ventrally making a flange. 15
- 13. Ostium bursae laterally compressed; lamella antevaginalis with a narrow, medial slit, extending to posterior margin of 7th sternite *circitor*, new species
- Ostium bursae broad 14
- 14. Lamella antevaginalis broadest at center, ostium bursae nearly at posterior margin of seventh sternite, no sclerotized band posterad of opening *maniola*, new species
- Lamella antevaginalis evenly narrow, a sclerotized band between ostium bursae and posterior margin of 7th sternite *eremos*, new species
- 15. A pair of invaginations containing scales anterior to ostium bursae *battis* Hodges
- Lacking such invaginations *erransella* Chambers

Perimede erransella Chambers

Perimede erransella Chambers.—Hodges 1962c, p.147.

RECORDS.—Arkansas: Devil's Den, 8 ♂♂, 3 ♀♀, 29 May–21 July 1966. Florida: Archbold, 1 ♂, 1–7 May 1964; Pensacola, 2 ♂♂, 1 ♀, 24 July, 1 December 1961, 22 February 1962. North Carolina: Durham, 3 ♂♂, 5 ♀♀, 4 December 1946–13 January 1947, ex *Carya tomentosa* and *Quercus coccinea*.

Perimede eremos, new species

FIGURES 40, 42

A small, dark, gray-black species. Head shining off-white; outer surface of second segment of labial palpus (except apex), a series of scales along dorsal and anterior margins of eyes, and antenna dark gray. Thorax with dark gray tegula, pro- and mesonota medium gray, metanotum pale gray. Forewing mottled dark gray; with four black spots, one on fold at two-fifths length of wing, one at middle of wing, one at end of cell, and one at apex of wing, first two followed by gray-white scales, last two preceded by gray-white scales; a white spot on costal margin and one on dorsal margin of wing at three-fourths length of wing. Hind wing slightly paler than forewing. Proleg: coxa mottled pale and medium gray, appearing light; femur and tibia dark gray, apex of epiphysis and tibia off-white; a dark gray saddle on first, second, and fourth tarsal segments, all of third segment dark gray, remaining elements off-white. Midleg: mainly off-white to white; coxa and femur speckled with medium gray; basal three-fifths of tibia dark gray dorsally, a few medium gray scales on distal two-fifths and on spurs, tarsus with a few scattered gray scales. Hind leg: coxa and femur white with a few dark gray—almost black—scales, these more numerous at base and apex of femur; tibia medium gray, a few white scales at base of middle tibial spurs, apex and spurs white; tarsus darker than tibia, base and apex of first four and all of fifth segment white. Abdomen: tergum medium gray, apices of segments slightly paler, apex of sixth tergite off-white; sternum mottled off-white and gray, mainly off-white. Alar expanse: 7–8 mm. Male genitalia: no specimens available. Female genitalia: as in Figures 40 and 42 (RWH slide 4086). Ostium bursae from middle to near caudal margin of seventh sternite, irregularly round to subquadrate; lamella antevaginalis a narrow, heavily sclerotized band; ductus bursae slender, lightly sclerotized; corpus bursae mem-

branous, signa a pair of inwardly pointing spurs, bases on wall of corpus bursae lightly and evenly sclerotized; anterolateral margins of seventh sternite lightly sclerotized; extending around sides as a pair of flaps.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Devil's Den State Park, Washington County, Arkansas, 27 June 1966, R. W. Hodges (RWH slide 4086). USNM Type 69788. Paratype: One ♀, same locality as for holotype, 17 June 1966 [USNM].

Consistent characters to separate *eremos* from other species of *Perimede* are the symmetrical female genitalia with the ostium bursae being roughly quadrilateral and the signa being simple, stout projections.

Perimede ricina Hodges

Perimede ricina Hodges, 1962c, p. 150.

RECORDS.—Falls Church, Virginia, 1 ♀, 9 July 1962.

Perimede parilis, new species

FIGURES 6, 21–23, 25, 41

A small, dark, gray-black moth. Maculation: as in, Figure 6. General color pattern is much as for *eremos*. Head usually shining pale to medium gray; inner surface of labial palpus shining orange white, outer surface dark gray; base of tongue medium to dark gray; several half-segments on dorsal surface of antenna pale gray. Forewing with a yellowish white patch in costal scales just before apex; a few whitish scales on apical one-fifth of wing; and an incomplete "V" of whitish scales connecting white spots at three-fourths length of wing, point of "V" toward apex. Proleg: coxa gray, apex yellowish white; femur dark gray, base and apex white; tibia dark gray, area opposite epiphysis and apex white; tarsus dark gray, base and apex of first two segments, apex of fourth, and all of fifth segment white, ventral surface yellowish white to white. Midleg: coxa yellowish white with a few pale gray scales; femur medium gray, base yellowish white; tibia dark gray basally, yellowish white distally; spurs and distal half with scattered pale gray scales; tarsus mainly yellowish white, a few dark gray scales near apex of first segment, a dark gray saddle on middle of second, on distal two-thirds of third, and basal two-thirds of fourth segment. Hind leg: coxa yellowish white mottled with pale gray; femur yellowish white, dark gray (almost black at base and apex); tibia gray, apex, a transverse streak at one-half, and spurs yellowish white, spurs

with dark gray scales just before apex; tarsus dark gray, base and apex of first four segments and all of fifth segment yellowish white. Alar expanse: 8–12 mm. Male genitalia: as in Figures 21–23 and 25 (RWH slides 4057, 4087). Valva angled at middle, distal half with relatively parallel costal and saccular margins, slightly expanded at apex, apex rounded; aedeagus expanded for basal two-fifths then sharply constricted, tapering gradually to acute apex, curved downward; saccus broad; lobes of uncus slender, parallel sided, apices slightly bent at one-third; lightly sclerotized lobe with setae at apex. Female genitalia: as in Figure 41 (RWH slide 4090). Ostium bursae extending from middle nearly to posterior margin of seventh sternite, opening lightbulb-shaped; lamella antevaginalis narrowly triangular; ductus bursae short, relatively broad, expanding gradually to corpus bursae; corpus bursae lightly sclerotized, walls with numerous, fine lines; signa a pair of inwardly projecting spines arising from an elliptical, sclerotized patch on wall of corpus bursae.

FOOD PLANT.—Unknown.

HOLOTYPE.—Male, Devil's Den State Park, Washington County, Arkansas, 10 July 1966, R. W. Hodges (RWH slide 4057). USNM Type 69787.

PARATYPES.—4 ♂♂, 5 ♀♀, same locality as for holotype, 21 June–14 July 1966 (RWH slides 4087, 4088, 4090, 4435–7, 4440–2) [University of Arkansas, USNM]. 3 ♂♂, 4 ♀♀, Putnam County, Illinois, 7 June–14 August 1961 to 1967, M. O. Glenn (MOG slides 18–20, 19168, 19368, 20068; RWH slide 4532) [MOG, USNM].

Some variation occurs in the amount of light or dark scales on the head, with individuals appearing very light to dark gray. Fresh specimens generally have the vertex darker than worn ones. Flown specimens take on a brownish cast as the overlying dark gray scales on the wings are worn away.

The combination of characters, glandular spines symmetrical, apices of valva rounded, and lobes of uncus linear, will separate males of *parilis* from those of other species of *Perimede*. In turn, the females may be distinguished by the lamella antevaginalis being narrow and extending from the middle of the seventh sternite to beyond the anterior margin of this segment.

