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A REVIEW OF THE GENUS *HAIMBACHIA* DYAR
WITH DESCRIPTIONS OF NEW SPECIES
(LEPIDOPTERA: CRAMBIDAE)

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The purpose of this paper is threefold: to redefine the moth genus *Haimbachia*; to correct several errors in the Dyar and Heinrich treatment in 1927 (Proc. U.S. Nat. Mus., vol. 71, pp. 32-37); and to provide names for some undescribed species represented by material that has been in the collection of the U.S. National Museum for many years.

All of the illustrations were prepared by Mr. A. D. Cushman, scientific illustrator of the U.S. Department of Agriculture, except figures 1-2b, 6-9, and 25-30, which are those drawn by Miss E. T. Armstrong and used in the Dyar and Heinrich paper of 1927. All of the male genitalia are shown with the aedeagus removed and some with the left harpe, vinculum, gnathos, and uncus also removed. The figures with the vinculum are in ventral view; those of the removed left harpe depict a lateral view of the inner surface, and all of the aedeagi are in lateral view. In the female genitalia, the ovipositor and collar of the eighth segment are shown in lateral view; the ventral tongue-like projection from the collar and seventh segment are shown somewhat flattened to give a ventral or three-quarter view of the distal end of the projection and genital opening, but there are a few exceptions.

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Genus *Haimbachia* Dyar

Haimbachia Dyar, 1909, Proc. Ent. Soc. Washington, vol. 11, pp. 28-29.—Barnes and McDunnough, 1917, Check list of the Lepidoptera of Boreal America, p. 140.—Forbes, 1920, Journ. New York Ent. Soc., vol. 28, p. 221; [1924], Cornell Univ. Agric. Exp. Sta. Mem. 68, p. 593.—Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, pp. 32-33.—McDunnough, 1939, Mem. Southern California Acad. Sci., vol. 2, p. 25.

Type: *Crambus placidellus* Haimbach, original designation.

Frons round or conical. Ocelli present. Labial palpi long, porrect, slightly down curved, extending over twice the length of the head. Antennae simple, slightly thickened in male. Venation: Forewing with 3 from before angle of cell; 4 and 5 separate, from the angle; 6 from below apex of cell; 7 from apex; 8 and 9 long stalked; 10 free and from cell, near stalk of 8 and 9; 11 anastomosing with 12. Hindwing with 4 and 5 approximate at origin, thence divergent; 6 from apex of cell with 7; 7 anastomosing shortly with 8.

Male genitalia: Uncus stout, short, with apex rounded and a short, subapical spur beneath. Gnathos short, stout, with a median, short, upcurved hook. Vinculum greatly enlarged, oblong or approximately square and usually with the ventral margin incurvate. Harpe divided, upper element a strongly sclerotized basal costal lobe, usually with a hooklike production.

Abdomen of male without tufts on second segment.

Female genitalia: Ductus bursae moderately long, not coiled, conspicuous sclerotization, not extending beyond origin of ductus seminalis. Bursa copulatrix elongate or ovoid, with or without signa. Posterior apophyses conspicuously dilated. Collar of eighth segment with a tongue-like projection from anterior ventral margin and curving back behind genital opening.

Remarks: Most *Haimbachia* species can be recognized by the maculation of the forewing (fig. 14). The upper surface has a white or grayish ground color irrorated with brown or fuscous. The facies of most of the species is whitish or grayish, but those with the intense brown irroration are brownish in appearance. Between the termen and base of the wing are two complete transverse markings and a short incomplete one about midway between them. The inner marking is a single line, yellow or brownish, with its origin near the middle of the costa, that passes obliquely outward a short distance and then curves outward to form a loop enclosing the cell, thence straight or sinuate to the inner margin. The outer marking has the appearance of a narrow band with the central area concolorous with the ground color of the wing and the margins defined by a greater intensity of the irroration.

In the descriptions which follow, the inner marking is referred to as the medial line; the outer one, as the subterminal band; and the short line between them, as the postmedial oblique bar.

The under surface of the wings is concolorous with the ground color of the upper surface, somewhat suffused with ochreous or brown and the suffusion usually stronger on the forewing but without conspicuous or characteristic markings; to avoid needless repetition, treatment of it is omitted in the descriptions herein.

Key to Species of *Haimbachia* Based on Habitus, Coloration, and Structure of the Frons

1. Frons cone shaped 2
 Frons round 9
2. Fringe of forewing nonmetallic 3
 Fringe of forewing metallic 6
3. Medial line with origin anterior to middle of costa 4
 Medial line with origin from middle of costa 5
4. Medial line ochreous, terminating on inner margin of the wing at middle.
 squamulella (Zeller)
 Medial line brownish, terminating on inner margin of the wing anterior to
 middle *indistinctalis*, new species
5. Distribution: Sinaloa, Mexico *prestonella* Schaus
 Distribution: Arizona *arizonensis*, new species
6. Facies brownish 7
 Facies whitish; whitish with a slight ochreous tinge, or grayish 8
7. Conical production of frons strong. Forewing narrow, apex somewhat
 acuminate *maroniella* Dyar and Heinrich
 Conical production of frons weak. Forewing broader, apex not acuminate
 dumptalis Schaus
8. Forewing narrow, apex somewhat acuminate; medial line and margins of
 subterminal band brownish, obsolescent, barely discernible.
 pallescens, new species
 Forewing broader, not acuminate at apex; medial line and margins of sub-
 terminal band ochreous, definition weak but definable . *quiriguella* Schaus
9. Fringe of forewing metallic 10
 Fringe of forewing nonmetallic *diminutalis*, new species
10. Forewing with a small, fuscous, discocellular spot 11
 Forewing without a fuscous discocellular spot 13
11. Facies brownish. Inner margin of subterminal band of forewing not strongly
 angulate inward at vein 2 *discalis* Dyar and Heinrich
 Facies whitish or grayish. Inner margin of subterminal band of forewing
 strongly angulate inward at vein 2 12
12. Forewing narrow, somewhat acuminate at apex *floridalis*, new species
 Forewing broader, not acuminate at apex *albescens*, new species
13. Forewing with the medial line straight or nearly so *gloriella* Schaus
 Forewing with the medial line distinctly sinuate 14
14. Forewing whitish, with a slight ochreous tinge; medial line and margins of
 subterminal band rather broad, definition somewhat diffuse.
 placidella (Haimbach)
 Forewing whitish, without an ochreous tinge; medial line and margins of
 subterminal band narrow, definition not diffuse . *cochisensis*, new species

Key to Species of *Haimbachia* Based on the Male Genitalia

1. Harpes symmetrical 2
Harpes asymmetrical 10
2. Vinculum with ventral margin straight . . **maroniella** Dyar and Heinrich
Vinculum with ventral margin incurved 3
3. Aedeagus curved, hooklike at apex 4
Aedeagus otherwise 5
4. Distal end of the hook truncate **gloriella** Schaus
Distal end of the hook a sharp point **discalis** Dyar and Heinrich
5. Distal projection of dorsal basal lobe round, slender 6
Distal projection of dorsal basal lobe somewhat flattened, stout 8
6. Costal hook long, slender, knoblike at distal end **quiriguella** Schaus
Costal hook otherwise 7
7. Costa of dorsal basal lobe triangularly produced. Aedeagus with a toothlike production from near middle of a long, straplike sclerotization.
placidella (Haimbach)
Costa of dorsal basal lobe round. Aedeagus without a toothlike production.
dumptalis Schaus
8. Distal projection short, length not more than twice its width; apex truncate.
indistinctalis, new species
Distal projection otherwise 9
9. Dorsal basal lobe with a small, sharp, toothlike production on costal margin
albescens, new species
Dorsal basal lobe without a small, sharp, toothlike production on costal margin **floridalis**, new species
10. Uncus with two conspicuous, long, slender, modified setae at apex.
pallescens, new species
Uncus otherwise 11
11. Hook of right harpe curved serpentine-like. Aedeagus with a distal cluster of rather strong spinules **squamulella** (Zeller)
Hook of right harpe with curvature otherwise. Aedeagus without a cluster of spinules 12
12. Hook of right harpe with dilation near middle distinctly angulate. Aedeagus long, slender, undulate; width at apex distinctly less than at base.
diminutalis, new species
Hook of right harpe with dilation near middle, rounded. Aedeagus shorter and stouter than above, straight or nearly so and width at apex and base approximately equal 13
13. Hook of right harpe broadly expanded basally; distal part straight or nearly straight, stout and bluntly pointed. **prestonella** Schaus
Hook of right harpe not so broadly expanded basally; distal part distinctly curved, more slender and more sharply pointed than above.
arizonensis, new species

