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THE CYDNIDAE AND PENTATOMIDAE OF CUBA *

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The present paper is based largely on specimens in the collections of the Cuban Agricultural Experiment Station at Santiago de las Vegas and of the junior author, together with specimens in the Dr. Juan Gundlach collection which is housed in the Instituto de Segunda Enseñanza de la Habana. A close examination of the specimens in the latter has not been possible as they are preserved in sealed, glass-topped boxes from which they can not be removed for study. The species in the collection of Gundlach were named in 1883 by Professor Philip R. Uhler according to a note in the preface of his catalogue which was never published. This catalogue includes the names and synonymy of the species where known, the localities where collected, and the numbers assigned to each species both in his collection and in that of his contemporary, the Cuban naturalist Don Felipe Poey. In 1910 Dr. Pedro Valdés Ragués published a list of species in the Gundlach collection under the title "Clasificación Gundlach de Hemípteros Cubanos, Conforme a los ejemplares que Existen en el Museo del Instituto de 2a. Enseñanza de la Habana" (Anales de la Academia de Ciencias Médicas, Físicas y Naturales de la Habana, XLVI, 425-446). As noted in a copy of this list referred to later, many of the names are misspelled, so much so that some of them are scarcely recognizable. In addition to the collections of Cuban Pentatomidae mentioned above we have been able to add other species and much additional data from material in the U. S. National Museum, the Museum of Comparative Zoology, and the American Museum of Natural History. We have also frequently referred to the important article by Mr. F. E. Guérin-Méneville published in 1857 in Ramón de la Sagra Histoire Physique, Politique et Naturelle

* *Editor's Note:* The paper here published includes a number of species widely distributed in the West Indies and known also to occur in Puerto Rico. The economic importance of these stink-bugs makes the accurate diagnoses and the keys for determination of the species included of great value to all West Indian workers. This study furnishes an important comparison to a comprehensive paper now in preparation by Mr. Barber on the Heteroptera for the Scientific Survey of Puerto Rico and the Virgin Islands which includes the two families here treated.

de l'Isle de Cuba, Animaux Articulés a Pieds Articulés 359-377, in which a number of new species are described. Appended to our treatise we have arranged in parallel columns the two lists of Cuban Pentatomidae as given by Guérin and Ragués, and in the third column our determination. The illustrations were made by the senior author.

The abbreviations adopted are as follows: Est. Exp. Agron. for Estación Experimental Agronómica, Cuba; M. C. Z. for Museum of Comparative Zoology; U. S. N. M. for U. S. National Museum; A. M. N. H. for American Museum of Natural History.

The full names of the various collectors to whom credit is due are as follows: J. Acuña, C. H. Ballou, B. T. Barreto, P. Betancourt, L. Bouclé, S. C. Bruner, P. Cardín, C. Enamorado, W. T. Horne, J. H. Houser, J. C. Hutson, Frederick Knab, G. Link, W. M. Mann, Harold Morrison, J. G. Myers, A. Otero, S. Plá, H. K. Plank, Hermano Roberts, George Salt, L. C. Scaramuzza, E. A. Schwarz, F. Silvestri, G. F. Stahl, and G. N. Wolcott.

Types and paratypes of the new species are deposited in the U. S. National Museum and paratypes in the collection of the Cuban Agricultural Experiment Station at Santiago de las Vegas.

KEY TO CUBAN FAMILIES AND SUBFAMILIES OF PENTATOMOIDEA *

1. Tibiae distinctly spinose or spinulose, rarely setose. Only five visible dorsal segments in connexivum of abdomen (excluding genital segments). First ventral segment of abdomen, at least outwardly, entirely or almost entirely covered by the expanded margin of the metapleurum-----Fam. *Cydnidae* 2
- Tibiae not distinctly spinose or spinulose, sometimes provided with setulae. Connexivum of abdomen provided with six dorsal segments (excluding genital segments). First ventral segment of the abdomen not entirely covered by the metapleurum-----Fam. *Pentatomidae* 3
2. Scutellum much expanded, U-shaped, nearly covering abdomen. Corium for the most part membranous and concealed; frena very short; exposed chitinous part narrow. Tibiae sometimes spinulose---Subfam. *Thyreocorinae*
- Scutellum of moderate size, somewhat triangular, not reaching to apex of abdomen. Clavus and corium not concealed beneath scutellum; frena long. Tibiae commonly more strongly spinose (except *Scaptocoris*)-----Subfam. *Cydninae*
3. Scutellum expanded, U-shaped, nearly or quite reaching apex of abdomen. Chitinized part of corium exposed at base only or along narrow costal margin-----4
- Scutellum of moderate size, commonly triangular, rarely U-shaped or reaching apex of abdomen; in the latter case the entire corium and clavus free. Subcostal and median veins set close together and parallel in Cuban species-----6

* This key is intended only for differentiation of Cuban forms.

4. Fore wings very long, when expanded almost twice as long as abdomen; chitinized costal margin constricted and thinned at the middle point. Odoriferous orifice of the metapleurum minute, devoid of a canal and surrounding, dull, evaporating area. Antennae with only four segments. Tarsi with two segments-----Subfam. *Megaridinae*.
Fore wings not much longer than abdomen, when expanded; chitinized costal margin complete, not constricted in the middle. Odoriferous orifice distinct; canal present or absent. Tarsi three segmented----- 5
5. Median and subcostal veins of hind wings more or less distant and diverging, enclosing a wide median area; hamus often present. Scutellum nearly covering abdomen in Cuban species-----Subfam. *Scutellerinae*.
Median and subcostal veins of hind wings set close together and nearly parallel; hamus absent. Scutellum not entirely covering abdomen in Cuban species; corium in part membranous----Subfam. *Graphosomatinae*.
6. Venter of abdomen provided with six visible spiracles on each side, first not covered by the expanded margin of the metapleurum. Rostrum short, commonly not extended to middle coxae. Mesosternum provided with a very strongly elevated carina prolonged anteriorly from a flat metasternal plate-----Subfam. *Tessaratominae*.
Venter of abdomen with five visible spiracles on each side, the first entirely or almost entirely covered by the expanded margin of the metapleurum--- 7
7. Bucculae nearly parallel or slightly diverging, not distinctly united posteriorly. Basal segment of rostrum commonly not free but confined in the rostral groove between the bucculae; rostrum commonly slender-----
-----Subfam. *Pentatominae*.
Bucculae converging and united posteriorly. Basal segment of rostrum enlarged and free from rostral groove, except at base; rostrum commonly thickened-----Subfam. *Asopinae*.

Family CYDNIDAE

Subfamily THYREOCORINAE

KEY TO CUBAN GENERA OF THE SUBFAMILY THYREOCORINAE

1. Pronotum and scutellum (seen from the side) not forming together a uniform continuous curve. Costal margin of corium not longitudinally impressed, calloused. Head subtriangular, rather convex. Eyes more or less prominent beyond margins of head-----*Eucoria* M. and R.
Pronotum and scutellum (seen from side) forming together a uniform continuous curve. Costal margin of corium longitudinally impressed. Eyes not prominent. Coriaceous part of fore wings not acute at apex but broadly truncate or obtusely rounded. Head more bluntly rounded anteriorly and rather flattened-----*Euryscyrtus* Horv.

Eucoria minuta (Uhler)

1863. Uhler, Proc. Ent. Soc. Philad. II: 155.

Santiago de las Vegas; El Faaile, Pen de Guanahacabibes (Bruner); Camagüey (Acuña); Baracoa, Ote. (Bruner and Bouclé);

Sto. Tomás, Pen de Zapata (Bruner and Acuña); Nueva Gerona in Isle of Pines (Bouclé)—Est. Exp. Agron. "Cuba"—U. S. N. M.

Originally described from Cuba and a fairly common species in other West Indian Islands. It is a small species, only about 2-2.5 mm. long, quite dull and closely punctate, with a bright orange costal margin.

Euryscythus incerta (Uhler)

1863. Uhler, Proc. Ent. Soc. Philad. II: 156.

Santiago de las Vegas (Cardín, Otero, and Bruner)—Est. Exp. Agron. "Cuba"—U. S. N. M.

Cuba is likewise the type locality of this species. It is a little larger than the preceding species, quite shiny and rather sparsely punctate. The exposed costal margin is ochraceous-red interrupted by a fuscous spot beyond the middle point.

Euryscythus guttiger (Stal)

1862. Stal, Stett, Ent. Zeit. XXIII: 94.

Santiago de las Vegas (Bruner); Camagüey (Acuña)—Est. Exp. Agron. San Carlos Estate, Guantánamo—A. M. N. H. Mina Carlota, Trinidad Mts. (Myers)—M. C. Z.

Described from Mexico and found occasionally in Cuba. It is nearly 4 mm. long. The head is very broad and rounded in front, about twice as wide as long, and very finely punctured; the scutellum is short and relatively narrow, leaving exposed most of the corium, which is broad and truncate at apex. A large pale yellow patch occupies the base of the corium. This is evidently the species referred to by Guérin in La Sagra, Hist. de Cuba, Ins., 364 as *Scutellera* (*Corimeloena*) *basalis* Germár.

Subfamily CYDNINAE

KEY TO CUBAN GENERA OF SUBFAMILY CYDNINAE

1. Anterior tibiae sickle shape and flattened; tarsus inserted before apex of tibia. Rostrum short, not surpassing anterior coxae; second segment swollen. Margins of head devoid of spines and setae, more or less crenulate. Apex of scutellum bluntly rounded. Posterior femora and tibiae short and incrassate, with the latter truncated at apices *Scaptocoris* Perty
Anterior tibiae normal, fossorial; tarsus inserted at apex of tibia. Rostrum much surpassing anterior coxae. Posterior tibia elongate, somewhat cylindrical.----- 2
2. Odoriferous orifice terminating in a long, distinctly elevated canal. Margins of head armed with comb-like teeth or spines. Two clavi of the fore wings meeting behind scutellum to form a commissure. Scutellum acute at apex
-----*Amnestus* Dallas

- Odoriferous orifice not terminating in a long distinct canal, set beneath an overhanging ledge. Two clavi of fore wings not meeting behind scutellum, devoid of a commissure. Scutellum not acute at apex. Anterior submargin of pronotum not transversely impressed----- 3
3. Submargins of head deeply grooved and beset with slender, acute spines and long setae-----*Aethus* Dallas.
- Submargins of head neither deeply grooved nor armed with spines----- 4
4. Outer end of the short odoriferous canal flaring or expanded in the form of a concave lobe-----*Geotomus* M. and B.
- Odoriferous orifice set in a preapical notch of the overhanging ledge, not flaring or expanded exteriorly-----*Geocnethus* Horv.

Scaptocoris terginus Schioedte

1849. Schioedte, Kroy. Nat. Tidskr. II: 460.

1881. Signoret, Ann. Soc. Ent. Fr., p. 42; Pl. I, Fig. 3.

A South American species recorded by Signoret from Cuba. There is a specimen from the island of Trinidad in the National Museum collection but none from Cuba.

Aethus communis Uhler

1877. Uhler, Bull. U. S. Geol. Geogr. Surv. III: 379.

1882. Signoret, Ann. Soc. Ent. Fr. (6) II: 35, Pl. 2, Fig. 76.

Taco Taco (Bruner, Acuña, and Ballou); Santiago de las Vegas (Barreto); Havana (Bruner); Península de Guanahacabibes, Pinar del Rio (Bruner)—Est. Exp. Agron. Cayamas (Schwarz), Baraguá (Scaramuzza)—U. S. N. M.

Described by Uhler from our southern states and Cuba. It is black, about 6-7 mm. long, with the bluntly rounded head provided on each side with 10-11 short submarginal spines and several long setae. The pronotum is almost impunctate and provided with a submarginal row of 16-18 long setae; costal margin of the hemielytra furnished with about six long setae.

Aethus indentatus (Uhler)

1887. Uhler, Bull. U. S. Geol. Geogr. Surv. III: 380.

1882. Signoret, Ann. Soc. Ent. Fr. (6) II: 38, pl. 2, Fig. 80.

Santiago de las Vegas (Barreto, Acuña, and Bruner)—Est. Exp. Agron. Soledad and Mina Carlota (Myers)—M. C. Z. Cabanas, Pinar del Rio—A. M. N. H. Cayamas (Schwarz)—U. S. N. M.

Described from Cuba and southern Florida. Much smaller than the preceding species. It has a few spines on each lateral lobe of the head (5-6), five setae on the lateral margin of the pronotum, and but a single setigerous puncture on the coastal margin. The males have the anterior disk on the pronotum quite plainly depressed.

Geocnethus Horvath

1919. Horvath, Ann. Mus. Nat. Hung. XVII: 245.

Closely related to *Geotomus* in which genus Signoret placed several species which Horvath remarks belong to *Geocnethus*. The submargin of the head is neither deeply impressed nor armed with spines; eyes posteriorly with a single fine horizontal seta; entire lateral margin of pronotum impressed; odoriferous orifice lying preapically in a semicircular notch at the posterior margin of the broad, elevated ridge which terminates abruptly about midway on the pleurum; first and second segments of the posterior tarsus together much longer than third segment. Hussey (Jn. N. Y. Ent. Soc. XXXIII: 63, 1925) has further diagnosed this genus in which he includes *Geocnethus cavicollis* Blatch, from Florida.

Geocnethus cubensis, new species

Black, shining; subcostal area of corium, femora, and tibiae castaneous; antennae, rostrum, and tarsi testaceous.

Head one-third wider than long, evenly semicircularly rounded in front; tylus as long as juga; edge smooth, calloused, not impressed or reflected; surface impunctate; base of tylus and juga faintly wrinkled, each of the latter provided with three long erect setae situated as follows: one near the center just before the middle, one near lateral margin just before the eye, and the third midway near inner margin of eye; also a submarginal pair below head projecting anteriorly; vertex somewhat elevated; ocelli five or six times as remote from each other as each is distant from eye; ocular seta short. Bucculae evenly elevated, reaching base of head, distinctly punctate. Rostrum with apex extending to middle of intermediate coxae; second and third segments nearly equal; fourth one-third shorter. Antennae with more slender second segment a little longer than third; last three segments finely pilose, somewhat more incrassate; fourth and fifth nearly equal, each one-third longer than third. Pronotum with the lateral margins gently rounding, the edge narrowly impressed throughout; submargin provided with five setigerous punctures, three anteriorly and two just behind the middle; dorsal surface smooth; anterior submargin in female distinctly depressed; nearly impunctate, a setose puncture near each anterior angle; a cluster of three or four near anterior margin directly back of ocelli; a few punctures across the disk behind the middle where it is not at all impressed. Scutellum one-fifth longer than wide; apical sixth narrow, rounded at apex; narrowly depressed and with a linear row of punctures along margins; smooth across basal portion preceded by a row of punctures at extreme depressed basal margin; disk very sparsely coarsely punctate. Hemelytra with clavus provided with a single row of coarse punctures; corium with a single row of punctures paralleling the claval suture, with another incomplete row paralleling these becoming obsolete posteriorly; disk of mesocorium otherwise impunctate; subcostal nerve linearly punctate on each side; subcostal region (exocorium) impunctate, narrow at basal fourth, thence gradually widening posteriorly where it is subparallel to costal margin; edge of costa with two widely separated setigerous punctures. Membrane sordid white, clouded with fuliginous towards base. Pleura

almost impunctate; mesosternum carinate; metapleural odoriferous orifice as discussed in generic diagnosis. Legs with anterior coxae setose at apices; anterior femora somewhat incrassate, flattened below, with five or six minute setose tubercles along anterior lower edge and from four to five long setae along the posterior edge; anterior tibiae outwardly armed with five to six spines, increasing in length apically, inwardly armed with a single long preapical spine and several more at apex; intermediate and posterior femora somewhat compressed, sparsely setose, and armed below with a row of fine short spines, tibiae cylindrical, uniformly long-spinose; basal segment of posterior tarsus nearly twice as long as the apical two united. Venter smooth, nearly impunctate; second abdominal segment at base distinctly and apical margins of segments 2-4 faintly carinulate; segments 2-6 laterally provided with two long setose hairs; lateral margin of sixth segment just behind middle armed with a bristle or slender spine. Male hypopygium (seen from below) obtusely rounded, entire. Length 6 mm.

Type, male: Cayamas, Apr. 3 (E. A. Schwarz)—U. S. N. M.
Paratype, female: Sierra Rangel, Aug. 28, 1929 (J. Acuña and S. C. Bruner)—Est. Exp. Agron. Cat. No. 44043, U. S. N. M.

This has been wrongly determined as *Pangaeus piceatus* Stal and probably is the species so labeled in the Gundlach collection. What we have taken as the paratype differs in several respects from the type as follows: the pronotum just back of the anterior margin has distinct transverse depression, about as long as the space between the ocelli, and a distinct setigerous pit just in front and near the outer limits of this depression; the disk behind the middle has several faint transverse furrows; the sides of the venter are provided with a cluster of small punctures before and behind each spiracle.