Perimede circitor, new species

FIGURES 24, 26, 43, 45

A small, dark gray species. Head: occiput medium gray, frons and lower part of vertex pale gray; inner

surface of labial palpus light orange, outer surface dark gray (scale bases pale), third segment about three-fourths length of second; base of tongue mottled pale gray and orange white; thorax and wings as for *eremos*. Foreleg: coxa medium gray, apex yellowish white; femur slightly darker gray, apex narrowly pale gray; tibia dark gray, a white streak opposite epiphysis, apex white; tarsus nearly black, base and apex of first, apex of second and fourth, and all of fifth segment white. Midleg: coxa yellowish white; femur yellowish white basally becoming pale gray distally; tibia mottled yellowish white and pale gray, dark gray basally, spurs yellowish white with a dark gray ring just before apex; tarsus mainly yellowish white, second through fourth segments with dark gray saddles. Hind leg: Coxa mottled yellowish white and medium gray; femur yellowish white, heavily dusted with dark gray at base and apex; tibia mottled pale and dark gray (scale bases pale), a transverse, pale gray streak at base of first pair of tibial spurs and at apex pale gray to off-white, spurs off-white, ringed with gray before apices; tarsus dark gray, base and apex of first, apices of second, third, and all of fifth segment off-white. Alar expanse: 7–10 mm. Male genitalia: as in Figures 24 and 26 (RWH slide 4085). Valva relatively linear, tapering gradually from base to two-thirds length, apex drawn to a point on ventral margin; apices of uncus very slender on distal half, apices rounded; aedeagus slender, apex slightly downturned. Glands associated with genitalia bilobate, ventral one with series of setae on outer one-third of inner surface; spines slender, tapering fairly evenly from base to apex, curved near middle. Seventh sternite with heavily sclerotized margin; eighth sternite composed of three sclerites in shape of tulip, lateral sclerites relatively slender, medial one "T" shaped, cross of "T" broad, base slender; eighth tergite shaped like a low margined "U," sclerite narrowest medially. Female genitalia: as in Figures 43 and 45 (RWH slide 4089). Ostium bursae narrow, at posterior margin of seventh sternite; lamella antevaginalis with a narrow medial slit; ductus bursae very narrow from ostium bursae; expanding quickly to corpus bursae; corpus bursae with a slight pouch near base, walls with fine creases; signa two, slender, inwardly directed pyramids, lightly sclerotized base elliptical with a tear-shaped border from origin of pyramid.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Devil's Den State Park, Wash-

ington County, Arkansas, 18 July 1966, R.W. Hodges (RWH slide 4089). USNM Type 69790.

PARATYPES.—1 ♂, 3 ♀♀, same locality as for holotype, 3 June–22 July 1966 (RWH slides 4085, 4438, 4439, 4443) [University of Arkansas, USNM]. 3 ♂♂, Putnam County, Illinois, 15 July, 2 August 1966 and 1967, M. O. Glenn (MOG preparation 20168, RWH slides 4530, 4531) [MOG, USNM].

The shape of the valva is much like that of *erransella*; however, the apices of the uncus being rounded rather than acute, the glandular spine being curved and arising from a broad lobe rather than being straight and arising from a goosenecked apex of a lobe will easily separate males of the two species. Females of *circitor* may be separated from those of other species of *Perimede* by the lamella antevaginalis having a narrow, medial slit and by the corpus bursae having a lateral, basal expansion.

Perimede maniola, new species

FIGURES 44, 46

A small, dark gray-brown species. Head: base of tongue and frons shining, pale gray, vertex and occiput becoming medium to dark gray; outer surface of labial palpus dark gray brown, base of third segment pale, inner surface pale orange to orange white; antenna gray, some scales of shaft pale. Thorax: dark gray, metanotum pale gray. Forewing: dark gray brown, scale bases pale; four indistinct solid dark spots, followed and preceded by off-white scales as for *eremos*, apical dark spot set off distally by pale scale bases; a faint gray-white costal patch at three-fourths length of wing. Hindwing: pale to medium gray. Foreleg: coxa pale yellow white and medium gray; femur medium gray; tibia dark gray, apex and a small patch at apex of epiphysis off-white; tarsus dark gray, base and apex of first two, base of third, apex of fourth, and all of fifth segment off-white. Midleg: (worn on all specimens) appearing yellowish white with gray and dark gray scales. Hind leg: coxa mottled yellowish white, medium gray, and dark gray brown, femur pale yellowish white, base and apex dark gray brown; tibia dark gray, off-white at apex and at base of first pair of spurs, tibial spurs off-white, dark gray just before apex; tarsus dark gray, base and apex of first four and all of fifth segment pale yellowish white. Alar expanse: 9.0–10.5 mm. Male genitalia: no specimens available. Female genitalia: as in Figures 44 and 46

(MOG slide 22). Ostium bursae just before posterior margin of seventh sternite, rounded lamella antevaginalis roughly diamond shaped, lateral edges extended posteriorly; ductus bursae expanding rapidly to fuse with corpus bursae, no separation between the two; corpus bursae lightly sclerotized, walls with numerous, fine lines; signa two inwardly projecting cones.

FOOD PLANT.—Unknown.

HOLOTYPE.—Female, Putnam County, Illinois, August 19, 1965, M. O. Glenn (MOG slide 22). USNM Type 69789.

PARATYPES.—2 ♀♀, same locality as for holotype, July 11 and August 17, 1965 (MOG slides 21, 23) [MOG, USNM].

This is an evenly colored species which, as it becomes worn, turns pale. The female genitalia of *maniola* are nearest those of *eremos* but may easily be separated as indicated in the key.

Perimede battis Hodges

Perimede battis Hodges, 1962c, p. 153.

RECORDS.—Arizona: Pine, 1 ♂, 1 ♀, 1, 5 September 1961.

Genus *Ithome* Chambers

Ithome concolorella (Chambers)

Ithome concolorella (Chambers).—Hodges, 1962a, p. 85.

RECORDS.—Arkansas: Devil's Den, 174 ♂♂, 124 ♀♀, 19 May–23 July 1966.

This species was very common over most of the time that I collected in Arkansas. Late one afternoon I observed several adults as they were resting and flying around the inflorescences of *Schrankia nuttallii* (DC) Standley. I judge that the larvae feed on the developing flowers and fruits of this plant.

Ithome curvipunctella (Walsingham), new combination

Anybia curvipunctella Walsingham, 1892, p. 538.

Eriphia quinquepunctata Forbes, 1931, p. 361. [New synonymy.]

Ithome quinquepunctata (Forbes).—Hodges, 1962a, p. 88.

I have dissected and examined the genitalia of the female holotype of *curvipunctella* in the British Museum (NH) and so am able to recognize the given synonymy.

***Ithome edax* Hodges**

Ithome edax Hodges, 1962a, p. 88.

When this species was described, a question was present as to the plant species associated with the common name ebony. Subsequently, it has been suggested that what was meant is Texas ebony (*Pithecolobium flexicaule* (Bentham) Coulter).

List of Nearctic Walshiidæ

(Synonyms in italics)

Periploca Braun, 1919

orichalcella (Clemens), 1864

concolorella (Chambers), 1875b

purpuriella Braun, 1919

ceanothiella (Cosens), 1908

gleditschiaella (Chambers), 1876

hostiata, new species

hortatrix, new species

opinatrix, new species

atrata Hodges, 1962b

mimula Hodges, 1962b

laeta Hodges, 1962b

cata Hodges, 1962b

devia, new species

nigra Hodges, 1962b

fessa Hodges, 1962b

gulosa Hodges, 1962b

facula Hodges, 1962b

funebria Hodges, 1962b

dipapha, new species

labes, new species

Synploca Hodges, 1964

gumia Hodges, 1964

Neoploca Hodges, 1964

corusca Hodges, 1964

Walshia Clemens, 1964

particornella (Busck), 1909

amorphella Clemens, 1864

miscecolorella (Chambers), 1875b

miscecalonella (Chambers), 1875a

dispar Hodges, 1961

similis Hodges, 1961

exemplata Hodges, 1961

Nepotula Hodges, 1964

secura Hodges, 1964

Aeaea Chambers, 1874b

Amaurogramma Braun, 1919

juvantia Hodges, 1964

dulcedo Hodges, 1964

venifica Hodges, 1964

venatrix Hodges, 1964

ostryaella Chambers, 1874b

quadricustatella Chambers, 1880

stipator Hodges, 1964

risor Hodges, 1964

victor Hodges, 1964

placatrix, new species

sagana Hodges, 1964

rhynchosiae Hodges, 1964

extensa (Braun), 1919

Stilbosis Clemens, 1860

tesquella Clemens, 1860

quinquicristatella (Chambers), 1881

nubila Hodges, 1964

lonchocarpella Busck, 1934

Chrysopeleia Chambers, 1874b

purpuriella Chambers, 1874b

Sorhagenia Spuler, 1910

Cystioecetes Braun, 1915

nimbosa (Braun), 1915

nubila Hodges, 1964

baucidis, new species

pexa, new species

Siskiwitia, new genus

alticolans, new species

Perimede, Chambers, 1874a

erransella Chambers, 1874a

falcata (Braun), 1919

eremos, new species

ricina Hodges, 1962c

parilis, new species

circitor, new species

maniola, new species

latris Hodges, 1962c

battis Hodges, 1962c

Ithome Chambers, 1875c

concolorella (Chambers), 1875b

unimaculella Chambers, 1875c

curvipunctella (Walsingham), 1892

quinquepunctata (Forbes), 1931

edax Hodges, 1962a

lassula Hodges, 1962a

ferax Hodges, 1962a

Obithome Hodges, 1964

punctiferella (Busck), 1906

Literature Cited

Braun, Annette F.