Key to Species of *Haimbachia* Based on the Female Genitalia

1. Signum or signa present 3
Otherwise 2
2. Tonguelike projection with median area of the bifurcation angulate, acute and rather deep; the projection divided, slitlike from base of bifurcation to near the loop. **diminutalis**, new species
Tonguelike projection with median area of bifurcation broadly concave; the projection undivided from base of bifurcation to the loop.
pallescens, new species

- 3. With a single signum 4
 With two signa 5
- 4. Signum short, stout, spinelike *discaelis* Dyar and Heinrich
 Signum long, narrow, thin, wedgelike *floridalis*, new species
- 5. Signa small, round, inner surface with minute spinules 6
 Signa otherwise 8
- 6. Tonguelike projection not bifurcate above ventral margin of the ostium.
 maroniella Dyar and Heinrich
 Tonguelike projection distinctly bifurcate above ventral margin of the
 ostium 7
- 7. Ductus bursae rather strongly sclerotized from ostium to near origin of
 ductus seminalis, the sclerotization conspicuously constricted near
 middle. *dumptalis* Schaus
 Ductus bursae not as above *placidella* (Haimbach)
- 8. Signa distinctly subequal, the large signum narrow, elongate, wedgelike . 9
 Signa otherwise 10
- 9. Tonguelike projection with median area of bifurcation broadly con-
 cave *gloriella* Schaus
 Tonguelike projection with median area of bifurcation strongly angulate,
 apices blunt *albescens*, new species
- 10. Signa rather large, slender and thornlike; length of the spine approximately
 two times the diameter of its base *quiriguella* Schaus
 Signa much shorter, spinelike or subconical 11
- 11. Ductus bursae with accordion-like folds from ostium to the loop and distinctly
 tapered from ostium to the loop *squamulella* (Zeller)
 Ductus bursae not as above 12
- 12. Ventral margin of ostium with a median finger-like production. Signa sub-
 conical, bluntly pointed *cochisensis*, new species
 Ventral margin of ostium without a median finger-like production. Signa
 sharply pointed, spinelike 13
- 13. Tonguelike projection with median area of bifurcation acutely angulate,
 rather deep *prestonella* Schaus
 Tonguelike projection with median area of bifurcation broadly con-
 cave *arizonensis*, new species

Haimbachia squamulella (Zeller)

FIGURES 8, 14, 30

Chilo squamulellus Zeller, 1881, Hort. Ent. Soc. Ross., vol. 16, p. 158.—Fernald, 1896, Cramb. North America, Spec. Bull. Massachusetts Agric. Col., p. 79; 1903, in Dyar, U.S. Nat. Mus. Bull. 52, no 4630 (list).
Platytes squamulella (Zeller).—Barnes and McDunnough, 1917, Check list of the Lepidoptera of Boreal America, no. 5426.
Haimbachia squamulella (Zeller).—Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 35.—McDunnough, 1939, Mem. Southern California Acad. Sci., vol. 2, p. 25, no. 5967.

Alar expanse: Male 13–18 mm.; female 14–23 mm.

Frons strongly conical. Head and body white. Palpi whitish with intermixture of brownish fuscous laterally and near tips. Abdomen whitish, ochreous dorsally, the ochreous stronger anteriorly. Forewing: Upper surface whitish, irrorated with brown and fuscous; the

brown predominate from base of wing to medial line and the fuscous, between medial line and subterminal band. Medial line buff, origin before middle of costa, strongly oblique outward to vein 7, the loop narrow and extending well beyond end of cell, zigzag or strongly sinuate from outer angle of cell to inner margin of wing, terminating near or slightly beyond middle. Postmedial oblique bar subparallel with and extending to inner margin of subterminal band. Subterminal band with central area white; origin about one-fifth the length of costa before apex; inner margin narrow, buff, angulation of indentation at vein 2, obtuse; outer margin narrow, buff from costa to vein 6, remainder fuscous, indentation at vein 2 weaker than that of inner margin. Fringe nonmetallic. Hindwing: Upper surface whitish, subterminal line, if discernible, ochreous, obsolescent from vein 2 to inner margin.

Male genitalia (figs. 8, 8a): Asymmetrical. Aedeagus somewhat enlarged distally and enlargement bearing a cluster of rather strong spinules.

Female genitalia (fig. 30): The tonguelike projection bifurcate, median area of bifurcation acutely angulate. Ventral margin of ostium straight. Ductus seminalis originating about midway between ostium and junction of ductus bursae and bursa copulatrix. Ductus bursae sclerotized from ostium to near origin of ductus seminalis and with conspicuous longitudinal grooves anteriorly. Two signa, similar; each a short, stout, conical projection from a small round base.

Type: In the British Museum (Natural History).

Type locality: Bosque Co., Texas.

Food plant: Unknown.

Distribution: New Jersey, District of Columbia, North Carolina, Tennessee, Georgia, Florida, and Texas.

Remarks: Character of the frons and medial line of the forewing and lack of a discocellular fuscous patch are diagnostic for *squamulella*. In *squamulella*, the frons is conical; the medial line ochreous with origin before the middle of costa and the loop narrow, extending well beyond the end of the cell. No other species without a discocellular fuscous patch has this combination of characters.

Haimbachia prestonella Schaus

FIGURES 9, 27

Haimbachia prestonella Schaus, 1922, Proc. Ent. Soc. Washington, vol. 24, p. 138.—
Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 35 [erroneously cited as a synonym of *H. quiriguella* Schaus].

Alar expanse: Male 12 mm.; female 17 mm.

Resembles *squamulella* but with the frons only moderately conical; forewing with origin of median line from middle of costa, and the loop enclosing the cell broad and extending but little beyond end of the cell;

both the inner and outer margins of the subterminal band with fuscous predominating from vein 6 to inner margin of the wing; indentation of the margins of subterminal band at vein 2, weak, broadly concave or but slightly angulate. Postmedial oblique bar parallel to anterior part of subterminal band, short, stout, not extending beyond stem of veins 7 and 8. Fringe nonmetallic. Female paler and definition of markings weaker than in the male.

Male genitalia (figs. 9–9b): Asymmetrical. Hook from dorsal basal lobe of left harpe, stout, curved, sharply pointed; that of right harpe, straight or nearly so and strongly dilated basally. Aedeagus not conspicuously expanded distally; distal half armed with numerous, fine spinules.

Female genitalia (fig. 27): The tonguelike projection strongly bifurcate, median area of the bifurcation deeply and acutely angulate. Ventral margin of ostium evenly curved, slightly convex, but no median production present. Two subequal signa, each a short, sharp spine from a small circular base.

Type: Male, in U.S. National Museum, USNM 25553.

Type locality: Venadio, Sinaloa, Mexico.

Food plant: Unknown.

Distribution: Known only from the type locality.

Remarks: Dyar and Heinrich (1927) erred in concluding that *prestonella* represented the male of *quiriguella* Schaus, and their synonymizing it under that species is incorrect. The series of *gloriella* Schaus, with the same type locality as *prestonella*, which they studied was a mixture. They did not dissect the type of *gloriella*, and unfortunately the specimen they selected and figured under their number 71 as *gloriella* is not that species but is the female of *prestonella*. The specimen has a conical frons, and the fringe of the forewing is nonmetallic; *gloriella* has a rounded frons, and the fringe of the forewing is metallic.

Haimbachia arizonensis, new species

FIGURES 12, 17

Alar expanse: Male and female 16 mm.

Frons conical. Fringe of forewing nonmetallic. Color and maculation similar to *prestonella* but definition of the markings usually weaker and reliably distinguishable from *prestonella* only by the genitalia.

Male genitalia (figs. 12–12b): Asymmetrical. Resembling those of both *squamulella* and *prestonella*, but more like the latter. In *arizonensis*, the vinculum is broader and the distal hooks of the harpes and the aedeagus are more slender than in *prestonella*.

Female genitalia (fig. 17): The tonguelike projection bifurcate, median area of the bifurcation broadly concave. Two signa, each a small, round sclerotization bearing a short, stout, spine.

Type: Male, in U.S. National Museum, USNM 65002.

Type locality: Baboquivari Mountains, Pima Co., Arizona.

Paratypes: Four males and two females, all from the type locality.

Food plant: Unknown.

Remarks: The female genitalia of *arizonensis* also resemble those of *squamulella* and *prestonella*, but the median area of the bifurcation is shallow and broadly concave in *arizonensis*; in *squamulella* and in *prestonella* it is distinctly acutely angulate and rather deep.

The ductus bursae is slightly damaged; a small part of it is missing in the illustration.