Geocnethus reversus new species

Plate XXV, Fig. 1

Black, highly polished. Antennae and rostrum embrowned; tarsi testaceous, remainder of legs castaneous.

Head bluntly, semicircularly rounded; three-sevenths wider than long; lateral submargins lightly impressed and very slightly reflexed; tylus contracted anteriorly; surface of lateral lobes irregularly, faintly wrinkled and very sparsely punctate; each of these provided with six long erect setae placed as follows: four along the submargin, one anteriorly in the center of the lobe and another near the inner margin of the eye, all set in enlarged pits; ocelli five times as far apart as each is removed from eyes; ventral submargin with two long, porrect setae. Antennae 1.44 mm. long, apex of basal segment just visible beyond margin of head; relative lengths of the segments as follows: I, .24; II, .2; III, .24; IV, .36; V, .4 mm. Rostrum reaching to middle coxae, second segment a little longer than third, fourth one-third shorter than third. Pronotum about three-sevenths wider than long; lateral margins, seen from above, gently rounding anteriorly; submargin beset with five long setae; anterior disk impunctate, laterally coarsely and sparsely punctate; anterior submargin furnished with a transverse series of 14-19 coarse punctures, terminating back of each eye

in a prominent setigerous pit, another setigerous pit at each anterior angle; a transverse row of coarse punctures a little behind middle, with a few scattered ones behind this on the central disk. Scutellum one-seventh longer than wide, smooth anteriorly, sparsely and coarsely punctate posteriorly; a line of closely set punctures along the margins. Corium with two rows of punctures paralleling the claval suture; mesocorium anteriorly with a short, longitudinal row, elsewhere with a few scattered punctures; subcostal region and outer apical angles rather closely punctate; costal margin with two widely separated setigerous punctures. Membrane lightly infumed. Ventral segments smooth, with a few punctures about the spiracles; anterior margin of segments furnished with a line of punctures (carinulate). Anterior femur and tibia as shown in the drawing. Length 5 mm.; humeral diameter 2.5 mm.

Type male: Mayagüez, Puerto Rico, IX, 10, 1930 (Coll. by L. L. Martorell). *Paratype, male*: Mayagüez, Puerto Rico, IX, 15, 1930 (Coll. by A. Suro); *Paratype, female*: 1 Isabella, Puerto Rico, IV, 14, 1930 (Coll. by M. D. Leonard at light); 1 Río Piedras, Puerto Rico, XII, 21, 1911; 2 Cayamas, Cuba (Coll. by E. A. Schwarz). All in the collection of the U. S. National Museum. Cat. No. 44044, U. S. N. M.

This is about the size and general appearance of *Aethus indentatus* Uhler, with which it has been confused. The absence of marginal spines of the head and the character of the punctuation of the pronotum will serve to differentiate it. It is somewhat smaller than *G. cubensis* n. sp. with relatively much shorter antennae, the anterior submargin of pronotum and corium more profusely punctate.

Geotomus spinolai Signoret

1863. Signoret, Ann. Soc. Ent. Fr., p. 545; Pl. 12, Fig. 2.

One specimen labeled Cuba in the U. S. National Museum is in poor condition.

Signoret remarks that this is distinguishable from all of the related forms by the fact that neither the lateral nor the median lobes of the head have the usual setae, and they have a line of strong punctures in the marginal space.

Amnestus pusillus Uhler

1875. Uhler, Bull. Geol. Geogr. Surv. I: 278; III: 371 (1878).

1883. Signoret, Ann. Soc. Ent. Fr., 372; Pl. 10, Fig. 197.

Recorded by both Uhler and Signoret from Cuba and Texas. Now known to be widely distributed in the United States. The authors have not seen this species from Cuba, and all of the specimens from that island remaining in the Uhler collection at the U. S. National Museum belong to the next species. Specimens of *pusillus* from

Texas are ochraceous yellow in color with the fore femora of the male usually having a small simple spine a short distance from the base; the hind femora armed with a very long spine nearly half as long as the tibia; hind tibia curved and finely serrate toothed along the inner edge; the anterior margin of the pronotum more strongly concave than in *pusio* for the reception of the head.

***Amnestus pusio* Stal**

1858. Stal, Bidrag till Rio Jan. Hem. I: 14.

1883. Signoret, Ann. Soc. Ent. Fr. 373; Pl. 15, Fig. 199.

Vibora, Havana (Bruner); Sto. Tomás, P. de Zapata (Bruner and Acuña); Manacas, Sta. Clara (Bruner)—Est. Exp. Agron. Cayamas (Schwarz); Santiago (Morrison)—U. S. N. M. Recorded from Cuba by Signoret.

Of the same general color as the preceding but somewhat smaller. The fore and hind femora of the male each armed with a short spine, the former sometimes bifid; the hind tibia straight and not serrate toothed along inner edge; the anterior margin of the pronotum not so deeply concave for the reception of the head. According to Blatchley this species occurs in Florida and several specimens from Bedford City, Va., are in the collection of the National Museum.

***Amnestus subferrugineus* (Westwood)**

1837. Westwood, in Hope Cat. I: 19.

1883. Signoret, Ann. Soc. Ent. Fr. 373; Pl. 10, Fig. 198.

Jarahoecca Ote. (Bruner)—Est. Exp. Agron. Specimens in the U. S. National Museum collection are from the West Indian islands St. Vincent, Grenada, San Domingo, Martinique, and Dominica.

This species is larger than the other two mentioned, averaging 2.5–3 mm. long and of a ferruginous or dark castaneous color on the head, pronotum, scutellum, and beneath; the hemielytra are paler with castaneous maculations. The disk of the anterior lobe of the pronotum is smooth, exhibiting a row of coarse punctures along the anterior margin. The anterior femora of the male have a prominent oblique bifid tooth and the posterior femora are armed with a rather long, sometimes curved, spine before the apex.

KEY TO CUBAN SPECIES OF AMNESTUS

1. Color ferruginous to dark castaneous; pale hemielytra marked with castaneous; anterior femora of male with a prominent bifid spine; anterior disk of pronotum smooth-----*subferrugineus* (Westw.)
Color yellow ferruginous; anterior femora of male unarmed or with a small spine; anterior disk of pronotum punctate----- 2

2. Posterior femora of the male armed with a very long spine and the posterior tibia curved and serrate along inner edge; anterior margin of pronotum deeply concave-----*pusillus* Uhler
 Posterior femora of male with a short, oblique spine and posterior tibia straight, not serrate, inwardly; anterior margin of pronotum not deeply concave. Smaller species-----*pusio* Stal

Family PENTATOMIDAE

Subfamily MEGARIDINAE

Megarid majusculus McAtee and Malloch

1928. McAtee and Malloch, Proc. U. S. Nat. Mus. LXXII, Art. 25, p. 6.

Novaliches, Guantánamo (C. T. Ramsden). Known only from the holotype which is in the collection of the American Museum of Natural History.

Subfamily SCUTELLERINAE

KEY TO CUBAN GENERA OF SUBFAMILY SCUTELLERINAE

1. Venter devoid of a stridulating area on each side of the disk; ventral incisures gradually curved on central disk, abruptly arcuated before the lateral margins. Antenna with four segments; second segment very long in *A. illustris*, much longer than first. Odoriferous canal long and distinct. Scutellum entirely covering abdomen-----*Augocoris* Burm.
 Venter provided with a stridulating area on each side of the disk, at least occupying the fourth and fifth segments. Antenna with five segments... 2
2. Pronotum with a distinct transverse impression near the middle. Head about as long as the pronotum, strongly convex-----*Camirus* Stal.
 Pronotum devoid of a transverse impression. Head shorter than pronotum... 3
3. Odoriferous orifice placed as close to the lateral margin of the metapleurum as to the posterior coxae, or more remote from the coxae than from the lateral margin of the metapleurum, very rarely prolonged in a canal----- 4
 Odoriferous orifice more remote from the lateral margins of the metapleurum than from the posterior coxae, most often (except in *Diolcus*) prolonged in a canal----- 5
4. Scutellum not as wide as abdomen. Connexivum free. Head obliquely truncate anteriorly on each side. Pronotum and scutellum not spotted with red-----*Tetyra* Fab.
 Scutellum as wide or very nearly as wide as abdomen. Connexivum not entirely free. Head entirely rounded anteriorly. Pronotum and scutellum spotted with red-----*Pachycoris* Burm.
5. Odoriferous orifice not terminating in a canal. Anterior face of tibia with two longitudinal grooves separated by a median longitudinal ridge-----
 -----*Diolcus* Mayr.
 Odoriferous orifice terminating in a distinct canal. Anterior face of tibia provided with a single wide, longitudinal groove----- 6

6. Canal from odoriferous orifice gradually expanded outwardly and turned abruptly forward at a right angle before lateral margin of metapleurum. Sixth ventral segment of abdomen not twice as long through middle as along lateral margin.....*Sphyrocoris* Mayr.
 Canal from odoriferous orifice straight, nearly transverse, the margins parallel. Sixth ventral segment of abdomen about twice as long through middle as along lateral margin.....*Symphylus* Dallas.

Tetyra antillarum Kirkaldy

1794. *arcuatus* (Fabricius), Ent. Syst. IV: 83.

1909. *antillarum* Kirkaldy, Cat. Hem.-Cim. 284 (new name).

Soledad (Myers)—M. C. Z. San Blas, Santa Clara Prov. (G. H. Rowe)—Est. Exp. Agron.

A species fully as large as *T. bipunctata* H. S., from which it may be distinguished structurally by the following differences: a little more depressed; head relatively shorter with lateral margins before eyes more strongly sinuate; lateral margins of pronotum more evidently sinuate. The antennae are usually distinctly banded with yellow and black.

Pachycoris fabricii (Linnaeus)

1771. Linnaeus, Mant. Plant. II: 534.

1863. *Pachycoris wilsoni* Uhler, Proc. Ent. Soc. Philad. II: 159.

Soledad (Myers)—M. C. Z. "Cuba" (Uhler Coll.—U. S. N. M.)

Uhler's type of *wilsoni*, a female, is in the collection of the National Museum, also a male labeled "Cuba"—"Gundlach" in Uhler's well known hand. The male specimen lacks the two yellow patches on the head and the yellow maculations below are reduced to only the outer apical angle of the metapleurum and a small spot on either side of the fifth and sixth abdominal segments. We conclude that *wilsoni* is only a color form of the West Indian *fabricii*. It was reported from Cuba by Guérin as *Scutellera (Pachycoris) nitens* Dallas.

Diolcus boscii (Fabricius)

1798. Fabricius, Ent. Syst. Suppl. 529.

1868. *Symphylus politus* (Walker), Cat. Hem. III: 518.

Taco Taco (Bruner, Acuña, and Ballou); Santiago de las Vegas (Acuña and Bruner); Camagüey (Acuña); Viñales (Bruner)—Est. Exp. Agron. Soledad (Myers and Salt)—M. C. Z.

Recorded from Cuba by Guérin. It may be readily distinguished from the other species of the genus by the longer rostrum which reaches well behind the posterior coxae; abdomen ventrally deeply sulcate in front; golden green punctures dorsally and ventrally; also with more or less distinct irregular pale dots on scutellum.

***Diolcus variegatus* (Herrich-Schaeffer)**

1836. Herrich-Schaeffer, Wanz. Ins. III:106, Fig. 332.

Manzanillo (Bruner and Ballou); Viñales (Bruner); Santiago de las Vegas (Barreto); Camagüey (Acuña); Palmira (Ballou); Itabo (Cardín)—Est. Exp. Agron. Soledad (Myers)—M. C. Z. Cayamas (Schwarz); San Blas de Río (Mann); Central Jaronú (Scaramuzza); Baraguá (Scaramuzza)—U. S. N. M.

***Diolcus irroratus* (Fabricius)**

1775. Fabricius, Syst. Ent. 699.

1923. *D. boscii* Barber (nec Fab.), Amer. Mus. Nov. No. 75:12.

Camagüey (Acuña); Cojimar (Bruner); Hoyo Colorado (Enamorado)—Est. Exp. Agron. Baraguá (Scaramuzza)—U. S. N. M. Guérin reported this from Cuba; it is much less numerous there than either of the foregoing species of *Diolcus*.

KEY TO SPECIES OF DIOLCUS FROM CUBA AND UNITED STATES

1. Head longer, very nearly as long as wide, not punctate to extreme edge. Lateral margin of the pronotum slightly concavely arcuate before the middle. Venter shallowly grooved anteriorly. Antennae basally pale, apically banded with black. Not punctate with green.....*variegatus* (H. S.)
Head shorter, nearly one-third or more wider than long, as seen dorsally punctate to extreme edge. Lateral margins of pronotum either straight or lightly convexly arcuate. Antennae pale or very lightly tinted with brown..... 2
2. Lateral margins of pronotum straight, humeri obtusely angled. Head, pronotum, scutellum, and corium punctate with green. Venter smooth, with a few scattered brown and green punctures; a deep groove anteriorly running to middle of the fourth segment.....*boscai* (Fab.).
Lateral margins of the pronotum lightly convexly arcuate; humeral angles more rounded. Venter with the first three segments shallowly grooved... 3
3. Head relatively shorter and broader, three-fifths wider than long, forming with the two lateral lobes a bluntly rounded apex. Pronotum punctate to edge; conspicuous greenish punctures on head and pronotum. Scutellum laterally furnished with a round black spot. Venter profusely punctate on both sides of middle. (Florida, Texas, etc.)----*chrysoorrhoeus* (Fab.).
Head relatively longer, somewhat over one-fourth wider than long, forming with the two lateral lobes a more acute angle. Not punctate with green. Pronotum not punctate along pale, lightly reflexed lateral margins. Venter smooth, with large scattered brown punctures.....*irroratus* (Fab.).

***Sphyrocoris obliquus* (Germar)**

1839. Germar, Zeits. Entomol. I: 94.

Manzanillo (Bruner and Ballou); Santiago de las Vegas (Bruner, Barreto, and Acuña); Isla de Pinos (Ballou); Sierra Rangel

(Acuña and Bruner); Camagüey (Acuña); Puerto Tarafa (Bruner); Baraguá (Stahl and Bruner)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Jababo (Scaramuzza); Central Jaronú (Stahl); "Cuba" (Uhler)—U. S. N. M.

This is a common species throughout the West Indies, southern Florida, Mexico, Central America, and Colombia. In this genus the sulcus from the odoriferous orifice is apically abruptly bent forward at a right angle and expanded into a punctate area. Guérin first reported this species from Cuba.

Symphylus caribbeanus Kirkaldy

1857. *Scutellera obliqua* (Guérin), La Sagra, Hist. Cuba. Ins. 362 (not Germar).

1909. *Symphylus caribbeanus* Kirkaldy (new name), Cat. Cim. 280.

1914. *Symphylus deplanatus* Barber, Bull. Am. Mus. Nat. Hist. XXXIII: 526 (not Herrich-Schaeffer).

1926. *Symphylus deplanatus* Blatchley, Heterop. E. No. Amer. 43 (not Herrich-Schaeffer).

Nagua, Oriente (Bruner and Ballou); San Nicolás, Oriente (Bruner); Sierra Rangel, Pinar del Rio (Hermano Roberto)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. "Cuba" as *Mesotrypa sinuosa* Uhler—U. S. N. M.

This variably marked species also occurs in Florida from whence it was differentiated by Hart and Malloch as *Symphylus* sp. (Bull. Nat. Hist. Surv. Ill. 171, 1919) to distinguish it from *Stethaulax marmoratus* Say with which it had been confused. The specimens in the National Museum collection from Ft. Valley, Ga., referred to *Symphylus deplanatus* by Professor Blatchley, are all *Stethaulax marmoratus*. *Symphylus caribbeanus* differs from the foregoing species by having the head more acutely produced anteriorly. It may be well to remark in this connection that after a careful comparison of a long series of *Stethaulax* from the United States with several Neotropical species of *Symphylus* we have come to the conclusion that the former is not deserving of generic rank and that the two genera should be combined. The bisulcate tibia, the only character relied upon for differentiating *Stethaulax*, is not at all evident. *Symphylus deplanatus* H. S. differs from *caribbeanus* in its greater size and more plainly impressed, recurved margins of the pronotum.

Camirus porosus (Germar)

1839. Germar, Zeitschr. Entom. I:108.

Camagüey (Acuña)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Cayamas (Schwarz)—U. S. N. M.

The only species of the genus found in Cuba. It is dull black, densely punctate above and below, with the exception of the stridulating areas on the venter. The odoriferous orifice or osteole is not continued in a groove, and the pronotum has a distinct transverse impression near the middle. About 4 mm. long.

Augocoris illustris (Fabricius)

1781. *Cimex sexpunctatus* Fabricius, Spec. Ins. II: 339 (name preoc.).