1915. New Genera and Species of Tineina. *Canadian Entomologist*, 47:188-197.

1919. Notes on Cosmopterygidae, with Descriptions of New Genera and Species (Microlepidoptera). *Entomological News*, 30:260-264.

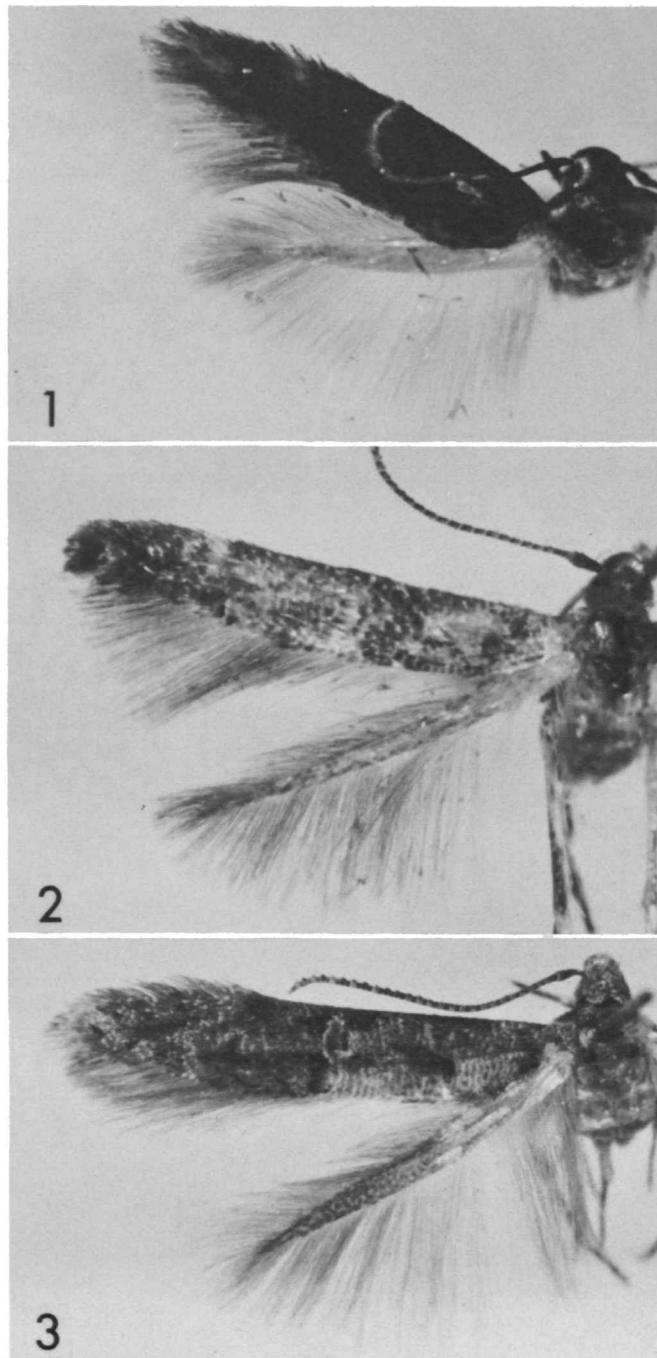
Busck, August

1906. Tineid Moths from Southern Texas, with Description of New Species. *Proceedings of the U.S. National Museum*, 30(1465):721-736.

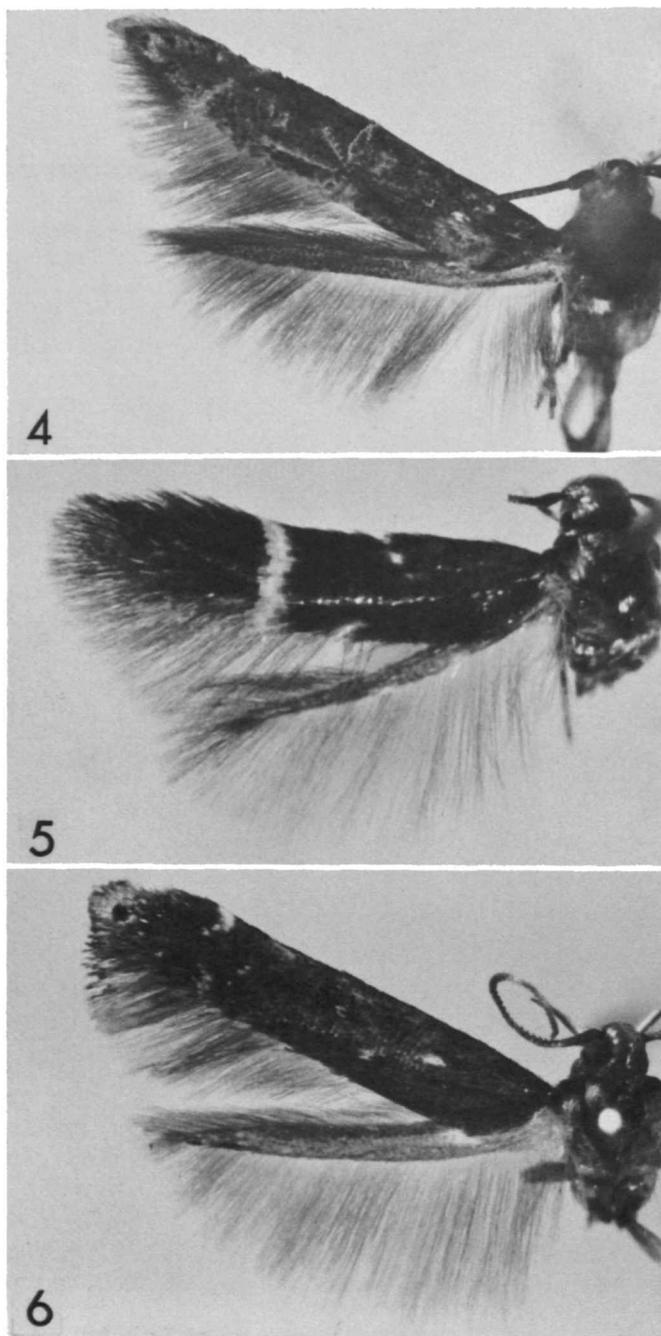
1909. Notes on Microlepidoptera, with Descriptions of New North American Species. *Proceedings of the Entomological Society of Washington*, 11: 87-103.