Haimbachia quiriguella Schaus

FIGURES 3, 29

Haimbachia quiriguella Schaus, 1922, Proc. Ent. Soc. Washington, vol. 24, p. 137.—Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, pp. 34–35.—Swain, 1953, FAO, Plant Prot. Bull., vol. 1, p. 89.

Alar expanse: Male 16 mm.; female 18 mm.

Frons conical. Fringe of forewing metallic. Resembles *prestonella* in maculation but with irroration brown instead of fuscous and indentation of inner margin of the subterminal band at vein 2 deep and acute.

Male genitalia (figs. 3–3c): Symmetrical. Costal hook of harpe slender, curved, knoblike at distal end; production of costa of dorsal basal lobe narrow, triangulate. Aedeagus slender, with numerous small spinules and a distal serration of several small teeth.

Female genitalia (fig. 29): The tonguelike projection bifurcate, median area of bifurcation broadly angulate. Ventral margin of ostium straight or nearly so. Ductus bursae much shorter than bursa copulatrix; origin of ductus seminalis distinctly closer to loop of the tonguelike projection than to junction of ductus bursae and bursa copulatrix. Bursa copulatrix elongate and with two large, thornlike signa.

Type: Female, in U.S. National Museum, USNM 25552.

Type locality: Quirigua, Guatemala.

Food plant: Rice.

Distribution: Guatemala, Nicaragua, and Costa Rica.

Remarks: See comments under *prestonella* regarding the erroneous association of that species as male of *quiriguella*. The specimen treated here as the male of *quiriguella* was reared by Dr. R. B. Swain from larvae feeding in rice in Nicaragua and is associated with females which agree in both maculation and genitalia with the type of

quiriguella. *H. prestonella* appears to be a more northern species and restricted to Mexico.

Haimbachia pallescens, new species

FIGURES 4, 21

Alar expanse: Male and female 18 mm.

Frons conical. Head and thorax white, with some intermixture of yellowish brown. Palpi white, mixed with pale fuscous. Forewing: Upper surface white, irrorated with brown, the irroration extending to or almost to termen. The transverse markings weak and poorly defined; medial line very narrow, brownish; origin from middle of costa, strongly oblique outward to vein 7, loop enclosing end of cell, broad, strongly inward from outer angle of cell to slightly below origin of vein 2, outward to about middle of vein 2, thence oblique inward to inner margin of the wing, terminating near middle. Subterminal band poorly defined, origin about one-fifth the length of costa before apex, oblique outward to about vein 6 and almost to termen; inner margin of the band strongly zigzag from vein 3 to inner margin, terminating slightly before tornus; obsolescent in intervening area. The indentation of inner margin at vein 2 deep and acute. Terminal line narrow, weakly discontinuous, with two or three small fuscous patches between veins 1b and 3. Fringe of forewing metallic. Hindwing: Upper surface white, lustrous; fringe white.

Male genitalia (figs. 4, 4a): Asymmetrical. Hooklike production of dorsal basal lobe of left harpe long, slender, distal end a sharp point; similar structure of right harpe shorter and conspicuously enlarged basally. Uncus with two long, modified distal setae. Aedeagus long, slender, somewhat narrower distally and without cornutus.

Female genitalia (fig. 21): The tonguelike projection bifurcate, median area of bifurcation broadly concave. Ventral margin of ostium with a median triangular production. Ductus seminalis origin about midway between ostium and junction of ductus bursae with bursa copulatrix. No signum.

Type: Male, in U.S. National Museum, USNM 65003.

Type locality: Redington, Arizona.

Paratype: One female from the type locality.

Food plant: Unknown.

Remarks: The conical frons in combination with the narrow medial line, poor definition of both the medial line and subterminal band, and more extensive irroration, this extending to or almost to the termen, will distinguish *pallescens* from all other species of the group. The two conspicuous, modified distal setae of the uncus are diagnostic for the male genitalia of *pallescens*; the broadly concave bifurcation of the tonguelike projection, in combination with the triangulate median

production of the ventral margin of the ostium and lack of a signum are characteristic of the females.

Haimbachia indistinctalis, new species

FIGURE 11

Alar expanse: Male 18 mm.

Frons moderately conical. Head, palpi, and thorax sordid white with intermixture of smoky fuscous. Forewing: Upper surface whitish, rather densely irrorated with fuscous or buff, the irroration absent on veins. The two transverse markings poorly defined; medial line cinnamon brown, origin from or slightly before middle of costa, sharply outward to stalk of veins 8 and 9, loop enclosing the cell broad and extending well beyond end of cell, from outer angle of cell approximate to lower margin of the cell and inward to origin of vein 2, thence oblique inward and terminating on inner margin at about one-third its length from base of wing. Subterminal band with central area and outer margin rather poorly defined; origin from costa about three-fourths length of costa from the base; inner margin evenly curved outward to vein 7, posteriorly to vein 5, obliquely inward to veins 2 and 1b, thence obliquely inward and terminating on inner margin slightly before tornus. A small blackish patch on discocellular between veins 4 and 5. Terminal line discontinuous, the dots fuscous. Fringe nonmetallic. Hindwing: Upper surface white, with a narrow, buff, terminal line.

Male genitalia (figs. 11-11c): Symmetrical. Dorsal basal lobe of harpe broad basally, narrower and rounded distally, costal margin undulate; the hooklike projection short, stout, rather truncate distally. Aedeagus with one or two weak, slender cornuti and numerous minute spinules.

Type: Male, in U.S. National Museum, USNM 65004.

Type locality: Brownsville, Texas.

Paratype: One male, Kerrville, Texas.

Food plant: Unknown.

Remarks: In general appearance, *indistinctalis* resembles *pallescens* but differs in being duller, the forewing less acuminate, the transverse lines darker, the fringe metallic and having a conspicuous discocellular fuscous patch.

The female is unknown.

Haimbachia dumptalis Schaus

FIGURES 2, 25

Haimbachia dumptalis Schaus, 1922, Proc. Ent. Soc. Washington, vol. 24, p. 137—
Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 36.

Alar expanse: Male 16 mm.; female 15 mm.

Frons weakly conical. Head, thorax, and palpi white, with a pale ochreous tinge; the palpi with intermixture of fuscous distally. Abdomen whitish buff with basal segments ochreous dorsally. Forewing: Upper surface ground color white, with a pale ochreous or buff tinge, irrorated with brownish fuscous, the irroration rather intense. Medial line buff, definition weak; origin from slightly before middle of costa, oblique outward to vein 7, loop enclosing the cell broad and extending well beyond end of cell, angled inward and outward between cell and vein 2, thence slightly sinuate and oblique inward, terminating at or slightly before middle of inner margin of the wing. Postmedial oblique bar buff, subparallel to and extending to inner margin of subterminal band. Subterminal band with origin from costa about one-fifth length of wing before apex, slightly oblique from costa to vein 6, remainder broadly curved and subparallel to termen; central area white, inner and outer margins brownish, with little or no indentation at vein 2. Terminal line discontinuous, fuscous patches small. Fringe metallic. Facies brownish. Hindwing: Upper surface ochreous white, with an indistinct double subterminal line, buff, extending from costa to vein 2; terminal line single, buff. Fringe gray, tipped with buff.

Male genitalia (figs. 2-2b): Symmetrical. Dorsal basal lobe of harpe with costa broadly rounded, hook from the lobe slender, slightly curved, undulate, not enlarged distally. Vinculum elongate, ventral margin deeply incurvate. Aedeagus with numerous spinules; somewhat bifid distally, the two straplike sclerotizations subequal.

Female genitalia (fig. 25): The tonguelike projection bifurcate, angulation of median area of the bifurcation obtuse or nearly so. Ventral margin of ostium rounded, convex. Ductus bursae sclerotized from ostium to origin of ductus seminalis, constricted near middle. Signa two small, round, slightly convex and scobinate, weakly sclerotized areas.

Type: Male, in U.S. National Museum, USNM 25550.

Type locality: Cayuga, Guatemala.

Food plant: Unknown.

Remarks: Only two species with a conical frons, *dumptalis* and *maroniella*, have brownish facies. See remarks under the latter for distinguishing characters of habitus. The male genitalia of *dumptalis* resemble those of *placidella* and *quiriguella*, but in both *placidella* and *quiriguella* the costa of the basal dorsal lobe is triangularly produced; in *dumptalis*, it is broadly rounded, with no conspicuous production. The female genitalia of *dumptalis* are somewhat similar to those of *placidella* and *squamulella*, but the ductus bursae of *dumptalis* is distinctly constricted about midway between the ostium and origin

of the ductus seminalis; the ductus bursae of *placidella* and *squamulella* are without such a constriction.

