

2. On the Hemiptera-Heteroptera of the Island of Grenada, West Indies. By P. R. UHLER.¹

[Received February 9, 1894.]

[Two papers were recently communicated to the Society on Hemiptera from the island of St. Vincent (see P. Z. S. 1893, p. 705, & 1894, p. 156); in these it was mentioned that Prof. Uhler was engaged in working out the collections from Grenada sent to him by the Committee. I have now the pleasure of offering to the Society the memoir the reception of which we were then looking forward to. The collections studied were made by Mr. and Mrs. Herbert H. Smith under the auspices of Mr. F. D. Godman, F.R.S., in the manner that was mentioned when we were dealing with the St. Vincent insects.—D. S.]

The collection of Heteroptera here enumerated was brought together in the island of Grenada by Messrs. Herbert H. Smith and Henry E. Summers during a part of the year 1891. It represents the results of a careful search over the principal parts of the island during a period of about eight months, extending from February to November. The total number of species brought back is about 166, excluding varieties and some immature forms which could not be identified.

Although not exhaustive, the collection affords an excellent basis of comparison with the faunas of other islands and countries adjacent to the centre of America; it also supplies some hints as to the sources from which the fauna has been derived.

From a review of the species here enumerated it appears evident that the Hemipterous fauna is Central-American. It is largely composed of forms which belong to the borders of the Tropics, rather than of such distinctly tropical ones as inhabit the South-American continent. The *percentage* of small forms is remarkably large. The family most extensively represented is the *LYGÆIDÆ*, of which 28 species are present, and these are correspondingly numerous in individuals. Of these species nine-tenths are found in Cuba and the other Greater Antilles, and about the same number also occur in Mexico and Central America.

Next in abundance appear the *PENTATOMOIDEA*, with 24 species. Most of these, likewise, are found in the Antilles, Mexico, and Central America, and form part of the fauna which ranges from the southern United States to the borders of the equatorial region. The most conspicuous form is *Edessa rugulosa*, which is closely related to a species of Cuba and San Domingo and to another from Mexico. *Banasa lenticularis* is very closely related to another species which also occurs in the countries just mentioned.

The *REDUVIOIDEA* come next, but the 24 species of this family are not generally abundant in individuals. About eight-tenths of

¹ Communicated by D. SHARP, F.R.S., F.Z.S., on behalf of the Committee for investigating the Flora and Fauna of the West India Islands.

these are widely distributed in the Antilles, Mexico, Central America, and the Isthmus of Panama.

The CAPSIDÆ are represented by 18 species, all but one of which have been found in the Antilles, Mexico, Central America, and the southern United States.

The COREIDÆ are represented by 17 species, a very few of which are of large size, while most of them are widely distributed, occurring from the Gulf States to the northern borders of South America.

In the ANTHOCORIDÆ we find a few genera and a total of 14 species. Those which are not new belong to forms peculiar to the Gulf States, Mexico, Central America, and the Greater Antilles. As these little creatures live much in concealment, amid tangled vegetation and decaying leaves, and upon twigs, fungi, and mosses, their distribution is but little restricted, and they extend over large parts of the continental areas.

In the CERATOCOMBIDÆ we meet with only 5 species, and these are of the widely distributed forms which spread north from the region of Brazil—*Ptenidiophyes mirabilis*, Reuter, being the only one of these not yet found in the corresponding island of St. Vincent. The collecting of these minute insects has been so generally neglected that the time has not yet come for adequate comparative statements to be made relative to the genera and species belonging to different localities; but the assemblage from St. Vincent, as now known, is more varied and comprehensive than that of Grenada. Four of the widely distributed species occur in both islands, while the four other peculiar forms were found in St. Vincent and not in Grenada. It is very unlikely that these types are confined to St. Vincent, and we confidently expect to see them discovered when the minute insects of Grenada shall have been more exhaustively collected.

The fauna of the littoral plain of the southern United States includes several genera and species not yet discovered in the West Indies, but it also embraces two or three species, particularly in the genera *Ceratocombus* and *Cryptostemma*, which have an extensive distribution in the central regions of America.

