

Studies Of The Gyponinae: A Synopsis Of The
Genus *Hamana* Delong
(Homoptera Cicadellidae)

DWIGHT M. DELONG AND PAUL H. FREYTAG

STUDIES OF THE GYPONINAE: A SYNOPSIS OF THE
GENUS *HAMANA* DELONG¹

(HOMOPTERA: CICADELLIDAE)²

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ABSTRACT

A key is presented to identify the 17 species represented by males. Nineteen species are treated, nine of which, previously described, are: *H. annulicornis* (V.D.), *lacteipennis* (Fowl), *incita* DeL., *herbida* DeL., *manifesta* DeL., *gelbata* DeL., *transversa* DeL., *virescens* DeL., and *dictatoria* (Gib.). The following ten species are described as new: *H. loka*, *serrella*, *valeka*, *kolva*, *nemella*, *kella*, *nelya*, *lekva*, *hyena*, and *helva*. One hundred and two figures are used to illustrate the diagnostic characters of the several species.

The genus *Hamana* (Type, *Hamana dictatoria* (Gibson)) was described by DeLong (1942) to include nine species, six of which were described at that time. Recent study of type material in the British Museum of Natural History has indicated that one of these species (*marginifrons* Fowler), which was treated as a species of *Hamana* in that study, should now more properly be placed in the genus *Gypona* under the name *Gypona (Marganalana) marginifrons* Fowler. The transfer of this species leaves the genus *Hamana* with eight known species and one variety.

The present study of North and Central American specimens has revealed ten additional species which are described at this time. Two of these species are described from female specimens only.

The species of *Hamana* are rather large and robust, with the head narrower than the pronotum. Crown relatively short, anterior margin carinate; ocelli large. Pronotum and crown both sloping to the anterior margin of crown. Forewings broad, opaque, with a well developed appendix. Male pygofer usually with a spine-like or small blunt protrusion on the dorsal margin near apex. Aedeagus with shaft stout, lateral processes arising from base, elongate, paralleling shaft and often exceeding shaft in length. Style elongate, apex foot-shaped.

This genus appears to have a rather limited geographic range, with the species mainly distributed in the northwestern part of Mexico (including Lower California) and the southwestern part of the United States.

A key for the separation of the males is included, but no attempt has been made to key out the very similar females.

KEY TO MALES

1	Pygofer without pointed teeth or processes on dorso caudal margin.....	2
1'	Pygofer with teeth or processes on dorso caudal margin.....	3
2 (1)	Aedeagal shaft slightly tapered on apical third.....	<i>loka</i> , new species
2'	Aedeagal shaft broadened on apical half.....	<i>annulicornis</i> Van Duzee
3 (1')	Pygofer processes short, blunt, finger-like, directed caudally.....	4
3'	Pygofer processes pointed, teeth usually extending dorsally from dorsal margin near apex.....	6
4 (3)	Style with curved ventral margin serrate at apex.....	<i>serrella</i> , new species
4'	Style with apex broadened, foot-like, not serrate.....	5
5 (4')	Style with blade elongate, more narrowed, apical foot transverse, short with pointed toe and pointed heel.....	<i>valeka</i> , new species
5'	Style with blade shorter and broader, apical foot more elongate with heel-like spur on ventral margin of blade before apex.....	<i>kolva</i> , new species
6 (3')	Aedeagal shaft longer than paired aedeagal processes.....	7
6'	Aedeagal shaft shorter than paired aedeagal processes.....	8
7 (6)	Style broad, apex enlarged forming a foot-like process.....	<i>lacteipennis</i> Fowler
7'	Style slender tapered to a sharp pointed apex.....	<i>nemella</i> , new species
8 (6')	Style with apical foot-like portion curving from ventral margin without a raised or produced heel-like process.....	9

¹This work was supported by the National Science Foundation (Grant NSF #09803).

²Manuscript received March 26, 1966.

- 8' Style with apical foot-like portion with a slightly or distinctly produced heel-like portion. 11
- 9 (8) Style blade at junction with apical foot quite slender, toe long and narrowed apically. 10
- 9' Style blade at junction with apical foot widened, toe portion thicker, more rapidly tapered before apex. *incita* Van Duzee
- 10 (9) Aedeagal paired lateral pieces, in lateral view broadened just before apex then rapidly tapered to pointed apices. *herbida* DeLong
- 10' Aedeagal paired lateral pieces, in lateral view with apical portion narrower, more gradually tapered to a pointed apex. *manifesta* DeLong
- 11 (8') Style with apical heel formed by a distinct protrusion from ventral margin of style. 12
- 11' Style with slight apical heel formed by a concave portion of ventral margin just before apex of style or by the angle between lateral and apical margins of the foot. 14
- 12 (11) Style with toe portion of apical foot short and thick, apical margin of toe more curved. *gelbata* DeLong
- 12' Style with toe portion of apical foot longer, thinner, apical margin of toe more transverse. 13
- 13 (12') Pygofer spine on dorsal apical margin produced and sharp pointed. Blade of style long, especially apical half, and narrow. *transversa* DeLong
- 13' Pygofer spine on dorsal apical margin shorter and with blunter apex. Blade of style shorter, apical portion broader. *kella*, new species
- 14 (11') Style with foot portion thickened at junction with blade of style; heel area slightly bulged and rounded. Color, pale with distinct dark markings. *dictatoria*, Gibson
- 14' Style with foot portion narrower at junction with blade of style; heel indicated by a slight blunt tooth on upper margin. Color, green or yellow without dark color markings. 15
- 15 (14') Style with apical margin of apical foot convexly rounded, toe portion narrow and almost parallel margined. *nelya*, new species
- 15' Style with apical margin of apical foot straighter except for curved tip of toe, not parallel margined. 16
- 16 (15') Style with apical portion of blade elongate and very narrow proximal to apical foot. *lekva*, new species
- 16' Style with apical portion of blade shorter and a little wider proximal to apical foot. *virescens* DeLong

Hamana manifesta DeLong

(Figs. 6–11)

Hamana manifesta DeLong, 1942, p. 86.

In general appearance and coloration resembling a species of *Prairiana* but more closely related to *dictatoria*. Length of male 9 mm.

Crown strongly angularly produced, apex rounded and more than half as long as basal width between eyes.

Color: Yellow with distinct dark markings. Crown with a broad median longitudinal stripe, a round black spot behind each ocellus on posterior margin, and an irregular black blotch before each ocellus. Pronotum with heavy dark markings on anterior half, disc and posterior half marked with brown punctures. Scutellum with basal angles and spots on anterior portion black. Forewings whitish with veins margined with brown and ramose pigment lines beneath the vein margins.