Haimbachia maroniella Dyar and Heinrich

FIGURES 6, 26

Haimbachia maroniella Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 36.

Alar expanse: Male 15 mm.; female 15–17 mm.

Frons strongly conical. Maculation and coloration as in *dumptalis*, but with the forewing narrower and more acuminate.

Male genitalia (figs. 6–6b): Symmetrical. Dorsal basal lobe broadly rounded distally, costal margin with a toothlike projection near middle; hook from the lobe short, stout, enlarged basally. Vinculum conspicuously tapering ventrad, ventral margin straight. Aedeagus with no well-developed cornutus, but with numerous small spinules.

Female genitalia (fig. 26): The tonguelike projection short, weakly bifid distally but not free, rounded and fused with ductus bursae at ostium. Ventral margin of ostium obtusely angulate. Ductus bursae long, slender, weakly sclerotized, longitudinally rugose and with minute spinules from ostium to or almost to origin of ductus seminalis. Signa two small, round, slightly convex, weakly scobinate sclerotizations.

Type: Male, in U.S. National Museum, USNM 29435.

Type locality: "Sixty miles up the Maroni River," French Guiana.

Food plant: Unknown.

Distribution: Known only from the type locality.

Remarks: No consistent differences were noted in color and maculation for the separation of *dumptalis* and *maroniella*, but the strong conical frons and more acuminate forewing of *maroniella* readily distinguish specimens of it from those of *dumptalis*. The tapering vinculum with the straight ventral margin is diagnostic for the male genitalia of *maroniella* and separates them from those of all other known species of the genus; the short, unforked, ventral, tonguelike projection and medial obtuse angulation of the ventral margin of the ostium is similarly diagnostic for the female genitalia.

Haimbachia discalis Dyar and Heinrich

FIGURES 10, 28

Haimbachia discalis Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 37.

Alar expanse: Male 14–18 mm.; female 15–19 mm.

Frons round. Facies brownish. Fringe of forewing metallic. Color and maculation similar to *dumptalis* and *maroniella*, but with

the forewing less acuminate than *maroniella*, more like *dumptalis*, but with a conspicuous fuscous discocellular patch between veins 5 and 6 which is absent in both *dumptalis* and *maroniella*.

Male genitalia (figs. 10, 10a): Symmetrical. Dorsal basal lobe somewhat triangular in shape, inner margin with a small, toothlike projection near middle; distal costal hook curved, sharply pointed; greatly enlarged basally. Aedeagus with termination of distal hook sharply pointed.

Female genitalia (fig. 28): The tonguelike projection bifurcate with apices sharply pointed, median area of bifurcation broadly concave or weakly angulate. Sclerotized part of ductus bursae short, not extending below loop of the tonguelike projection. Signum a single, strong spine.

Type: Male, in U.S. National Museum, USNM 29436.

Type locality: Jalapa, Mexico.

Food plant: Unknown.

Distribution: Jalapa and Orizaba, Mexico; Brownsville and San Benito, Tex. (new record for U.S.).

Remarks: The round frons and fuscous discocellular patch of *discalis* readily distinguish it from *dumptalis* and *maroniella*.

Dyar and Heinrich did not figure the male genitalia of *discalis*, but stated: "Male genitalia as in *gloriella* Schaus." This, however, is incorrect and must have been due to a *lapsus* or confusion of material. I have dissected the genitalia of the type of *discalis* and five other males and compared them with those of the paratype on which their statement was based, and the aedeagi of all have the distal hook sharply pointed and not truncate, as in *gloriella*. The vinculum and anellus of *discalis* are also narrower and the uncus more compressed dorso-laterally and spatulate in shape than in *gloriella*.

The large single, stout, spinelike signum of *discalis* distinguishes the female genitalia of it from those of all others of the genus.

Haimbachia floridalis, new species

FIGURES 13, 28

Alar expanse: Male 16 mm.; female 14 mm.(?).

Frons round. Forewing: Somewhat acuminate. Upper surface whitish, moderately irrorated with fuscous or buff. Medial line with origin from or near middle of costa, strongly oblique outward to stem of veins 8 and 9, loop enclosing the cell extending but little beyond end of cell, zigzag from near end of cell to middle of inner margin of the wing. Subterminal band with indentation of inner margin at vein 2 deep and acute; that of outer margin also angulate but weaker, obtuse or nearly so. A small fuscous patch on discocellular vein between 5

and 6. Fringe metallic. Hindwing: Upper surface whitish; terminal line narrow, buff, definition weak.

Male genitalia (figs. 13-13b): Symmetrical. Projection from dorsal basal lobe straplike, distal curvature broad, pointed. Aedeagus stout, with a short, stout tooth and numerous minute spinules.

Female genitalia (fig. 22): The tonguelike projection bifurcate with apices blunt; median area of the bifurcation deeply and acutely angulate. Signum a long, narrow, wedgelike sclerotization.

Type: Male, in U.S. National Museum, USNM 65005.

Type locality: Everglades, Florida.

Paratype: One female, Sugar Loaf Key, Florida.

Food plant: An unidentified species of Gramineae.

Remarks: The whitish facies and deep indentation of the subterminal band at vein 2 of *floridalis* distinguish it from *discalis*, which also has a conspicuous fuscous discocellular patch but has a brownish facies and the indentation of the subterminal band at vein 2 much weaker.

The female paratype was reared, but it is deformed and its condition is too poor for accurate determination of the alar expanse.

Haimbachia albescens, new species

FIGURES 15, 23

Alar expanse: Male 18 mm.; female 18-20 mm.

Frons round. Fringe of forewing metallic. Like *floridalis* in color and maculation but larger, with the forewings less acuminate; separable from it by distribution and genitalic structures.

Male genitalia (figs. 15, 15a): Symmetrical. Apex of dorsal basal lobe rather narrow and triangular in shape; costal margin of lobe with a toothlike projection near middle; the hooklike projection from the lobe narrow, truncate distally and with a rounded production from near base. Aedeagus with one rather short, stout spine and numerous minute spinules.

Female genitalia (fig. 23): The tonguelike projection bifurcate, apices rather short, stout, blunt; median area of the bifurcation broadly angulate. Two signa, one a long, narrow, wedgelike, sclerotization and the other small, short, sharp, spinelike.

Type: Male, in U.S. National Museum, USNM 65006.

Type locality: Sioux City, Iowa.

Paratypes: One male and three females from type locality. One male and one female, Anglesea, New Jersey. One female, Cape Henry, Virginia.

Food plant: Unknown.

Remarks: The male genitalia of *albescens* resemble those of *floridalis*, but in the latter the production of costa of the dorsal basal lobe is broader apically, without a toothlike projection near middle of the

margin, and the hooklike projection from the lobe is without a rounded production near the base, and the distal end is more curved and sharply pointed than in *albescens*. The presence of two signa and the stouter tonguelike projection in the female genitalia of *albescens* distinguish them from those of *floridalis* which have but one signum and the tonguelike projection distinctly shorter and narrower.

Haimbachia gloriella Schaus

FIGURES 7, 24

Haimbachia gloriella Schaus, 1922, Proc. Ent. Soc. Washington, vol. 24, p. 137.—
Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 34.

Alar expanse: Male 15 mm.; female 15–17 mm.

Frons round. Head sordid white, frons and vertex with two small fuscous patches; palpi grayish, intermixed with fuscous. Thorax and patagia white, sprinkled with fuscous. Forewing: Upper surface whitish, irrorated with brownish fuscous, the irroration denser and finer from medial line to subterminal band; interspace of veins conspicuously ochreous from subterminal band to termen below vein 7; irroration absent on veins, giving the wing a lined appearance. Medial line brownish or fuscous from costa to vein 10, remainder ochreous; origin from middle of costa, oblique outward to vein 7, thence straight or nearly so posteriorly to inner margin of the wing, terminating slightly beyond middle. Postmedial oblique bar and margins of the subterminal band brownish; inner margin of the band only slightly incurved between veins 4 and 1b. Terminal line black, discontinuous, as small patches. Fringe metallic. Hindwing: Upper surface sordid white with buff suffusion; terminal line fuscous, extending from apex to about middle of outer margin; subterminal line brownish, parallel to outer margin. Fringe white.

Male genitalia (figs. 7–7b): Symmetrical. Aedeagus with termination of distal hook distinctly truncate.

Female genitalia (fig. 24): The tonguelike projection bifurcate, apices short, bluntly pointed; median area of bifurcation shallow, broadly concave. Two signa, one rather long and narrow, the other short, sharp, spinelike.