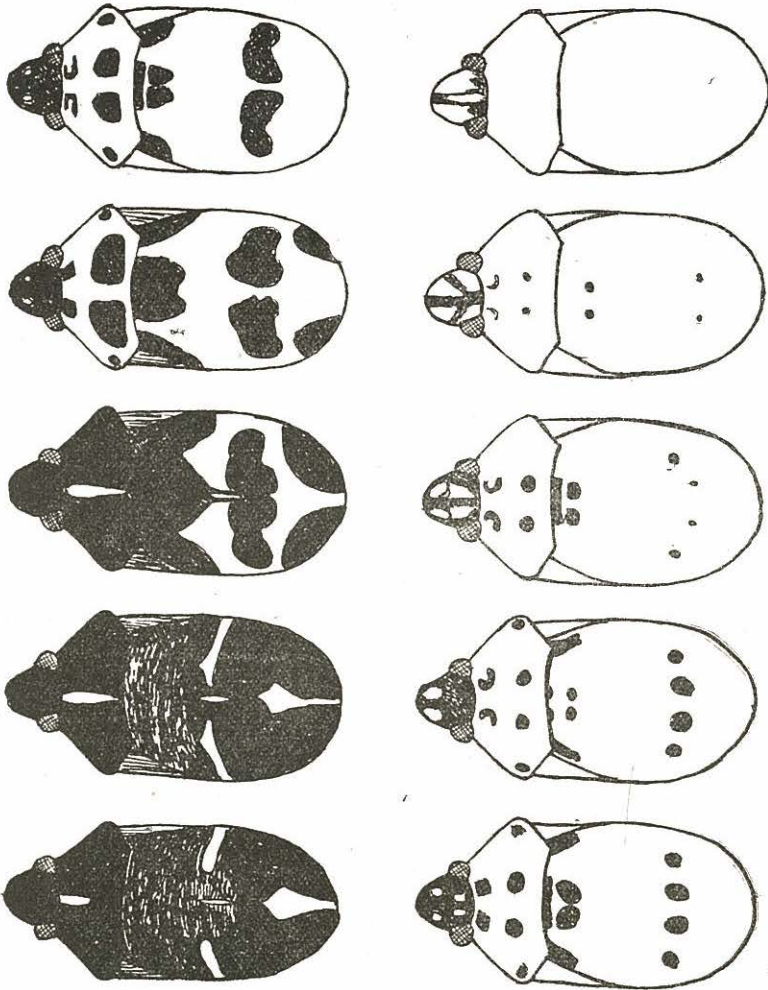
1781. *Cimex illustris* Fabricius, Spec. Ins. II: 340.

1863. *Augocoris poeyi* Uhler, Proc. Ent. Soc. Philad. II: 158.

Camagüey (Acuña); Santiago de las Vegas (Barreto, M. Plascencia); Taco-Taco (Acuña)—Est. Exp. Agron. Jobabo (Stahl); "Cuba" (Uhler coll.)—U. S. N. M.

A large species 13-17 mm. long, which shows a most remarkable variation in both color and form. At one extreme the insect is black above, slightly purplish, marked with orange red as follows: a longitudinal median vitta on pronotum; three maculae on scutellum, two roughly triangular ones on either side before center, and a larger sagittate macula behind, the point touching apical margin. Below, this form is entirely black except the abdomen which is orange red marked with black as follows: the genital segment, the central portion of the sixth segment, and a large subquadrate spot on either side of the remaining segments; also a similar series of spots above almost covering the connexivum. The tibiae and antennae are washed with dark metallic purplish or greenish blue. *A. poeyi* Uhler is near this form but the red markings are larger. The anterior and posterior edges of the postpectus and the exterior edge of the scutellum are not white, however, in our specimens, although rather pale in some of them. At the other extreme the species is largely testaceous to ivory white, sometimes washed with brownish above, with no black except for fusco-piceous markings on head and a rounded spot on either side of the second ventral segment just below the spiracle. This spot and the metallic greenish or purplish blue tibiae and antennae are constant for all varieties but less noticeable on the very dark forms. The femora of the paler forms are rich brownish yellow.

Between these two extremes there are numerous variations com-



Series of *Augocoris* illustris showing variation.

bining orange or orange red, clay yellow, and black, but following the same general pattern.

More remarkable still is the variation in morphology shown by this species. The dark form is very coarsely rugose above, transversely so on pronotum and anterior portion of scutellum, the latter being strongly and irregularly sculptured behind. This form is probably the same as *A. rugulosus* H. S. The other extreme, the pale variety, has both the pronotum and scutellum perfectly smooth. These two extremes blend one into the other through intermediate forms. This is well demonstrated by a series of 20 specimens reared by Mr. J. Acuña at Camagüey, Cuba, from a single group of freshly hatched nymphs found on a Sapotaceous tree, *Chrysophyllum oliviforme* Lin., the only plant on which this insect has so far been observed in Cuba.

In the National Museum collection there is a specimen from Puerto Rico which agrees with the dark variety of this species from Cuba. No specimen of *A. poeyi* identified by Uhler is in the National Museum collection.

Augocoris illustris has a wide distribution from Mexico through Central and South America as far south as the Argentine Republic. Guérin reported it from Cuba as *Scutellera (Augocoris) cretacea* Voet. and *pallida* Pal. Beauv., both being color varieties of this species.

Subfamily GRAPHOSOMATINAE

Amaurochrous dubius (Palisot de Beauvois)

1805. Palisot de Beauvois, Ins. Afr. Amer. p. 33, Pl. VI, Fig. 6 (Podops).

Described from Cuba. In the National Museum collection there are two specimens from Florida, one from Georgia, and one from Cuba. It is considerably larger than *cinctipes* Say and differs from that species in the much more produced processes of the anterior angles of the pronotum which project well beyond the line of the eyes.

Subfamily PENTATOMINAE

KEY TO CUBAN GENERA OF SUBFAMILY PENTATOMINAE

1. Basal segment of rostrum not inserted near front of bucculae, set behind middle of head, and apex extended far behind base of head. Rostrum very long, nearly reaching to apex of abdomen. Scutellum extended nearly to apex of abdomen-----*Coriplatus* White.
- Basal segment of rostrum inserted near front of bucculae, apex never extended far beyond base of head. Scutellum mediocre----- 2

2. Lateral lobes (jugae) of head preapically toothed or obtusely angled. Lateral margins of pronotum armed with stout teeth. Head nearly or quite as long as pronotum. Bucculae extended to base of head-----
-----*Brochymena* A. and S.
Lateral lobes of head not furnished with a preapical tooth or obtusely angled. Lateral margins of pronotum either serrate or smooth, rarely armed with teeth (*Neopharnus*). Bucculae variable----- 3
3. Lateral lobes (jugae) of head acute at apices, surpassing tylus but not contiguous before it. Humeral angles of pronotum acute or acutely spinose----- 4
Lateral lobes of head (jugae) most commonly obtuse anteriorly or if acute then the tylus much longer than jugae (*Proxys*)----- 5
4. Second ventral segment of abdomen produced in a distinct anteriorly directed spine. Mesosternum with a strongly elevated longitudinal median carina -----*Arvelius* Spin.
Second ventral segment of abdomen not produced in a distinct spine. Mesosternum with a low median carina. Apex of femora armed above with a minute spine-----*Loxa* A. and S.
5. Metasternum provided with a large, smooth, flattened plate, bifid or notched posteriorly to receive the abdominal process from the second ventral segment. Lateral lobes (jugae) of head apically contiguous or nearly so-- 6
Metasternum devoid of smooth plate; posterior coxae contiguous or nearly so. Lateral lobe of head more rarely contiguous----- 9
6. Rostrum short, apex most commonly not extended beyond anterior notch of metasternal plate; basal segment not extended behind base of head. Metasternal plate extended anteriorly to at least the middle of the mesosternum and distinctly bifid anteriorly. In Cuban species humeral angles not at all prominent-----*Edessa* Fab.
Rostrum long, extended onto venter of abdomen; basal segment surpassing bucculae and extended beyond base of head. Metasternal plate but slightly extended anteriorly on the mesosternum, obtusely concave before. Humeral angles prominent. Body less convex ventrally----- 7
7. Lateral margins of pronotum with several long teeth. Dorsal parts distinctly pilose-----*Neopharnus* Van Duz.
Lateral margins of pronotum unarmed. Dorsal parts not pilose----- 8
8. Lateral margins of pronotum straight. Third segment of rostrum much longer than second. Second and third segments of antenna subequal--
-----*Praepharnus* n. g.
Lateral margins of pronotum more or less concavely sinuate. Second segment of antenna much shorter than third-----*Pharnus* Stal.
9. Second ventral segment of abdomen produced anteriorly in a distinct spine or well defined tubercle----- 10
Second ventral segment of abdomen neither produced in a distinct spine nor definite tubercle----- 16
10. Spine of second ventral segment of abdomen long, surpassing posterior coxae----- 11
Second ventral segment of abdomen either armed with a shorter spine or only with a well defined tubercle----- 12

11. First antennal segment extended beyond margin of head. Connexivum of abdomen widely exposed and alternately banded with red and black. 18 mm. long-----*Vulsirea* Spin.
 First antennal segment not reaching to margin of head. Connexivum of abdomen not at all or narrowly exposed, unicolorous. 10 mm. long or less-----*Piezodorus* Fieb.
12. Lateral margins of pronotum very strongly, concavely sinuate; humeral angles bluntly prominent, rounded. First antennal segment surpassing margin of head. Ventral abdominal spine attaining middle of posterior coxae. Anterior tibiae distinctly, longitudinally sulcate---*Modicia* Stal.
 Lateral margins of pronotum most commonly nearly straight, if strongly convex then the humeral angles very acute or spinose----- 13
13. Second ventral segment of abdomen armed with a distinct spine either projected between the posterior coxae or at least somewhat produced and subacute. Canal from odoriferous orifice long and attenuated, tapering to a very acute point reaching nearly as far as posterior lateral angle of mesopleurum. Cuban species pure green-----*Acrosternum* Fieb.
 Second ventral segment of abdomen elevated in a well defined obtuse tubercle----- 14
14. Canal from odoriferous orifice short, not reaching to middle point of metapleurum; margins of canal elevated. Cuban species clear green-----
 -----*Nezara* A. and S.
 Canal from odoriferous orifice long and attenuated, acute apex reaching nearly as far as posterior lateral angles of mesopleurum----- 15
15. Anterior tibia distinctly, longitudinally sulcate. Head across eyes wide, more than one-half the greatest diameter of the pronotum. Second segment of antenna much longer than one-half the length of fifth segment. Anterior margin of pronotum calloused. Lateral margin of pronotum, anteriorly, distinctly impressed-----*Pallantia* Stal.
 Anterior tibia obsoletely or not at all sulcate longitudinally. Head across eyes distinctly less than one-half the greatest diameter of the pronotum. Second segment of antenna about one-half the length of fifth segment. Anterior margin of pronotum not calloused-----*Banasa* Stal.
16. Head long, not immersed to eyes; tylus very acutely produced before the jugae. Humeral angles of pronotum very acutely or spinously produced. Odoriferous orifice not produced in an evident canal---*Proxys* A. and S.
 Head immersed to eyes; tylus neither acute nor much produced before jugae----- 17
17. Odoriferous orifice terminating in a long, attenuated, acute canal, reaching halfway or more to margin of metapleurum----- 18
 Odoriferous orifice either devoid of a canal or with a very short one not reaching halfway to margin of metapleurum----- 19
18. Anterior and lateral margins of pronotum strongly impressed and reflexed or elevated. Pleura and venter very obsoletely punctate, shining. Brightly colored, red and black-----*Arocera* Spin.
 Anterior and lateral margins of pronotum scarcely impressed and not reflexed. Dorsal and ventral parts distinctly and profusely punctate, scarcely shining. Green species-----*Thyanta* Stal.

19. Odoriferous orifice set almost between the outer limits of the middle and posterior coxae, not terminating in a canal. Variegated species-----
-----*Murgantia* Stal.
Odoriferous orifice more remote from coxae, either terminating in a canal or merely auriculate exteriorly----- 20
20. Bucculae rather short, extending as far as anterior margin of eyes; basal segment of rostrum much extended beyond bucculae. Basal segment of antenna extending beyond margin of head. Anterior and lateral margins of pronotum strongly impressed and reflexed. Canal from odoriferous orifice distinct but short, not reaching to middle of metasternum; abruptly terminating; margins calloused. Large red and black species-----
-----*Runibia* Stal.
Bucculae extending to base of head or very nearly so; basal segment of rostrum most commonly not much longer than bucculae. Anterior and lateral margins of pronotum not strongly impressed or reflexed. Odoriferous orifice auriculate exteriorly without a distinct canal----- 21
21. Anterior tibia provided with a distinct, wide, longitudinal sulcus. Lateral margins of pronotum, at least anteriorly, denticulate or crenulate-----
-----*Euschistus* Dall.
Anterior tibia either devoid of a longitudinal sulcus or with a very narrow one----- 22
22. First segment of rostrum not longer than bucculae. Head as long or very nearly as long as pronotum. Anterior disk of pronotum devoid of a smooth, calloused, yellow spot on each side-----*Solubea* Bergr.
First segment of rostrum somewhat longer than bucculae, the latter more elevated. Anterior disk of pronotum with a smooth, calloused, yellow spot on each side-----*Mormidea* A. and S.

Coriplatus depressus White

1842. White, Trans. Ent. Soc. Lond. III: 90.

"Cuba"—U. S. National Museum in the Uhler collection.

A new record, as this has hitherto been recorded only from British Guiana and Colombia. It is a very flattened hemipteron with a long head, in which the juga meet well before the tylus; the margins of the pronotum are provided with three large spines; the scutellum is spatulate, very long, reaching to the apex of the abdomen; the rostrum reaches, or nearly reaches, the apex of the abdomen, the venter of which is longitudinally sulcate.

Brochymena poeyi Guérin

1857. Guérin in La Sagra, Hist. Cuba, Ins. 365; Pl. XIII, Fig. 1.

Santiago de las Vegas (Barreto, Bruner, Acuña, and Otero); Casa Blanca (Bruner); Hoyo Colorado (Enamorado); Havana Prov. and Los Palacios (Betancourt, Acuña, and Barreto)—Est. Exp. Agron. "Cuba"—U. S. N. M. Also recorded by Gundlach from eastern Cuba.

Very clearly related to *arborea* but differs from that species by

having the truncated humeral angles slightly more projecting; teeth along the lateral margins of the pronotum fewer and more irregular; lateral margins of the head anteriorly more converging; subapical tooth less pronounced; bases of antennal segments 2-5 distinctly and widely pale ringed.

Mormidea pictiventris Stal

1862. Stal, Stett. Ent. Zeit. XXIII: 103.

Santiago de las Vegas (Cardín, Houser, and Bruner); Camagüey (Acuña); Palmira (Ballou); Nagua, Oriente (Bruner and Ballou); Las Animas, Sierra Rangel, Pinar del Rio (Cardín, Houser, and Bruner); El Cobre (Bruner); and Santa Bárbara, Isle of Pines (Bruner)—Est. Exp. Agrón.

This is a common and widely distributed species from Mexico south through Central America to Colombia and the West Indies. It is a fuscous or fusco-ferruginous species on which the pale caloused markings are very conspicuous. The submarginal vittae of the scutellum extend posteriorly as far as the frena; the humeral angles are not at all prominent. It has much the appearance of *Mormidea lugens* Fab.

Mormidea cubrosa Dallas

1851. Dallas, List Hem. I: 247.

1872. *Mormidea sordidula* Stal, Enum. Hem. II: 21.

Santiago de las Vegas (Bruner); Nagua, Oriente (Bruner and Ballou); El Cobre, Oriente (Silvestri and Bruner); Jarahueca, Ote. (Bruner); Nueva Gerona, Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron.

Stal described *sordidula* from Texas. Comparison of specimens from that state with those from Cuba and Jamaica shows that they are the same and answer to Dallas's description of the species from Jamaica. There is little question that Stal's name will have to be treated as a synonym. This is a rather small ferruginous species with the pale markings of the scutellum much reduced.

Mormidea angustata Stal

1862. Stal, Stett. Ent. Zeit. XXIII: 102.

Taco-Taco (Bruner, Acuña, and Ballou); Camagüey (Acuña); Puerta de Golpe, Pinar del Rio (Houser); Santa Fe and Columbia, Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron. McKinley, Columbia, and Nueva Gerona, Isle of Pines (Link)—U. S. N. M.

Described from Mexico and a fairly common species in Central America. Heidemann recorded it from the Isle of Pines. It is a

paler, more ferruginous punctate species than *pictiventris* Stal, and the submarginal calloused vittae of the scutellum extend as far as the frena; costal margins of the corium frequently reddish; humeri either spinose or angulated. There is some question as to whether or not this is a synonym of *M. scutellata* Westwood, which it may very well be.