Genitalia: Male style similar to *dictatoria*, but more narrowed throughout; toe of apical portion longer and more sharply pointed and upturned, heel lacking. The aedeagus is also similar, but the paired lateral pieces are more abruptly enlarged near the apices and the pointed apices are more narrowed and curved.

Type: Holotype male from Texas, in the DeLong collection.

Remarks: This species is recorded for Texas only.

Hamana herbida DeLong

(Figs. 12–17)

Hamana herbida DeLong, 1942, p. 88.

Resembling *dictatoria* in general appearance but with a more produced crown and distinct male genitalia. Length of male 9 mm, female 10 mm.

Crown strongly produced and rounded, more than half as long at middle as basal width between the eyes.

Color: Bright green. Disc and apical portion of pronotum with minute black punctures. Veins of forewings bright green, appendices of forewings dark brown.

Genitalia: Female seventh sternum with produced rounded lateral angles. Between these the posterior margin is concavely excavated more than one-third the distance to base either side of a median produced lobe which is broad, convexly rounded to truncated apex, and produced slightly beyond the posterior margin of the lateral angles. Male style similar to *dictatoria*, but with apical portion more narrowed; toe of apex longer, more narrowly pointed, and more curved than either *dictatoria* or *manifesta*; heel lacking. Aedeagus with paired processes enlarged on apical fourth, apices pointed. Median process rather broad, apex pointed.

Type: Holotype male from Tucson, Arizona, in the DeLong collection.

Remarks: Recorded for Arizona only.

Hamana incita (Van Duzee)

(Figs. 18-22).

Gypona incita Van Duzee, 1923, p. 173.

In form and appearance resembling *manifesta*, but with a shorter, more rounded crown, and different coloration. Length of male 9 mm, female 10 mm.

Crown foliaceous, slightly upturned at margin, about one-half as long at middle as basal width between eyes, produced and rounded at apex. Head narrower than pronotum.

Color: Pale brown marked with dark brown spots. A pair on base of crown behind ocelli. Pronotum irregularly marked with dark brown spots. Forewings with veins pale, margined with brown. The portion anterior to claval suture with cells mottled with brown.

Genitalia: Female seventh sternum with two deep, broad U-shaped notches on posterior margin forming a broad median and two lateral lobes. Male plates long, margins parallel, more than twice as long as broad. Style with the apical foot portion with only a slight indication of a heel. The toe is pointed and curved dorsally. Aedeagus with the central shaft shorter than the bladelike lateral portions on each side.

Type: Holotype female from Guaymas, Sonora, Mexico, in the California Academy of Science collection.

Remarks: Recorded for northwestern Mexico and Tucson, Arizona, only.

EXPLANATION OF PLATE I

Hamana dictatoria (Gibson)

- FIGURE 1. Dorsal view of adult.
FIGURE 2. Lateral view of head and prothorax.

Hamana lacteipennis (Fowler)

- FIGURE 3. Dorsal view of head, pronotum and scutellum.

Hamana annulicornis (Van Duzee)

- FIGURE 4. Dorsal view of head, pronotum and scutellum.

Hamana helva sp. n.

- FIGURE 5. Dorsal view of head, pronotum and scutellum.

Figure 1-5 drawn to the same scale.

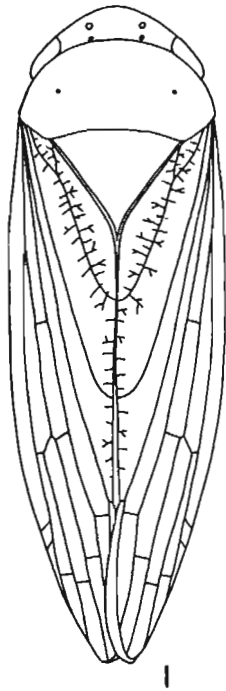
Hamana manifesta DeLong

- FIGURE 6. Ventral view of aedeagus.
FIGURE 7. Lateral view of aedeagus.
FIGURE 8. Lateroventral view of style.
FIGURE 9. Ventral view of plate.
FIGURE 10. Lateral view of pygofer.
FIGURE 11. Female seventh sternum.

Hamana herbida DeLong

- FIGURE 12. Ventral view of aedeagus.
FIGURE 13. Lateral view of aedeagus.
FIGURE 14. Lateroventral view of style.
FIGURE 15. Ventral view of plate.
FIGURE 16. Lateral view of pygofer.
FIGURE 17. Female seventh sternum.

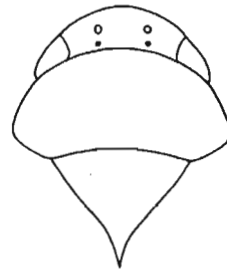
Male structures drawn to the same scale.
Female structures drawn to the same scale.



DICTATORIA

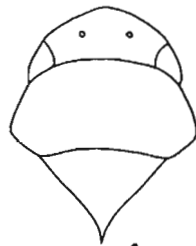


DICTATORIA

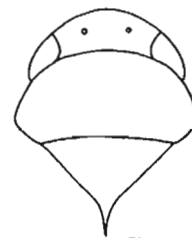


LACTEIPENNIS

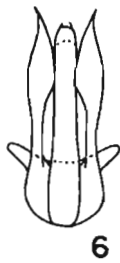
1 mm



ANNULICORNIS



HELVA



6



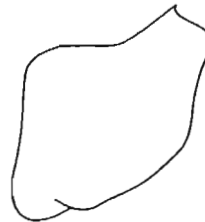
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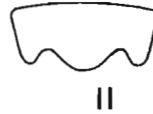
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9



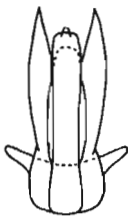
10



11

MANIFESTA

0.5 mm



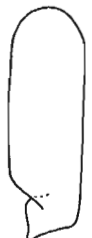
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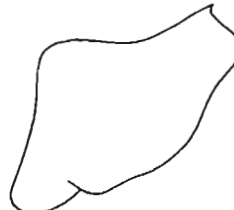
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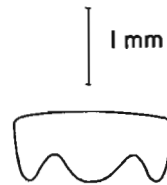
14



15



16



17

HERBIDA

Hamana virescens DeLong

(Figs. 23-28)

Hamana dictatoria var. *virescens* DeLong, 1942, p. 88.

Resembling *dictatoria* in form and general appearance, but shorter, broader, and without coloration. Length of male 9 mm, female 9.5 mm.

Crown broadly rounded, appearing parallel margined, more transverse than *dictatoria*.

Color: Bright green without color markings.