Type: Male, in U.S. National Museum, USNM 25551.

Type locality: Venadio, Sinaloa, Mexico.

Food plant: Unknown.

Distribution: Guadalajara, Jalisco, and Venadio, Sinaloa, Mexico.

Remarks: The rather broad and straight or nearly straight ochreous medial line distinguishes *gloriella* from all other species of *Haimbachia*. As noted under *discalis*, the male genitalia of it and *gloriella* are very much alike, but the two are readily distinguished from each other by the character of the distal hook of the aedeagus; in *discalis* it is sharply

pointed and in *gloriella*, distinctly truncate. The female genitalia of *gloriella* resemble those of *floridalis* and *albescens*, but are distinguished from them by differences in the tonguelike projection; in both *floridalis* and *albescens* the median area of the bifurcation is rather deep and distinctly angulate; in *gloriella* it is shallow and broadly concave.

Haimbachia placidella (Haimbach)

FIGURES 1, 18

Crambus placidellus Haimbach, 1907, Ent. News, vol. 18, p. 44.

Chilo placidellus (Haimbach).—Keafortt, 1908, Proc. U.S. Nat. Mus., vol. 35, p. 392.

Haimbachia placidella (Haimbach).—Dyar, 1908, Proc. Ent. Soc. Washington, vol. 11, pp. 28–29.—Barnes and McDunnough, 1917, Check list of the Lepidoptera of Boreal America, p. 140, no. 5401.—Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 35.—McDunnough, 1939, Mem. Southern California Acad. Sci., vol. 2, p. 25, no. 5966.

Alar expanse: Male 15–18 mm.; female 17–19 mm.

Frons round. Head and thorax whitish; palpi ochreous white, mixed with pale fuscous laterally and distally. Forewing: Upper surface white, with an ochreous tinge, moderately irrorated with brownish fuscous. Medial line pale buff, origin from near middle of costa, broadly concave outward, loop enclosing the cell extending but slightly beyond end of the cell; thence straight or but slightly sinuate and oblique inward, terminating on inner margin before middle. Inner and outer margins of subterminal band pale buff, straight or but slightly incurved between veins 1b and 3. Interspace of veins ochreous from termen to subterminal band. Terminal line discontinuous, as blackish patches. Fringe metallic. Hindwing: Upper surface whitish, with a slight ochreous tinge. Fringe white.

Male genitalia (figs. 1–1b): Symmetrical. Costa of dorsal basal lobe of harpe broadly triangulate in shape; the toothlike projection slender, concave, bluntly pointed distally. Aedeagus slender, with numerous small spinules and a toothlike projection near middle of a long, narrow, straplike sclerotization.

Female genitalia (fig. 18): The tonguelike projection bifurcate, apices bluntly pointed; median area of bifurcation acutely angulate, rather deep. Ventral margin of ostium weakly sclerotized, convex. Ductus bursae longitudinally rugose for almost its entire length. Ductus seminalis with origin about midway between ostium and junction of ductus bursae and bursa copulatrix. Signa two small, round, weakly scobinate, sclerotized patches.

Type: Male, in U.S. National Museum, USNM 11956.

Type locality: Wenonah, New Jersey.

Food plant: Unknown.

Distribution: Connecticut, New Jersey, Pennsylvania, and Tennessee.

Remarks: The ochreous facies, broader, diffuse definition of the medial line and margins of the subterminal band, with termination of the former anterior to middle of the inner margin of the wing, distinguish *placidella* from other species of the genus. The male genitalia of *placidella* are somewhat similar to those of *dumptalis* and *quiriguella*, but in *dumptalis*, costa of the dorsal basal lobe of the harpe is broadly rounded, curvature of the distal hook undulate and the aedeagus without a conspicuous toothlike projection; in *quiriguella*, the triangular costal production of the dorsal basal lobe is narrower than in *placidella*, the hook knoblike distally and the aedeagus serrate distally. The female genitalia of *placidella* resemble those of *dumptalis*, but in *placidella* there is no distinct constriction of the ductus bursae between ostium and origin of the ductus seminalis; the rugosity of the ductus bursae is more extensive and the angulation of the median area of the bifurcation of the tonguelike projection is more acute and deeper than in *dumptalis*.

Haimbachia cochisensis, new species

FIGURE 19

Alar expanse: Female 20 mm.

Frons round. Head, thorax, and palpi white, with some mixture of pale buff. Facies whitish. Forewing: Upper surface white, irrorated with ochreous brown. Medial line narrow, pale buff; origin from costa slightly before middle, oblique outward to upper angle of cell, loop enclosing cell narrow and extending well beyond end of cell, oblique inward from lower angle of cell to vein 2, thence zigzag to inner margin of the wing, terminating before middle. Subterminal band with central area white; inner and outer margins pale buff; indentation of inner margin at vein 2 deep and acute; that of outer margin much weaker. Terminal line discontinuous, as narrow, dark fuscous patches. Fringe with metallic cilia. Hindwing: Upper surface sordid white; subterminal line weakly defined, rather diffuse. Fringe white, tipped with pale brown.

Female genitalia (fig. 19): The tonguelike projection weakly bifurcate, median area of bifurcation angulate, broadly obtuse. Ventral margin of ostium weakly sclerotized, with a short, stout, median projection. Two signa, each a small, round, sclerotized patch with a short, blunt, conical production.

Type: Female, in U.S. National Museum, USNM 65007.

Type locality: Douglas, Arizona.

Food plant: Unknown.

Remarks: The deep, acute indentation of the inner margin of the subterminal band at vein 2 and lack of a conspicuous discocellular patch on the forewing will distinguish *cochisensis* from the other species of the genus with a round frons; the rather short, conelike median projection of the ventral margin of the ostium is diagnostic for the female genitalia of *cochisensis*.

Males unknown but when available, there should be no difficulty in association of the sexes.

Haimbachia diminutalis, new species

FIGURES 16, 20

Alar expanse: Male 10–12 mm.; female, 15–16 mm.

Frons round. Head and thorax white; palpi whitish, with some intermixture of pale brownish fuscous. Forewing: Upper surface white with a slight ochreous tinge, irrorated with buff. Medial line buff, weakly defined, with origin from middle of costa, oblique outward to stalk of veins 8 and 9, loop enclosing cell broadly concave, extending well beyond end of the cell, thence strongly oblique and slightly sinuate to inner margin of the wing, terminating near middle. Subterminal band with central area whitish, origin from costa about one-fourth length of costa before apex; inner margin of band oblique outward to vein 6, broadly curved to vein 2, thence zigzag to inner margin of the wing; outer margin of band parallel to inner margin or nearly so. Terminal line blackish, continuous or weakly interrupted. Fringe nonmetallic; cilia grayish with pale brownish fuscous tips. Hindwing: Upper surface white, terminal line narrow, pale buff. Fringe white.

Male genitalia (figs. 16–16b): Asymmetrical. The hooklike production from dorsal basal lobe of harpe greatly expanded about midway between base and distal end. Uncus normal. Aedeagus long, slender; cornuti consisting of numerous short spinules in a linear arrangement.

Female genitalia (fig. 20): The tonguelike projection strongly bifurcate, apices sharply pointed, median area of bifurcation angulate and rather deep; the projection divided into two elements from base of bifurcation to near loop of the projection, the ventral element narrow, straplike. Ventral margin of ostium moderately sclerotized, with a short, stout, sharp, angulate medial production. Signum obsolescent; one or none; if discernible, a very small, round, weakly sclerotized patch.

Type: Male, in U.S. National Museum, USNM 65008.

Type locality: Brownsville, Texas.

Paratypes: Texas: Brownsville, 2 males; San Benito, 3 males, 1 female; Brewster Co., 1 female. Arizona: Baboquivari Mountains, Pima Co., 1 male and 1 female; Redington, 1 female.

Food plant: Unknown.

Remarks: The character of the hooklike projections from the dorsal basal lobes of the harpes and slender aedeagus with linear arrangement of the cornuti are diagnostic for the male genitalia of *diminutalis*; the division of the tonguelike projection into two elements from base of the bifurcation to near the loop distinguishes the female genitalia of it from all others of the group.

Alamogordia prosenes (Dyar), new combination

FIGURE 5

Diatraea prosenes Dyar, 1912, First Ann. Report, Laguna Mar. Lab., p. 165.

Chilo prosenes (Dyar).—Barnes and McDunnough, 1917, Check list of the Lepidoptera of Boreal America, p. 141, no. 5433.

Haimbachia(?) *prosenes* (Dyar).—Dyar and Heinrich, 1927, Proc. U.S. Nat. Mus., vol. 71, p. 37.