Turning to the VELIIDÆ, we find them comparatively well represented by fourteen species, rich in individuals. They exhibit some interesting modifications of structure. The elongation of the legs in one species of *Microvelia* points to a closer relationship than has hitherto been indicated between this group and that of the Hydrobatidæ. A genuine salt-water species, *Rhagovelia plumbea*, which also lives on the ocean about the Florida Keys and on the coasts of Southern Florida, adds new interest to this peculiar group of insects. This species is also noteworthy from the fact that the sexes unite sexually in what would appear to be a larval stage—the male being usually not more than one-half the bulk of the female, and both being of weak integumentary structure, and destitute of rudimentary wing-segments in the greater number of specimens. No specimens with wing-covers have yet been brought to notice.

A large number of specimens of the HYDROBATIDÆ were found, but represent only four species. They were met with more especially near the sea-coast on the flat lands and marshes.

A form closely related to *Rheumatobates* adds another to the growing list of these remarkable insects. It is a matter of regret that only one mature and winged specimen of this curious form was taken, and it is unfortunate that no observations were made respecting its mode of life and the peculiarities of its *habitat*. The pale and membranous character of its wing-covers give it the appearance of a small and slender wasp, so that this peculiarity of aspect might be of some service in protecting it from enemies which it must meet with in the water where it dwells.

The other palustrine and aquatic forms here enumerated are mostly common species which have an extensive distribution throughout the regions between Northern Brazil and the southern United States.

The presence of only two species of *Corisa* seems remarkable in a region where shallow placid and sluggish waters abound and form such suitable homes for this type of insect.

It is also difficult to account for the absence of a large number of forms of *Galgulus*, *Mononyx*, and *Notonecta*. These hardy insects abound in just such places as are mentioned above; as for example on the marshes, turbid sands, about the slime on the borders of sluggish waters, and among the roots of grass and slender plants in wet places.

In comparing this assemblage of species with that of the island of St. Vincent, the differences between them do not seem sufficient to warrant their separation into two faunas. The most divergent form from the general average is the remarkable Alydid, *Darmistidus*. This form was not among the collections from Grenada, and it is not like any that has yet been brought from any part of the American continent or its islands.

This collection adds valuable information supplementary to our previous knowledge of the faunas of the Greater Antilles, Mexico, Central America, and Colombia; but much further research will be required before we can satisfactorily recognize the limits of the great areas of distribution of the Hemiptera south of the United States.

PACHYCORIDÆ.

AGONOSOMA, Lap.

1. AGONOSOMA FLAVOLINEATA, Lap.

Agonosoma flavolineata, Lap. Hémipt., Mag. de Zool. ii. p. 69.

Examples of this species were collected at Balthazar, April 6, at an elevation of 250 feet above the sea, from foliage along the road, on dry ground, in woods of second growth. On April 30 a specimen came to the light at night. Other specimens were found on the La Force estate, August 17, on open damp ground under piles of weeds. On the Caliveny estate they were swept, September 17, from herbage on low open ground.

2. AGONOSOMA TRILINEATA (Fabr.).

Cimex trilineata, Fabr., var., Spec. Ins. ii. p. 341.

At Balthazar, one specimen came to the light at night, on April 30; another was found on herbage near the leeward coast, at St. George's; a third was beaten, on September 29, from herbage, on the hillside of the Mount Gay estate.

SYMPHYLUS, Dallas.

SYMPHYLUS DEPLANATUS (H.-Schf.).

Pachycoris deplanatus, H.-Schf. Wanz. Ins. iv. p. 3, t. cx. fig. 344.

Specimens were taken at Balthazar, April 7, which came to the light at night, and one was beaten from herbage on August 18; on September 3-10, specimens came to the light, at night, on the Mount Gay estate.

SPHYROCORIS, Mayr.

SPHYROCORIS OBLIQUUS (Germar).

Pachycoris obliquus, Germar, Zeitschr. i. p. 94.

Several specimens were swept from herbage at Balthazar, April 7, at an elevation of 250 feet above the sea, on open weedy places near a stream of water. Others were secured near St. George's, as also on the Mirabeau and Mount Gay estates.

THYREOCORIDÆ.

THYREOCORIS, Schrank.

THYREOCORIS PULICARIA (Germar).

Odontoscelis pulicarius, Germar, Zeitschr. i. p. 39.