Genitalia: Female seventh sternum deeply concavely excavated between lateral angles and median rounded lobe. Male style strongly narrowed just before apical foot which is short with a blunt toe and a slight heel.

Type: Holotype male from Hermosilla, Sonora, Mexico, in the California Academy of Science Collection.

Remarks: Recorded for Sonora, Mexico, only.

Hamana dictatoria (Gibson)

(Figs. 1-2 and 29-34)

Gypona dictatoria Gibson, 1919, p. 91.

A large yellow to greenish species often marked with black on scutellum and along claval suture. Length of male 9 mm, female 10 mm.

Crown short, broadly rounded, more than twice as wide between eyes at base as median length.

Color: Quite variable, yellow to green, often unmarked. In well-marked specimens with a pair of round black spots on base of crown behind ocelli, a proximal pair on anterior portion of pronotum, and one each side of pronotum on outer portion of disc; brown. Anterior portion of scutellum and sutural margin of forewings to apex of clavus, black.

Genitalia: Female seventh sternum with produced, rounded lateral angles between which the posterior margin is deeply, concavely excavated either side of a broad, rounded median lobe almost one-half the width of the segment and produced to the length of the lateral angles.

EXPLANATION OF PLATE II

Hamana incita (Van Duzee)

- FIGURE 18. Ventral view of aedeagus.
 FIGURE 19. Lateral view of aedeagus.
 FIGURE 20. Lateroventral view of style.
 FIGURE 21. Ventral view of plate.
 FIGURE 22. Lateral view of pygofer.

Hamana virescens DeLong

- FIGURE 23. Ventral view of aedeagus.
 FIGURE 24. Lateral view of aedeagus.
 FIGURE 25. Lateroventral view of style.
 FIGURE 26. Ventral view of plate.
 FIGURE 27. Lateral view of pygofer.
 FIGURE 28. Female seventh sternum.

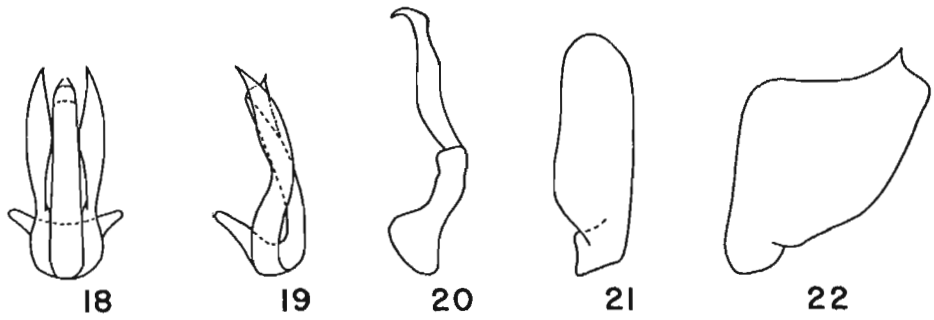
Hamana dictatoria (Gibson)

- FIGURE 29. Ventral view of aedeagus.
 FIGURE 30. Lateral view of aedeagus.
 FIGURE 31. Lateroventral view of style.
 FIGURE 32. Ventral view of plate.
 FIGURE 33. Lateral view of pygofer.
 FIGURE 34. Female seventh sternum.

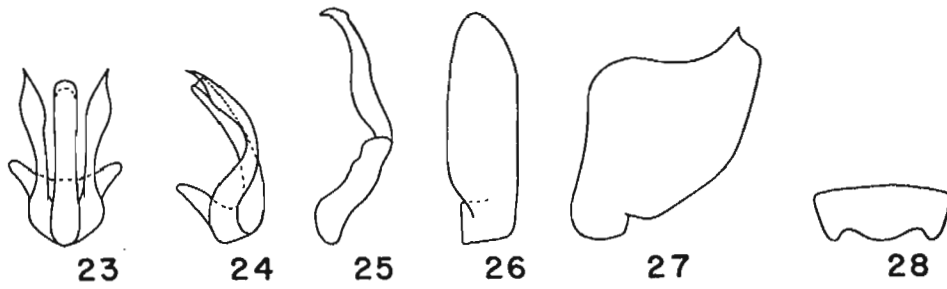
Hamana transversa DeLong

- FIGURE 35. Ventral view of aedeagus.
 FIGURE 36. Lateral view of aedeagus.
 FIGURE 37. Lateroventral view of style.
 FIGURE 38. Ventral view of plate.
 FIGURE 39. Lateral view of pygofer.
 FIGURE 40. Female seventh sternum.

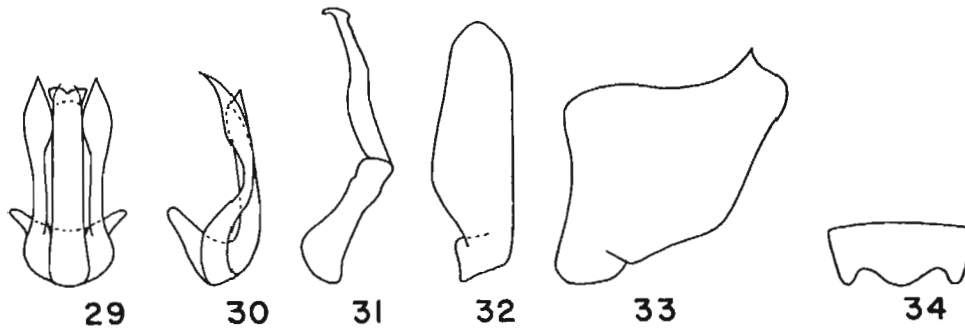
Male structures drawn to the same scale.
 Female structures drawn to the same scale.



INCITA

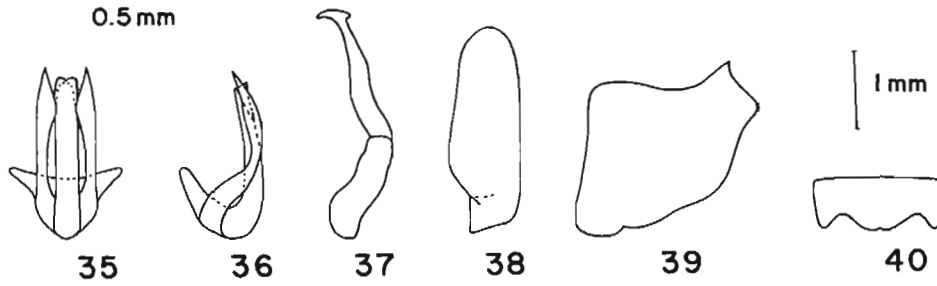


VIRESCENS



DICTATORIA

—
0.5mm



|
1mm

TRANSVERSA

Male style narrowed on apical fourth and terminated in a foot-like structure, with a definite inner heel and the toe extending outwardly. Aedeagus with lateral paired pieces enlarged at apex by inner curved protrusions, apices sharp pointed. Median process broad and bluntly pointed.