1934. Microlepidoptera of Cuba. *Entomological Americana*, 13 (new series) (4):151-203.

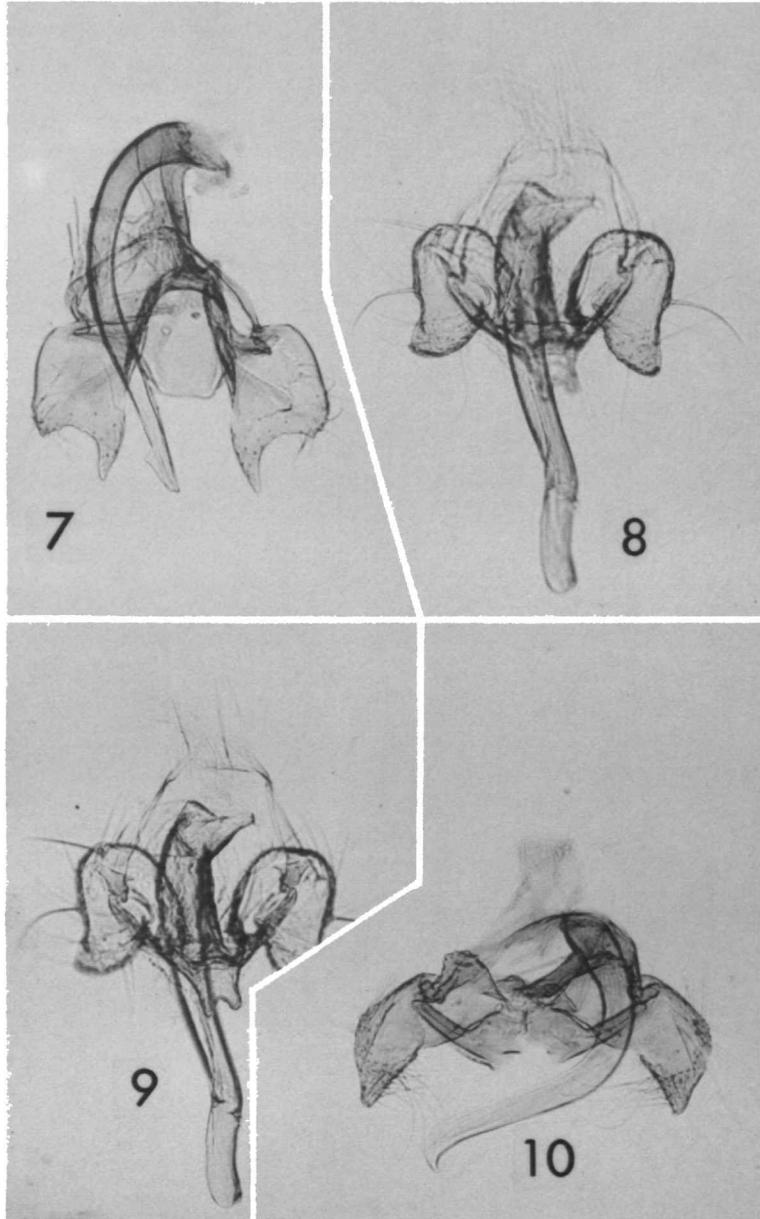
- Chambers, V. T.
 1874a. Micro-Lepidoptera. *Canadian Entomologist*, 6: 49-52.
 1874b. Micro-Lepidoptera. *Canadian Entomologist*, 6: 72-77.
 1875a. Tineina from Texas. *Canadian Entomologist*, 7: 30-35.
 1875b. Tineina from Texas. *Canadian Entomologist*, 7: 51-56.
 1875c. Tineina from Texas. *Canadian Entomologist*, 7: 92-95.
 1876. Tineina. *Canadian Entomologist*, 8:135-138.
 1880. Descriptions of Some New Tineina, with Notes on a Few Old Species. *Journal of the Cincinnati Society of Natural History*, 2:179-194.
 1881. New Species of Tineina. *Journal of the Cincinnati Society of Natural History*, 3:289-296.
- Clemens, Brackenridge
 1860. Contributions to American Lepidopterology—No. 4. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 1860:156-174.
 1864. North American Microlepidoptera. *Proceedings of the Entomological Society of Philadelphia*, 2:415-430.
- Cosens, A.
 1908. A New Lepidopterous Gall-Producer. *Canadian Entomologist*, 40:107-108.
- Forbes, Wm. T. M.
 1931. Supplementary Report of the Heterocera or Moths of Porto Rico. *Journal of the Department of Agriculture of Porto Rico*, 4(4):339-394.
- Hodges, Ronald W.
 1961. A Review of the Genus *Walshia* Clemens with Descriptions of New Species (Lepidoptera: Gelechioidea). *Bulletin of the Brooklyn Entomological Society*, 56:66-80.
 1962a. The Genus *Ithome* in North America North of Mexico (Walshiidae). *Journal of the Lepidopterists' Society*, 15:81-90.
 1962b. A Review of the Genus *Periploca* with Descriptions of Nine New Species (Lepidoptera: Gelechioidea). *Pan-Pacific Entomologist*, 38:83-97.
 1962c. The Genus *Perimede* Chambers in North America North of Mexico. *Proceedings of the Entomological Society of Washington*, 64:145-154.
 1964. A Review of the North American Moths of the Family Walshiidae (Lepidoptera: Gelechioidea). *Proceedings of the U.S. National Museum*, 115 (3485):289-330.
- Spuler, Arnold
 1910. *Die Schmetterlinge Europas*. Volume 2. Stuttgart. Walsingham, Lord [deGrey, Thomas]
 1892. On the Micro-Lepidoptera of the West Indies. *Proceedings of the Zoological Society of London*, 1891: 492-549.



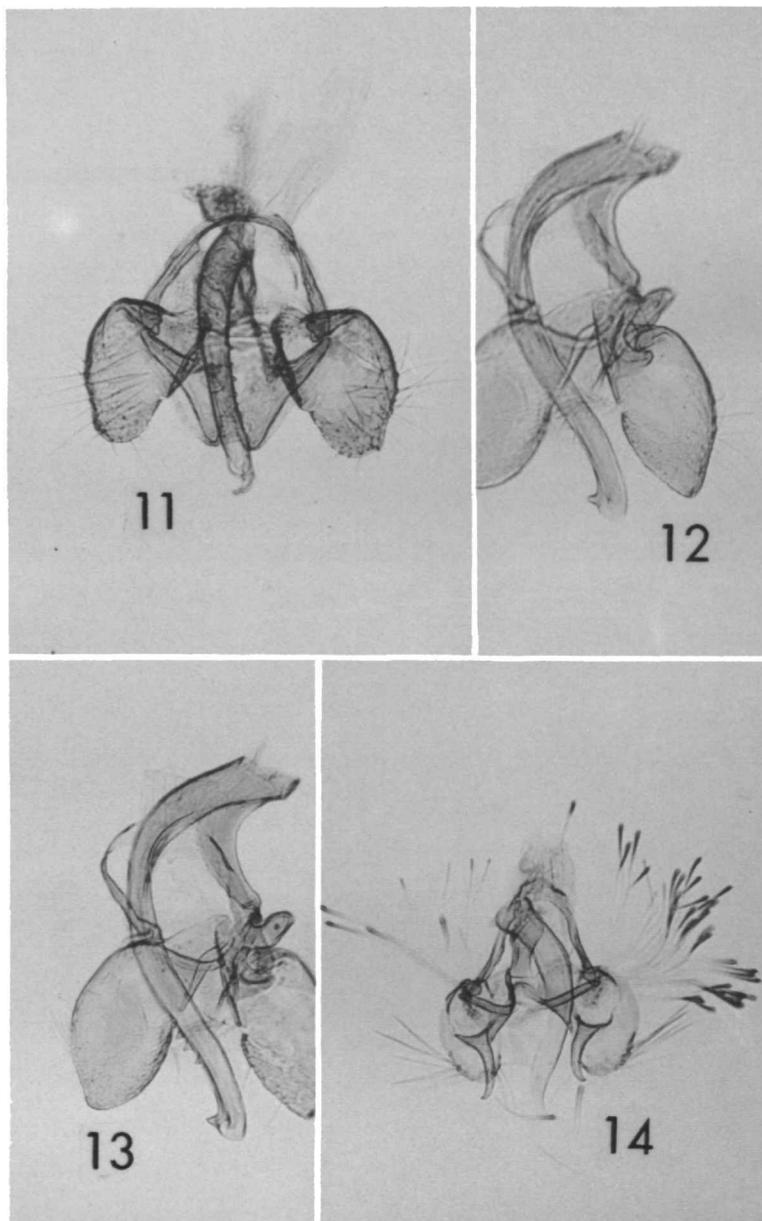
FIGURES 1-3.—1, *Periploca hortatrix*, new species, Devil's Den State Park, Arkansas; 2, *Stilbosis lonchocarpella* Busck, Key Largo, Florida; 3, *Sorhagenia baucidis*, new species, Putnam County, Illinois.