This species was taken on the Mirabeau estate, March 25, at an elevation of 500 feet above the sea, in open places near a stream, where it was swept from herbage. It was also found at St. George's near the botanic gardens, September 10, on grass growing in a swamp. At Mount Gay it was taken, September 17, from herbage on low ground.

The specimens differ in no important respect from those which are common in Maryland and the southern United States. In these last localities the species lives in the axils of *Eupatorium*, on low or marshy ground.

CYDNIDÆ.

CYRTOMENUS, Am. et S.

CYRTOMENUS CILIATUS (Pal. Beauv.).

Pentatoma ciliata, Pal. Beauv. Ins. Afr. et Amér. p. 186, pl. 11. fig. 6.

Two specimens were captured on the Mount Gay estate, September 6, on open places near a stream.

PANGÆUS, Stål.

PANGÆUS MARGO (Dallas).

Aethus margo, Dallas, List, i. p. 116.

Numerous specimens of both sexes were found at Balthazar, March 7 and 31, up to an elevation of 1900 feet above the sea, on foliage, next the ground, in damp places near the water. Others were taken on the Grand Étang, September 12, at an altitude of 1300 feet, while flying at sunset.

GEOTOMUS, Muls. et Rey.

GEOTOMUS SPINOLAI (Sign.).

Aethus spinolæ, Sign. Ann. Soc. Ent. Fr. 1863, p. 545, pl. 12. fig. 12.

Only one specimen was found. It was taken on the Mount Gay estate, August 28, while flying at sunset.

AMNESTUS, Dallas.

1. AMNESTUS SUBFERRUGINEUS, Westw.

Cydnus subferrugineus, Westw. Hope Cat. i. p. 19.

Many specimens were collected at various places on the island. At Balthazar they were taken while flying over open places at sunset, August 4. On the Mount Gay estate they were also found, August 20-25, flying at sunset; and on the Grand Étang, September 15, they were beaten from undergrowth in the forest, at an elevation of 1900 feet above the sea.

2. AMNESTUS PUSILLUS, Uhler.

Amnestus pusillus, Uhler, Hayden Geol. Surv. Bulletin, i. p. 278.

This uncoloured little groundling was collected in April, at Balthazar, where it occurred on open weedy places, in second-growth thickets.

PENTATOMIDÆ.

MACROPYGIUM, Spin.

MACROPYGIUM RETICULARE, Fabr.

Cimex reticularis, Fabr. Syst. Rhynch. p. 170.

This common American insect was captured at Balthazar, April 15, at an elevation of 250 feet above sea-level. It was found on shady places among the weeds, in woods of second growth, near a stream of water.

Cuba is the most northern territory from which this species is at present known. It seems to be about as common in Grenada as it is known to be on the Upper Amazons.

PODISUS, H.-Schf.

1. *PODISUS SAGITTA* (Fabr.).

Cimex sagitta, Fabr. Ent. Syst. iv. p. 99.

Several specimens were beaten from plants at Balthazar, April 3, in open weedy places, and from similar herbage on the Mount Gay estate, on August 22 to 31.

This species ranges all the way from Tabatinga, on the Upper Amazon, to Texas and Tamaulipas, Mexico, and extends its distribution through all the Greater Antilles.

2. *PODISUS GAUMERI*, Dist.

Podisus gaumeri, Dist. Biol. Centr.-Am., Hem.-Heter., Suppl. p. 320, pl. 30, fig. 16.

A few specimens of this form were collected at St. George's, August 22 and 31, from herbage in swampy places.

MORMIDEA, Am. et S.

MORMIDEA UPSILON (Linn.).

Cimex upsilon, Linn. Syst. Nat. ed. xii. i. p. 720.

This species proved to be quite as common in Grenada as it is at Pará, at various other places on the coast of Brazil, and in the West Indies. Specimens were collected at Balthazar, April 7, on open weedy places, where they were swept from herbage; at the same place they were taken, August 15, from herbage, at night. Others were captured at light, at night, on the Mirabeau estate, and likewise on the Vendôme and Chantilly estates and Grand Étang. At Mount Gay specimens were found, September 14, at elevations of 400-600 feet above the sea, in open places upon herbage.

EUSCHISTUS, Dallas.