Type: Holotype female from Reddington, Arizona, in the U. S. National Museum Collection.

Remarks: Recorded for Arizona only.

Hamana transversa DeLong

(Figs. 35-40)

Hamana transversa DeLong, 1942, p. 90.

In form and general appearance resembling *gelbata*, but with crown shorter and more transverse. Length of male 9 mm, female 9.5 mm.

Crown appearing transverse, broadly rounded but scarcely produced, less than one-third as long as basal width between the eyes.

Color: Yellow to pale brown marked with dark brown and green. Crown with a pair of spots on base, one back of each ocellus. Pronotum with a round black spot about middle behind each eye and irregular spots on anterior portion. Posterior portion with small impressed brownish punctures. Scutellum with basal angles and a pair of spots on disc, brown; clavus of forewing and apical third yellowish marked with brownish irrorations. Basal two-thirds of costa broadly yellowish green; veins of this portion bright green.

Genitalia: Female seventh sternum with the posterior margin rather deeply concavely rounded between the median produced lobe and the narrowly produced lateral angles. Male style with a slight rounded heel on apical foot process. The toe portion is short and blunt at tip. Aedeagus with the central shaft shorter than the pointed lateral portions. Pygofer with a pointed tooth on dorsal apical angle.

Type: Holotype male from Mexico, in the DeLong collection.

Remarks: Recorded for Sonora, Mexico, only.

EXPLANATION OF PLATE III

Hamana gelbata DeLong

- FIGURE 41. Ventral view of aedeagus.
 FIGURE 42. Lateral view of aedeagus.
 FIGURE 43. Lateroventral view of style.
 FIGURE 44. Ventral view of plate.
 FIGURE 45. Lateral view of pygofer.
 FIGURE 46. Female seventh sternum.

Hamana kella sp. n.

- FIGURE 47. Ventral view of aedeagus.
 FIGURE 48. Lateral view of aedeagus.
 FIGURE 49. Lateroventral view of style.
 FIGURE 50. Ventral view of plate.
 FIGURE 51. Lateral view of pygofer.
 FIGURE 52. Female seventh sternum.

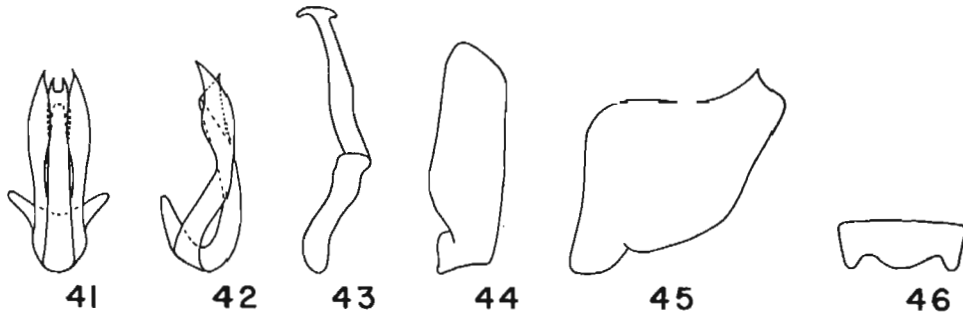
Hamana nelya sp. n.

- FIGURE 53. Ventral view of aedeagus.
 FIGURE 54. Lateral view of aedeagus.
 FIGURE 55. Lateroventral view of style.
 FIGURE 56. Ventral view of plate.
 FIGURE 57. Lateral view of pygofer.
 FIGURE 58. Female seventh sternum.

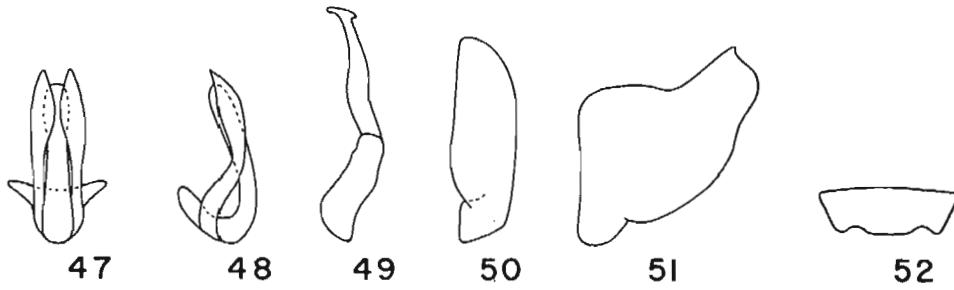
Hamana lekva sp. n.

- FIGURE 59. Ventral view of aedeagus.
 FIGURE 60. Lateral view of aedeagus.
 FIGURE 61. Lateroventral view of style.
 FIGURE 62. Ventral view of plate.
 FIGURE 63. Lateral view of pygofer.
 FIGURE 64. Female seventh sternum.

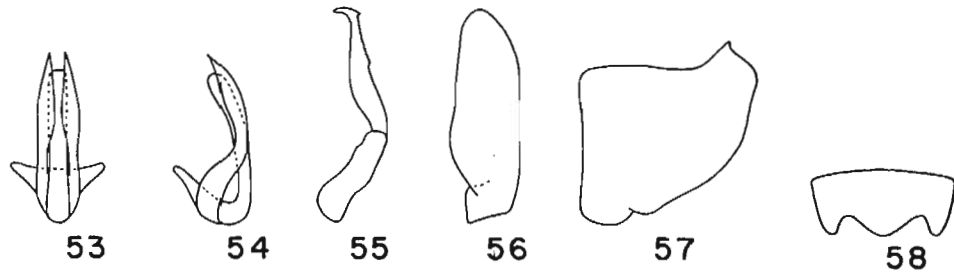
Male structures drawn to the same scale.
 Female structures drawn to the same scale.



GELBATA

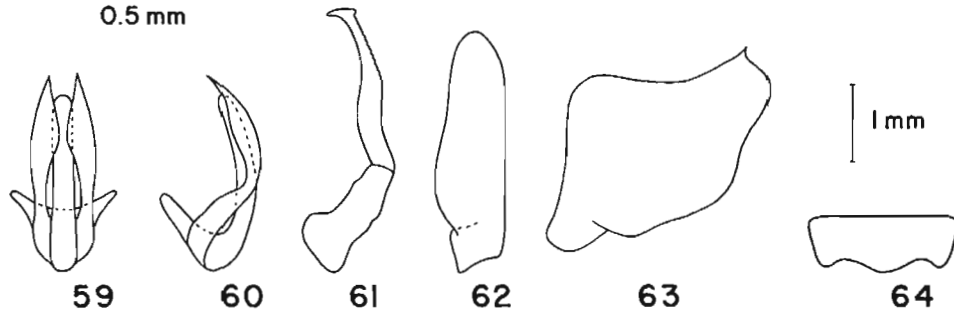


KELLA



NELYA

0.5 mm



1 mm

LEKVA
PLATE III

Hamana gelbata DeLong

(Figs. 41-46)

Hamana gelbata DeLong, 1942, p. 89.

