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## Descriptions of and Notes on North American Geometridae (Lepidoptera), No. 4

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Several years ago it was noted that the genitalia of what was presumed to be a single, common, and widespread species of *Semiothisa* in reality belonged to two species. The matter was temporarily dropped until the type specimen in question could be examined. Once such an examination was made, it was possible to revise the *s-signata* group from the United States and Mexico. A similar problem of adults with almost identical color and maculation in the genus *Stenoporpia* was brought to the author's attention by Mr. Carl W. Kirkwood, and it is also covered in the present paper.

The author wishes to thank Mr. D. S. Fletcher of the British Museum (Natural History), and Dr. E. L. Todd of the United States National Museum, who were kind enough to make comparisons with type material in their charge in order that the identification of some species in this paper could be made certain. Thanks go to Dr. Todd, to Mr. Lloyd M. Martin of the Los Angeles County Museum, and to Mr. Carl W. Kirkwood of Summerland, California, for the loan of specimens from the collections in their charge that were studied while the author was preparing this article.

### ENNOMINAE

#### THE *Semiothisa s-signata* COMPLEX

In 1873 Packard described *Macaria s-signata* from 10 specimens col-

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lected by Belfrage in Texas. This name has been applied since then to all specimens in this country having the distinctive color and type of maculation of this species, as it is a common and widespread moth throughout the semi-arid areas of the southwestern part of the country. Druce, in 1893, described *Eubolia cyda* from two males taken in the states of Durango and Sonora; this name has been applied to the Mexican specimens of this group. In 1948 Sperry recognized that a population in the Baboquivari Mountains of southern Arizona was distinct from *s-signata*, and he named it *Semiothisa melanderi*.

A check of the genitalia of *s-signata* has shown that two species are going under this name in this country, and that two species are masquerading under the name *cyda* in Mexico. One species is common to both countries, so that three species are involved here; in addition, *melanderi* is distinct from the others.

All four species are very similar to one another in color and maculation, so much so that it is almost impossible to separate them by these criteria. Usually there is more variation within a species than there is between the different species. However, when the genitalia are studied, major differences can be noted. With a little practice it is possible to make identifications without dissecting and mounting the genitalia. The males have a very distinct ventral plate on the last abdominal segment; this can be denuded of scales and examined for the identification. The females are more difficult to work with, but a removal of the scales around the ostium bursae will reveal the lamella antevaginalis, which has good specific characters.

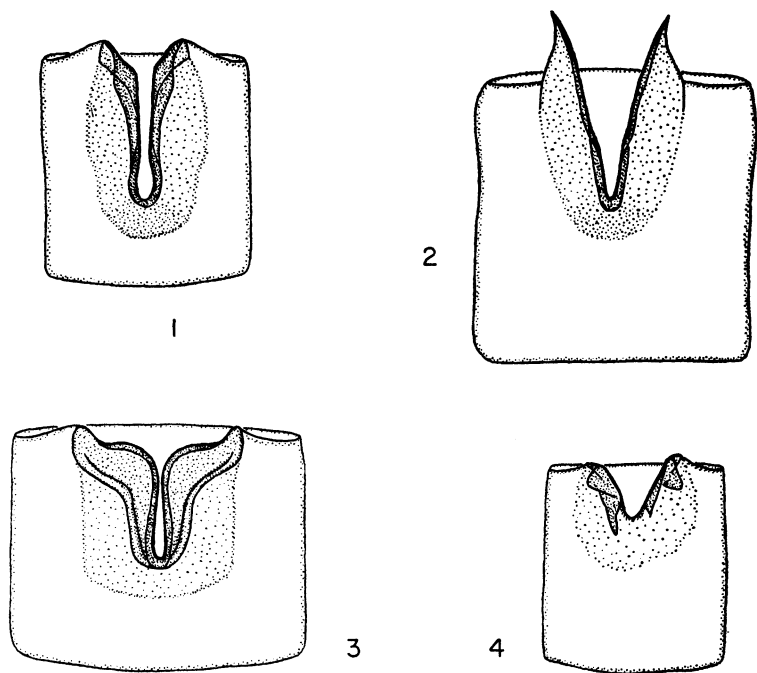
#### KEY TO ADULTS

##### MALES, BASED ON VENTRAL PLATE OF SEGMENT VIII

1. Ventral plate with deep incision, extending at least one-half of length of segment, very narrow, U- or V-shaped .....2  
     Ventral plate with shallower incision, roughly T-shaped or shallowly V-shaped with several spines .....3
2. Incision U-shaped, the sclerotized apices broadened, extending at an angle of approximately 45 degrees to the incision .....*s-signata*  
     Incision V-shaped, the sclerotized apices pointed, extending beyond end of segment .....*cyda*
3. Incision slightly less than one-half of length of segment, very narrowly U-shaped anteriorly, broadly divergent distally, with the apices directed posteriorly .....*cydica*  
     Incision about two-sevenths of length of segment, V-shaped, with asymmetrical spining on sides .....*melanderi*