EUSCHISTUS CRENATOR (Fabr.).

Cimex crenator, Fabr. Ent. Syst. iv. p. 101.

Two forms of this species, the one with acute humeri, the other with blunter ones, were found in large numbers on most parts of the island. At Balthazar it was brushed from herbage on March 23, in cocoa orchards where the soil was damp and shaded; on April 2 they were found at an altitude of 1900 feet above the sea, on a narrow strip of grassy and weedy land between the lake and the forest. Others were collected later in April on the Mount Gay and Lake Antoine estates, and as late as May 4.

BEREOYNTHUS, Stål.

BEREOYNTHUS DELIRATOR (Fabr.).

Cimex delirator, Fabr. Ent. Syst. iv. p. 103.

This is a Colombian insect which ranges from the head of the Madeira river, in Brazil, all the way to Venezuela, Central

America, and Mexico, and extends to the Lesser Antilles. It is also found in the vicinity of Pará and at a few points farther up the Valley of the Amazons.

Several specimens were secured at Balthazar, April 7, in open weedy places, from herbage, near a stream. On the Mount Gay estate they were found, August 22, on herbage in open places, at night. Two specimens were taken at St. George's, September 11 and 28, on herbage.

PROXYS, Spinola.

PROXYS VICTOR (Fabr.).

Cimex victor, Fabr. Syst. Ent. p. 705.

A few specimens were taken at Balthazar, April 1, in the swampy forest near the sea-shore, where the mangrove-tree flourishes. A single specimen was also found on the Chantilly estate.

ARVELIUS, Spinola.

ARVELIUS ALBOPUNCTATUS (De Geer).

Cimex albopunctatus, De Geer, Mém. iii. p. 331, pl. 34. fig. 6.

Specimens of normal size were found near Balthazar, April 1, in a swampy forest near the sea-shore. On the Mount Gay estate others were taken, August 28, on herbage, on the hill about 700 feet above the sea.

Specimens sometimes occur in Florida, Cuba, and Lower California which are only half the normal size.

THYANTA, Stål.

1. THYANTA PERDITOR (Fabr.).

Cimex perditor, Fabr. Ent. Syst. iv. p. 102.

This extremely common species inhabits Northern Brazil and spreads through Colombia to Mexico, and far northward in the western part of the United States into Southern Colorado. It is also found in all the principal West India islands including Trinidad. On the eastern side of the United States it extends as far north as to the vicinity of Savannah in Georgia.

The specimens collected in Grenada were found on the Mount Gay estate, August 21 and September 28, where they were beaten from herbage in open places near a stream of water. One specimen was obtained at St. George's, in August, from herbage, at night.

2. THYANTA TÆNIOLA (Dallas).

Pentatoma tæniola, Dallas, List, i. p. 250.

This is also a common species in the West Indies, and numerous specimens were secured in Grenada. It is also found in Northern Brazil, Central America, and Mexico, and it spreads over the border into California and Arizona. In San Domingo it is very common on low plants growing beside the roads near the coast. It is also

quite variable in size and sometimes lacks the red band on the base of the pronotum.

In Grenada it was taken on the Lake Antoine estate, March 24 and April 13, at an elevation of 350 feet above sea-level, on herbage in open places. It was also found on the Mount Gay estate and at St. George's, in August.

3. *THYANTA CASTA*, Stål.

Thyanta casta, Stål, Stettin. ent. Zeit. xxiii. p. 104.

This species was taken on the Mount Gay estate, in smaller numbers than the preceding one, and it was beaten from herbage, August 1, in open places. It was also found on the Lake Antoine estate, March 24, on herbage, and in thickets near the sea.

CRATO, Dist.

CRATO URBICUS, Dist.

Crato urbicus, Dist. Biol. Centr.-Amer., Hem.-Heter., Suppl. p. 457, pl. 39. fig. 22.

Only two specimens of this insect were secured; they were beaten from herbage, at night, in open places, August 22, on the Mount Gay estate.

BANASA, Stål.

BANASA LENTICULARIS, sp. nov.