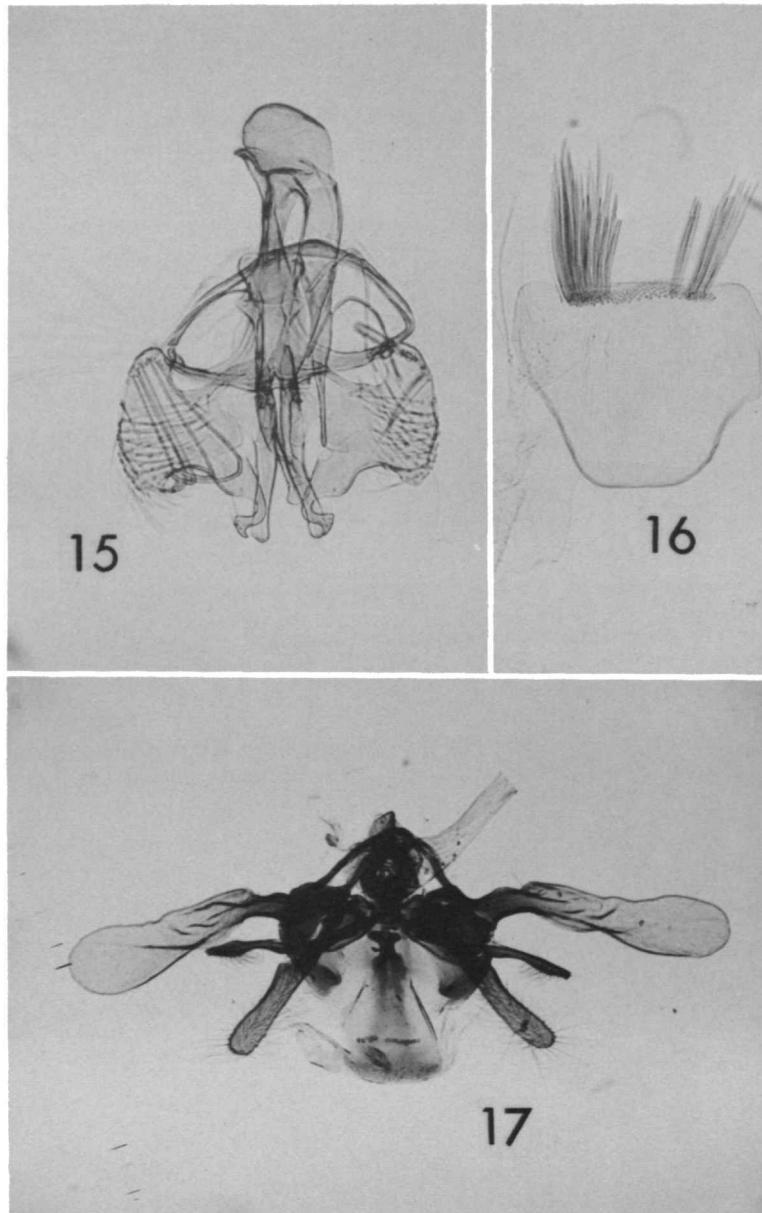
FIGURES 4-6.—4, *Sorhagenia pexa*, new species, Devil's Den State Park, Arkansas; 5, *Siskiwitia allicolans*, new species, Madera Canyon, Santa Rita Mountains, Arizona; 6, *Perimede parilis*, new species, Devil's Den State Park, Arkansas.



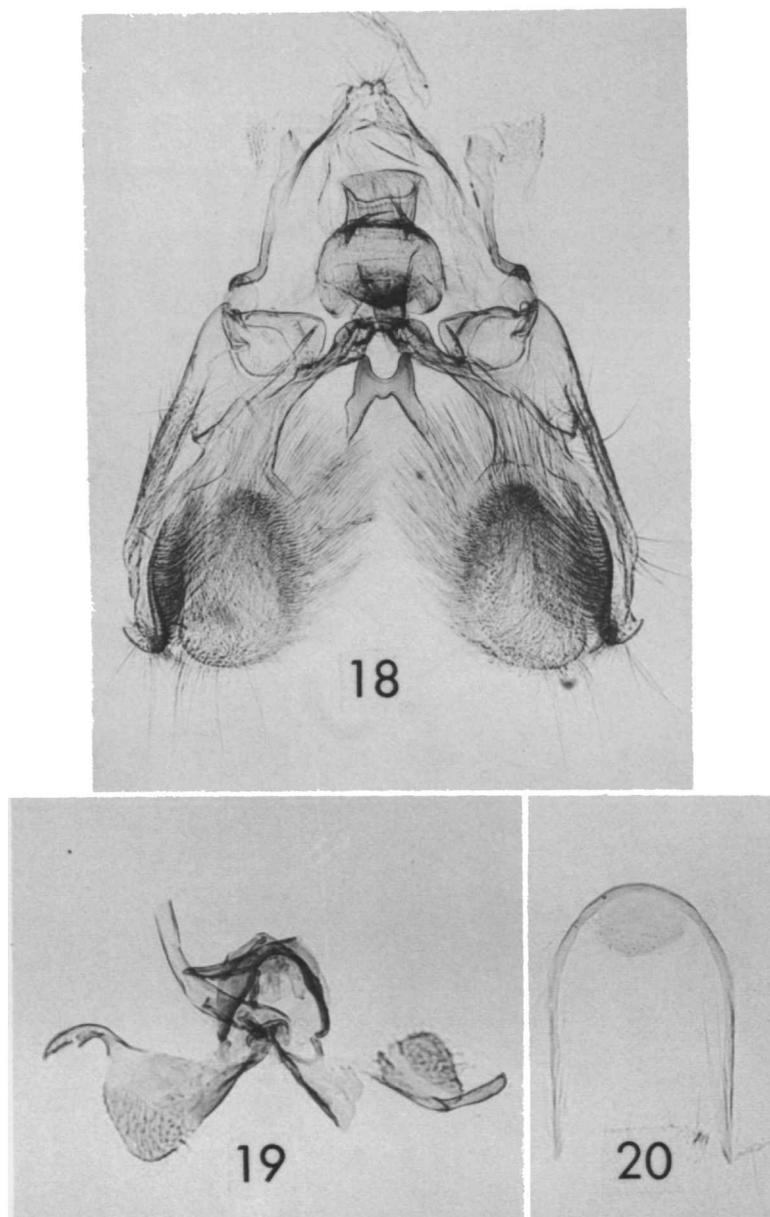
FIGURES 7-10.—Male genitalia: 7, *Periploca hostiata*, new species; 8-9, *P. opinatrix*, new species; 10, *P. hortatrix*, new species.



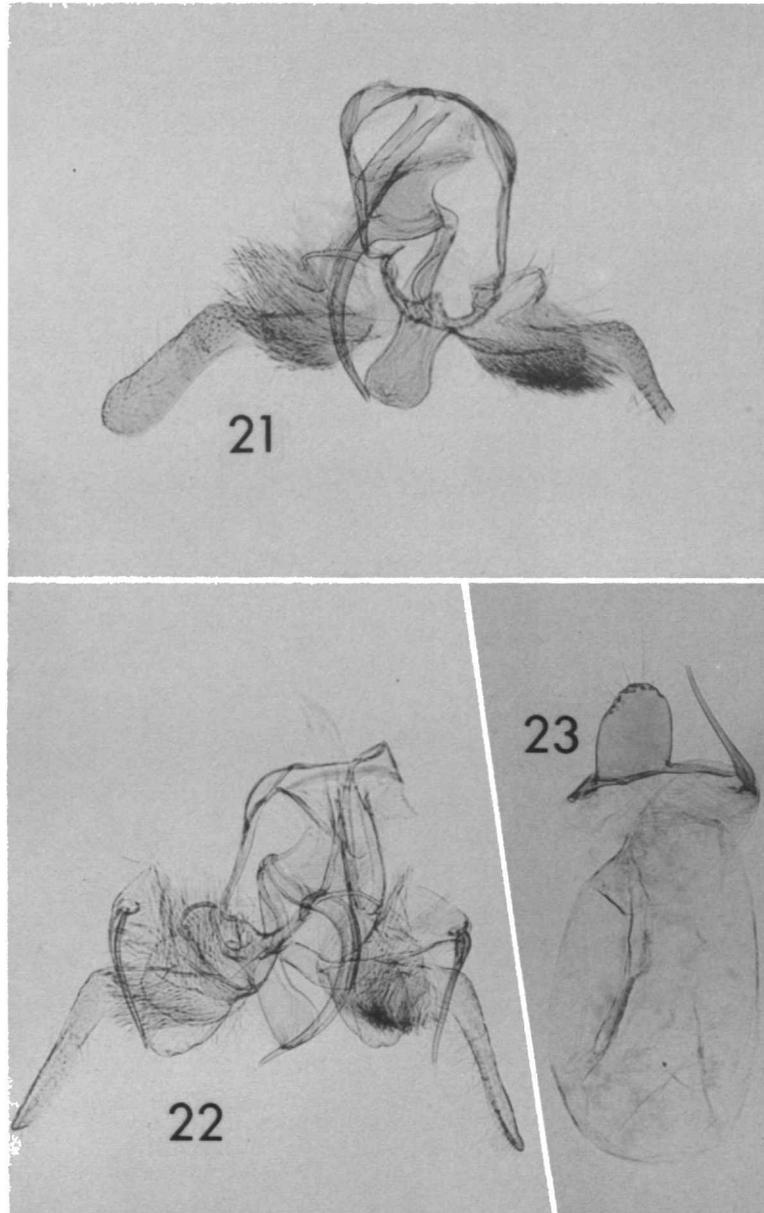
FIGURES 11-14.—Male genitalia: 11, *Periploca devia*, new species; 12-13, *P. dipapha*, new species; 14, *P. labes*, new species.