##### MALES, BASED ON MALE GENITALIA

1. Valves symmetrical .....2  
     Valves markedly asymmetrical .....*melanderi*



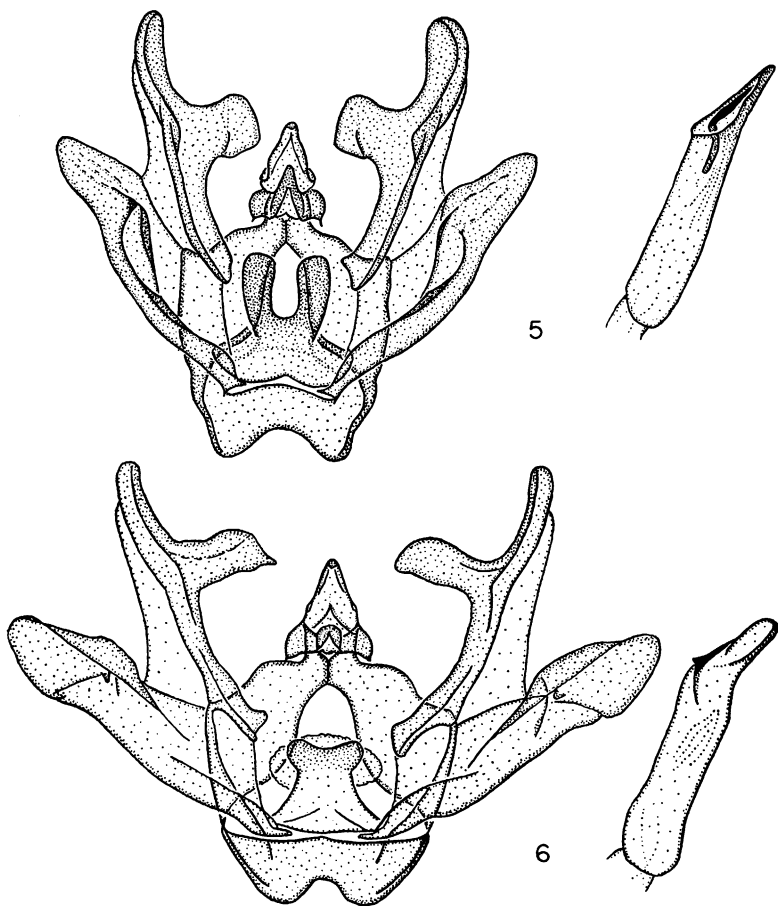
FIGS. 1-4. Ventral plate of males. 1. *Semiothisa s-signata* (Packard), Sheffield, Texas, June 30, 1948 (C. and P. Vaurie). 2. *S. cyda* (Druce), Burnet County, Texas, April 12. 3. *S. cydica*, new species, holotype. 4. *S. melanderi* Sperry, paratype, Baboquivari Mountains, Arizona, April 26, 1942 (Melander).

- 2. Costal arms narrow, simple .....3  
Costal arms very wide, the anterior and posterior angles extended as short, sclerotized, finger-like projections .....*cydica*
- 3. Juxta deeply bilobed, the length of the lobes equal to the combined lengths of the uncus and gnathos .....*s-signata*  
Juxta small, shallowly bilobed, the length of the lobes about one-half of the length of the uncus .....*cyda*

FEMALES, BASED ON GENITALIA<sup>1</sup>

- 1. Lamella antevaginalis very large, extending almost the entire width of segment, with prominent raised ridge in form of a broad, flat U, and with a smoothly sclerotized fold anteriad of this .....*cyda*  
Lamella antevaginalis smaller, not as above .....2
- 2. Lamella antevaginalis a large, smooth, plate-like structure, with a small lateral ridge on each side of the ostium bursae; posterior margin of the ductus bursae simple .....*s-signata*  
Lamella antevaginalis broad, roughly Y-shaped, with the anterior portion

<sup>1</sup> The female of *cydica* is unknown.



FIGS. 5, 6. Male genitalia. 5. *Semiothisa s-signata* (Packard), Sheffield, Texas, June 30, 1948 (C. and P. Vaurie). 6. *S. cyda* (Druce), topotype, Durango, Durango, April, 1933 (C. C. Hoffmann).

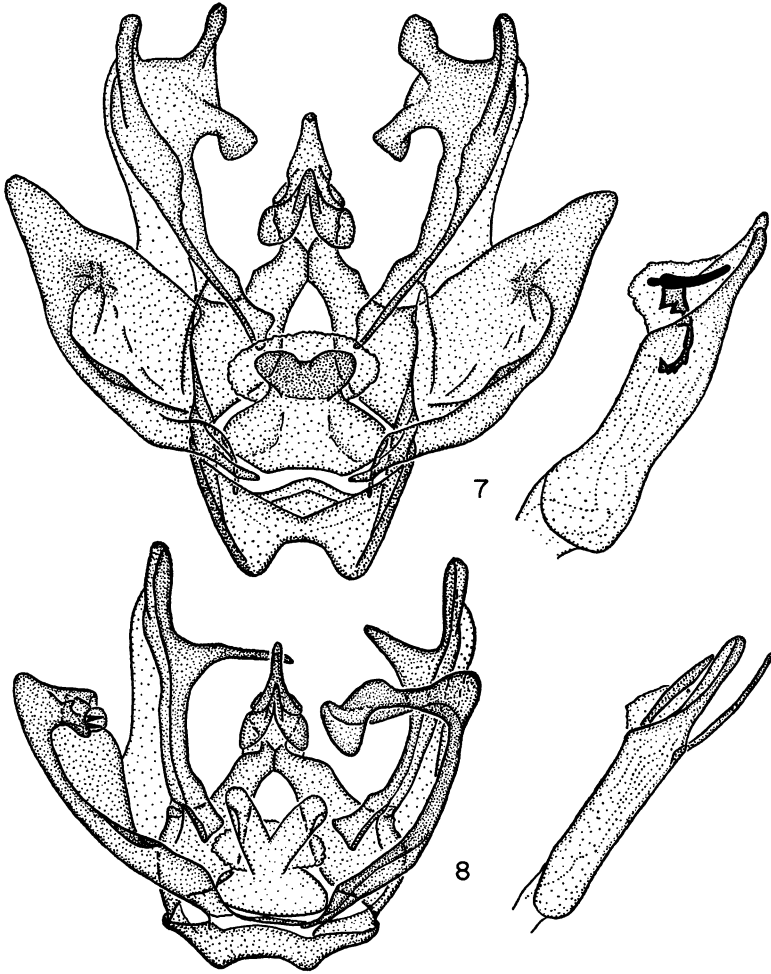
short and more heavily sclerotized than the remainder; posterior margin of the ductus bursae with small digitate projections on the right side and dorsally .....*melanderi*