Form similar to *B. packardii*, Stål, but more convex above, especially upon the pronotum; longer oval than the related *B. imbuta*, Distant. Pale green, more or less rufous upon the pronotum, base of head, coriaceous part of hemelytra, and posterior border of the scutellum highly polished. The head, pronotum, and corium set with remote erect bristles, most of the remaining surface minutely pubescent. Head a little longer than wide, irregularly and remotely, finely punctate, the surface uneven, depressed next the base of tylus, often paler at base and near the eyes. Antennæ more or less rufous, remotely pubescent, the second joint much shorter than the third, the fourth sometimes infuscated; rostrum reaching the posterior coxæ, green, black at tip. Pronotum unusually convex in the female, somewhat less so in the male; the lateral margins reflexed, impunctate, ivory-white, hardly sinuated, the humeral angles a little prominent, with the outer margin curved and the surface near it tumid; the surface generally coarsely, remotely, deeply punctate, the punctures partly arranged in transverse, curved, broken lines; the margin, bounded behind by a line of punctures, behind the eyes reflexed, and the angles outside the eyes produced into a small tooth; the posterior margin a very little arcuated, with the edge most slenderly reflexed, and the posthumeral margin sinuated, with the submargin depressed. Scutellum very remotely, coarsely punctate, the punctures becoming denser and finer along the sides, with the apex narrow, pale, almost flat, and nearly impunctate.

Corium and clavus coarsely, deeply punctate in lines, becoming more dense and irregular on the cuneal space; the costa with about three lines of punctures, and a line of smaller ones on the inner suture; disk along the suture broadly smooth; membrane transparent, sometimes a little tinged with rufous; wings also more or less rufous or yellowish. Tergum often reddish, with the connexivum pale green, more or less yellowish or reddish, highly polished, remotely and finely punctate, angles of the posterior segment acute. Legs deep green, with the tibiæ not grooved.

Length to end of venter, ♂ $8\frac{1}{2}$ -9, ♀ 10-10 $\frac{1}{2}$ mm.; width of pronotum ♂ 5-5 $\frac{1}{2}$, ♀ 5 $\frac{1}{2}$ -6.

Eighteen specimens of this species were collected by Mr. H. H. Smith, who gives the following notes concerning their capture:—"Swept from herbage in open weedy places, at an altitude of 250 feet above the sea, on April 3; about cocoa orchards, on herbage, April 5; came to light at night, August 6-10, at an altitude of 250 feet; also August 25-30; August 26-31, beaten from herbage; September 3-10, came to light at night, at an altitude of 300 feet." These were collected on the Mount Gay estate, on the leeward side of the island of Grenada.

PIEZODORUS, Fieber.

PIEZODORUS GUILDINGI (Westw.).

Raphigaster guildinii, Westw. Hope Cat. i. p. 31.

Specimens of both sexes and of two varieties (*i. e.* degrees of maturity) were found at Balthazar and other places. At the former they were taken, March 23, from herbage, at night. Others were found at St. George's, August 22, on open swampy places, upon herbage.

This species has an extensive distribution. In my collection there are specimens from Paraguay, Rio, Pernambuco, San Domingo, Cuba, Mexico, and Southern Florida. I have also examined specimens from Jamaica, Trinidad, and Central America.

This species varies in size, convexity, and depth of colour. Some of these differences are due to the degree of maturity of the specimens at the time of their capture. Immature specimens are a pale faded greenish, either with or without the red band across the pronotum. When the dorsum of the mesonotum shows through the integument the base of the pronotum appears black, but when the chitinous cover of the pronotum is maturely indurated no blackish spot appears across the base of this segment. Specimens when fresh and mature are of a clear green colour.

NEZARA, Am. et S.

1. NEZARA MARGINATA (Pal. Beauv.).

Pentatoma marginata, Pal. Beauv. Ins. Afr. et Amér. p. 147, pl. 10. fig. 1.

Several specimens of this species were collected. Those from

Balthazar were taken, March 24, in open places and from thickets near the sea, from herbage; others were found at the same place in April, and one was captured on the Lake Antoine estate.

This is another Colombian form with a distribution from Northern Brazil to Southern Florida and the coast of Texas. It is found in all the Greater Antilles and Trinidad. Two specimens from Pará, in my collection, vary but little from the type as we find it in Mexico and Cuba. The specimens from Grenada vary much in size, just as they do in San Domingo, Cuba, and Mexico. The males are sometimes only about half the size of the females.