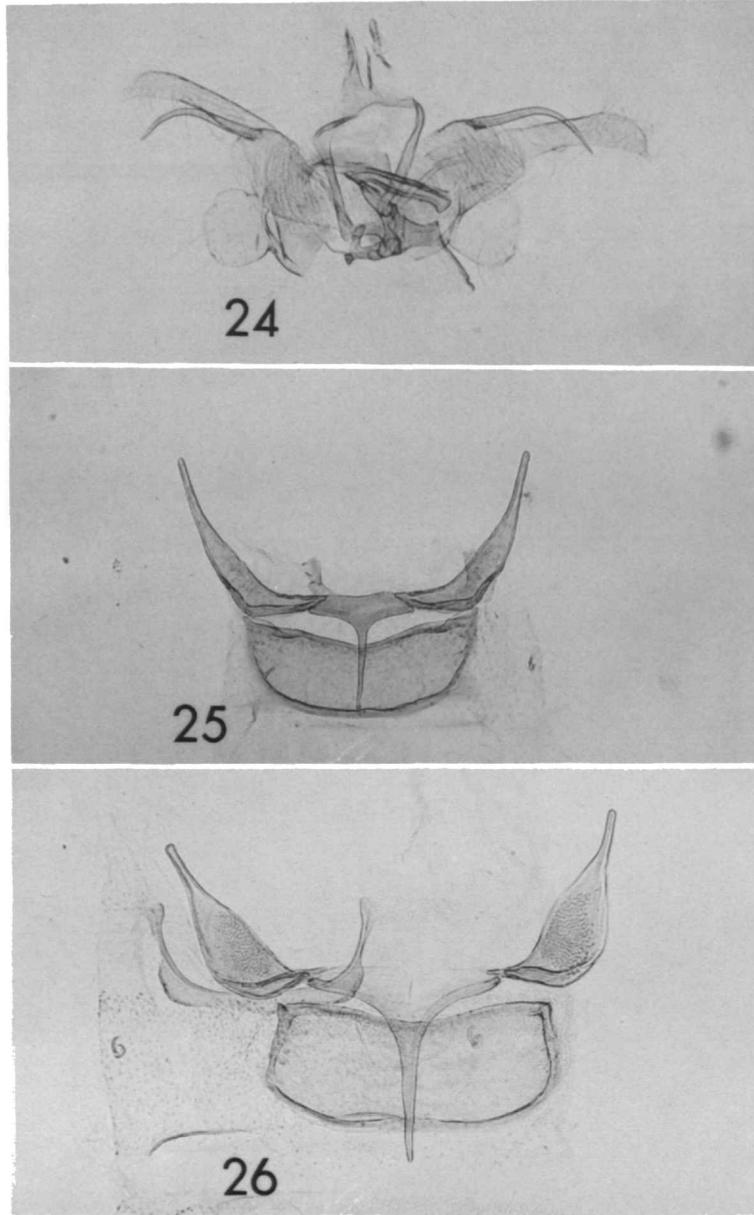
FIGURES 15-17.—Male genitalia: 15, *Stilbosis lonchocarpella* Busck; 16-17, *Sorghagenia baucidis*, new species (16, eighth sternite).



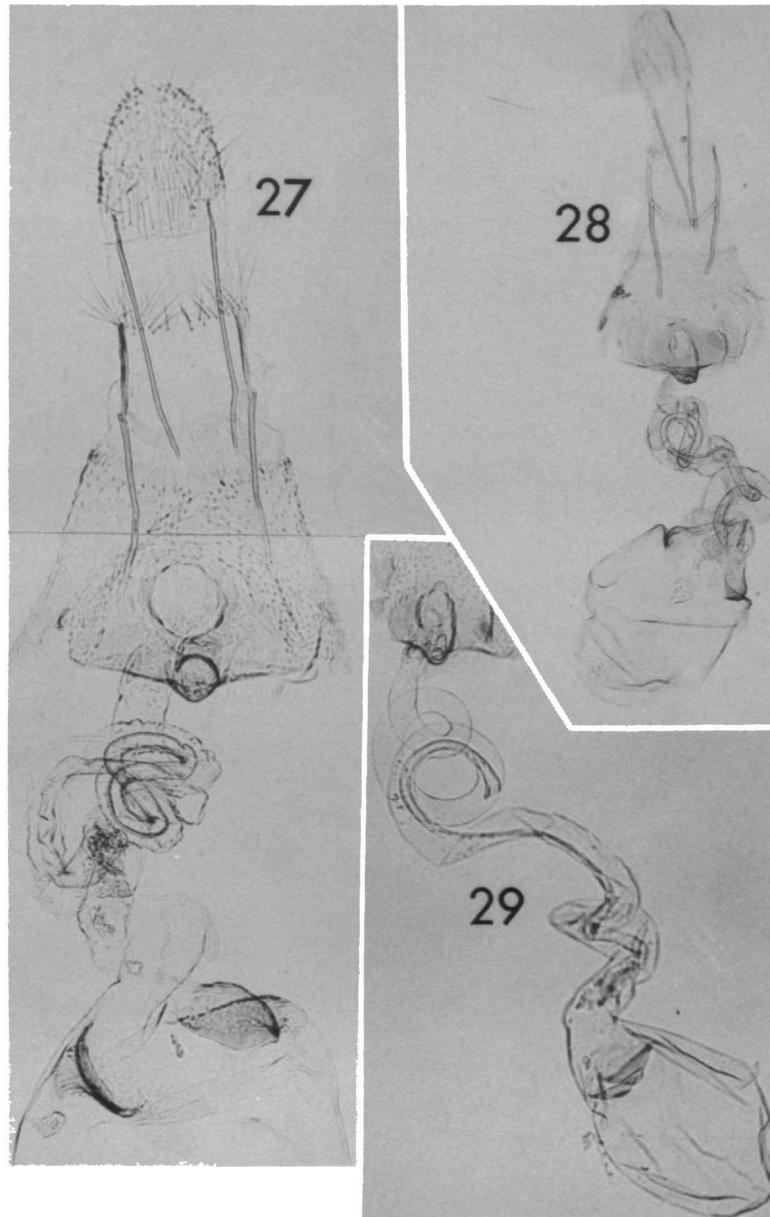
FIGURES 18-20.—Male genitalia: 18, 20, *Sorhagenia pexa*, new species (20, eighth sternite); 19, *Siskiwitia alticolans*, new species.