*Semiothisa s-signata* (Packard)

Figures 1, 5, 9

*Macaria s-signata* PACKARD, 1873, Fifth Report Peabody Acad. Sci., p. 63. HENRY EDWARDS, 1888, Ent. Amer., vol. 3, p. 23 (*partim*). HULST, 1896, Trans. Amer. Ent. Soc., vol. 23, p. 331 (*partim*). J. B. SMITH, 1903, Check list of the Lepidoptera of boreal America, p. 74 (*partim*).

*Semiothisa s-signata*, PACKARD, 1876, A monograph of the geometrid moths

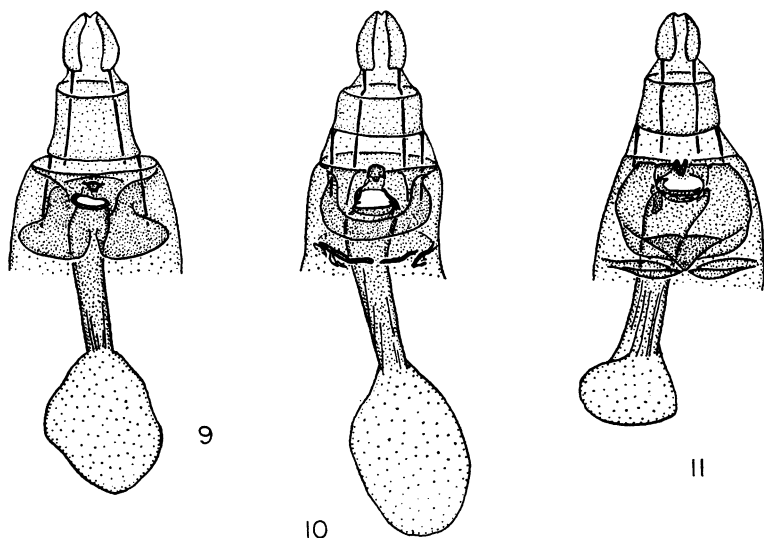


FIGS. 7, 8. Male genitalia. 7. *Semiothisa cydica*, new species, holotype. 8. *S. melanderi* Sperry, holotype.

. . . of the United States, p. 280, pl. 10, fig. 9. J. B. SMITH, 1891, List of the Lepidoptera of boreal America, p. 70 (*partim*). McDUNNOUGH, 1938, Check list, p. 159 (*partim*).

*Phasiane s-signata*, BARNES AND McDUNNOUGH, 1917, Check list of the Lepidoptera of boreal America, p. 113 (*partim*).

**MALE:** Head, vertex, front, and palpi pale buff, with some brown scaling. Thorax pale buff, suffused with very pale grayish white above; legs pale buff, with scattered brown scales. Abdomen pale buff above and below, in some specimens with a few darker scales.



FIGS. 9-11. Female genitalia. 9. *Semiothisa s-signata* (Packard), Del Rio, Texas, May 25, 1952 (Cazier, Gertsch, and Schrammel). 10. *S. cyda* (Druce), topotype, Durango, Durango, August, 1932 (C. C. Hoffmann). 11. *S. melanderi* Sperry, allotype.

**UPPER SURFACE OF WINGS:** Forewings, ground color pale buff, more or less overlain with light and dark brown irrorations; t. a. line usually weakly defined, in some specimens obsolescent, brown, arising on costa about one-fourth of distance from base as a thickened spot, going across costa and part of cell at right angle to costal margin, gently curving posteriorly; discal spot brown, preceded on costa by a thick brown spot, in some these two connected into a nebulous, sinuous, median, shade line; t. p. line brownish black, in some partially obsolete, arising on costa three-fourths of distance from base as a thickened brown spot extending to about vein  $R_5$ , disappearing or faintly indicated by venular spot on vein  $M_1$ , reappearing as heavy, curved line between veins  $M_2$  and  $Cu_1$ , often broken in cell  $Cu_1$ , running as heavy line from vein  $Cu_2$  to anal margin, concave, shaded basally by narrow pale line, broadly shaded distally by grayish brown suffusion extending almost one-half of distance to costa; s. t. line pale, faint; terminal line represented by dark intravenular spots; fringe concolorous with wing, in some specimens lightly checkered opposite spots. Hind wings concolorous with forewings, heavily irrorated with brown scales; discal dot present or absent; extradiscal line usually present, pale brown, extending across wing; outer portion of wing usually with broad suffusion

of brownish scales; dark intravenular dots present; fringe concolorous with wing.