Mormidea albisignis Stal

1872. Stal. Enum. Hem. II: 220.

Baracoa and Nagua, Oriente (Bruner and Ballou); Sierra Rangel, Pinar del Rio (Acuña and Bruner); Santiago de las Vegas (Bruner); "El Hospital," Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron. La Milpa, Cienfuegos (Salt)—M. C. Z. Near Viñales—A. M. N. H. Baraguá (Plank); Cayamas (Schwarz)—U. S. N. M.

This species described from Cuba, measures 5–6 mm. in length. It resembles rather closely *M. ypsilon* (Linn.) in its general color and markings. Stal states that the second and third antennal segments are equally long, but in most of the specimens before us the second is slightly longer than the third segment. The humeri may be either rounded or spinose. Guérin lists *M. ypsilon* from Cuba but we have not seen it from that island.

KEY TO CUBAN SPECIES OF MORMIDEA

1. Apical angles of sixth abdominal segment of male and seventh of female plainly spinose; humeral angles variable, either spinose or obtuse----- 2
 Apical angles of sixth abdominal segment of male and seventh of female sometimes acute but not spinose; humeral angles always obtuse or rounded 3
2. Posterior margin of the male hypopygium strongly concavely sinuate in the middle; tylus not extended beyond apices of juga; membrane vitreous; submarginal calloused vittae of scutellum extended to frena, not incurved posteriorly; pleura each marked with a small black spot; venter nearly or quite immaculate; ferruginous punctate species with wide costal margins often reddish-----*angustata* Stal.
 Posterior margin of the male hypopygium feebly concavely sinuate in the middle; tylus slightly extended beyond apices of juga; membrane embrowned; submarginal calloused vittae of the scutellum not as long as frena, these incurved, contiguous or nearly so about the middle of scutellum; beneath devoid of broad black stripes. Heavily infuscated species-----*albisignis* Stal.
3. Posterior margin of the male hypopygium strongly concavely sinuate in the middle; membrane embrowned; submarginal calloused vittae of the scutellum extended as far as the frena; sternum black; pleura heavily and venter trivittate with fuscous. Fuscous or fusco-ferruginous species-----*pictiventris* Stal.

Posterior margin of the male hypopygium feebly concavely sinuate in the middle; membrane vitreous; scutellum with a small, yellow, calloused spot in each basal angle which is rarely extended into vittae; marked beneath much as in preceding species. Ferruginous-griseous species.-----
----- *cubrosa* Stal.

Solubea pugnax (Fabricius)

1775. Fabricius, Syst. Entom. 704.

Los Palacios (Betancourt); Sierra Rangel, Pinar del Rio (Acuña and Bruner); Santiago de las Vegas, Havana Prov. (Plá, Barreto, and Bruner); Cunagua and Holguin, Oriente (Bruner); Palmira (Ballou); Bahía de Cochinos, Santa Clara (Bruner); Camagüey (Acuña); Baraguá, Camagüey Prov. (Stahl and Bruner); Holguin, Oriente Prov., and Manzanillo (Bruner and Ballou)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Cayamas (Schwarz)—U. S. N. M. San Carlos Est., Guantánamo and near Viñales—A. M. N. H.

A common species in Cuba and other West Indian Islands and differing in no respect from specimens taken in our southern states. Recorded from Cuba by Guérin as *Pentatoma* (*Mormidea*?) *typhoeus* Fab.

Solubea insularis (Stal)

1872. Stal, Enum. Hem. II: 22.

1857. *Pentatoma* (*Mormidea*) *geographica* Fabricius (var.), Guérin in La Sagra, Hist. Cuba Ins. 369.

1893. *Mormidea guerini* Lethierry and Severin, Cat. Gen. Hem. I: 123 (new name).

1902. *Oebalus insularis* var. *similis* Kuhlitz, Berl. Ent. Zeit. 253.

Santiago de las Vegas (Bruner); Las Animas, Sierra Rangel, Pinar del Rio (Houser, Hutson, Cardín, Acuña, and Bruner); Hoyo Colorado, Havana Prov. (Enamorado and Bruner); Palmira, Santa Clara Prov. (Ballou); Nueva Gerona, Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Jatibonico and Baraguá (Scaramuzza); Santiago de las Vegas (Cardín); Cayamas (Schwarz); Havana—U. S. N. M. Pinar del Rio—A. M. N. H.

Specimens of this same species are contained in the collection of the National Museum from Florida, Mexico, Honduras, Panamá, and Haití. In spite of its appearance it belongs to *Solubea* rather than *Mormidea* from the fact that the basal segment of the rostrum does not exceed the bucculae, the fore tibia are sulcate as in *S. pugnax* (Fab.), and the pronotum lacks the usual calloused spots. Some color varieties of it may be very easily confused with *Mormidea ypsilon* (Linn.) as was evidently the case with Guérin, who records that

species from Cuba. It varies in color from ferruginous to dark castaneous. The scutellum is particularly variable, being frequently with little or no evidence of calloused spots or more or less completely covered with smooth, calloused, yellow spots. This latter form Kuhlitz described as var. *similis* from Colombia. The humeral angles are sometimes spinose. The hypopygium of the male has a distinct central lobe as noted by Stal. This is the species recorded by the senior author in his Florida List as *Mormidea guerini* Leth. and Sev. and is so treated by Blatchley in Heteroptera of Eastern North America.

Solubea linki (Heidemann)

1917. *Mormidea linki* Heidemann Ann. Carnegie Mus. XI: 351.

Calabazar, Havana Prov. (Bruner); Bahía de Cochinos, Santa Clara Prov. (Bruner); Baraguá, Camagüey Prov. (Stahl and Bruner); El Cobre and Manzanillo, Oriente Prov. (Ballou and Bruner); Los Indios and El Hospital, Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron. Columbia, Isle of Pines (Link); Havana and Cayamas (Schwarz); Baraguá (Stahl); 12 miles north of Santiago (Morrison)—U. S. N. M. Near Pinar del Rio—A. M. N. H.

This is much smaller than the other two species mentioned, in which the basal segment of the rostrum does not exceed the bucculae, and thus it is included in *Solubea* rather than in *Mormidea* where it was first placed by Heidemann. It differs from the other two species in that the anterior tibia is not sulcate. The humeral angles may be either angulated or spinose. It does not approach *Mormidea ypsilon* (Linn.) in structure or appearance as stated by Heidemann.

KEY TO CUBAN SPECIES OF SOLUBEA

1. Humeri armed with long, anteriorly directed spines; anterior tibia longitudinally sulcate; spiracles black; posterior margin of male hypopygium (ventral view) concave. Large species, 10–12 mm.-----*pugnax* (Fab.).
Humeri either angled or shortly spinose; posterior margin of male hypopygium (ventral view) lobate in the center; smaller species, not over 8–9 mm.----- 2
2. Lateral margins of pronotum very lightly concavely arcuate; humeri either angled or spinose; anterior tibia longitudinally sulcate; spiracles not black; posterior margin of male hypopygium very strongly lobate in the center-----*insularis* (Stal.).
Lateral margins of pronotum strongly concavely arcuate and slightly crenulate; humeral angles shortly spinose; anterior tibia not longitudinally sulcate; spiracles black; posterior margin of male hypopygium much more feebly lobate in the center-----*linki* (Heid.).

Euschistus acuminatus Walker

1867. Walker, Cat. Hem. Het. II: 246.

Nagua, Oriente Prov. (Bruner and Ballou) Taco Taco, Pinar del Rio Prov. (Ballou, Acuña, and Bruner); Santiago de las Vegas, Havana Prov. (Plá and Bruner), St. Tomás, Península de Zapata, Santa Clara Prov. (Bruner and Acuña); Camagüey, Camagüey Prov. (Acuña)—Est. Exp. Agron. Central Jaronú (Scaramuzza); "Cuba" (3 specimens labeled *E. thoracicus* Dallas var. by Uhler)—U. S. N. M.

This species was determined as *E. thoracicus* Dallas by Uhler and Gundlach but the specimens agree better with Walker's *acuminatus* described from San Domingo. "Thorax with a black hook-shaped mark on each side in front and with a black band between the spines which are black and slightly ascending, etc.", will serve to identify this species.

Euschistus crenator (Fabricius)

Plate XXV, Fig. 2

1794. Fabricius, Ent. Syst. IV: 101.

Viñales, Pinar del Rio Prov. (Bruner)—Est. Exp. Agron.

This species has been listed from Cuba as well as from other West Indian Islands. As it can be distinguished from *bifibulus* chiefly by comparative differences it is often confused with it. We have seen specimens from Dominica, Grenada, St. Croix, Jamaica, and Puerto Rico in the National Museum collection. The male hypopygium or genital segment in this species is narrower, about twice as wide as long, and much more feebly excavate behind than in *bifibulus* and the sixth abdominal segment with its lateral posterior angles more nearly form a right angle. The teeth along the lateral margins of the pronotum are more evident and usually black. The humeral angles are variable. There is little or no evidence of a transverse pale streak on the pronotum. *E. pustulatus* P. B. and *obscurus* (male) Pal. Beauv. are synonyms. It appears to be a rare insect in Cuba, as it is represented by only one specimen in the material before us.

Euschistus bifibulus (Palisot de Beauvois)

Plate XXV, Fig. 3

1805. Palisot de Beauvois, Ins. Afr. Amer. 148; Pl. X, Fig. 5.

Santiago de las Vegas on Egg Plant and *Solanum torvum* (Cardín, Hutson, Houser, and Bruner); Hoyo Colorado (Enamorado and Bruner); Punta Brava-Havana Prov., Viñales and Sierra Rangel, Pinar del Rio Prov. (Bruner and Acuña); Palmira, Santa Clara

Prov. (Ballou); Camagüey, Camagüey Prov. (Acuña); Seboruco (Bruner); Nagua (Ballou and Bruner) in Oriente Prov.—Est. Exp. Agron.

The male of this common species is easily differentiated from *crenator* (Fab.) by the hypopygium being decidedly wider than long, broadly and deeply excavate behind; sixth abdominal segment with the posterior lateral angles acutely spinose; female with the seventh abdominal segment extended in acutely spinose projections; humeral angles generally produced, acute or spinose; pronotum with a more or less evident pale impunctate streak running across the pronotum between the humeral angles; teeth along the lateral margin finer and in most cases pale. The size varies from 8–11 mm. Gundlach records this as *Euschistus bifibulus*, No. 341, in his collection.

***Euschistus obscurus* (Palisot de Beauvois)**

1805. Palisot de Beauvois, Ins. Afr. Amer. 149; Pl. 10, Fig. 9 (♀ only).

1907. *Euschistus ursus* Van Duzee, Bull. Buffalo Soc. Nat. Sci. VIII: 8.

1926. *Euschistus bifibulus* Blatchley (nec Pal. B.), Heteropt. E. No. Amer. 140.

1927. *Euscristus atromaculosus* Barber, Bull. Bklyn. Ent. Soc. XXII: 241.

Camagüey, Camagüey Prov. (Acuña)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

Described from San Domingo. Van Duzee described it as *ursus* from Jamaica and Haiti. Under the latter name Heidemann records it from the Isle of Pines. *E. atromaculosus* was described from Florida. Guérin recorded it from Cuba as *obscurus* and Gundlach as *crenator*. The anterior face of the pronotum is heavily infuscated, with a distinct, transverse, pale streak between the humeri; the corium has a number of scattered small black spots which are quite characteristic of the species and readily distinguish it from *crenator* or *bifibulus*.

***Euschistus crassus* Dallas**

1851. Dallas, List Hem. I: 205.

Santiago de las Vegas, Havana Prov. (Otero); El Cobre and Omaja, Oriente Prov. (Bruner); Sto. Tomás, Península de Zapata, Santa Clara Prov. (Bruner)—Est. Exp. Agron. 12½ k. south of Pinar del Rio and 7 k. north of Viñales—A. M. N. H.

Although all of the specimens before us are considerably smaller (7–8 mm.) than specimens from Florida, which will run 10–11.5

mm. long, we can find no structural differences to warrant its description as new. It is very convex below with the short humeral spines directed somewhat obliquely forward; a more or less evident calloused pale line runs across the disk between the humeral angles.

KEY TO CUBAN SPECIES OF EUSCHISTUS

1. Male hypopygium with posterior margin (ventral view) broadly and deeply excavate; posterior apical angle of sixth abdominal segment acutely spinose; apical angles of the seventh segment in female attenuate, acute; a more or less evident pale streak across the pronotum between the humeral angles.....*bifibulus* (Pal. B.)
 Male hypopygium either subtruncate posteriorly or feebly excavate or lightly lobate in the center..... 2
2. Male hypopygium with posterior margin nearly truncate and with a slight median lobe; body beneath strongly convex, ferruginous punctate; scutellum rather broad at apex.....*crassus* Dall.
 Male hypopygium feebly excavate posteriorly; body moderately convex beneath with concolorous punctures; scutellum narrow at apex..... 3
3. Posterior lateral angles of the sixth abdominal segment in the male and seventh in the female produced, spinose; humeri strongly spinose. A few marks in front and an irregular line across the posterior disk black.....*acuminatus* Walker.
 Posterior lateral angles of the sixth segment in the male acute, not produced or spinose; pronotum without black fascia..... 4
4. Male hypopygium with lateral margins converging posteriorly; median posterior sinus more obvious; posterior margin of seventh abdominal segment of female obliquely truncate, apical angles not attenuated or produced; pronotum without pale transverse fascia between the humeral angles; scutellum and corium with scattered white spots.....*crenator* (Fab.).
 Male hypopygium with lateral margins symmetrically rounded, not converging posteriorly; posterior angles of seventh abdominal segment of female acuminate and produced; a pale streak across the posterior disk of the pronotum; corium with scattered black spots.....*obscurus* (Pal. B.).

Proxys punctulatus (Palisot de Beauvois)

1805. Palisot de Beauvois, Ins. Afr. Amer. 188; Pl. XI, Fig 9. Santiago de las Vegas, Havana Prov. (Barreto and Bruner); Camagüey, Camagüey Prov. (Acuña), Taco Taco (Bruner, Acuña, and Ballou); Nagua, Oriente Prov. (Bruner and Ballou); Isle of Pines (Ballou)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Baraguá (Scaramuzza)—U. S. N. M.

This widely distributed species is readily distinguished from the other members of the genus by having the apices of all femora as well as the bases and apices of all tibiae black.

Thyanta perditor (Fabricius)

Plate XXV, Fig. 4

1794. Fabricius, Ent. Syst. IV:102.

Viñales, Pinar del Río Prov. (Bruner and Acuña); Santiago de las Vegas (Acuña) and Playa de Marianao (Bruner) Havana Prov.; Palmira, Santa Clara Prov. (Ballou); El Cobre, Oriente Prov. (Bruner); Camagüey, Camagüey Prov. (Acuña); Isle of Pines (Bruner)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. Cayamas (Schwarz); "Cuba" (Uhler coll.)—U. S. N. M.

This is the largest and commonest species of the genus occurring in the West Indies, 10–13 mm. long, usually with a distinct purplish band across the pronotum between the humeri and two small black spots on the anterior face. The humeral angles are drawn out into acute spines directed somewhat anteriorly; lateral margins concavely arcuate to the apices of the spines. Posterior and anterior angles of each connexival incisure with a minute black spot.

Thyanta cubensis new species

Plate XXV, Figs. 4 and 5

Green with the narrow lateral margin of the pronotum yellow; narrow lateral margin of connexivum orange with a minute, black spot at the outer apical angle of segments 2–5, these more distinct below. Antennae with first two and base of third segments pale green, the remainder infuscated.

Head about one-sixth wider than long, in general shape and character of punctuation not differing from *perditor*. Second segment of antennae slightly shorter than third. Apex of rostrum reaching to the middle of the second ventral abdominal segment. Pronotum two and two-thirds wider than long; lateral margin irregularly serrate, straight from anterior angle to near base of humeral spine whence it turns rather more abruptly than in *perditor* to form the front face of the spine; the latter more slender and directed more anteriorly than in *perditor*; the two black spots in the cicatrices of the anterior disk and transverse purple fascia between humeral angles lacking; posterior disk behind the cicatrices closely punctate between transverse irregular ridges, giving a more characteristic rugose appearance to that part than in *perditor*. Scutellum slightly longer than wide, distinctly rugulose anteriorly and closely punctate between the rugae. Hemielytra closely and evenly punctate, punctures coarser and shallower than on scutellum, with scattered pale calloused spots. Membrane clear and often faintly spotted. Venter rather closely punctate on the sides, nearly smooth, very sparsely punctate in the center; outer apical angle of sixth segment in the male more obtuse angled than in *perditor*, apical angles of the connexival segments tipped with black; sinus of the male hypopygium narrower, with the cleft in the central lobe much shorter than the lateral rounded lobes. Length 7–9 mm.