In general appearance resembling *incita*, but with crown almost parallel margined and with a broad yellow marginal band on forewings. Length of male 9 mm, female 9.5 mm.

Crown less than one-half as long at middle as median width between the eyes, anterior margin foliaceous and slightly upturned.

Color: Pale brown marked with dark brown and yellow. Crown rather dark brown with a round black spot on base just back of each ocellus. Anterior margin of pronotum marked with a row of heavy brown spots, posterior portion with numerous punctate brown spots. Pronotum brown. Forewings whitish, veins broadly brown. Cells with dark brown spots. Anterior two-thirds of costal margin broadly white to yellow, veins green.

Genitalia: Female seventh sternum with posterior margin roundedly excavated either side of a broad median lobe and the narrowly produced, rounded lateral angles. Male styles with a short transverse foot at apex, which bears a definite heel. Toe is blunt and shorter than in most of the species of the genus. Central portion of aedeagus shorter than lateral portions, with the apex produced ventrally. Pygofer with a sharp pointed tooth on dorsal apical angle.

Type: Holotype male from Mexico, in the California Academy of Science Collection.

Remarks: In addition to the types, other specimens from Sonora, Mexico, and two from Lower California have been examined.

Hamana kella n. sp.

(Figs. 47-52)

Resembling *transversa* in form and appearance, but with apical spine on pygofer shorter and more blunt. Length of male 9.5 mm, female 10.5 mm.

EXPLANATION OF PLATE IV

Hamana annulicornis (Van Duzee)

- FIGURE 65. Ventral view of aedeagus.
 FIGURE 66. Lateral view of aedeagus.
 FIGURE 67. Lateroventral view of style.
 FIGURE 68. Ventral view of plate.
 FIGURE 69. Lateral view of pygofer.
 FIGURE 70. Female seventh sternum.

Hamana loka sp. n.

- FIGURE 71. Ventral view of aedeagus.
 FIGURE 72. Lateral view of aedeagus.
 FIGURE 73. Lateroventral view of style.
 FIGURE 74. Ventral view of plate.
 FIGURE 75. Lateral view of pygofer.

Hamana hyena sp. n.

- FIGURE 76. Female seventh sternum.

Hamana helva sp. n.

- FIGURE 77. Female seventh sternum.

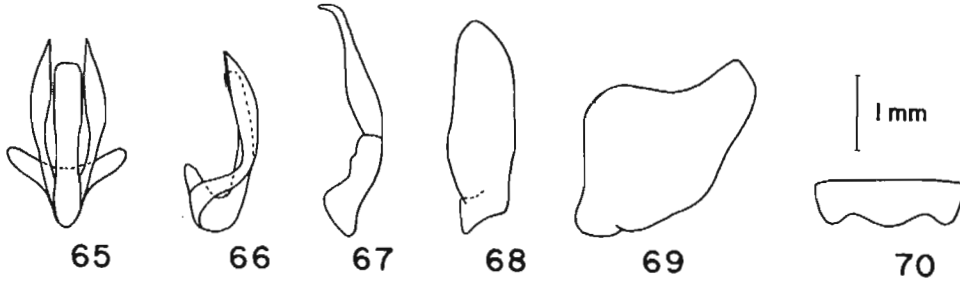
Hamana kolva sp. n.

- FIGURE 78. Ventral view of aedeagus.
 FIGURE 79. Lateral view of aedeagus.
 FIGURE 80. Lateroventral view of style.
 FIGURE 81. Ventral view of plate.
 FIGURE 82. Lateral view of pygofer.

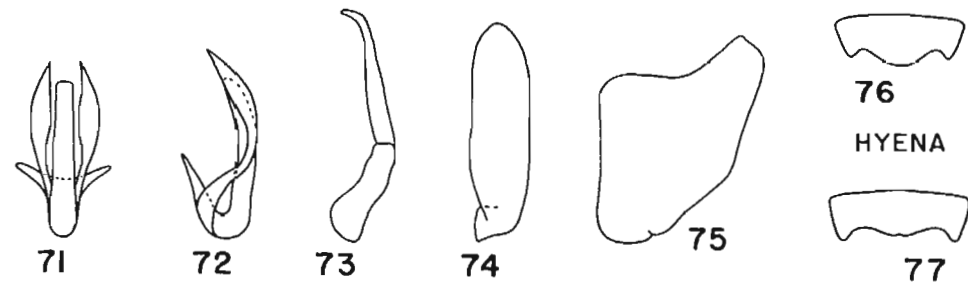
Hamana serrella sp. n.

- FIGURE 83. Ventral view of aedeagus.
 FIGURE 84. Lateral view of aedeagus.
 FIGURE 85. Lateroventral view of style.
 FIGURE 86. Ventral view of plate.
 FIGURE 87. Lateral view of pygofer.

Male structures to the same scale.
 Female structures to the same scale.