**UNDER SURFACE OF WINGS:** Forewings, ground color grayish white, heavily overlain with buff, or pale grayish buff, particularly in outer portion of wing, and with scattered brown scales and irrorations on costa; maculation absent, except for discal dot, and with t. p. line indicated by distal shading; terminal line brown, interrupted on veins; fringe as above. Hind wings concolorous with forewings, with maculation of upper surface reflected.

**LENGTH OF FOREWING:** 10 to 12 mm. A series of 23 specimens average 10.7 mm.

**FEMALE:** Similar to male. Upper surface of wings less heavily irrorated with brown scales, thus producing a lighter-colored wing.

**LENGTH OF FOREWING:** 10 to 14 mm. A series of 21 specimens average 12.0 mm.

**MALE GENITALIA:** Uncus subtriangular, constricted above base; gnathos broad laterally, narrowed medially and extending posteriorly beyond base of uncus; valves symmetrical; costa elongate, with ventral ridge in outer portion, the median surface of same with numerous thick setae, with broad median arm arising about one-half of distance from base, width of base of arm slightly larger than width of base of uncus, arm slightly longer than wide, terminally rounded or flattened; sacculus large, bluntly pointed, broadly swollen apically on inner surface; anellus with prominent, sclerotized, deeply bilobed juxta plate, the lobes subparallel to each other or slightly diverging apically, longer than length of uncus; saccus in length about two-fifths of length of tegumen, deeply concave anteriorly, the concavity extending three-fourths of length of saccus; aedeagus elongate, in length subequal to combined lengths of tegumen and saccus, tapering to bluntly rounded, sclerotized point posteriorly on right side, with slightly S-shaped, finely dentate band on left side. Ventral plate of terminal abdominal segment deeply incised, extending more than one-half of length of segment, the incision narrowly U-shaped, slightly diverging posteriorly, apically outwardly rounded or with slight concavity, the sides sclerotized.

**FEMALE GENITALIA:** Sterigma with large, sclerotized lamella antevaginalis, in form of large, smooth, plate-like structure on each side of ostium bursae, widest anteriorly, flat, narrowing posteriorly, forming a ridge laterad of ostium bursae, continuing posteriorly as far as, and connected medially by, the lamella postvaginalis, a well-sclerotized structure, with a small, median, broadly elliptical protuberance; ductus

bursae heavily sclerotized posteriorly, elongate, slightly tapering anteriorly, with weak longitudinal striations; corpus bursae membranous, rounded, without signum.

EARLY STAGES: Unknown.

FOOD PLANT: Unknown.

TYPES: Packard described this species from a series of six males and four females. The type series now consists of three males and three females in the collection of the Museum of Comparative Zoölogy at Harvard College, bearing their type number 14617. Two of the males still have their abdomens, and a study of the ventral plate of segment VIII shows them to be conspecific. The lectoholotype is hereby designated as the male dated "29/8" and bearing the "A. S. Packard Type" label; the lectoallotype is designated as the female with the "A. S. Packard Type" label and dated "25/9."

TYPE LOCALITY: Texas (Belfrage).

DISTRIBUTION: Texas and Coahuila. On the wing from February through November.

REMARKS: Eighty-nine specimens and seven genitalic dissections were studied. The species is a rather small one, having relatively pale wings with a tendency for weak maculation.

The male genitalia of this species can be separated from those of the other known species by the prominent elongate juxta, in appearance resembling rabbit ears, by the shape of the aedeagus, and by the elongate, U-shaped, ventral plate. The female genitalia are recognizable by the broad, flat lamella antevaginalis.

### *Semiothisa cyda* (Druce), new combination

Figures 2, 6, 10

*Eubolia cyda* DRUCE, 1893, *Biologia Centrali-Americana*, Insecta, Lepidoptera-Heterocera, vol. 2, p. 177; vol. 3, pl. 58, fig. 4.

*Macaria s-signata* auct. nec Packard. HENRY EDWARDS, 1888, *Ent. Amer.*, vol. 3, p. 23 (*partim*). HULST, 1896, *Trans. Amer. Ent. Soc.*, vol. 23, p. 331 (*partim*). DYAR, "1902" [1903], *Bull. U. S. Natl. Mus.*, no. 52, p. 310. J. B. SMITH, 1903, Check list of the Lepidoptera of boreal America, p. 74 (*partim*). W. S. WRIGHT, 1920, *Bull. Amer. Mus. Nat. Hist.*, vol. 42, p. 486.

*Semiothisa s-signata* auct. nec Packard. GROTE, 1883, *Canadian Ent.*, vol. 15, pp. 7, 127 (*partim*). J. B. SMITH, 1891, List of the Lepidoptera of boreal America, p. 70 (*partim*). McDUNNOUGH, 1938, Check list, p. 159 (*partim*). JERREL AND JAQUES, 1944, *Proc. Iowa Acad. Sci.*, vol. 51, p. 465. SPERRY, 1948, *Bull. Brooklyn Ent. Soc.*, vol. 43, p. 57.