Haimbachia prosenes (Dyar).—McDunnough, 1939, Mem. Southern California Acad. Sci., vol. 2, p. 25, no. 5698.

Alar expanse: Male 23 mm.; female 20–31 mm.

Larger than most *Haimbachia* species. Frons round. Head, thorax, and abdomen sordid white. Palpi sordid white with intermixture of smoky fuscous. Forewing: Ground color whitish, interspace of veins heavily sprinkled with brown or fuscous, the wing appearing lined. Medial transverse line absent. Postmedial transverse line brownish; origin from costa about one-fourth length of the wing before apex, strongly oblique outward to near apex, thence bent and continuing subparallel to the termen, terminating near middle of inner margin of the wing. Terminal line brownish or fuscous, narrow, continuous. Fringe nonmetallic; whitish. Hindwing: White, with slight buff suffusion. Fringe white.

Definition of the postmedial transverse line and lined appearance of the forewing is weaker in the females than in the males.

Male genitalia as figured (figs. 5, 5a).

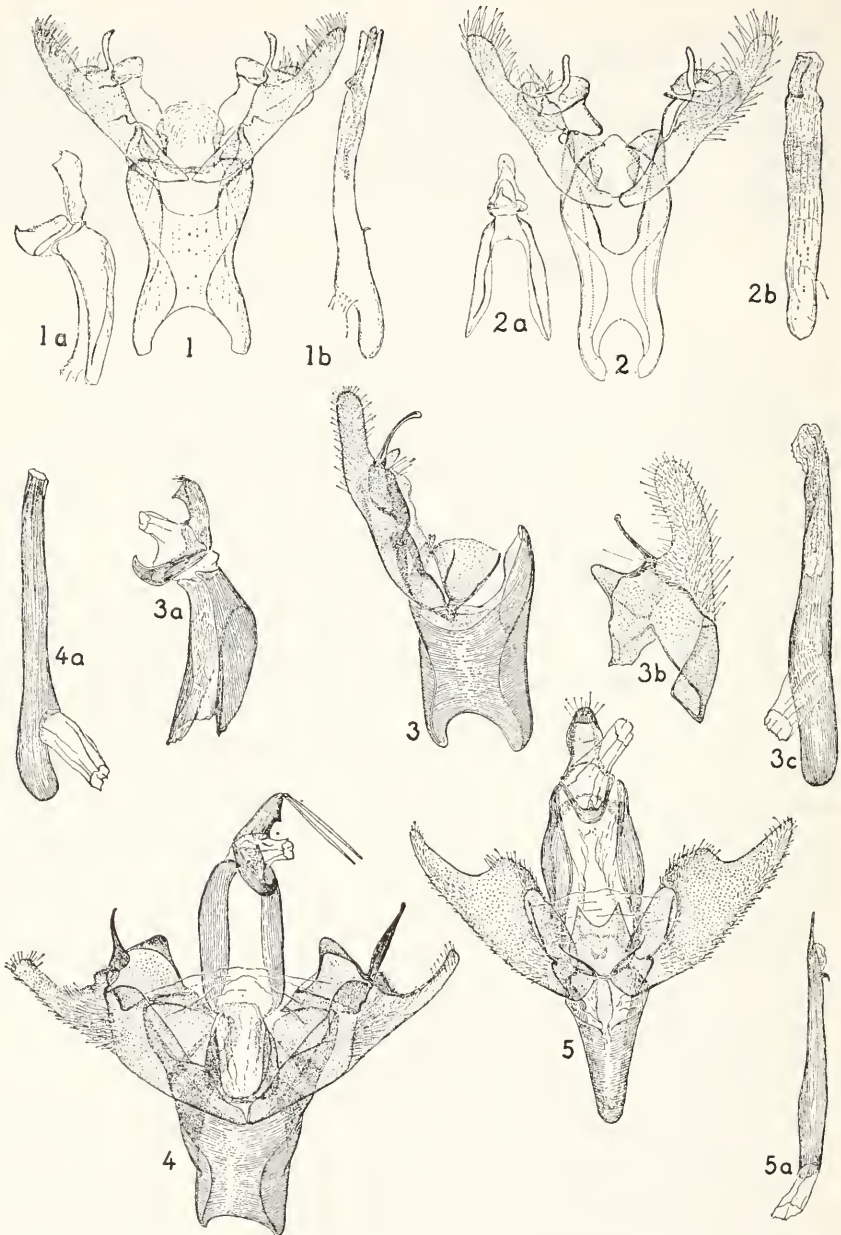
Type: Female, in U.S. National Museum, USNM 14352.

Type locality: Laguna Beach, California.

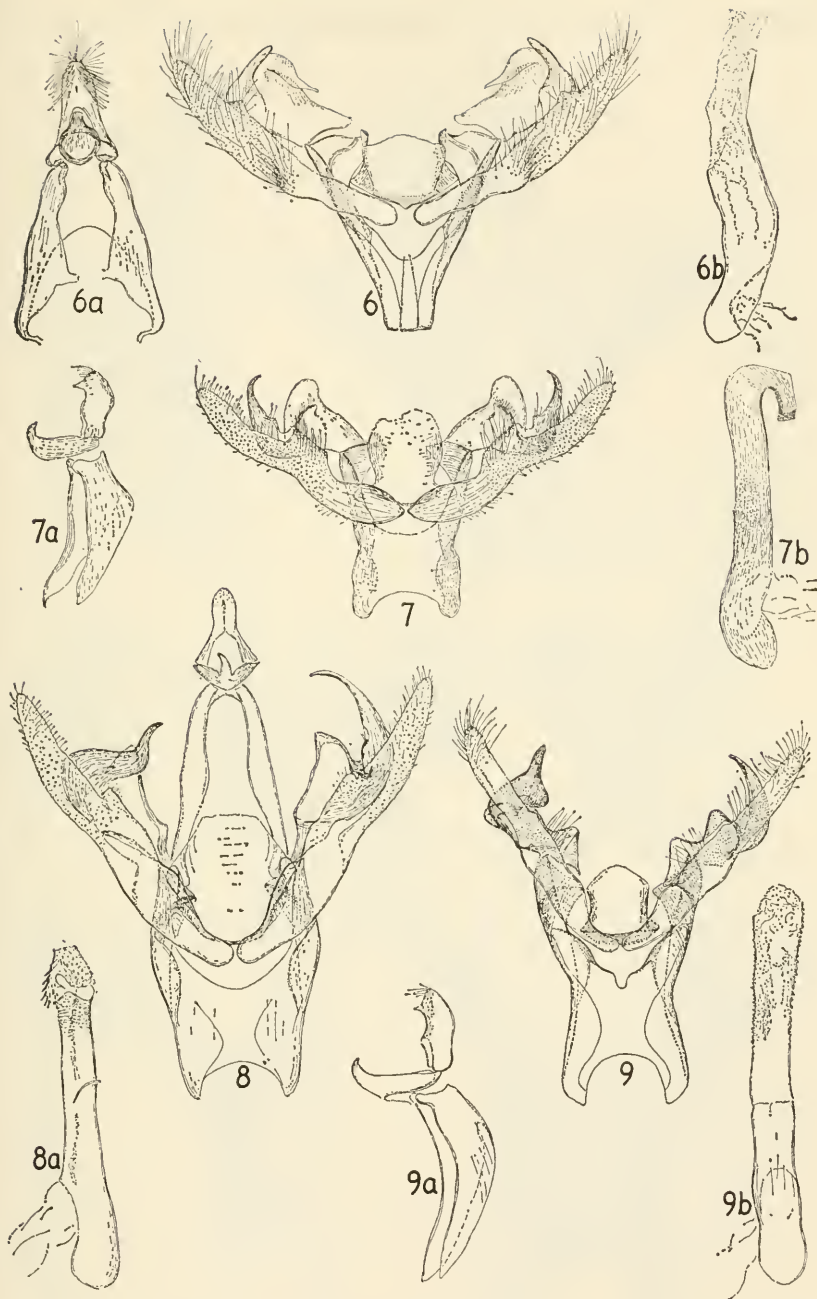
Food plant: Unknown.

Distribution: Glendale, Los Angeles, San Bernardino, and La Puerta Valley, California.