Type, male: Camagüey, July 20, 1923 (J. Acuña)—U. S. N. M.
Paratypes, males: 5 Camagüey, July 20, 30, 31, 1923 (J. Acuña);

1 Isle of Pines, Feb. 1923 (C. H. Ballou); 1 Sta. Bárbara, Isle of Pines, Mch. 15, 1923 (S. C. Bruner); 1 Colonia, Cayo Romona, Sta. Clara Prov. (S. C. Bruner)—Est. Exp. Agron. 2 Cayamas (E. A. Schwarz); 1 "Cuba" (Uhler coll.)—U. S. N. M. 1 Zaza d. Media, Sept. 30, 1913; 1 Santiago, Oct. 2-10, 1913 (F. E. Lutz)—A. M. N. H. *Paratypes, females*: 3 Camagüey, July 21 & 30, 1923 (J. Acuña)—Est. Exp. Agron. 1 Cayamas (E. A. Schwarz)—U. S. N. M. 1 Zaza d. Media, Sept. 30, 1913 (F. E. Lutz)—A. M. N. H. Cat. No. 44045, U. S. N. M.

Very closely related to *perditor* from which it can be distinguished, aside from its smaller size, by the narrower pronotum with its straight lateral margin; more slender and more anteriorly directed humeral spines; and absence of black anterior discal spots and transverse purple-red band of the pronotum. While *perditor* has a minute black spot at the base and apex of each connexival segment, there is in this species but a single spot at each apical angle.

***Thyanta casta* Stal**

1862. Stal, Stett. Ent. Zeit. XXIII:104.

Jarahueca, Oriente Prov. (Bruner)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

Compared to the other West Indian species this is more depressed; humeral angles of pronotum somewhat prominent and forming nearly a right angle; the lateral margins straight; second segment of antennae subequal to or slightly longer than the third; pronotum and base of scutellum transversely rugose; corium less distinctly and more shallowly punctate than in *custator*. The size varies from 8 to 9 mm. long.

***Thyanta antiguensis* (Westwood)**

1837. Westwood, Hope Cat. I:36.

Santiago de las Vegas (Cardín, Hutson, Houser, and Acuña) and Playa de Marianao (Bruner) Havana Prov.; Baraguá (Stahl and Bruner) and Camagüey (Acuña) Camagüey Prov.—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

A common species throughout the West Indies. It is much smaller than the two previous species with the humeral angles not at all prominent and usually bluntly rounded; most commonly with a transverse purplish-red band between the humeri, although sometimes entirely green; second segment of the antennae generally longer than the third; apical angles of the connexival segments black; posterior mar-

gin of the male hypopygium broadly excavated (ventral view), without a median lobe.

Thyanta rugulosa (Say)

1831. Say, New Harm. Ind.; Compl. Writ. I: 319 (1859).

Stal and Uhler record this species from Cuba but we have not seen it from that island. This is one of the smaller species, scarcely larger than *antiguensis* (Westw.), measuring 5-7 mm. long. It has no purplish-red band between the humeri and the odoriferous canal is short, much shorter than the distance from its apex to the lateral margins of the metapleurum; the posterior margin of the male hypopygium is not lobate but lightly notched in the center.

KEY TO CUBAN SPECIES OF THYANTA

1. Humeral angles of pronotum acute, spinose; male hypopygium with a central lobe, cleft in the center----- 2
 Humeral angles not spinose; male hypopygium without central lobe----- 3
2. Lateral margins of pronotum straight, without either black discal spots or transverse purple-red band; connexival incisures with minute black spot at apical angles of segments only-----*cubensis* n. sp.
 Lateral margins of pronotum concavely arcuate from anterior margin to apex of spine; anterior disk with two small black spots and usually a transverse purple-red band between the humeri; connexival incisures with two minute black spots-----*perditor* (Fab.)
3. Second and third segments of antenna either nearly equal or second segment shorter than third; body more depressed; subshining; humeri usually angled. Species at least 8 mm. long = ? *maculatus* (Fab.)*-----
 -----*casta* Stal.
 Second segment of antenna distinctly longer than third; body not depressed; humeral angles not prominent, rounded. Small species 6-7 mm. long----- 4
4. Canal from odoriferous orifice shorter than the distance from its apex to the lateral margin of the pleurum; posterior margin of the male hypopygium with a small notch in the center-----*rugulosa* (Say).
 Canal from odoriferous orifice distinctly longer than the distance from its apex to the lateral margin of the pleurum; posterior margin of the male hypopygium entire-----*antiguensis* (Westw.).

Loxa pallida Van Duzee (?)

1909. Van Duzee, Bull. Buff. Soc. Nat. Sci. IX: 156

Santiago de las Vegas (Barreto and Acuña); La Lisa, Havana (Bruner)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

This was described from Jamaica: Horvath records it also from

* We have not been able to find any structural differences between *Thyanta maculata* Fab. and *T. casta* Stal and suspect that the latter is an unmarked form of *maculata*, in which case Fabricius' name would take precedence. Typically colored specimens of *T. maculata* (Teste Stal, Hem. Fab. I, 29, 1868) have the apical parts of the terminal three antennal segments, tylus, lateral angles and two spots on posterior disk of pronotum, and apex of scutellum fuscousanguineous. Specimens of both the marked and unmarked forms have been collected at El Cano, by S. C. Bruner and A. Otero.

Cuba. We have five specimens of what we take to be this species from Cuba and one from Jamaica. It is rather closely related to the species *flavicollis* as described and depicted by Drury but not that of Horvath 1925. Besides being smaller and relatively narrower, the lateral margins of the head are nearly straight and the longitudinal ridges fairly distinct. The antennae are pale, unicolorous, with the second and third segments nearly equal or the second a little shorter than the third. In two of the specimens the small white calloused spots are quite distinct on the surface of the pronotum, scutellum, and corium. The apex of the rostrum reaches the middle of the second ventral segment of the abdomen.

Loxa planifrons new species

Plate XXV, Figs. 6 and 7

Color yellow-green with punctures mostly concolorous; narrow lateral edge of head, pronotum, marginal teeth, humeral spines, and costal margins at base yellowish; connexivum and venter yellowish-green; antennae, rostrum, and legs pale yellowish-white; membrane vitreous, faintly speckled with green.

Head with lateral margins straight; juga acuminate, almost contiguous before apex of tylus, devoid of longitudinal rugae and punctures; transverse rugae fairly distinct. Antennae with basal segment rather short, not reaching to apex of head, second and third segments nearly equal. Rostrum with the apex reaching to the middle of the third ventral segment of the abdomen. Pronotum with the surface behind cicatrices densely covered with distinct, short, irregular rugae; obsoletely and finely punctate between the rugae, punctures often concolorous; lateral margin gently concavely arcuate from anterior margin to apex of humeral spine; margin armed with 15-17 short, blunt teeth; submargin without a broad band of distinctly colored punctures, so characteristic of most of the species, surface rugose to base of teeth; humeral spines slightly turned upwards, relatively short, subequal to or a little shorter than the distance between the eyes. Scutellum not strongly elevated on the basal disk, which is distinctly rugose, laterally and apically rather sparsely punctate. Hemielytra finely, concolorously punctate, more closely punctate towards outer apical angles. Connexivum coarsely, concolorously punctate. Opaque area of the metapleurum non-punctate, distinctly rugose. Venter very sparsely long pilose, smooth in the center, either side of which the surface is distinctly rugose and finely wrinkled; submargins obsoletely punctate. Sixth ventral segment of the male in the mid-line about twice as long as the three preceding segments combined (50:23); spines at the outer apical angles of fifth segment slender, acute, and extending to or beyond the posterior margin of the hypopygium. Length 19 mm.; humeral diameter 13 mm.

Type, male: Santiago de las Vegas, Cuba, Sept. 5, 1923 (J. Acuña)—Est. Exp. Agron. *Paratype, male:* 1 Santurce, Puerto Rico, Aug. 1, 1925 (Cooley and Gay)—U. S. N. M. *Paratypes, females:* 1 Santiago de las Vegas, Cuba, Sept. 2, 1923 (J. Acuña)—Est. Exp. Agron. 1 Pt. Cangrejos, Puerto Rico, Feb. 22, 1922 (G. N. Wolcott); 1 Santurce, Puerto Rico, Aug. 1, 1925 (Cooley and Gay)—

U. S. N. M. 1 Mameyes, Puerto Rico, Feb. 17, 1925 (L. B. Woodruff)
—A. M. N. H. Cat. No. 44046, U. S. N. M.

This species may be readily distinguished by the absence of the longitudinal ridges on the head and by the distinct rugosity of the venter.

Murgantia histrionica (Hahn)

1834. Hahn, Wanz. Ins. II:116; Fig. 196.

Almendares River, Havana Prov., 1917 (Cardín) on *Cleome pentaphylla*; Marianaø and Vibora (Bouclé)—Est. Exp. Agron. Havana (Knab and Morrison)—U. S. N. M.

The destructive harlequin cabbage bug seems to be well established in Cuba, at least about Havana. So far as our records go it has not hitherto been reported from the island.

Arocera protea var. *affinis* Distant

1880. Distant, Biol. Cent. Amer. Rhynch. I:73; Tab. VII, Fig. 19.

Mountains near Taco Taco (Bruner, Acuña, and Ballou) and Sierra Rangel, Pinar del Río Prov. (Brother Roberto)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

These correspond exactly with Distant's description and figure. A character not mentioned by the author is the fuliginous color of the membrane with its apical margin broadly pale. This species was recorded by Gundlach from Mte. Líbano, Oriente Province. The two specimens in the National Museum were wrongly determined by Uhler as *Runibia proxima* Dallas.

Runibia proxima (Dallas)

1851. Dallas, List Hem. I:255.

Although we have not seen this from Cuba, Gundlach records it from both the eastern and western part of the island. A specimen from Jamaica is in the National Museum collection. It is much larger than the preceding, bright red, closely and finely punctate, with two black spots on pronotum, scutellum, and corium; apical angles of connexival segments distinctly produced and marked with black. Membrane black, margined with white.

Vulsireia violacea (Fabricius)

1803. Fabricius, Syst. Rhyng. 167.

Nueva Gerona, Isle of Pines (Ballou)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M. Gundlach records it from Matanzas and Santa Clara Province (Cienfuegos). A number of color varieties are

recognized. It is about the size of the preceding (14–16 mm.), mostly dark purple in color, with a broad red band, notched behind, across the disk of pronotum, a Y-shaped red mark on the scutellum and the connexivum banded with red and black. Apical angles of the connexival segments scarcely produced.

Nezara viridula (Linnaeus)

1758. Linnaeus, Syst. Nat. 444.

Santiago de las Vegas, Havana Prov. (Gómez de la Maza, Houser, Barreto, and Bruner); Camagüey, Camagüey Prov. (Acuña); Maisí (Acuña) and Nagua, Oriente Prov. (Bruner and Ballou); Viñales, Pinar del Río Prov. (Acuña)—Est. Exp. Agron. Soledad (Myers and Salt); Mina Carlota, Trinidad Mts. (Myers)—M. C. Z. Santiago de las Vegas (Cardín)—U. S. N. M.

A widely distributed species throughout most of the warmer parts of the world and quite common in the West Indies where, as elsewhere, it is of considerable economic importance. It can be distinguished from the following species by the character of the male hypopygium which in this species has a wide deep sinus, obtusely rounded in the center between the rounded lateral lobes and by the very short odoriferous canal.

Acrosternum marginatum (Palisot de Beauvois)

1805. Palisot de Beauvois, Ins. Afr. Amer. 147; Pl. X, Fig. 1.

Santiago de las Vegas (Hutson) and Punta Brava (Acuña) in Havana Prov.; Camagüey, Camagüey Prov. (Acuña); Santiago de Cuba, Oriente Prov. (Silvestri and Bruner); Viñales (Acuña) and Caibaguan, Sierra Rangel, (Acuña and Bruner) Pinar del Río Prov.—Est. Exp. Agron. Santiago de las Vegas (Cardín)—U. S. N. M.

The male hypopygium has a wide shallow sinus obtusely angled between the obtusely angulated lateral lobes. The margins of head, pronotum, corium anteriorly, and connexivum are orange yellow. The latter has a minute black spot at the apices of the segments which is also found in the preceding species.

Nezara nitida (Westwood)?

1837. Westwood, Hope Cat. I: 33.

1836. *Pentatoma marginale* Herrich-Schaeffer, Wanz. Ins. III: 96, Fig. 320 (Preocc.).

Recorded from Brazil and Argentine. A single specimen, No. 63, in the Gundlach collection is labeled "*Nezara marginale* H. S." It agrees with Herrich-Schaeffer's description and figure with the ex-

ception of the head which is pale (faded?). It is about the size of small specimens of *Acrosternum marginata* P. B. but is somewhat narrower with less prominent lateral angles of pronotum, and the head is shorter and broader. As to color, it is dark greenish, with a broad pale pinkish border around the body, narrower on costal margin of hemielytra and broader in front on the pronotum; a broad similarly colored median vitta runs from the anterior border of the thorax to the apex of the scutellum; the head is pale. We have followed Gundlach's determination of this specimen with considerable doubt, but owing to the fact that the collection is contained in a sealed glass-topped box it is impossible to remove it for close study. Possibly the specimen is not from Cuba, although Gundlach lists the species in his manuscript notebook as represented in both his collection and that of Felipe Poey, but does not indicate the locality from which it was obtained as was his custom.

Banasa subrufescens (Walker)

1867. Walker, Cat. Hem. Het. II: 290.

1872. *Banasa varians* Stal, Enum. Hem. II: 43.

1851. ? *Rhaphigaster antica* Dallas, List Hem. I: 283.

Soledad and Mina Carlota, Trinidad Mts. (Myers)—M. C. Z. "Cuba" (Uhler coll.)—U. S. N. M. Fermina, Matanzas Prov. (Gundlach coll.).

The Cuban specimens answer perfectly to Stal's original description of *dimidiatus* from Brazil, which later, owing to the preoccupation of the name, he changed to *varians*. Distant, in *Biologia Centrali Americana*, figures *varians* and places two of Walker's species as synonyms, extending its range to Panama, Guatemala, Mexico, and the West Indies. Kirkaldy in his catalogue of 1909 places these several names as synonyms of *subrufescens* Walker as it antedates Stal's name. It seems to the authors that *Rhaphigaster antica* Dallas 1851 may very well be the same species, in which case it would take precedence over Walker's name. It bears a rather close superficial resemblance to *dimidiata* Say, but it is less convex both dorsally and ventrally, with a shorter and more narrowly rounded head in front as well as less disparity in the length of the second and third segments of the antennae.

Banasa punctatissima new species

Plate XXV, Fig. 8

Not highly polished but somewhat shining; rather closely punctate. Color above green with lateral margins of pronotum narrowly yellow; costal margin

of hemielytra anteriorly narrowly whitish; beneath yellowish; legs and antennae pale green with apical half of third and all of fourth and fifth segments of the latter darker.

Head short, about one-sixth wider than long; lateral margins strongly, concavely arcuate before eyes; evenly rounded in front with the three lobes equal; surface roughly, coarsely, but rather sparingly punctate; lateral lobes plainly wrinkled transversely. Antennae with third segment two-fifths longer than second and equal to fourth; fifth segment only a little longer. Rostrum extending to the hind coxae. Pronotum two and one-half times wider than long (13:5), rather closely and evenly punctate; anterior submargin not depressed and provided with two or three irregular rows of punctures; lateral margin straight, smooth, calloused, scarcely reflexed; humeral angles somewhat projected, rounded. Scutellum unicolorous, about as long as wide, somewhat more sparingly punctate than the pronotum except at apex. Hemielytra rather coarsely but sparingly and evenly punctate. Membrane hyaline. Connexival margins pale green, a very slight, almost obsolete fuscous spot at the outer apical angle of each segment. Venter roughly, coarsely, and rather sparsely punctate on the sides. The male hypopygium, seen from below, is cut out in a very deep V-shaped sinus, rounded at base; the much depressed central portion occupying the base of the sinus gently rounded posteriorly; lateral angles on either side of the sinus obtusely rounded and densely setose there and along the inner margins of the sinus. Length 9.5 mm.

Type, male: Sto. Tomás, Península de Zapata, May 5-9, 1927 (Bruner and Acuña)—Est. Exp. Agron. *Paratypes, males:* Two with same data as type; Hoyo Colorado, Havana Prov. Oct. 7, 1926. *Paratypes, females:* Two with same data as type—Est. Exp. Agron. Cat. No. 44047, U. S. N. M.

This species is most closely related to *lenticularis* Uhler but is readily distinguished from that species besides its color by the much denser punctation on the dorsal parts. The genital segment (hypopygium) of the male is sometimes infuscated.

Pallantia macula (Dallas)

1851. Dallas, List Hem. I: 284.

Hoyo Colorado, Havana Prov. (Bruner); El Cobre, Oriente Prov. (Bruner)—Est. Exp. Agron. Cayamas (Schwarz)—U. S. N. M.

This is the first report of this species from Cuba. Stal lists it from Brazil and Mexico. Distant in figuring the species in the *Biologia* adds Guatemala. It has much the appearance of a *Banasa* but its short head and sulcate tibia will differentiate it.