2. NEZARA VIRIDULA (Linn.).

Cimex viridulus, Linn. Syst. Nat. ed. 10, p. 444.

This species is now known from the warm parts of all four of the continents. In the United States it inhabits the littoral plain from Virginia to Florida and Louisiana. It is found in all the large West India islands, including Trinidad.

In Grenada the specimens were found at Balthazar, April 2, on weeds and various kinds of herbage. On the Mount Gay estate it was taken, August 20 to 25, on herbage in open places.

EDESSA, Fabr.

1. EDESSA BIFIDA, Say.

Pentatoma bifida, Say, Insects of Louisiana, p. 7; *Edessa cornuta*, Burm., and *E. cornuta*, Guérin; also *E. albirenis*, H.-Schf. Wanz. Ins. vii. p. 127, t. ccclix. fig. 774.

Types of all the references above given have been identified for me by Dr. Stål and others, and there is no reason for keeping them apart as is done in the Catal. Gén. des Hémipt. par MM. Lethierry et Severin, pp. 188, 189.

This species is distributed from Northern Brazil and Colombia through Central America and Mexico into the southern United States and the Antilles. It is variable to a marked degree in the distribution, depth, and coarseness of the punctures, the size and length of body, and the convexity of the pronotum. The scutellum is occasionally blunter than in the average, and the pronotum sometimes shows traces of wrinkles on the convex dorsum. Mr. Distant's figure of *E. cornuta*, Burm., Biol. Centr.-Am., Hem.-Heter. pl. 9. fig. 22, well represents the *E. bifida*, Say, as we find it in Louisiana, Florida, Cuba, and Grenada. Besides this, a pair of types from the Mexican series separated by Mr. Distant in working up his material for the 'Biologia' are before me at this moment, and they are precisely like my specimens from the United States and the Antilles. In examining a series of somewhat more than a hundred specimens of both sexes, from near Samana, San Domingo, I was surprised to find abrupt differences in the length of the anterior fork of the sternum of the male, and in the depth of excavation and angularity of the sides of the genital segment. The female is usually a broader, larger,

and more convex insect than the male. Occasionally the knobs on the superior surface of the connexivum are absent. When alive these insects are grass-green above, with the corium more or less bright wine-brown. Specimens from San Domingo seem to be usually more rugose upon the pronotum and wing-covers and flatter near the anterior angles of the pronotum than in the series which I have examined from the United States and Mexico. Specimens from Grenada are on the average more smooth than those from San Domingo. In my collection there is a graded series which takes in the various modifications from *E. cornuta*, Burm., with narrow and acute scutellum and coarse deep punctures, through the moderately smooth and remotely punctate *E. albirenis*, to the smooth *E. sigillata* with obsolete punctures on the pronotum and scutellum.

2. *EDESSA RUGULOSA*, sp. nov.

Form of *E. rufo-marginata*, De Geer, but of the size of *E. mediotabunda*, Fabr., which it somewhat resembles. Bright green, moderately polished, wrinkled on the head, pronotum, base of scutellum, and base of costal area, with the hemelytra wine-brown, and the lines of the clavus, reticulations of tip of corium, most of the costal area, and underside of the body yellow. Head short, minutely but distinctly punctate, bordered on the sides and tip with yellow; antennæ honey-yellow, the basal joint much thicker than the following ones, the second shorter than the third, the fourth only a little longer than the third; rostrum rufo-flavous, reaching midway between the fore and middle legs, and fitting into the fork of the mesosternum. Pronotum transverse, coarsely, deeply, irregularly punctate in somewhat transverse series, the sunken space in front of the callosities and behind the eyes densely and finely punctate; callosities and their diagonal continuation smooth, impunctate; lateral margin reflexed, smooth, yellow, the humeral angle prominent, a little rounded, smooth, the post-humeral submargin sunken, with two lines of close punctures; the posterior margin a little arcuated, the submargin bordered with a line of fine sunken punctures; pleural border beneath the lateral margin linearly callous, grooved and punctate in continuity with the underside of head. Sternal pieces remotely punctate; the mesosternal plate corresponds with that of *E. mediotabunda*. Scutellum moderately long, very moderately convex at base, depressed next the tip, less coarsely but deeply, not closely punctate, somewhat rugose on the base and middle, more finely punctate posteriorly, the sides slenderly bordered with yellow, and the tip acute. Clavus narrow, punctate with red in two approximate lines, the margin carinately elevated; corium bordered next the clavus with two strong punctate ridges, which are hollowed inwardly by two corresponding lines of rufous sunken punctures; the punctures of the disk fine and even, those of the base coarser; costal area contracted at base, set near the base with small, yellow, transverse callosities between the reddish punctures; membrane bronze-brown, with the veins darker. Legs honey-yellow, obsolete punctate,