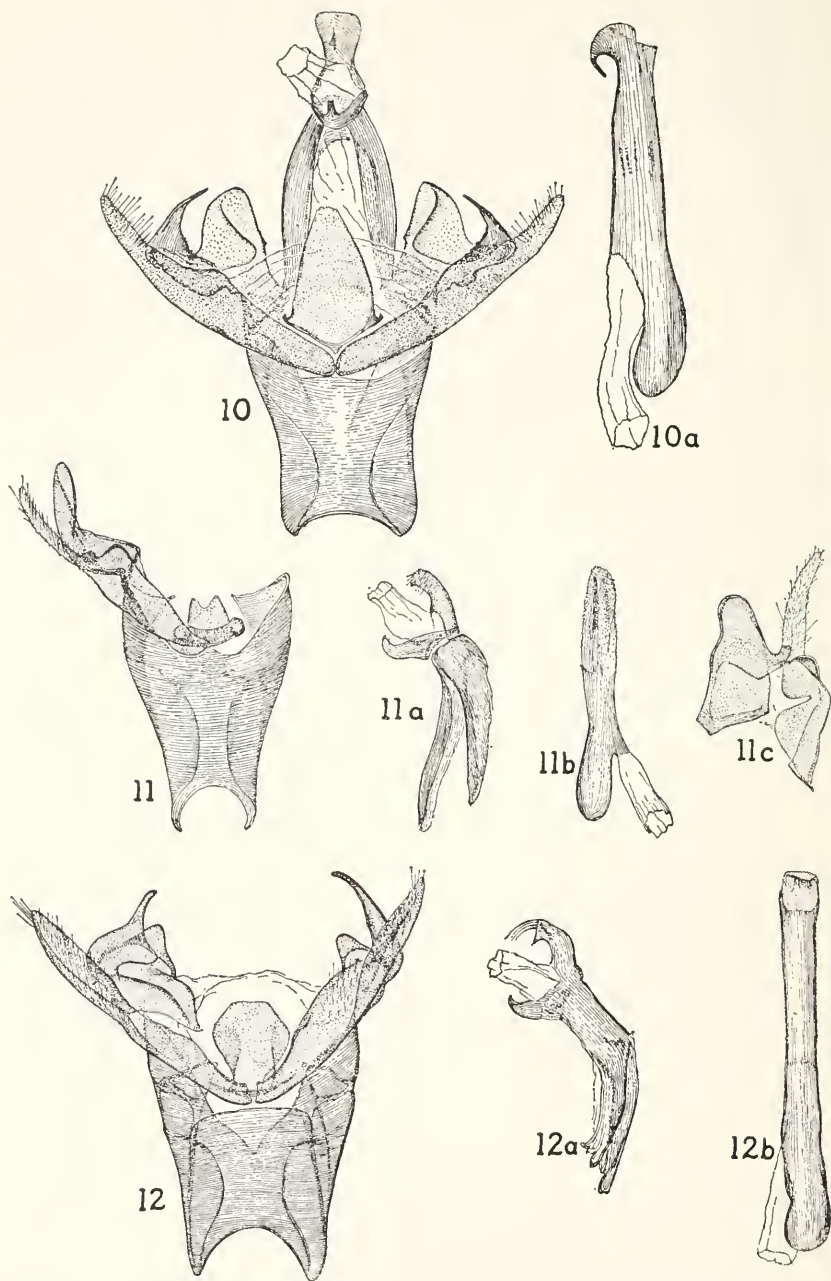
Remarks: Dyar and Heinrich transferred *prosenes* from *Chilo* to *Haimbachia* with considerable reservation, due to the lack of males for study. Since then, with the acquisition of the Barnes collection by the U.S. Department of Agriculture, males became available and dissection of their genitalia revealed that the species is definitely not a *Haimbachia* and properly belongs in *Alamogordia*, to which it is hereby transferred.



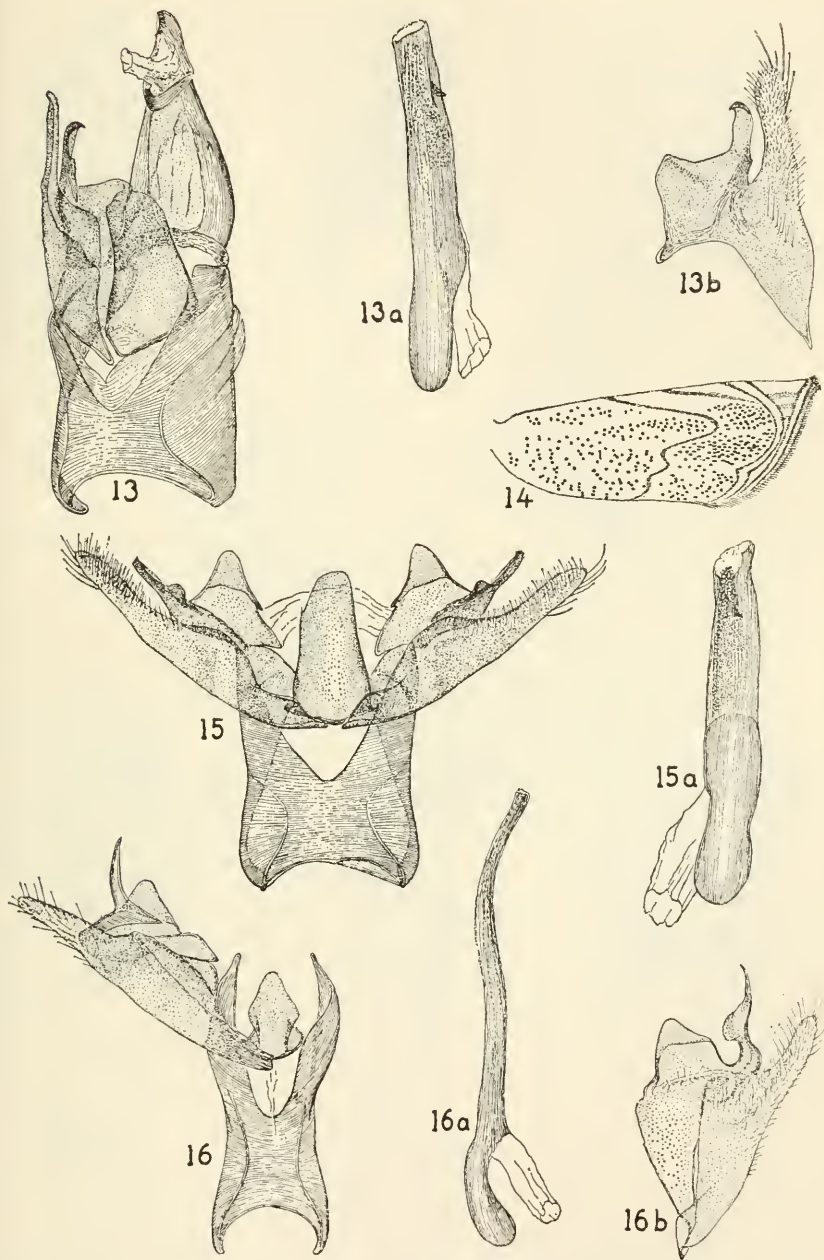
FIGURES 1-5.—Male genitalia: *Haimbachia placidella* (Haimbach): 1, vinculum, anellus, and harpes; 1a, tegumen, gnathos, and uncus, lateral view; 1b, aedeagus. *H. dumptalis* Schaus: 2, vinculum, anellus, and harpes; 2a, tegumen, gnathos, and uncus, ventral view; 2b, aedeagus. *H. quiriguella* Schaus: 3, vinculum, anellus, and right harpe; 3a, tegumen, gnathos, and uncus, lateral view; 3b, left harpe; 3c, aedeagus. *H. pallescens*, new species: 4, genitalia with only the aedeagus removed; 4a, aedeagus. *Alamogordia prosenes* (Dyar): 5, genitalia with only the aedeagus removed; 5a, aedeagus.