Piezodorus guildinii (Westwood)

1837. Westwood, Hope Cat. I: 31.

Santiago de las Vegas, Havana Prov. (Acuña); Viñales, Pinar del Río Prov. (Bruner and Acuña); Nagua (Bruner and Ballou)

and El Cobre (Bruner) Oriente Prov.—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

A common species throughout the West Indies and most of the Neotropical regions.

Piezodorus tinctus Distant

1890. Distant, Biol. Cent. Amer. Rhynch. I: 341; Tab. 31, Fig. 22.

Camagüey, Camagüey Prov. (Acuña); El Cano and Playade Baracoa, Havana Prov. (Bruner); Viñales, Pinar del Río Prov. on *Pithecolobium arboreum* Linn. (Bruner)—Est. Exp. Agron. Cayamas (Schwarz)—U. S. N. M.

Distant described this from Panama and "Antilles." In the National Museum collection is a specimen from San Jacinto, Salvador. It is a broader form than the preceding species with a longer head and a much longer ventral spine which is projected forward to the middle of the mesosternum; the latter is longitudinally sulcate, not carinate; the apical angles of the connexival segments are more acutely prominent and the spiracles are not black-rimmed.

Modicia sexlineata Stal

1872. Stal, Enum. Hem. II: 46.

Sierra Maestra Mts. and Nagua, Oriente Prov. (Bruner and Ballou); Sierra Rangel, Pinar del Río Prov. (Bruner, Acuña, and Ballou)—Est. Exp. Agron. "Cuba" (Uhler coll.)—U. S. N. M.

Described from Cuba and apparently confined to that island. It has much the appearance of a *Podisus* and was erroneously labeled *Podisus politus* Uhl. (MS. name), while the above name was wrongly applied to *Pallantia macula* in the Gundlach collection. It is ochraceous, closely punctate with ferruginous, the punctures arranged in short, irregular; transverse rows on the pronotum and in six longitudinal rows on the head; the humeral angles are produced and subacute; the ventral spine is quite long and stout. The posterior femora of the male are distinctly incrassate and provided behind with a row of stout spines.

Arvelius albopunctatus (Degeer)

1773. Degeer, Mem: III: 331; Pl. 34, Fig. 6.

Santiago de las Vegas, Havana Prov. and Taco Taco, Pinar del Río (Bruner and Ballou); Herradura, Pinar del Río (Horne); Santo Tomás; Península de Zapata, Santa Clara Prov. (Bruner and Acuña)—Est. Exp. Agron. Upper Yara Valley (Scaramuzza); "Cuba" (Uhler coll.)—U. S. N. M.

A widely distributed species through the West Indies, Neotropical

regions, and southern part of the United States. Its pale, slightly green color, scattered white pustules of the corium, acutely pointed juga, and humeral angles, the latter turned somewhat anteriorly, will serve to distinguish this species.

Pharnus inconspicuus Herrich-Schaeffer

1840. Herrich-Schaeffer, Wanz. Ins. V:102, Fig. 553.

Camagüey (Acuña)—Est. Exp. Agron.

Three specimens, two males and a female from the above locality are quite distinct from *insulicola*. The humeral angle is produced into a narrowly rounded lobe much more projecting than in that species and the lateral posterior angles of the connexival segments are more produced; the rostrum is much shorter, usually reaching only to the middle of the venter.

Pharnus insulicola Kirkaldy

1857. *Pentatoma (Mecistorhinus) variegata* Guérin, La Sagra Hist. de Cuba, Ins. 366 (Preoc.).

1909. *Pharnus insulicola* Kirkaldy, Cat. Cim. I:151 (new name).

Camagüey (Acuña); Omaja, Oriente Prov. (Bruner)—Est. Exp. Agron. Soledad (Salt)—M. C. Z. "Cuba" (Uhler coll.)—U. S. N. M.

This is a relatively narrower species in which the humeral angles are scarcely prominent; lateral margins of pronotum more nearly straight; rostrum reaching nearly to the end of the abdomen, and apical angles of the connexival segments not projected.

Neopharnus fimbriatus Van Duzee

1910. Van Duzee, Trans. Amer. Ent. Soc. XXXVI:73.

Nagua, Oriente (Bruner and Ballou)—Est. Exp. Agron.

Described from Florida. The single male specimen was determined with some doubt. It has a very strong resemblance to *Pharnus inconspicuus* but the presence of a few prominent marginal spines or teeth on the pronotum and its more evident pilosity differentiate it.

Praepharnus new genus

Body depressed. Head wider than long; apices of the juga obtuse, a little longer than tylus and nearly contiguous before it; lateral margins concave a short distance before eyes; ocelli much more remote from each other than from the eyes; bucculae anteriorly forming a right angle, gradually evanescent posteriorly, not reaching beyond anterior margin of eyes. Antennae with basal segment just reaching to apex of head; second segment one-third shorter than third. Rostrum long and slender, its apex reaching to or slightly behind the posterior margin of the metasternal plate; basal segment extending beyond the

bucculae and reaching base of head; second segment a little longer than basal; third segment longest of all, one-third longer than second; fourth segment less than one-half the length of third. Pronotum over twice as wide as long; humeral angles strongly projected, forming nearly a right angle but narrowly rounded at apices; lateral margins carinate. Mesosternum broadly swollen, smooth, longitudinally carinate, carina gradually expanding anteriorly and there more elevated, extending slightly beyond anterior margin of mesosternum. Metasternal plate short and wide; anterior horns short and subacute, extending anteriorly but a short distance on the mesosternum; anterior sinus between the horns very obtusely angled; sinus at posterior margin broadly rounded; two posterior horns quite as long as anterior horns, their apices narrowly rounded. Groove from the odoriferous orifice long, acuminate, acute, much longer than the distance from its apex to the lateral margin of the metapleurum, not terminating in a long tapering ridge. Scutellum much longer than wide, apically somewhat narrowed. Hemelytra strongly punctate; frena extending well beyond middle of scutellum. Membrane provided with seven or eight simple veins which are not complete to posterior margin. Apical angles of connexival segments slightly prominent. Venter armed in front (second segment) with a flattened tubercle bluntly rounded anteriorly and fitting into the posterior sinus of the metasternal plate; a broad, bluntly rounded keel through the center. Tibia sulcate.

Type: Praepharnus prominulus n. sp.

More closely related to the genus *Pharnus* than to *Edessa* because of the presence of the mesosternal carina, shape of the metasternal plate, long, slender rostrum, as well as the depressed form of the body. From *Pharnus* it differs by having the second segment of antennae relatively longer, third segment of rostrum much longer than second, straight lateral margins of pronotum, etc.

Praepharnus prominulus new species

Plate XXV, Fig. 9 Plate XXVI Figs. 10 and 11

Head, pronotum, scutellum, and ventral parts olive green, in part coarsely punctate with black; small, smooth area between eyes and ocelli pale yellow-green; ocelli red; narrow lateral margins of pronotum yellow; hemelytra yellow-testaceous, heavily fusco-punctate; base and apical angles of connexival segments 2-6 black; mesosternal carina and metasternal plate pale yellow-white; venter with a few regularly arranged black spots; antennae pale; legs testaceous, paler towards base; femora preapically marked or punctate with fuscous; tibiae with a prebasal and preapical fuscous band. Head one-sixth wider than long (6:5); lateral lobes (juga) bluntly rounded in front, projecting but little before apex of tylus but not contiguous before it; lateral margins suddenly contracted a short distance before eyes, thence nearly parallel, symmetrically rounded at anterior third; surface sparsely and irregularly punctate with black; ocelli red; a smooth paler area between eyes and ocelli. Bucculae higher in front, forming a right angle, gradually diminishing posteriorly and disappearing on a line with anterior margin of eyes. Antennae (last segment missing) pale, finely pilose, basal segment just reaching apex of head; second segment one-third shorter than third which in turn is about one-third shorter than fourth. Rostrum with the first and second segments more incrassate, subequal; third segment

one-third longer than second and fully twice as long as fourth. Pronotum about three times as wide as long; lateral margins straight, entire, impressed or carinate, and sparsely punctate with black; humeral angles somewhat projecting, nearly forming a right angle but narrowly rounded at apices; lightly concave behind humeri; dorsal surface coarsely and rather closely punctate with fuscous, except anteriorly and along submargins; with an obsolete median longitudinal carina; cicatrices somewhat elevated and provided with a few punctures. Scutellum but little longer than wide (25:21); apex narrowly rounded; sparsely, irregularly, and coarsely punctate with black; a fuscous spot midway on either side of middle. Hemelytra more closely and finely punctate than scutellum; subcostal region nearly one-half as wide as corium. Membrane fuliginous, provided with three or four elongate, clear spaces between the simple veins which do not attain the margin. Segments of the connexivum coarsely and closely punctate anteriorly and posteriorly, depressed in the middle; apical angles slightly projecting. Meso- and metapleura as well as the venter almost impunctate but provided with a few small black spots. Elevated part of the mesosternum smooth, bounded on each side by a calloused, yellow, arcuate fascia; longitudinally carinate, carina highest and widest in front, projecting a little between the anterior coxae. Metasternal plate as described in the diagnosis of the genus. Groove from the odoriferous orifice long, open for its entire length, three times as long as the distance from its apex to the lateral margin of the metapleurum. Venter on each side provided with three rows of small black spots, one near each spiracle, obliquely back of these midway in the segments is the middle row, the inner or third row consisting of four spots, each situated on the incisures between segments 3-6; longitudinal carina wide, rounded and slightly elevated. Length 11-14 mm.; humeral diameter 7-7.5 mm.

Type, male: Camagüey, July 23, 1923 (J. Acuña)—Est. Exp. Agron. *Paratypes, females:* 1 Camagüey, July 21, 1923 (J. Acuña)—Est. Exp. Agron.; 1 North of Viñales, Sept. 16-22, 1913 (F. E. Lutz)—A. M. N. H. Cat. No. 44048, U. S. N. M.

***Edessa (Aceratodes) cornuta* Burmeister**

1835. Burmeister, Handb. II: 356.

1894. *Edessa bifida* Uhler, Proc. Zool. Soc. Lond. 176 (nec Say).

Sierra Rangel (Acuña and Bruner) and Taco Taco (Bruner, Acuña, and Ballou), Pinar del Rio Prov.; Camagüey, Camagüey Prov. (Acuña); Nagua, Oriente Prov. (Bruner and Ballou; Sto. Tomás, Península de Zapata, Santa Clara Prov. (Bruner and Acuña); Sta. Fe, Isle of Pines (Bruner and Bouclé)—Est. Exp. Agron. Guanajay (Palmer and Riley)—U. S. N. M.

We have followed Stal and Distant in the above determination of this species which is separable from *E. bifida* Say only by comparative differences. In the National Museum collection are deposited four specimens from the Biologia Centrali Americana series labeled *cornuta* Burm. by Distant, also many other specimens of the same thing from Mexico, Central America, and several islands in the

West Indies. As compared to *bifida*, the body is somewhat narrower posteriorly, the pronotum less convex, and viewed from the side the declivous front is less nearly vertical, the dorsal surface more profusely punctate, and the scutellum apically wider.

***Edessa (Aceratodes) cubana* new species**

Plate XXVI, Fig. 12

Very closely related to *E. chelonia* Van Duzee. Head, pronotum, entire scutellum, outer area of the corium, and connexivum faded green; narrow lateral margins of head and pronotum and subcostal nerve yellow; inner field of the hemelytra castaneous, with irregular yellow markings, more linearly arranged at the other limits of the clavus; body beneath yellow-green, mesosternum beneath the front of the sternal process with a rather large reddish spot; antennae and legs pale, first three segments of the former minutely spotted with fuscous, terminal segment black; legs minutely spotted with fuscous.

Head one-third wider than long; lateral lobes finely and sparsely punctate; vertex somewhat elevated, faintly, transversely wrinkled. Second segment of antenna subequal to or a little shorter than third. Bucculae about four times as long as wide, evenly elevated throughout, rounded anteriorly and posteriorly. Rostrum with second segment a little longer than third and fourth together; apex confined in the anterior notch of the metasternal plate. Pronotum over two and one-half times wider than long (19:7); lateral margins narrowly impressed, straight, and forming a right angle with the humeri, which project very slightly beyond the margin of the corium; surface evenly and closely punctate and somewhat rugose on the anterior disk posteriorly to the smooth cicatrices; anterior submargin somewhat depressed in the middle. Scutellum about one-fifth longer than wide; the more depressed, flattened apical part gradually contracted to a rather narrowly rounded concolorous apex; disk coarsely and sparsely punctate; apically more closely and finely punctate. Hemelytra within the subcostal nerve closely punctate with castaneous, leaving a linear calloused yellow area on either side of the claval suture and a few scattered smooth calloused spots on the disk of corium; subcostal area much narrower than in *chelonia* Van D., closely and confluent punctate, except near base. Membrane fuliginous. Connexival segments coarsely and somewhat sparingly punctate. Canal or groove from the odoriferous orifice ending in a long tapering ridge which is plainly longer than the distance from its apex to lateral margin of pleurum. Metasternal plate with the anterior horns wider than the diameter of the rostrum, lightly divaricate, their apices rounded and reaching to the middle of the mesosternum; posterior horns short, acute. Venter yellow, mottled and spotted with green, coarsely and rugosely punctate on the sides; the broad, central, rounded ridge smooth and impunctate. Hypopygium of the male with the posterior margin deeply and widely sinuate; apex of sinus narrowly rounded; lateral lobes obtusely rounded. Length 14 mm.; humeral diameter 7.5 mm.

Type, male: Palma Mocha Mt., Sierra Maestra (alt. 1070-1350 meters), July 10-20, 1922 (C. H. Ballou and S. C. Bruner)—Est. Exp. Agron. *Paratypes, females:* 1 Cangrejeras, Havana, May 30, 1931 (S. C. Bruner)—Est. Exp. Agron.; 1 "Cuba" (C. G. Aguayo)—Univ. Nacional. Cat. No. 44049, U. S. N. M.

Very closely related to *chelonina* Van Duzee, a paratype of which from Jamaica is in the National Museum. *E. cubana* can be distinguished from *chelonina* by the more strongly impressed lateral margins of the pronotum, much narrower subcostal region, and presence of a large red spot on the mesosternum.

***Edessa (Aceratodes) excoriata* new species**

Plate XXVI, Fig. 13

Rather closely related to *flavoflua* n. sp. Head, pronotum, entire scutellum, broad margin of the corium, connexivum, and ventral parts olive green; lateral margin of pronotum pale yellow; inner field of the hemielytra castaneous, irrorate with yellowish markings; antennae pale testaceous; first two segments plainly, third faintly spotted with fuscous; fourth segment apically embrowned; fifth fuscous, pale at base. Legs pale testaceous with apical two-thirds of femora and tibiae heavily spotted with fuscous, less evident on the two posterior pairs; body beneath more yellow green with spiracles white-rimmed; membrane fuliginous; acute apical angles of the connexival segments black.

Head short and wide, more than one-third wider than long, impunctate, transversely wrinkled, broadly rounded in front; vertex somewhat elevated; ocelli red. Antenna with second segment a little longer than third. Bucculae rather low, nearly four times as long as wide, a little higher in front, the lower edge somewhat sinuous, gradually disappearing posteriorly. Pronotum over twice as wide as long (5:2); lateral margins straight, calloused, impressed anteriorly before middle; anterior submargin lightly impressed; obsolete carinate down the middle; surface shallowly, sparingly punctate; anteriorly with wide rounded irregular rugae separating the punctures; cicatrices smooth, elevated, limited posteriorly by a strongly impressed line; humeral angles bluntly rounded, not projecting beyond the costal margins. Scutellum one-sixth longer than wide, flattened, somewhat impressed apical part tapering to a narrowly rounded, concolorous apex; more sparsely punctate on the elevated basal disk. Hemielytra with the clavus and mesocorium castaneous, with small scattered yellow areas; subcostal area about one-third as wide as the widest part of mesocorium; closely punctate. Connexivum broadly exposed, closely punctate; apical angles of segments slightly and acutely produced. Groove or canal from the odoriferous orifice ending in a tapering ridge, the apex of which is distant from the pleural margin for about the length of the ridge. Metasternal plate with anterior horns about as wide as diameter of rostrum, subacute, lightly divaricate. Sides of venter sparsely, coarsely punctate and rugose. Posterior margin of male hypopygium rather shallowly notched in the center. Length 11-13 mm.; humeral diameter 5.5-6.5 mm.

Type, male: Baracoa, Oriente, Aug. 21-30, 1929 (S. C. Bruner and L. Bouclé). *Paratypes, males:* 1 with same data as type; 2 Camagüey, July 15 and 23, 1923 (J. Acuña)—Est. Exp. Agron. 1 Port-au-Prince, Haiti, May, 1925 (G. N. Wolcott)—U. S. N. M. *Paratypes, females:* 3 same data as type, Est. Exp. Agron. 1 Port-au-Prince, Haiti, May, 1925 (G. N. Wolcott)—U. S. N. M. Cat. No. 44050, U. S. N. M.