*Phasiane s-signata* auct. nec Packard. BARNES AND McDUNNOUGH, 1917, Check list of the Lepidoptera of boreal America, p. 113 (*partim*).



MALE: Head, thorax and abdomen as in *s-signata*, vertex and top of thorax in some specimens suffused with pale gray or grayish black scales.

UPPER SURFACE OF WINGS: As in *s-signata*. Forewings more (fall, winter, and early spring specimens) or less overlain with dark gray or grayish black scales; t. p. line variable in intensity and course, in some with sharp inward curve to vein  $Cu_2$  with slight angles in cells  $Cu_1$  and  $Cu_2$ , in others with but slight inward angle on vein  $Cu_2$ .

UNDER SURFACE OF WINGS: As in *s-signata*.

LENGTH OF FOREWING: 10 to 13 mm. A series of 40 specimens from Texas average 11.4 mm.

FEMALE: Similar to female of *s-signata*.

LENGTH OF FOREWING: 10 to 15 mm. A series of 40 specimens from Texas average 12.4 mm.

MALE GENITALIA: Uncus as in *s-signata*; gnathos also similar, but with slightly shorter and broader median extension; valves symmetrical, similar to those in *s-signata*; costa with prominent median arm arising about one-half of distance from base, width of base of arm equal to width of base of uncus, or slightly narrower, arm longer than length of uncus, left arm slightly longer and more pointed at antero-medial angle than right arm; sacculus large, bluntly pointed, with small constriction on anterior margin approximately three-fourths of distance from base, broadly swollen apically on inner surface, in some specimens with a small, spine-like process at apex of swelling; juxta small, sclerotized, bilobed, length of lobes shorter than length of uncus; saccus in length about one-half of length of tegumen, concave anteriorly, the concavity extending one-third to one-half of length of saccus; aedeagus elongate, in length slightly shorter than combined lengths of tegumen and saccus, tapering from middle to a broadly sclerotized point on right side, this terminal portion angled to the right, often with two sclerotized spines posteriad of middle, the one on left side arising from narrow, elongate, sclerotized plate, the second one dorsal, without plate. Ventral plate of terminal abdominal segment deeply incised, extending about one-half of length of segment, the incision V-shaped, extending apically beyond end of segment as sclerotized points, somewhat more divergent in course than basally, the sides well sclerotized.

FEMALE GENITALIA: Sterigma with very large, sclerotized lamella antevaginalis, in form of large, convoluted structure on three sides of ostium bursae, anteriorly a smooth, concave fold, extending almost en-

tire width of segment, narrowed medially, with anterior margin a narrowly raised, sclerotized lip, posteriad of this a raised ridge, extending laterally as far as ends of fold, turning sharply posteriorly around ostium bursae, thus being in the shape of a broad, flat U, extending posteriorly to about posterior margin of ostium bursae and then ending, connected medially and posteriorly by lamella postvaginalis, a well-sclerotized structure with small lateral ridges and with a moderately large, median, subtriangular protuberance; ductus bursae heavily sclerotized posteriorly, in some specimens slightly swollen below ostium bursae, slightly tapering anteriorly, with weak longitudinal striations; corpus bursae membranous, rounded, without signum.

EARLY STAGES: Unknown.

FOOD PLANT: Unknown.

TYPES: Druce described *cyda* from two males. The specimen from Durango City is hereby designated as the lectotype. This moth is in the collection of the British Museum (Natural History) and is the specimen figured by Druce.

TYPE LOCALITY: Durango, Durango.

DISTRIBUTION: Specimens have been examined from Texas, Kansas, Arkansas, New Mexico, Arizona, Nevada, and California; the species has been reported from Iowa (Jerrel and Jaques, 1944). In Mexico it has been captured in Baja California, Sonora, Chihuahua, Durango, Tamaulipas, Jalisco, Hidalgo, Guanajuato, Veracruz, Puebla, and the Federal District. On the wing in every month of the year.

REMARKS: Well over 800 specimens, plus 45 genitalic preparations, of this species are to be found in the collection of the American Museum of Natural History. This moth tends to be slightly larger than *s-signata* and to have the wings slightly more irrorated with dark scales. There is some seasonal dimorphism, as specimens in fall and winter usually tend to be darker than do those caught in the late spring and summer. Mexican specimens, particularly those from the southern portion of the range, tend to be rather large and to have a more prominently and sharply curved t. p. line, often narrowly shaded with pale orange, than do more northern examples. However, these characters seem to intergrade with those of specimens from more northern localities, so no definite boundary can be determined.

The male genitalia can be separated from those of *s-signata* by the slightly longer and narrower costal arms, the much smaller juxta, the shape and armature of the aedeagus, and by the elongate, V-shaped ventral plate with the extended points. The female genitalia can be distinguished from those of the preceding species by the larger and

more complex lamella antevaginalis, it being a ridge in the shape of a large, flat U in this species; the smoothly sclerotized fold anterior to this ridge is also diagnostic.