ANNULICORNIS

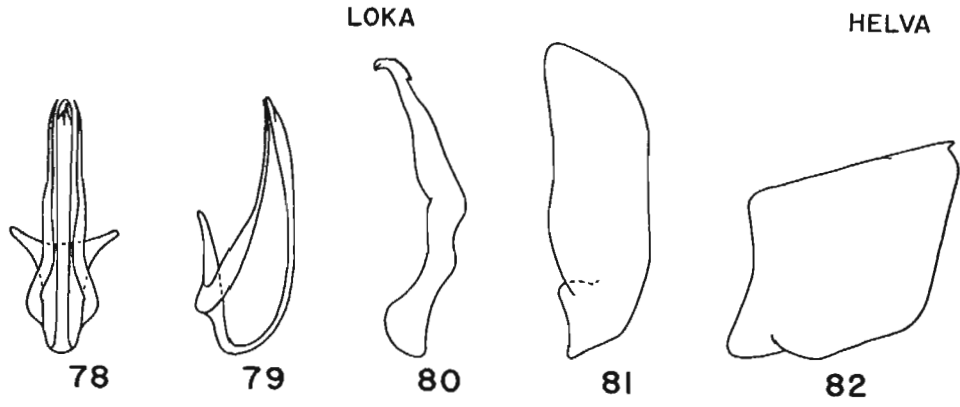


76

HYENA

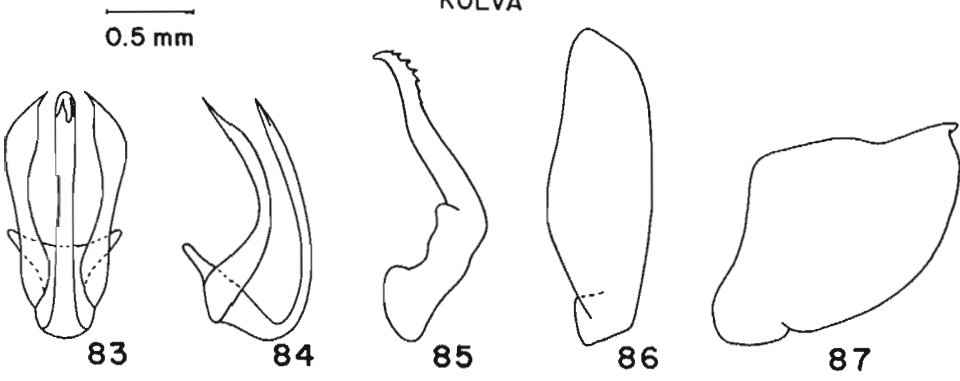
77

HELVA



LOKA

KOLVA



0.5 mm

SERRELLA
PLATE IV

Crown broadly rounded on anterior margin, more than twice as wide between eyes at base as median length.

Color: Buff with dark brown markings. Margin of crown with a black line. A small spot on each side at base and pale blotches around ocelli, brown. Pronotum with a series of brown spots across anterior portion. Posterior portion with small punctate brown dots. Scutellum with a large spot in each basal angle dark brown and paler brown coloring on basal half. Forewings with basal half of costa yellow. Veins pale brown with ramose brown pigment between the veins.

Genitalia: Female seventh sternum with posterior margin slightly excavated between median produced lobe and the slightly produced lateral angles. Male style with a transverse apical foot structure which bears a distinct narrow heel, a short narrow blunt toe; the apical margin is almost truncate. The aedeagal shaft is shorter than the lateral processes and is slightly broadened just before blunt apex. The lateral pieces are broadened on apical half and are bluntly pointed. Pygofer narrowed apically and bearing a short bluntly pointed tooth on dorsal margin near apex.

Type: Holotype male from San Ignacio (15 miles north), Lower California, Mexico, July 26, 1938, Michelbacher and Ross collectors, in the California Academy of Science Collection. Female allotype and paratype, same data as holotype, in the same collection. Paratype male, same data, in the DeLong collection.

Hamana nelya n. sp.

(Figs. 53-58)

Resembling *virescens* in general appearance but with foot-like apex of style longer and more curved. Length of male 9.5 mm, female 10.5 mm.

Crown broadly roundedly produced, more than twice as wide between eyes at base as median length.

Color: Pale dull green without specific color markings. Eyes dark, ocelli pale red.

Genitalia: Female seventh sternum with posterior margin rather deeply excavated each side between median lobe and produced, rounded lateral angles. The median lobe is about as long as the lateral angles. Male style with a terminal foot which bears a slight heel and a bluntly pointed toe. The aedeagal shaft is blunt and shorter than the pointed lateral pieces. Pygofer with a blunt pointed tooth on dorsal surface near apex.

Type: Holotype male labeled "Estero de Sargente 25 Km. S. Desemboque Sonoro Mexico VIII-11-53. Malkin" in the U. S. National Museum Collection. Allotype female labeled "Quitobaquito, Organ Pipe Natl. Mon., Pima Co., Ariz. VI-13-1952" in the American Museum of Natural History Collection. Paratypes: 1 male and 1 female, same as allotype, in the same collection; 1 male and 1 female, Samalayuca Chih., Mexico, Aug. 6, 1950, Ray F. Smith, in the DeLong collection.

Hamana lekva n. sp.

(Figs. 59-64)

A yellowish species resembling *gelbata* in general appearance, but with a more produced head and with different male genitalia. Length of male 9.5 mm, female 11 mm.

Crown roundedly produced, more than twice as wide between eyes at base as median length.

Color: Yellow, tinged with green, without dark markings. Eyes and ocelli pale red.

Genitalia: Female seventh sternum with posterior margin broadly excavated either side between the broad median lobe and the rounded lateral angles. The median lobe is slightly longer than the lateral angles. Male style with apical third narrowed just before the apical foot, which is transverse, bearing a slight heel and a bluntly pointed toe. Aedeagus shaft shorter than the bluntly pointed lateral blades. Pygofer with a short pointed spine on dorso apical margin.

Type: Holotype male from San Fernando, Lower California, July 31, 1938; allotype female from San Bartolo, Lower California, July 13, 1938, and paratype female from Miraflored, California, July 10, 1938, in the California Academy of Science Collection. Male paratype from Calavina, Lower California, July 29, 1938, in the DeLong collection.

Hamana annulicornis (Van Duzee)

(Figs. 4 and 65-70)

Gypona annulicornis Van Duzee, 1923, p. 176.

A yellowish green species resembling *dictatoria* in general form. Length of male 8 mm, female 8.5 mm.

Crown produced and rounded, foliaceous, and upturned at margin. About twice as long at middle as next to the eyes, a little more than one-third as long at middle as basal width between eyes.

Color: Pale yellowish green, posterior disc of pronotum punctate with green. Forewings whitish, veins dark green.

Genitalia: Female seventh sternum rather broadly excavated each side on posterior margin between median lobe and the produced lateral angles. Male style narrowed and rounded on ventral margin to a foot-like apex which is short, tapered to a pointed tip, and devoid of a heel. The lateral paired blades of the aedeagus are inflated on the apical half. The shaft of aedeagus is broad and blunt at apex. Pygofer without a spine or tooth on dorsal apical angle.

Type: Holotype male from San Jose Island, Gulf of California, in the California Academy of Science Collection.

Remarks: In addition to the type from San Jose Island, several specimens from Lower California have been studied.

Hamana loka n. sp.

(Figs. 71-75)

Resembling *annulicornis* in form and general appearance, but with toe of style more elongate. Length of male 10 mm.

Crown rounded anteriorly and produced, not quite twice as wide between eyes at base as median length.

Color: Buff with brown markings. Crown with pale markings just above margin, in front of ocelli, and a darker spot on each side at base. A series of small brown spots along anterior margin of pronotum. Scutellum, except apical angle, tinted with brown, with two darker spots in basal angles. Forewings with veins pale, margined with punctate brownish spots. Brownish mottling and spots between the veins.