Under the manuscript name *Edessa excoriata* Uhler, Gundlach records this species from Cárdenas, Matanzas Province, and Bayamo, Oriente Province. It is somewhat smaller than the preceding and similarly colored but is more nearly related to *E. flavoflua*. Besides its difference in color, the scutellum is not pale at apex, head more broadly rounded anteriorly, lateral margins less strongly impressed, humeral angles scarcely protruding, rostrum shorter, etc.

***Edessa (Aceratodes) flavoflua* new species**

Plate XXVI, Fig. 14

Related to *excoriata* n. sp. Head, pronotum, scutellum except at apex, and connexivum pale green intermixed with yellow; narrow lateral margin and median carina of pronotum and apex of scutellum pale yellow; inner field of hemielytra testaceous; subcostal region and clavus pale yellow, coarsely punctate with fuscous.

Antennae, legs, and venter yellow testaceous. Head one-fifth wider than long; margins before sinus not parallel but gently converging to the rather narrowly rounded apex; lateral lobes strongly punctate, rugose; a smooth area at inner margin of eyes; vertex somewhat elevated, almost smooth. Second segment of antenna subequal to or a little shorter than third. Bucculae high, about twice as long as the greatest height, lower front margin rounded, broadest before middle, thence gradually diminishing posteriorly. Apex of rostrum reaching behind the anterior notch of the metasternal plate; second segment a little longer than third and fourth together. Pronotum about two and one-half times as wide as long (17:7); lateral margin straight, with calloused yellow spots and a few fuscous punctures on extreme edge; submargins impressed and strongly, transversely rugose; anterior submargin strongly and widely depressed, coarsely punctate; a more or less evident calloused carina runs through the middle; each cicatrix occupied by a small punctate elevation; anterior disk posterior to the cicatrices strongly and transversely rugose, punctate between the rugae, giving a rough appearance to the pronotum; posterior disk sparsely and somewhat coarsely punctate; humeral angles obtusely rounded, slightly projecting beyond the costal margin. Scutellum but little longer than wide (13:11); anterior elevated disk coarsely and sparingly punctate, the narrower apical portion more finely and closely punctate. Hemielytra with the clavus for the most part smooth, provided with a few scattered, fuscous punctures; inner field of the corium (mesocorium) most finely punctate except at apex where it is more coarsely punctate; narrow subcostal region sparsely and coarsely punctate with fuscous. Connexivum coarsely and sparsely punctate, with a pale yellow tubercle in the middle of segments 2-6; lateral apical angles of segments very slightly projecting. Membrane clear, hyaline. Groove from odoriferous orifice not terminating in a long tapering ridge; the distance from apex of groove to lateral margin of pleurum twice as long as length of groove. Anterior horns of metasternal plate rather strongly divaricate, each about the diameter of rostrum. Venter sparsely, shallowly punctate on the sides, strongly rugose; each spiracle on segments 2-6 followed by a small calloused tubercle. Posterior margin of male hypopygium lightly and broadly notched in the center; lateral lobes broad, scarcely projecting beyond apex of notch. Length 12.5-13.5 mm.; humeral diameter 7 mm.

Type, male: Viñales, Apr. 6-9, 1922 (S. C. Bruner and J. Acuña).
Paratypes, males: 1 Soledad, Nov. 6, 1915 (P. Cardin)—Est. Exp. Agron. 1 "Cuba" (Uhler collection) labeled *Aceratodes meditabunda* Fab.—U. S. N. M. *Paratypes, females*: 2 Viñales, April 6-9, 1922 (S. C. Bruner and J. Acuña); 2 Sierra Rangel, Aug. 28, 1929 (J. Acuña and S. C. Bruner), Jan. 27-30, 1931 (J. Acuña and A. Otero)—Est. Exp. Agron. 1 "Cuba" (Uhler coll.)—U. S. N. M. Cat. No. 44051, U. S. N. M.

This is the species which both Uhler and Gundlach misidentified as *meditabunda* Fab., and this accounts for the fact that Uhler re-described the true Fabrician species as *rugulosa*. The roughly sculptured pronotum, more pallid corium, less pointed pale apex of scutellum, and longer rostrum will distinguish this species from *meditabunda*.

Edessa (Aceratodes) chlorophyla new species

Figs. XXVI, Figs. 15 and 16

Body more elongate than in the other species here described. Color olive green, speckled or irrorate with yellow; beneath paler green intermixed with much yellow; legs and antennae testaceous, first three segments of the latter minutely speckled with fuscous; last two segments embrowned.

Head one-sixth wider than long (6:5); lateral margin without a very distinct sinus before the eyes, almost straight, tapering to a narrowly rounded apex; surface impunctate; lateral lobes finely, obliquely wrinkled, vertex strongly elevated. Antenna with second segment subequal to third (♀). Bucculae evenly elevated throughout, the lower margins straight. Rostrum with apex reaching a little beyond apex of notch in the metasternal plate; second segment as long as third and fourth united. Pronotum well over twice as wide as long (19:8); lateral margins straight, calloused, yellowish, not impressed or carinate; humeral angles slightly projecting, forming an obtuse angle; anterior submargin not strongly depressed; a median longitudinal carina more or less distinct, more evident anteriorly; anterior disk rugose, finely punctate between the yellowish rugae; posterior disk less distinctly rugose, with punctures closer set; transverse oval cicatrices very distinctly limited by depressed lines the smooth impunctate area within quite strongly elevated. Scutellum much longer than wide (16:11), apical part rather narrowly contracted, with almost parallel sides; apex rounded, concolorous; disk of basal half sparsely, coarsely punctate; laterally and apically more finely and closely punctate. Hemelytra with the clavus sparsely punctate; one complete row of punctures just within the claval suture; corium closely and coarsely punctate; subcostal region narrow, about one-fourth as wide as mesocorium, more sparsely punctate. Membrane fuliginous. Connexivum green, very faintly and sparsely punctate; acuminate apical angles of segments quite prominent; apical angles of the seventh segment and all of the genital sclerites quite acutely extended posteriorly, visible from above (♀). Groove from the odoriferous orifice terminating in a long, acutely tapering ridge which is much longer than the distance between its apex and the metapleural margin. Two anterior horns of the metasternal plate long, much flattened dorso-ventrally, very

wide and lobate, three times as wide as second segment of rostrum. Venter on either side of the middle impunctate, irregularly rugose; the rugae yellowish; the broad longitudinal carina very distinctly elevated. Length 14.5 mm.; humeral diameter 7 mm.

Type, female: Taco Taco, April 1-6, 1922 (S. C. Bruner, J. Acuña, and C. H. Ballou)—Est. Exp. Agron. Cat. No. 44052, U. S. N. M.

The more elongate body, differently shaped head, and broad, flattened, anterior horns of the metasternal plate, as well as the color, will distinguish this very distinct species from the other Cuban species of *Edessa* here described.

KEY TO CUBAN SPECIES OF EDESSA

1. Apex of scutellum plainly marked with pale yellow----- 2
 Apex of scutellum concolorous----- 4
2. Promotum distinctly rugose, carinate in middle, submargins strongly im-
 pressed----- *flavostua* n. sp.
 Pronotum neither rugose nor longitudinally carinate, margins not impressed 3
3. Pronotum more convex, sparsely punctate; apex of scutellum broader-----
 ----- *bifida* Say.
 Pronotum less convex, less sparingly punctate; apex of scutellum narrower
 ----- *cornuta* Burm.
4. Color of corium green, concolorous with pronotum and scutellum; lateral
 margins of head nearly straight; anterior horns of metasternal plate long
 and flattened; ridge terminating odoriferous orifice much longer than the
 distance from its apex to metapleural margin----- *chlorophyla* n. sp.
 Color of corium in part castaneous, variegated with yellow; lateral margins
 of head strongly convex sinuate; anterior horns of mesosternal plate
 compressed----- 5
5. Apex of scutellum subacute; mesosternum distinctly carinate; groove from
 odoriferous orifice long, terminating in a very short, ill defined ridge.
 Much shorter than the distance from its apex to the metapleural margin;
 bucculae disappearing before base of head----- *meditabunda* Fab.
 Apex of scutellum narrowly rounded; mesosternum not at all or less dis-
 tinctly carinate; groove from odoriferous orifice short, terminating in a
 distinct, more or less elongate ridge; bucculae variable----- 6
6. Groove from odoriferous orifice and terminal ridge short, both together not
 longer than the distance from apex to the metapleural margin; venter
 very distinctly rugose, impunctate; first two segments of antenna and legs
 spotted with fuscous----- *excoriata* n. sp.
 Groove from odoriferous orifice and terminal ridge both together longer than
 the distance from apex to the metapleural margin; venter distinctly puncte-
 tate----- 7
7. Subcostal region of corium one-half as wide as mesocorium; spiracles
 marked with a distinct dark green spot; mesosternum yellowish-----
 ----- *chelonia* Van D.
 Subcostal region of corium narrow, not more than one-fourth as wide as
 mesocorium; spiracles concolorous; mesosternum with a large reddish
 spot----- *cubana* n. sp.

Subfamily ASOPINAE

KEY TO CUBAN GENERA OF SUBFAMILY ASOPINAE

1. Frena extended to middle point of scutellum. Apical half of scutellum broad, but narrower than diameter of corium. Anterior tibia either dilated or simple. Ventral spine of abdomen long, produced nearly to intermediate coxae. At least fifth ventral segment and part of sixth on each side of the disk furnished with a patch of silky hairs in the male. Humeral angles most commonly not prominent.....*Oplomus* Spin.
Frena distinctly extended beyond middle point of scutellum. Scutellum contracted apically behind middle, much narrower than corium. Ventral spine of abdomen variable. Humeral angles most commonly produced, often spinose or sometimes bifid at apex..... 2
2. Second visible ventral segment of abdomen provided with a low, scarcely produced tubercle, somewhat conical anteriorly. Preapical spine of fore femora commonly obsolete. Pronotum transversely and scutellum apically calloused. Male with patches of silky hairs on segments 3-6.....
.....*Andrallus* Bergr.
Second visible ventral segment armed either with an evident broad, elevated, flattened process or with a distinctly produced spine. Male without ventral silky patches on the abdomen..... 3
3. Anterior femora armed beneath with a distinct, stout, preapical spine. Bucculae strongly elevated, lower margins rounded. Second ventral segment of abdomen armed with a distinctly elevated flattened process, blunt or rounded anteriorly. Large species.....*Alcaecorrhynchus* Bergr.
Anterior femora devoid of a preapical spine. Bucculae lightly elevated. Second visible ventral segment of abdomen armed with an anteriorly projected spine. Smaller species.....*Podisus* H. S.

Oplomus annotatus Uhler

1863. Uhler, Proc. Ent. Soc. Philad. 362.

Casa Villate, Havana (Cevera) — Est. Exp. Agron. "Cuba"
(From Professor Poey in the Uhler coll.—U. S. N. M. Type No. 43581).

Rather closely related to *O. tripustulatus* Fab. and marked much as in some of the varieties of that species. It is, however, less polished, much more densely and coarsely punctate; the lateral margins of the pronotum are nearly straight and scarcely impressed. It is apparently a rare species.

Andrallus spinidens (Fabricius)

1787. Fabricius, Mant. Ins. II: 285.

Viñales, Pinar del Rio (Brother Roberto); Palmira, Santa Clara Prov. (Ballou)—Est. Exp. Agron. "Cuba" (Uhler coll.) U. S. N. M.

A widely distributed species, recorded from Madagascar, Asia Minor, India, Austro-Malayan Region, Polynesia, Mexico, and Louis-

iana. There are specimens in the National Museum collection from St. Domingo and Costa Rica. It has much the appearance of a large *Podisus* but there is no long spine on the second segment of the abdomen. The humeral angles are provided with a bifid process, the anterior spine of which is the longest; the pronotum is transversely and the scutellum longitudinally callously carinate; the legs are unarmed, with the tibiae strongly grooved. Gundlach records this as *Mutyca limbata* Uhler, a manuscript name, from Cárdenas, Matanzas Prov. and Fermina, probably in Santa Clara Province.

***Alcaeorrhynchus phymatophorus* (Palisot de Beauvois)**

1805. Palisot de Beauvois, *Ins. Afr. Amer.* 112; Pl. 8, Fig. 2.

Las Animas, Sierra Rangel, Pinar del Rio Prov. (Bruner and Acuña)—*Est. Exp. Agron.* "Cuba" as *Canthecona grandis* Dallas (Uhler coll.)—U. S. N. M.

Distant in *Biologia Centrali Americana* has given some characters for differentiating this species from *grandis*. Another feature of *phymatophorus* not mentioned by Distant is the more profuse punctation of the sides of the venter.

***Podisus mucronatus* Uhler**

1897. Uhler, *Trans. Maryland Acad. Sci.* I: 386.

Santiago de las Vegas, Havana Prov. (Bruner); Palmira, Santa Clara Prov. (Ballou); Omaja, Oriente Prov. (Bruner); Camagüey (Acuña); Holguin (Bruner)—*Est. Exp. Agron.* "Cuba" (Uhler coll.)—U. S. N. M.

Described by Uhler from Cuba and Florida. It is pale yellow, largely ferruginous above and rather closely and coarsely punctate; humeral angles armed with rather long, anteriorly directed spines; lateral margins of pronotum straight to base of spines, broadly calloused, yellow, irregularly toothed; ventral spine of abdomen rather long, extending forward to anterior margin of posterior coxae. This is represented by an unnamed specimen in the Gundlach collection numbered 159.

***Podisus gundlachi* (Guérin)**

1857. Guérin—*La Sagra, Hist. Cuba*—*Ins.* 367; Pl. 13, Fig. 2.

Camagüey (Acuña)—*Est. Exp. Agron.* Cayamas (Schwarz); "Cuba" (Uhler coll.)—U. S. N. M.

A Cuban species recorded by Gundlach from Zarabanda, Fermina, and Yateras in Matanzas and Oriente Provinces. It is a little smaller than *mucronatus*. The humeral angles are greatly produced, bifid,

and turned so that the secondary subapical tooth lies directly below the main upwardly inclined tooth. A darker band runs across the pronotum between the lateral processes. The first antennal segment is extremely short, the second segment almost twice as long as third. The ventral spine of abdomen is very short.

Podisus sagitta (Fabricius)

1794. Fabricius, Ent. Syst. IV: 99.

Los Animas, Sierra Rangel and Viñales, Pinar del Río Prov. (Bruner and Acuña); Santiago de las Vegas (Hutson, Acuña, and Bruner) and Hoyo Colorado (Enamorado and Bruner), Havana Prov.; Camagüey, Camagüey Prov. (Acuña)—Est. Exp. Agron. Soledad (Myers)—M. C. Z. Cayamas (Schwarz); Upper Yara Valley and Baraguá (Scaramuzza); "Cuba" (Uhler coll.)—U. S. N. M.

Very closely related to the Mexican *fuscescens* Dallas from which it differs as follows: anterior prong of humeral bifid process not turned anteriorly; scutellum longer than wide; pronotum and hemelytra relatively wider.

Podisus acutissimus Stal

1870. Stal, Enum. Hem. I: 53.

Santiago de las Vegas (Acuña and Otero).

Three specimens show the usual variation in the character of the humeral processes and the amount of melanism on the posterior lobe of the pronotum. Professor Uhler in his article on the Hemiptera Heteroptera of Grenada records the above species from St. George as *P. gaumeri* Dist. and specimens so labeled are in the National Museum. They represent merely a pale variety of Stal's species. *Podisus cloelia* Stal, a closely related species, was listed from Cuba by Gundlach. The specimen in his cabinet so labeled does not agree with Stal's description nor with Distant's figure of the species and probably represents a form distinct from any here considered.

Podisus subferrugineus new species

Plate XXVI, Fig. 17

Stramineous, for the most part closely and finely punctate with ferruginous; antero-lateral margins of pronotum, margin of apex of scutellum, legs, and ventral parts pale yellow, the latter rather closely punctate with ferruginous; humeral spines and posterior disk of corium ferruginous-red; membrane hyaline, with a longitudinal median fuscous stripe.

Head with tylus equal to juga; the latter not contiguous at apices; lateral margins subparallel, lightly converging anteriorly; apex rounded; surface of

lateral lobes closely, vertex more sparsely punctate. Antenna ferrugino-testaceous; second segment twice as long as third, which in turn is about one-third shorter than fourth which is one-fourth longer than fifth. Rostrum reaching to just beyond posterior coxae; second segment one-third longer than third. Pronotum finely and closely punctate with ferruginous, more sparsely so across central disk; an obsolete pale longitudinal line down the middle faintly continued through the scutellum; lateral margins pale, calloused to the base of humeral spines, provided with five or six irregular obtuse serrations; humeri drawn out into very prominent acute ferruginous spines, directed outwardly and slightly upward. Pleura sparingly punctate with ferruginous. Legs pale, apices of tibiae and tarsi suffused with fuscous. Scutellum longer than wide (8:7), depressed across the middle, closely punctate with ferruginous; apical fourth much contracted, more sparsely punctate; apex semicircularly smooth, pale yellow. Corium closely punctate at base; posterior disk more sparingly punctate with ferruginous; subcostal region coarsely punctate. Membrane hyaline, with a wide, median, longitudinal, fuscous stripe. Connexivum narrowly exposed, ferruginous-red, not fasciate with black. Venter shining, stramineous, profusely punctate with rosy-red; a pale brownish spot anteriorly on segments 3-6 midway between center and lateral margins; ventral spine short, acute, not reaching to middle of posterior coxae; apical angles of sixth abdominal segment acute, prominent. Length 12 mm.; humeral diameter 7 mm.