There appears to be some individual variation in the genitalia of both sexes of this species. In the males this is most noticeable in the spines of the aedeagus and in the shape of the juxta. Specimens from central Mexico tend to have both spines present and large in size; material from the United States shows the spines to be absent or reduced, with, in some specimens, just the sclerotized plate on the left side present. The shape of the juxta in Mexican males tends to be rather broad and to have a rounded dip between the lobes, while more northern examples have a narrower juxta, with a sharper declivity between the lobes. The extremes are easily recognized and rather different, and these appear to be correlated geographically. When material from Texas, Chihuahua, and Tamaulipas is studied (none being available from Nuevo Leon and Coahuila), intergradations between these extremes are present. Hence it is thought that the variations mentioned are probably clinal in nature and not of subspecific or specific value.

In the female genitalia, there is some variation in the length of the apophyses posteriores, with the southern specimens tending to have these structures longer than do United States specimens. Southern examples also tend to have a slightly larger and broader ostium bursae. As with the males, this variation is not only individualistic but appears to be of a clinal nature.

### ***Semiothisa cydica*, new species**

Figures 3, 7

**MALE:** Head, thorax and abdomen as in *s-signata*, vertex, front, and top of thorax suffused with grayish scales.

**UPPER SURFACE OF WINGS:** As in *s-signata*. Forewings gray, overlain with grayish brown and dark brown scales and striations; t. a. line complete, going at right angle to costa as far as cubital vein, then angled posteriorly; discal spot elongate; median shade line indistinct; t. p. line black and prominent (holotype), or brown and weakly indicated (paratype), with strong basal band below cell, extending to almost one-half of distance from outer margin to base, broadly shaded distally with gray. Hind wings heavily irrorated with brown scales; discal dot and extradiscal line weakly indicated.

**UNDER SURFACE OF WINGS:** As in *s-signata*.

**LENGTH OF FOREWING:** 11 (paratype) to 13 mm. (holotype).

**FEMALE:** Unknown.

**MALE GENITALIA:** Uncus subtriangular, elongate, constricted above base; gnathos broad laterally, evenly tapering medially and extending posteriorly beyond base of uncus; valves symmetrical; costa elongate, with prominent ventral ridge in outer portion, the median surface of same with numerous thick setae, with very broad median arm arising in outer portion of arm, width of base of arm equal to length of uncus, body of arm shorter than width of base, terminally with anterior and posterior angles extended as sclerotized, swollen protuberances, slightly concave between; sacculus large, subtriangular, bluntly pointed, anterior margin convex, with small, raised ridge basad of middle, and with small swelling on inner surface at two-thirds of distance from base; juxta wide, sclerotized, bilobed, length of lobes shorter than length of uncus; saccus narrowed medially, in length less than one-half of length of tegumen, concave anteriorly, the concavity extending about one-third of length of saccus; aedeagus elongate, in length subequal to combined lengths of tegumen and saccus, tapering from middle to bluntly rounded, sclerotized point on right side, with apex slightly curved to left, with narrow sclerotized plate on left side, continuing medially as broadly dentate band, recurved apically. Ventral plate of terminal abdominal segment incised to one-half of length of segment, roughly T-shaped, the incision very narrowly U-shaped, broadly divergent posteriorly, occupying more than one-half of width of segment, with apices directed posteriorly.

**EARLY STAGES:** Unknown.

**FOOD PLANT:** Unknown.

**TYPES:** Holotype, male, Tehuacan, Puebla, Mexico, September, 1937 (C. C. Hoffmann); paratype, male, Orizaba, Veracruz, Mexico, *ex* collection William Schaus. The holotype is in the collection of the American Museum of Natural History, and the paratype is in the United States National Museum collection.

**DISTRIBUTION:** Known only from the type specimens from Puebla and Veracruz, with September being the only known date.

**REMARKS:** Two specimens and two genitalic preparations were studied. This is another species that is extremely close in color and pattern to *s-signata* and *cyda*. In *cydica* the wings tend to be a bit grayer, and the t. p. line is located nearer the center of the wing, as contrasted with the preceding species. Apparently this species has the same type of variation with regard to the maculation as do the preceding; the holotype has a dark and prominent t. p. line, while the paratype has a light, faintly represented line.

The best way to identify the males of *cydica* is by the use of the male

genitalia. They can be recognized by the very broad, biangulated costal arms and by the roughly T-shaped ventral plate.

*Semiothisa melanderi* Sperry

Figures 4, 8, 11

*Semiothisa s-signata*, GROTE, nec Packard, 1883, Canadian Ent., vol. 15, pp. 7, 127 (*partim*).

*Semiothisa melanderi* SPERRY, 1948, Bull. Brooklyn Ent. Soc., vol. 43, p. 58.

MALE: Head, thorax and abdomen as in *s-signata*.

UPPER SURFACE OF WINGS: As in *s-signata*. Forewings with very few dark scales and striations; t. a. line usually complete, prominent, black, in some specimens reduced to a thin, pale line; discal dot small; median shade line usually absent; t. p. line black, tending to be complete but often interrupted or reduced below costal spot, strongly shaded distally by grayish brown. Hind wings with weak discal dot and extradiscal line.

UNDER SURFACE OF WINGS: Similar to upper surface, with maculation weakly represented or reflected from above.

LENGTH OF FOREWING: 10 to 12 mm. A series of 18 specimens from Arizona average 11.0 mm.

FEMALE: Similar to male. Upper surface of wings with very few dark scales.

LENGTH OF FOREWING: 11 to 12 mm. The two Arizona females average 11.5 mm.