Genitalia: Male style gradually and gently narrowed on apical half of blade then curved to form a long slender bluntly pointed toe portion of a foot-like apex which has no heel. Aedeagal shaft shorter than lateral portions, rather broad and truncate at apex. The lateral pieces are broadened on apical two-thirds, then tapered to sharp pointed apices. Pygofer narrowed on apical half but without a spine or tooth.

Type: Holotype male from Triunfo (6 miles north), Lower California, July 15, 1938, Michelbacher and Ross collectors, in the California Academy of Science Collection. Paratype male, same locality and date, in the DeLong collection.

Hamana hyena n. sp.

(Fig. 76)

Resembling dark specimens of *gelbata* in general form and coloration, but with median lobe of female genital segment wider and more produced than in *gelbata*. Length of female 9.5 mm.

Crown broadly rounded, more than twice as broad as median length.

Color: Buff, heavily marked with dark brown. Crown mostly dark, a pale area just back of margin next to each eye and a pale area which contains a small brown spot at base on either side. Pronotum with dark spots and blotches on anterior half and small punctate markings on disc and posterior portion. A large brown spot in each basal angle of scutellum. Forewings with anterior claval area yellow. Veins brown between which the wings are white with small brown spots. A black line on margin of crown. Face pale with darker arcs.

Genitalia: Female seventh sternum with posterior margin roundedly excavated on each side between a large median lobe and a narrow produced lateral angle. The median lobe is

about two-thirds the width of the segment and produced beyond the length of the lateral angles.

Type: Holotype female from Comodu, Lower California, July 23, 1938, in the California Academy of Science Collection.

Remarks: The female genital segment seems sufficiently different to warrant the description of this holotype.

Hamana helva n. sp.

(Figs. 5 and 77)

Resembling *gelbata* in form and general appearance, but with a different female seventh sternum. Length of female 9.5 mm.

Crown more than twice as wide between eyes at base as median length, broadly roundedly produced.

Color: Greenish yellow without dark markings. The eyes and ocelli are reddish.

Genitalia: Female seventh sternum with posterior margin broadly and rather shallowly excavated on either side between the central broad lobe and the narrow, produced, lateral angles. The median lobe is about two-thirds the width of the seventh sternum, broad and not produced to the length of the lateral angles.

Type: Holotype female from Maria Madre Island Village, May 2, 1925, Tres Marias Islands, H. H. Keifer, Collector, in the California Academy of Science Collection. Paratypes: Two females from the same locality and date, one each in the California Academy of Science Collection and the DeLong collection.

Hamana kolva n. sp.

(Figs. 78-82)

Resembling *lacteipennis* in form and general appearance, but differing from it by the terminus of the style and the slender aedeagal processes. Length of male 11.5 mm.

Crown broadly rounded, twice as wide between eyes at base as median length.

Color: Yellow tinged with green, without definite markings.

Genitalia: Male style narrowed gradually near apex, then curved on ventral margin into a foot-like process with the heel on the ventral side cephalad to the concave portion on the dorsal side to form the blunt rounded toe. The aedeagal shaft is about as long as the lateral portions, slender, cleft at apex to form two terminal pointed tips, one distinctly longer than the other. The lateral portions are slender, tapered on apical half to form sharp pointed tips. Pygofer with a short dorso caudal finger-like process which extends caudally.

EXPLANATION OF PLATE V

Hamana valeka sp. n.

- FIGURE 88. Ventral view of aedeagus.
 FIGURE 89. Lateral view of aedeagus.
 FIGURE 90. Lateroventral view of style.
 FIGURE 91. Ventral view of plate.
 FIGURE 92. Lateral view of pygofer..

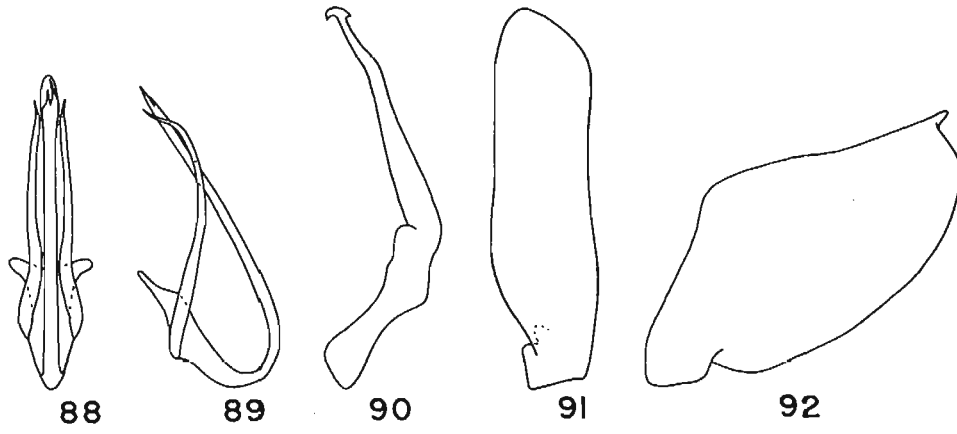
Hamana nemella sp. n.

- FIGURE 93. Ventral view of aedeagus.
 FIGURE 94. Lateral view of aedeagus.
 FIGURE 95. Lateroventral view of style.
 FIGURE 96. Ventral view of plate.
 FIGURE 97. Lateral view of pygofer.

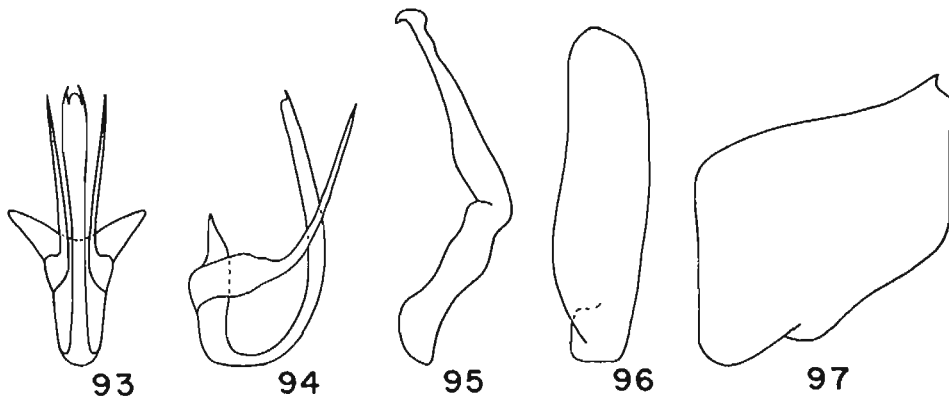
Hamana lacteipennis (Fowler)

- FIGURE 98. Ventral view of aedeagus.
 FIGURE 99. Lateral view of aedeagus.
 FIGURE 100. Lateroventral view of style.
 FIGURE 101. Ventral view of plate.
 FIGURE 102. Lateral view of pygofer.