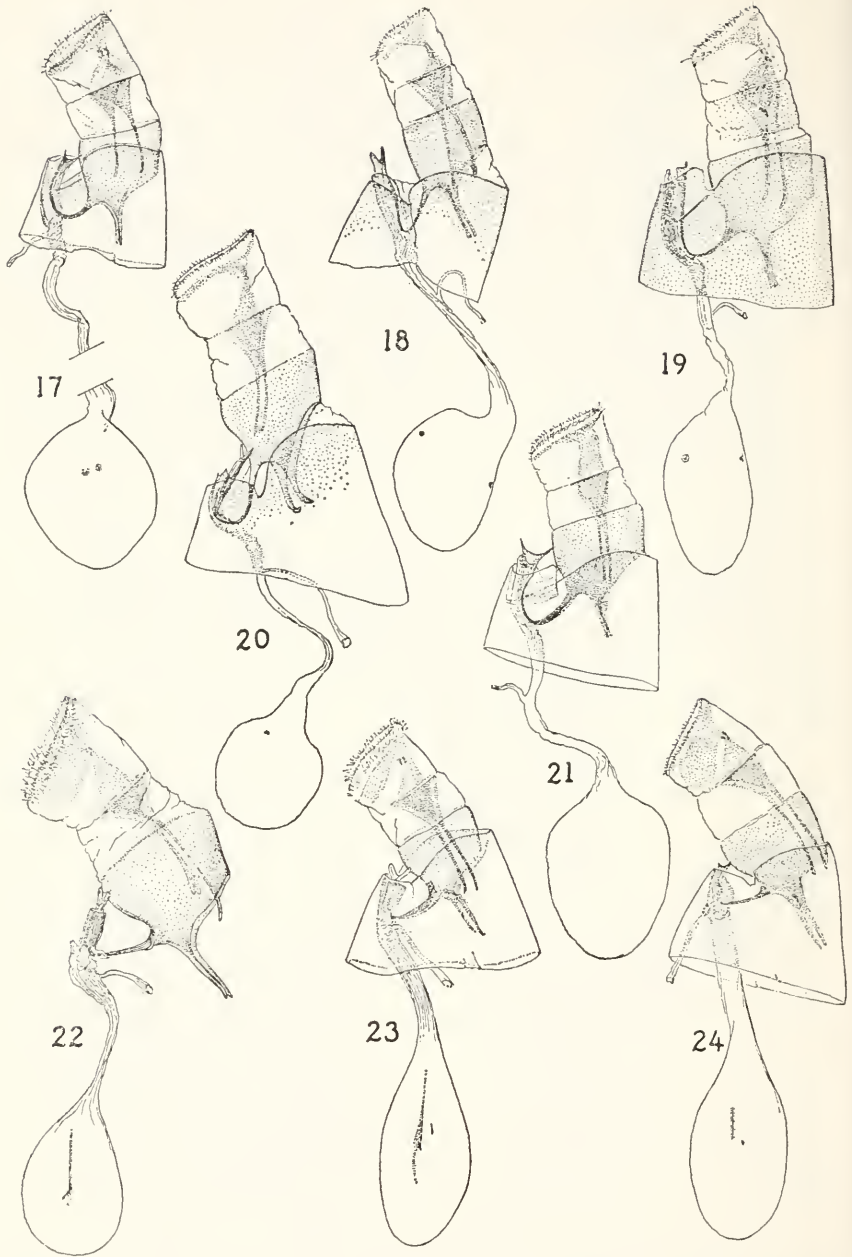
FIGURES 6-9.—Male genitalia: *Haimbachia maroniella* Dyar and Heinrich: 6, vinculum, anellus, and harpes; 6a, tegumen, gnathos, and uncus, ventral view; 6b, aedeagus. *H. gloriella* Schaus: 7, vinculum, anellus, and harpes; 7a, tegumen, gnathos, and uncus, lateral view; 7b, aedeagus. *H. squamulella* (Zeller): 8, genitalia with only the aedeagus removed; 8a, aedeagus. *H. prestonella* Schaus: 9, vinculum, anellus, and right harpe; 9a, tegumen, gnathos, and uncus, lateral view; 9b, aedeagus.



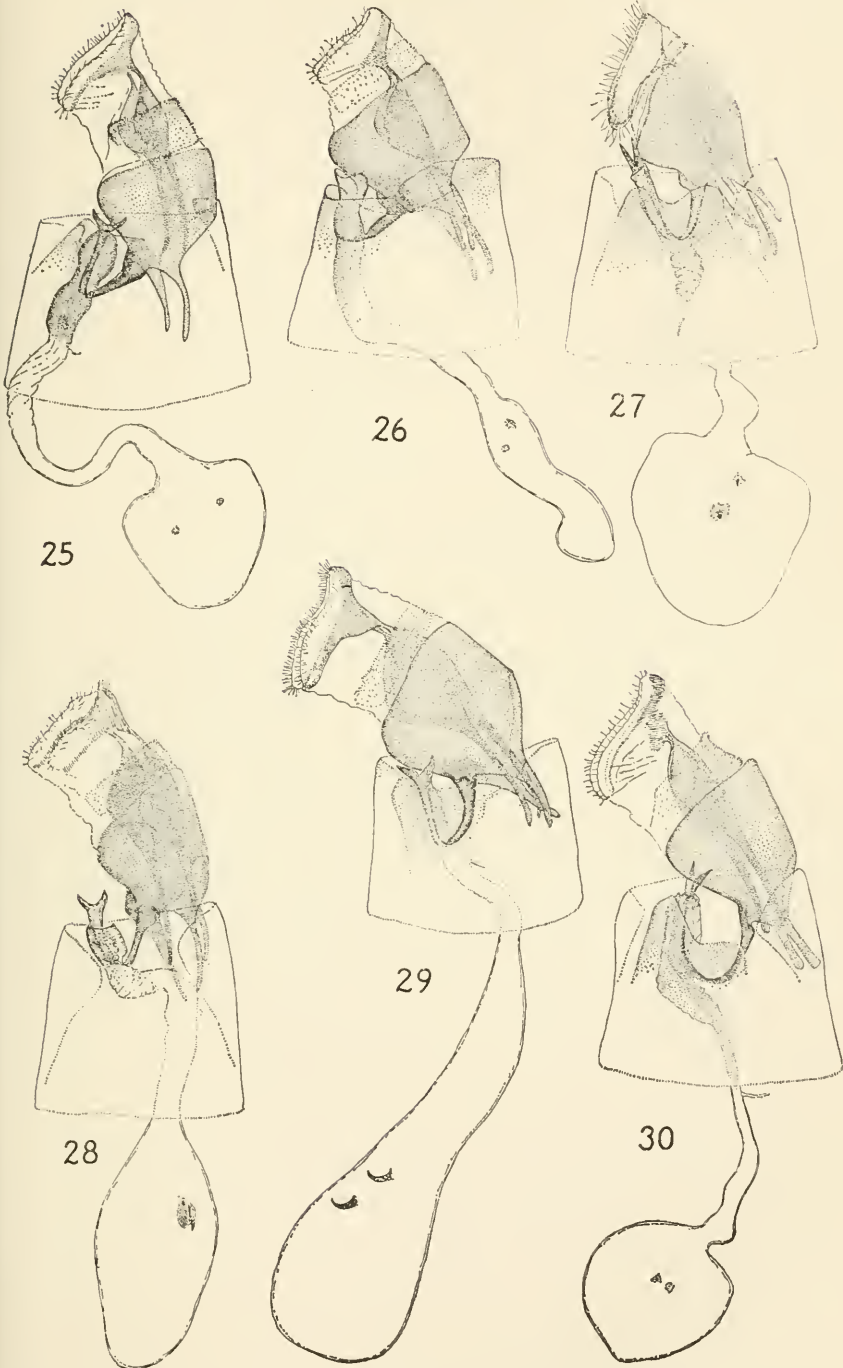
FIGURES 10-12.—Male genitalia: *Haimbachia discalis* Dyar and Heinrich; 10, genitalia with only the aedeagus removed; 10a, aedeagus. *H. indistinctalis*, new species: 11, vinculum, anellus, and right harpe; 11a, tegumen, gnathos, and uncus, lateral view; 11b, aedeagus; 11c, left harpe. *H. arizonensis*, new species: 12, vinculum, anellus, and harpes; 12a, tegumen, gnathos, and uncus, lateral view; 12b, aedeagus.



Figures 13-16.—Male genitalia and wing: *Haimbachia floridalis*, new species: 13, genitalia with left harpe and aedeagus removed; 13a, aedeagus; 13b, left harpe. *H. squamulella* (Zeller): 14, upper surface of forewing depicting essential elements of maculation. *H. albescens*, new species: 15, vinculum, anellus, and harpes; 15a, aedeagus. *H. diminutalis*, new species: 16, vinculum, anellus, and right harpe; 16a, aedeagus; 16b, left harpe.



FIGURES 17-24.—Female genitalia: 17, *Haimbachia arizonensis*, new species; 18, *H. placidella* (Haimbach); 19, *H. cochisensis*, new species; 20, *H. diminutalis*, new species; 21, *H. pallescens*, new species; 22, *H. floridalis*, new species; 23, *H. albescens*, new species; 24, *H. gloriella* Schaus.



FIGURES 25-30.—Female genitalia: 25, *Haimbachia dumptalis* Schaus; 26, *H. maroniella* Dyar and Heinrich; 27, *H. prestonella* Schaus; 28, *H. discalis* Dyar and Heinrich; 29, *H. quiriguella* Schaus; 30, *H. squamulella* (Zeller).