MALE GENITALIA: Uncus tapering from base, with elongate, slender, terminal projection; gnathos broad laterally, tapering medially and extending posteriorly beyond base of uncus; valves asymmetrical; both costae elongate, with ventral ridge in outer portion, the median surface of same with numerous thick setae; right valve with costal arm arising in outer portion of costa, triangular in shape, directed somewhat posteriorly, in length subequal to length of uncus, sacculus elongate, sharply recurved apically, continued medially as sclerotized arm, expanded and flattened distally, with median ridge on posterior surface; left valve with costal arm arising in outer portion of costa, long and slender, with small, dorsal, apical protuberance, in length about twice as long as arm on right valve, sacculus elongate, pointed apically, terminal portion raised and thickened, with several small, sclerotized protuberances and flanges; juxta very lightly sclerotized, deeply bilobed, the lobes divergent, in length as long as length of uncus; saccus broad and very shallow, in length about one-fifth of length of tegumen, shallowly concave anteriorly; aedeagus elongate, in

length one and one-fourth times as long as combined lengths of tegumen and saccus, posterior portion sharply narrowed into elongate, sclerotized arm on right side, one-half of width of aedeagus, flanked on each side by much narrower, elongate, sclerotized rods, the right one usually as long as median arm, the left one slightly shorter and slightly wider than right one. Ventral plate of terminal abdominal segment shallowly incised, extending about two-sevenths of length of segment, the incision V-shaped, widened posteriorly, heavily sclerotized laterally, with right side having an inwardly directed spine posteriorly and a broadened area terminally, the left side with an elongate, spine-like projection posteriorly and in some specimens with a small spine apically.

**FEMALE GENITALIA:** Sterigma with very large, sclerotized lamella antevaginalis, in form of large structure on three sides of ostium bursae, anteriorly a pair of transverse, elongate, weakly sclerotized structures, posteriad of these a very broad ridge, extending anteriorly on median line as a broadly V-shaped extension, curving posteriorly around ostium bursae, thus being in the shape of a broad Y with a very short bottom leg, extending posteriorly beyond posterior margin of ostium bursae, connected medially by lamella postvaginalis, a well-sclerotized structure with a narrowly U-shaped median structure; ductus bursae heavily sclerotized and broadest posteriorly, with small, posteriorly directed, digitated projection on right side, and with anteriorly directed, dorsal, digitated projection from lining of ostium bursae on left side, the ductus bursae narrowed medially, slightly tapering anteriorly, with elongate longitudinal striations; corpus bursae membranous, rounded, without signum.

**EARLY STAGES:** Unknown.

**FOOD PLANT:** Unknown.

**TYPES:** Holotype, male, and allotype, female, in the collection of the American Museum of Natural History.

**TYPE LOCALITY:** Baboquivari Mountains, Pima County, Arizona.

**DISTRIBUTION:** Pima County, Arizona; west central Baja California; "Sonora (Morrison)." On the wing in March, April, and May.

**REMARKS:** Twenty specimens and seven genitalic preparations were studied. *Semiothisa melanderi* has the lightest colored wings of the known species of the *s-signata* complex, owing primarily to the lack of overlying dark scales. The species is also recognizable by the stronger t. a. line, by the smaller discal dot of the primary, and by the lack of the median shade line.

Almost all of the material studied is from the type series; these speci-

mens are rather uniform in size, color, and maculation. The single known male from Baja California (Rosarito, March 28, 1935) has the wings much more suffused with dark scaling, thus appearing more like *cyda*. More material is needed to know if this represents a distinct population, or whether this is but an individual variant.

The male genitalia of *melanderi* are very distinct, owing to the asymmetrical valves, the membranous juxta, the trifurcated apex of the aedeagus, and the small, spined incision of the ventral plate. The female genitalia can be separated from those of the preceding species by the broadly Y-shaped lamella antevaginalis, which has the bottom leg very short and more heavily sclerotized than the remainder, and by the two small, digitated projections at the posterior margin of the ductus bursae.

#### GENUS *STENOPORPIA* MCDUNNOUGH

##### *Stenoporpia dionaria* (Barnes and McDunnough)

*Cleora (Selidosema) dionaria* BARNES AND MCDUNNOUGH, 1918, Contributions to the natural history of the Lepidoptera of North America, vol. 4, p. 153, pl. 20, fig. 6 (type male).

*Stenoporpia dionaria*, MCDUNNOUGH, Canadian Dept. Agr. Tech. Bull., no. 18, p. 25, pl. 4, fig. 2 (male genitalia).

This is a rather uncommon species occurring in southern Arizona; the type locality is Palmerlee, Cochise County. It can be recognized by the pale color, the very weakly represented cross lines, with the t. p. line being strongest on the veins and sharply concave between, and by the large, circular, discal spots on the upper surface of all wings. A second species has been discovered that closely resembles *dionaria* and that is apparently undescribed; its description is given below. As both species are virtually identical in color and pattern, a few brief notes on *dionaria* are necessary.