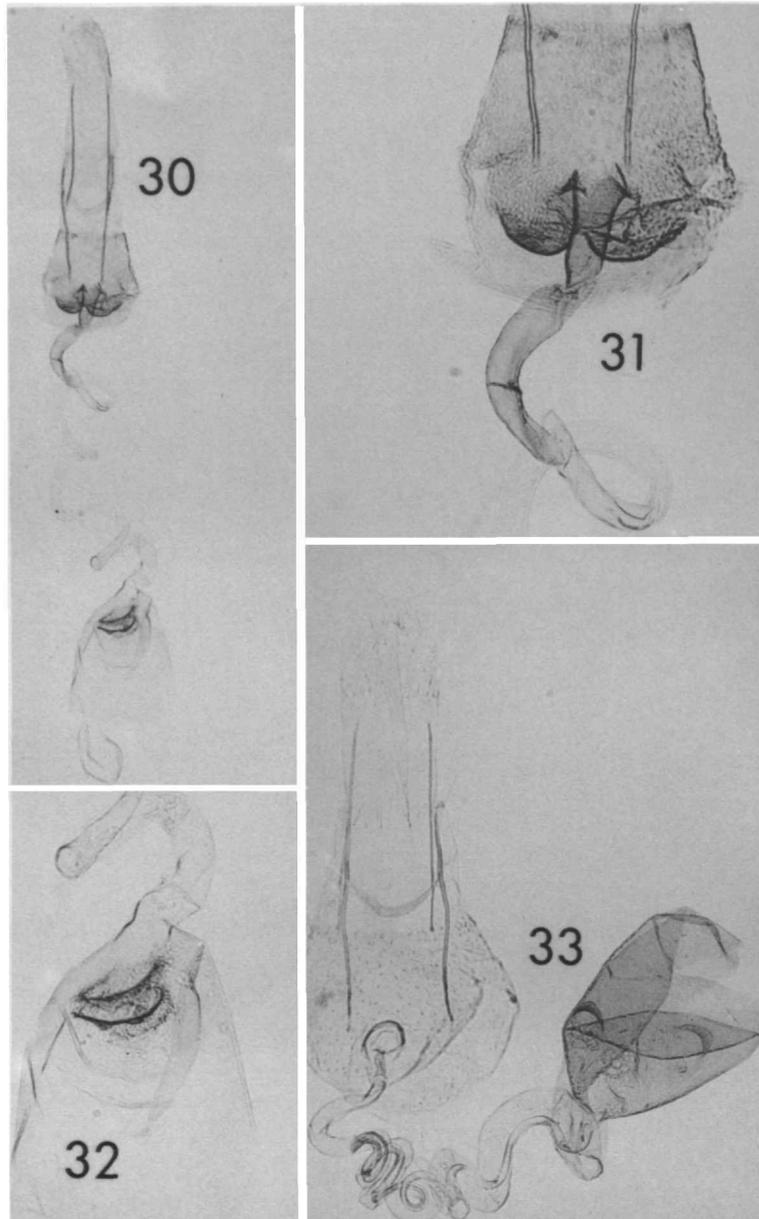
FIGURES 21-23.—Male genitalia: *Perimede parilis*, new species, 21, genitalia with accessory glands removed; 22 genitalia with accessory glands in place; 23, accessory gland.



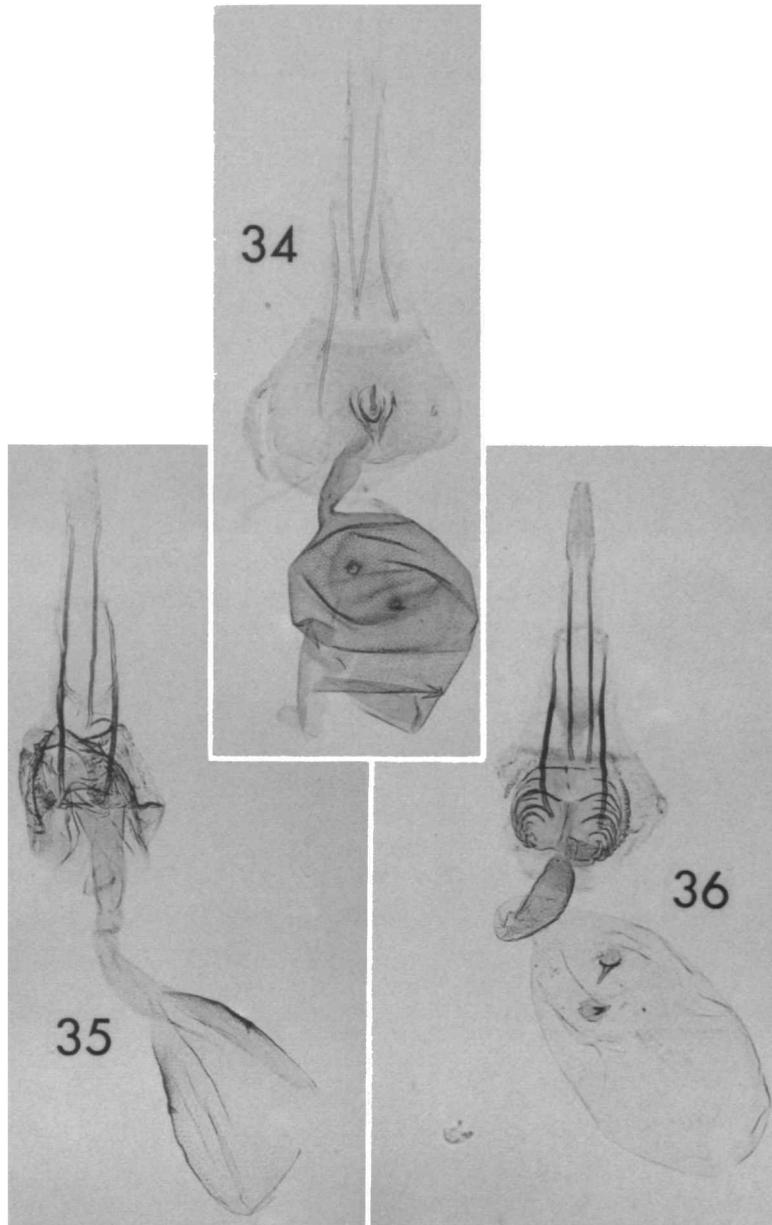
FIGURES 24-26.—Male genitalia: 24, 26, *Perimede circitor*, new species (26, eighth abdominal segment); 25, *Perimede parilis*, new species, eighth abdominal segment.



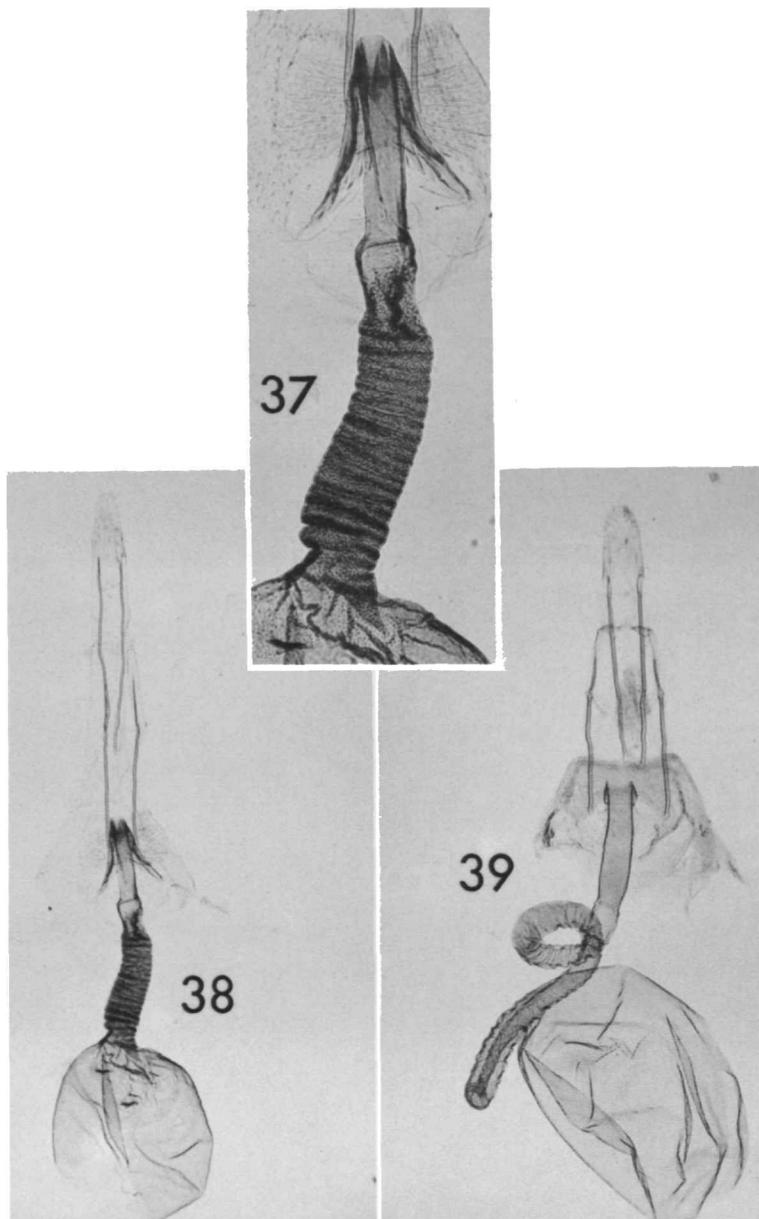
FIGURES 27-29.—Female genitalia: 27, *Periploca opinatrix*, new species; 28-29, *P. hortatrix*, new species (29, ostium bursae and bursa copulatrix).