Type, male: Palma Mocha, Mt. Sierra Maestra, July, 1922, elevation 1070-1350 meters (Bruner and Ballou); *Paratype, female*: same data—Est. Exp. Agron. Cat. No. 44053, U. S. N. M.

This species seems to be close to *P. congrex* Stal from Mexico and Central America but the scutellum in that species is not pale at apex. In the male, particularly, the margins of the abdomen are strongly converging posteriorly.

KEY TO CUBAN SPECIES OF PODISUS

1. Humeral angles of the pronotum bifid at apices..... 2
 Humeral angles armed with a simple spine..... 3
2. Two spines of humeral process in the same horizontal plane, posterior spine much the shorter; apex of scutellum not noticeably pale.....*sagitta* (Fab.)
 Spines of humeral process placed one above the other; apex of scutellum pale; disk of corium with a round black spot.....*gundlachi* (Guér.).
3. Membrane entirely fuliginous, non-vittate; humeral spines strongly turned anteriorly.....*mucronatus* Uhl.
 Membrane vittate with fuscous; humeral spines straight or slightly turned anteriorly..... 4
4. Scutellum with large smooth calloused areas in basal angles; pale yellowish or greenish species, marked with black and frequently red fascia; ventral spine of abdomen long.....*acutissimus* Stal.
 Scutellum obsoletely calloused at basal angles; ferruginous species with humeral spines directed outwardly; ventral spine short.....*subferrugineus* n. sp.

Subfamily TESSARATOMINAE

Piezosternum subulatum (Thunberg)

1783. Thunberg, Nov. Ins. Sp. II:41, Pl. 2, Fig. 55.

A rather common species in the Neotropical regions and recorded from Cuba by Stal. Listed by Guérin from Cuba and San Domingo as *Pentatoma (Edessa) vacca* Fab. In the Gundlach collection there are three specimens taken in the Sierra Rangel, Pinar del Río Province.

This is a large species, the female measuring at least 20 mm. in length. Color greenish, often fading to yellowish. Lateral angles of prothorax produced as rounded prominences; outer apical angles of abdominal segments produced into sharp narrow points, directed backwards, more prominent on posterior segments; apex of scutellum produced into a long acute angle and provided with a prominent median carina.

APPENDIX

Guérin La Sagra Hist. Cuba-Insects 1857	Dr. Pedro Valdés Ragués Clasificación Gundlach Hemipteros Cubanos, etc. 1910*	Our determination
Scutellera (Augocoris) cretacea Voet.	Tetyra pinguis.	Tetyra antillarum Kirkaldy
Scutellera (Augocoris) pallida Pal. B.	Augocaris 6-punctata.	Augocoris illustris (Fabricius)
Scutellera (Pachycoris) nitens Dallas.	Pachycoris fabrici.	Augocoris illustris (Fabricius)
Scutellera (Pachycoris) boscii Fab.	Diolelus Bosari.	Pachycoris fabrici (Linnaeus)
Scutellera (Pachycoris) irrorata Fab.	Diolelus irroratus.	Diolelus boscii (Fabricius)
	Diolelus variegatus.	Diolelus irroratus (Fabricius)
Scutellera (Pachycoris) obliqua Guer.	Mesotrypa sinuosa.	Diolelus variegatus Herrich-Schaeffer
Scutellera (Corimelena) basalis Germ.	Sphycocoris obliquus.	Symphylus caribbeanus Kirkaldy
	Corimelena minuta.	Sphycocoris obliquus (Germar)
	Corimelena incerta.	Euryseytus guttiger (Stal)
	Actas communis.	Eucoria minuta (Uhler)
	Actas insularis [?].	Euryseytus incerta (Uhler)
	Stenocaris longulus [?].	Aethus communis Uhler
	Pangarus pictatus.	Aethus indentatus (Uhler)
	Amnestris pusillus [?].	Geonethus cubensis n. sp.
	Podops dubius.	Amnestrus pusio Uhler
		Amaurochrous dubius (Palisot-Beauvois)
Pentatoma (Brochymena) poeyi Guér.	Brochymena poeyi.	Brochymena poeyi (Guérin)
Pentatoma (Mormidea) ypsilon Linn.		Solubea insularis (Stal)
Pentatoma (Mormidea) geographica Fab.		Solubea insularis (Stal)
	Mormidea albisignis.	Mormidea albisignis Stal
	Mormidea pectiventris.	Mormidea pectiventris Stal
Pentatoma (Mormidea?) typhoeus Fab.	Oebalus pugnax.	Solubea pugnax (Fabricius)
	Oebalus griseus.	Solubea linki (Heidemann)
Pentatoma (Mormidea) pustulata Pal. B.	Euschistus crenator.	Euschistus crenator (Fabricius)
	Euschistus bifibulus.	Euschistus bifibulus (Palisot-Beauvois)
	Euschistus thorascicus.	Euschistus acuminatus Walker
Pentatoma (Prooxys) punctulata Pal. B.	Pronis punctulatus.	Proxys punctulatus (Palisot-Beauvois)
Pentatoma (Mormidea) perditor Fab.	Thysanta perditor.	Thysanta perditor (Fabricius)
	Thysanta taeniola.	Thysanta antiguensis (Westwood)
	Thysanta rugulosa.	
	Loxa Flaviclollis.	Loxa sp.
	Runibra proxima.	Runibra proxima (Dallas)
Pentatoma (Vulsirea) nigrorubra Spin.	Vulsira violacea.	Vulsirea violacea (Fabricius)
Pentatoma (Nezara) smaragdula Fab.	Nezara viridula.	Nezara viridula (Linnaeus)
Pentatoma (Nezara) marginata Pal. B.	No. 66 Gundlach coli. omitted	Acerosternum marginatum (Palisot-Beauvois)
	Nezara marginale.	(?) Nezara nitida (Westwood)
	Bonasa varians.	Bonasa subrufescens (Walker)
	Piezodanus Guidini.	Piezodorus guidinii (Westwood)
	Modicia 6 lineata.	Pallantia macula (Dallas)
	Arvelius albo-punctatus.	Arvelius albopunctatus (Degeer)
Pentatoma (Arvelius) albopunctatus DeG.	Pharus variegatus.	Pharus insulicola Kirk
Pentatoma (Mecistorhinus) variegata		Pharus inconspicuus (Herrich-Schaeffer)
Pentatoma (Aceratodes) inconspicua H. S.	Edessa bifida.	Edessa cornuta Burmeister
Pentatoma (Aceratodes) cornuta Burm.	Edessa meditabunda.	Edessa flaviflua n. sp.
Pentatoma (Aceratodes) meditabunda Fab.	Edessa scoriata.	Edessa exoriata n. sp.
	Ophonus annulatus.	Oplomus annotatus Uhler
Pentatoma (Canthecona) phymatoptera	Mutyca phymatophora.	Alceorhynchus phymatophorus (Palisot-Beauvois)
Pentatoma (Canthecona) gundlachii	Podysus Gundlachi.	Podisus gundlachi (Guérin)
	Podysus sagitta.	Podisus sagitta (Fabricius)
	Podysus declina.	Podisus sp.
	Podisma pallidus.	Modicia sexlineata Stal
Pentatoma (Edessa) vacca Fab.	Rizostemum sublata.	Piezosternum subulatum (Thunberg)

* Actual spelling of scientific names.

EXPLANATION OF FIGURES

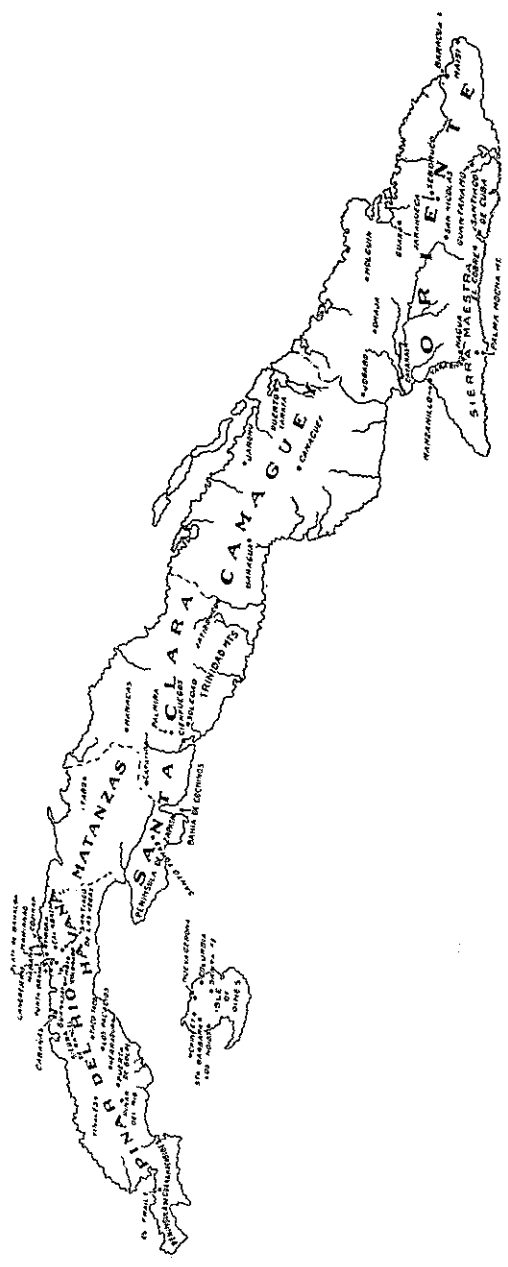
PLATE XXV

- Fig. 1. *Geocnethus reversus* n. sp.
 Fig. 2. Genital segment of *Euschistus crenator* ♂
 Fig. 3. Genital segment of *Euschistus bifibulus* ♂
 Fig. 4. Pronotum of *Thyanta cubensis* n. sp. and *T. perditor*.
 Fig. 5. Genital segment of *Thyanta cubensis* n. sp. ♂
 Fig. 6. Genital segment of *Loxa planifrons* n. sp. ♂
 Fig. 7. Genital segments of *Loxa planifrons* n. sp. ♀
 Fig. 8. Genital segment of *Banasa punctatissima* n. sp. ♂
 Fig. 9. Head, pronotum and scutellum of *Praepharnus prominulus*
 n. sp.

PLATE XXVI

- Fig. 10. Genital segment of *Praepharnus prominulus* n. sp. ♂
 Fig. 11. Genital segments of *Praepharnus prominulus* n. sp. ♀
 Fig. 12. Genital segment of *Edessa cubana* n. sp. ♂
 Fig. 13. Genital segment of *Edessa excoriata* n. sp. ♂
 Fig. 14. Genital segment of *Edessa flavostua* n. sp. ♂
 Fig. 15. Head and pronotum of *Edessa chlorophyla* n. sp.
 Fig. 16. Genital segments of *Edessa chlorophyla* n. sp. ♀
 Fig. 17. *Podisus subferrugineus* n. sp.

PLATE XXIV



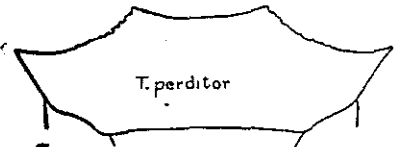
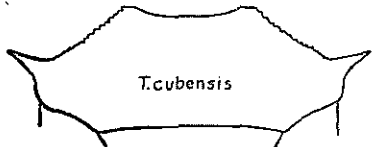
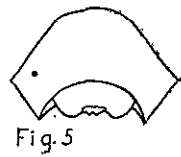
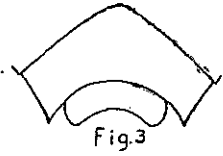
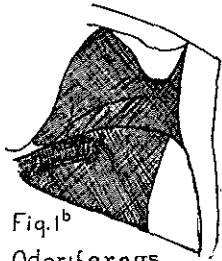
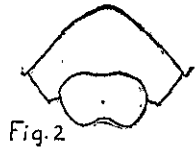
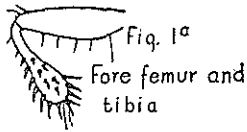
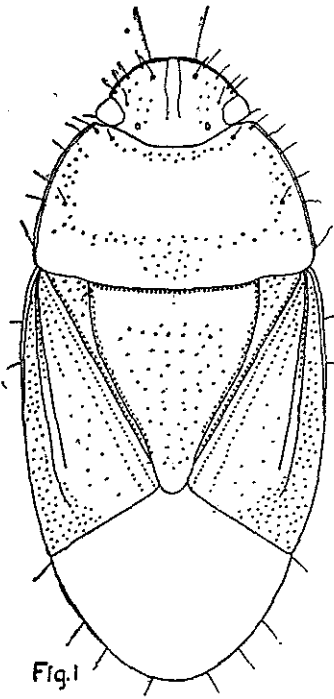


Fig. 4

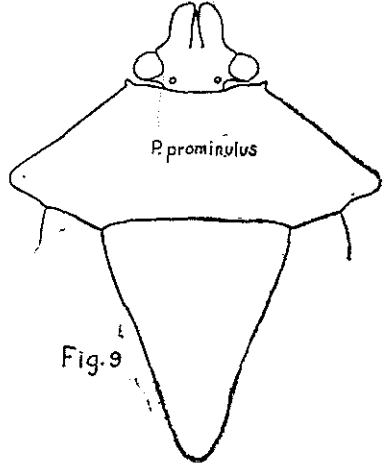
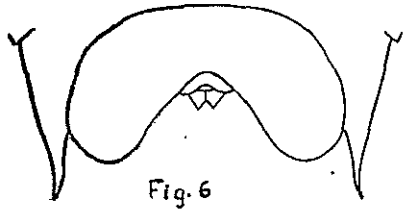
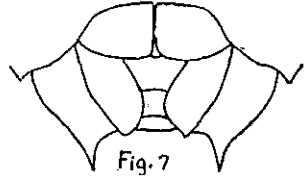
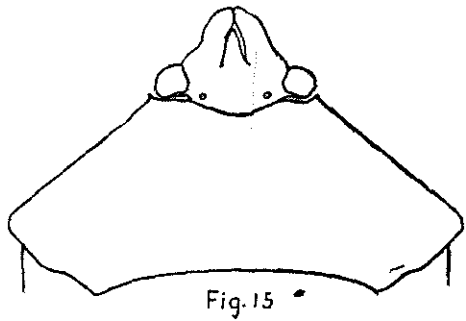
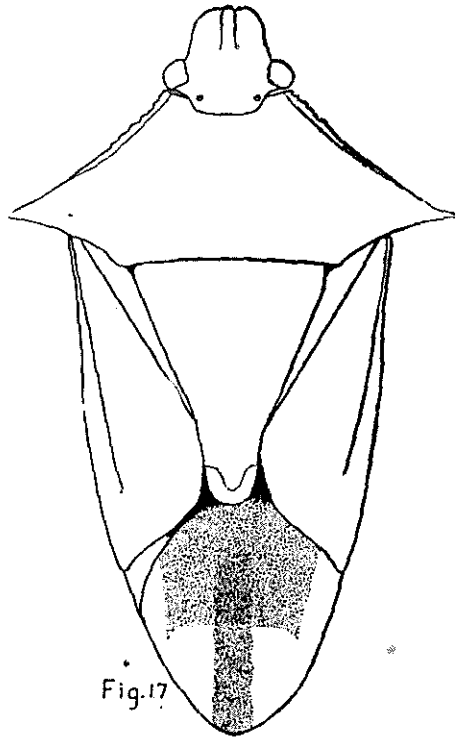
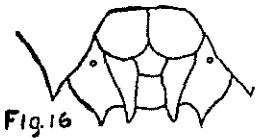
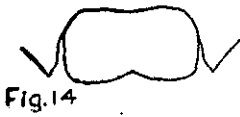
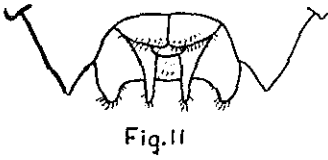
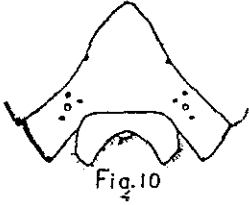


Fig. 9

PLATE XXVI



INDEX TO GENERA AND SPECIES *

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* NOTE: In this index are not included the species from other countries which were mentioned for comparative or other purposes in the text, and which have never been reported as occurring in Cuba.

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