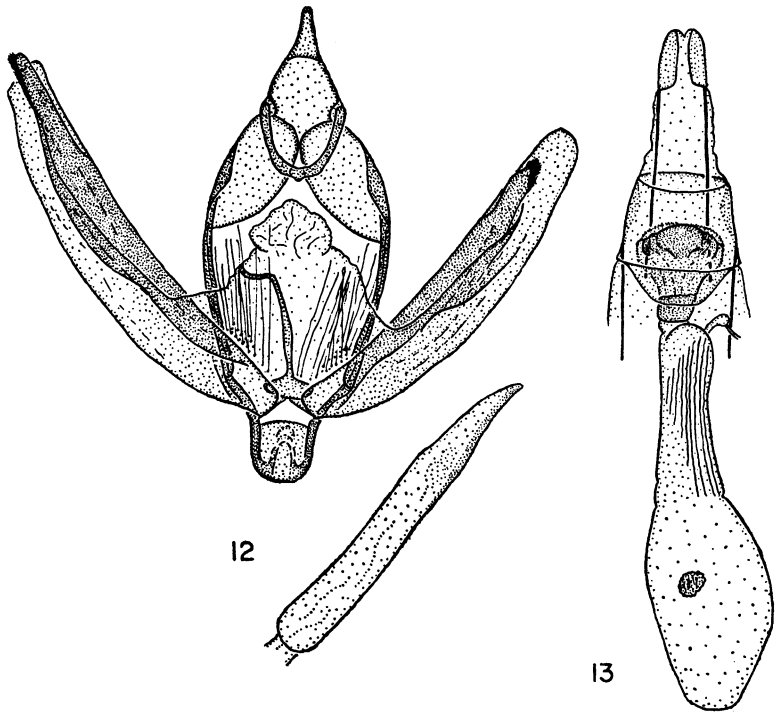
The bipectinated male antennae consist of approximately 55 segments, with the terminal one-fifth of the antennae being simple. The length of the primaries, in the males, is about 20 or 21 mm., the distance from the apex to the outer angle is about 13 mm., and from the outer angle to the base is approximately 12 mm. Thus the forewings are relatively long and pointed.

The male genitalia are figured by McDunnough and have symmetrical valves, as do virtually all the species in this genus.

##### *Stenoporpia asymmetra*, new species

Figures 12, 13

Extremely close to *dionaria* (Barnes and McDunnough) in color,



FIGS. 12, 13. Genitalia of *Stenoporpia asymmetra*, new species. 12. Male, holotype. 13. Female, allotype.

pattern, and size, but with good genitalic differences. The diagnostic features of *asymmetra* are as follows: Male antennae of approximately 49 segments, with the terminal one-sixth to one-eighth simple. The length of the primaries, in the males, is about 18 mm., the distance from the apex to the outer angle is about 11 mm., and from the outer angle to the base is approximately 12 mm. Thus the forewings are relatively short and blunt.

LENGTH OF FOREWING: Male, 17 to 19 mm., holotype, 19 mm. Female, 19 to 20 mm., allotype, 20 mm.

MALE GENITALIA: Uncus elongate, slender, apex bifurcate; gnathos broadly U-shaped, with slight median swelling; valves elongate, with asymmetrical costae, the left costa longer than the right; right costa shorter than valve by one-half to three-fourths of width of aedeagus, with terminal one-third narrowed, and with anterodistal one-half of the constricted portion armed with very many short spines; left valve with costa extending beyond end of valve a distance equal to its di-



ameter at that point, with slightly more than terminal one-third slightly narrowed, and with almost one-half of anterodistal portion of constricted area with very many, very short spines, median portion of valve more widely sclerotized than on right valve; aedeagus slender, shorter than combined lengths of uncus, tegumen, and saccus, unarmed.

**FEMALE GENITALIA:** Sterigma with broad, sclerotized lamella post-vaginalis, central portion subhexagonal, continued laterally and somewhat anteriorly by sclerotized continuation from central area; ductus bursae almost square in outline, well sclerotized; corpus bursae elongate, with long, well-striated neck, the striations longest and best represented on right side, anterior of ductus seminalis, body of corpus bursae elongate, membranous; signum slightly elliptical in outline, outer margins slightly dentate, the surface with several irregular, narrow ridges.

**TYPES:** Holotype, male, Pinery Canyon, Chiricahua Mountains, Cochise County, Arizona, July 3, 1956 (C. W. Kirkwood); allotype, female, same locality, July 13, 1956 (R. H. Reid). Paratypes, 20 males and one female, same data as types, July 3-13, 1956, June 23, 1958; 26 males and five females, same data, but labeled Upper Camp, Pinery Canyon, June 26-27, 1955 (Lloyd Martin, R. J. Ford), July 3-9, 1956 (Lloyd Martin, John A. Comstock, and William A. Rees); one male, Southwestern Research Station of the American Museum of Natural History, Chiricahua Mountains, Cochise County, Arizona, July 5, 1958 (C. W. Kirkwood); three males, Pine Crest, Mt. Graham, Pinaleno Mountains, Graham County, Arizona, June 29, 1955, elevation 7300 feet (William A. Rees, Lloyd M. Martin). Holotype and allotype in the collection of the American Museum of Natural History; paratypes in that institution, the collections of the Los Angeles County Museum, and of Carl W. Kirkwood.

**REMARKS:** Fifty-eight specimens and four genitalic dissections were studied. As mentioned above, this species is very similar to *dionaria*. The genitalia of both sexes offer good distinguishing characters, and it is advisable to rely on these structures if any doubt is present as to the proper identification of these two species.