All drawn to the same scale.

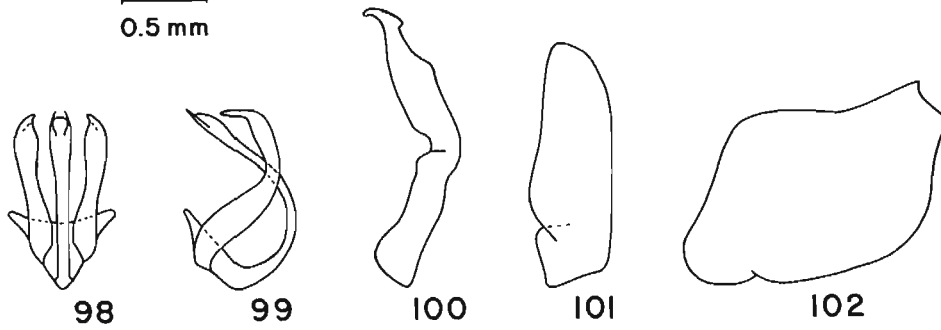


VALEKA



NEMELLA

0.5 mm



LACTEIPENNIS

Type: Holotype male from Cuautla, Morelos, Mexico, Sept. 2, 1937, R. Ruiz Soto coll., in the DeLong collection. **Paratypes:** 1 male, Zinitzcuaro, Gro., Mexico, Rio Balsas, 9-2-1930, A. Dampf coll.; 1 male, Iguala, Gro., Mexico, October 25, 1941, DeLong, Good. Caldwell, and Plummer collectors, both in the DeLong collection; 1 male labeled "Mexico, R. L. Miller collector" in the U. S. National Museum Collection.

Hamana serrella n. sp.

(Figs. 83-87)

Resembling *lacteipennis* in form and appearance, but with style serrate on ventral apical margin. Length of male 11.5 mm.

Crown broadly rounded, appearing almost parallel margined, about two and one-half times as broad between eyes at base as median length.

Color: Yellowish green with forewing appendix brownish. Eyes dark, ocelli pale reddish.

Genitalia: Male style gradually tapered at tip only, to form a curved bluntly pointed apex which curves dorsally. The apical fourth of the blade serrate on ventral margin. Aedeagal shaft about as long as the paired lateral portions and cleft at apex, forming two sharp pointed tips. Lateral pieces broadened on apical half, then tapered to sharp pointed apices. Pygofer with a dorso caudal, blunt, finger-like process which extends caudally.

Type: Holotype male, Apatzingan, Mich., Mexico, August 13, 1941, 1200 ft. elevation, Hoogstraal collector. **Paratypes,** 2 males, same locality and date. Holotype and paratypes in the DeLong collection.

Hamana valeka n. sp.

(Figs. 88-92)

Resembling *lacteipennis* in form and general appearance, but with a long slender style and without sunken tooth at tip of aedeagal shaft. Length of male 12.5 mm.

Crown broadly rounded, almost twice as wide between eyes at base as median length.

Color: Yellow tinged with green, appendix of forewing usually smoky or brownish.

Genitalia: Male style long, narrow, with a foot-like enlargement at apex. The foot has a distinct heel, the apical margin is strongly, convexly curved and the inner margin is concavely curved, forming a sharp pointed toe which extends cephalad. The aedeagal shaft is cleft at apex forming one longer and one shorter pointed terminal process. It is longer than the two lateral pieces, which are slender and sharp pointed. The pygofer bears a dorso caudal blunt finger-like process.

Type: Holotype male, Uruapan, Mich., Mexico, August 1939, in the DeLong collection. **Paratypes:** 1 male, Uruapan, Mich., Mexico, 1610 m., July 24, 1947, T. H. Hubbell, in the University of Michigan Collection; 4 males, Real de Arriba, Temescaltepec, Mexico, May 25, 1953, H. E. Hinton and R. L. Usinger collectors, in the DeLong collection and the California Academy of Science Collection.

Hamana nemella n. sp.

(Figs. 93-97)

Resembling *lacteipennis* in form and appearance, but distinguished by a sunken lobe at apex of aedeagal shaft. Length of male 12 mm.

Crown with anterior margin broadly rounded, more than twice as wide between eyes at base as median length.

Color: Yellow without definite markings.

Genitalia: Male style narrowed on apical half of blade just before apical foot-like process. The heel is broadly rounded, the apical margin is strongly curved, and the toe is bent forward and bluntly pointed. The aedeagal shaft is broadened on apical third and is excavated at tip, forming a slender pointed process on each side of a median sunken tooth which is broad and broadly rounded. The lateral pieces are slightly shorter than aedeagal shaft, slender and sharply pointed at apices. Pygofer with a short pointed spine on dorsal margin near apex.

Type: Holotype male from Chiapas, Mexico, near Los Amates. May 22, 1964, R. E. Woodruff collector, in the U. S. National Museum collection.

Hamana lacteipennis (Fowler)

(Figs. 3 and 98-102)

Gypona lacteipennis Fowler, 1903, p. 299.

A greenish, robust species with a well produced head. Length of male 11 mm, female 12 mm.

Crown produced, rounded at apex, slightly more than twice as wide between eyes at base as median length. Ocelli large, a little closer to median line than to eyes. Pronotum broadened beyond eyes, humeral angles conspicuous.

Color: Bright green. Ocelli orange. Forewings subhyaline with veins green and white or greenish blotches between veins.

Genitalia: Female seventh sternum with prominent lateral angles which are rounded. Between these the posterior margin is rather deeply excavated either side of a broad median produced rounded lobe which occupies the median third of the sternum and is not produced to the length of the lateral angles. Male styles rather short and broad in lateral view, narrowed just before apical foot, which is strongly curved on apical margin and which bears a slight heel and a short blunt toe. The aedeagal shaft is long and excavated at middle, and bears a rounded sunken tooth. The paired lateral portions are short, broad, and bluntly pointed at apex. The pygofer is not narrowed apically and bears a pointed tooth on dorsal margin near apex.

Type: A male specimen in the type series from Chilpancingo, Guerrero, Mexico, in the British Natural History Museum, is here designated the lectotype.

Remarks: Recorded for Guerrero, Sonora, Colima, Oaxaca, and Michocan, Mexico.

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