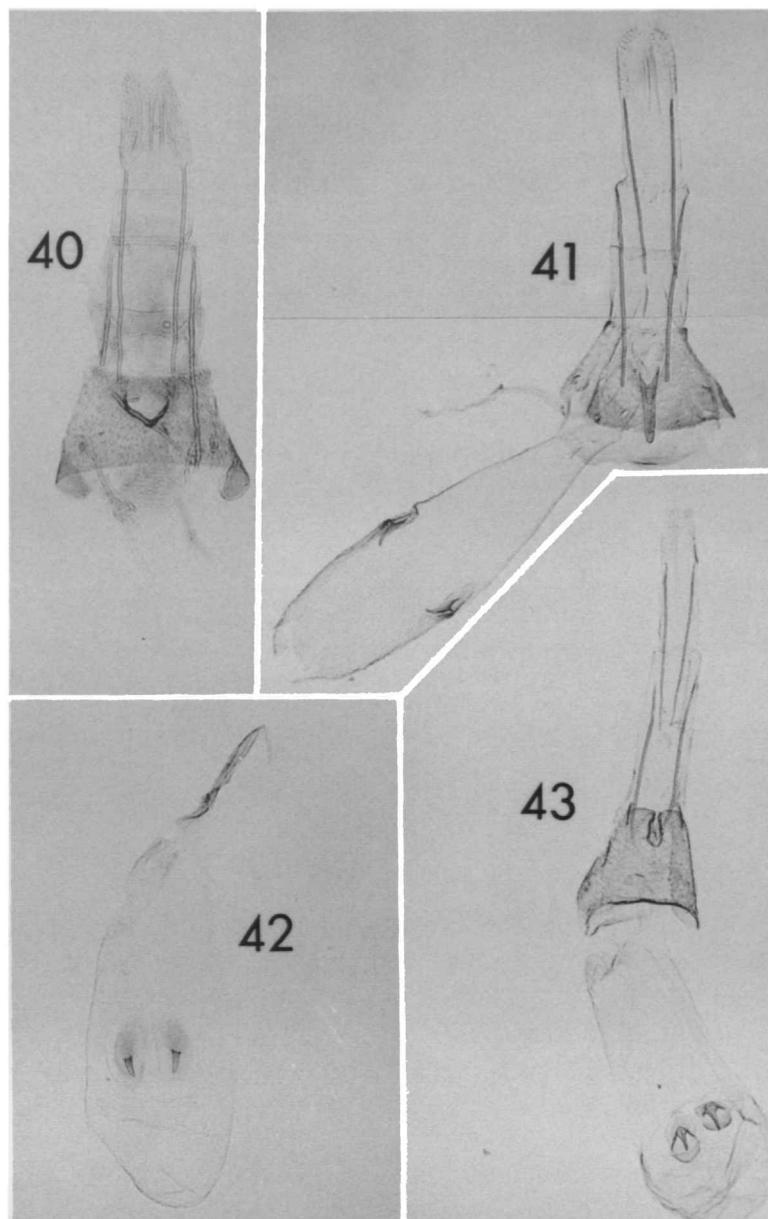
FIGURES 30-33.—Female genitalia: 30-32, *Periploca devia*, new species (31, genital plate, 32, corpus bursae); 33, *P. labes*, new species.



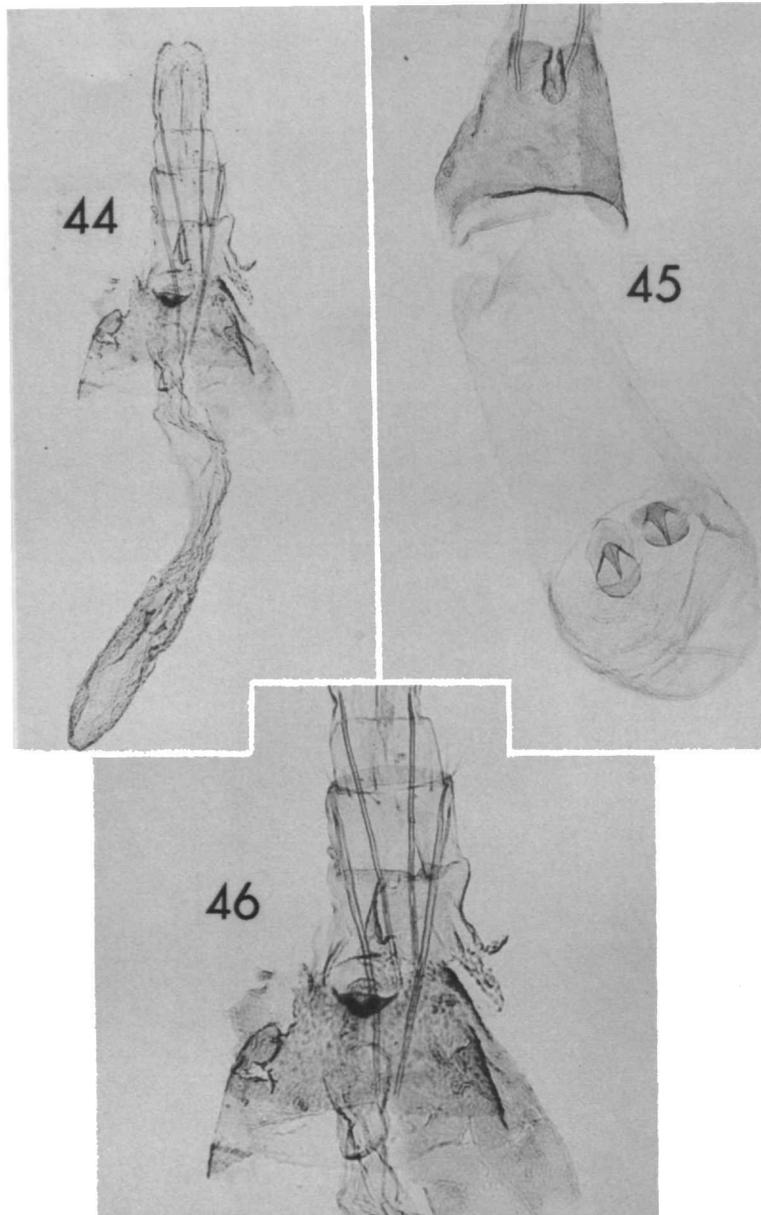
FIGURES 34-36.—Female genitalia: 34, *Stilbosis lonchocarpella* Busck; 35, *Aeaea placatrix*, new species; 36, *A. venifica* Hodges.



FIGURES 37-39.—Female genitalia: 37-38, *Sorhagenia baucidis*, new species (37, genital plate and ductus bursae); 39, *S. pexa*, new species.



FIGURES 40-43.—Female genitalia: 40, 42, *Perimede eremos*, new species; 41, *P. parilis*, new species; 43, *P. circitor*, new species.



FIGURES 44-46.—Female genitalia: 44, 46, *Perimede maniola*, new species (46, eighth abdominal segment); 45, *P. circitor*, new species, eighth abdominal segment and bursa copulatrix.

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