clothed with erect hairs. Venter and sternal pieces highly polished, finely punctate, transversely grooved, the grooves of the pleura more especially punctate; stigmatal orifices black; connexivum green, more coarsely punctate, the angles of the segments acute; ventral ridge prominent, highly polished, impunctate.

Length to end of venter 10–13 mm.; width of pronotum $6\frac{1}{4}$ –7 mm.

Forty-one specimens were collected at different places on the island. At Balthazar, on the windward side, they were taken on April 1, in the swampy forest near the sea-shore, and mainly in the mangrove district; also April 13, at an altitude of 350 feet, in second-growth timber near the border of a stream on the Lake Antoine estate.

This species approaches *E. meditabunda* in the structure of the mesosternal plate, which has the anterior fork long and slender, with the sides acutely triangular, and the posterior fork shorter and more blunt; but it differs in having the tylus much longer, the sides of the head not turned up, in the evenly reflexed and not knobby border of the pronotum, in the longer and acute scutellum, and in the more contracted and less callous costal margin.

CORBIIDÆ.

SPARTOCERA, Lap.

SPARTOCERA FUSCA (Thunb.).

Cimex fusca, Thunb. Nov. Ins. Spec. ii. p. 44.

Ten specimens of two varieties of this insect were collected on the Mount Gay estate. They were obtained, April 2, from thickets on swampy ground; also September 14, at elevations of 400–600 feet, on open places on herbage; and on September 29 they were beaten from herbage on the hillside. One specimen was taken at Chantilly, March 23, in a clearing, on the underside of a log.

ACANTHOCERUS, Pal. Beauv.

ACANTHOCERUS LOBATUS, Burm.

Acanthocerus lobatus, Burm. Handb. ii. p. 318.

Specimens of this insect were obtained in nearly every section of the island. At Balthazar they were beaten from herbage, March 19, on an open place about 250 feet above the sea. Others were taken at Chantilly, Vendôme, and particularly on the Mount Gay estate, where they were numerous in September, on herbage.

LEPTOGLOSSUS, Guérin.

LEPTOGLOSSUS ZONATUS (Dallas).

Anisoscelis zonata, Dallas, List, ii. p. 452.

The most beautiful variety of this insect proves to be quite abundant in Grenada. Specimens were taken, both in the spring

and autumn, on the windward and leeward sides of the island. They were found on the Mount Gay estate, also at Balthazar, Lake Antoine, and on the Mirabeau and Vendôme estates.

PTILIA, Stål.

PTILIA PICTA (Drury).

Cimex picta, Drury, Illustr. i. p. 107, pl. 45. fig. 1.

A few specimens of this species were found at Balthazar, March 15, also on the Mirabeau estate, March 25, on herbage in open places, and on the Mount Gay estate, October 10, upon hill-sides, on herbage.

This is an exceedingly common insect in the eastern part of San Domingo, and it is not rare in Cuba, Florida, and Texas.

MADURA, Stål.

MADURA PERFIDA, Stål.

Madura perfida, Stål, Stettin. ent. Zeit. xxiii. p. 304.

Three specimens were taken on the Lake Antoine estate, in March and September, on herbage.

MARGUS, Dallas.

MARGUS INORNATUS, Dist.

Margus inornatus, Dist. Biol. Centr.-Am., Hem.-Heter. pp. 137, 365, pl. 13. fig. 18.

Two specimens were found near Balthazar, March 19, at an elevation of 1250 feet above the sea, upon an open place, on herbage. A third specimen was taken on the Mount Gay estate, August 28, at an elevation of 700 feet, on herbage.

CATORHINTHA, Stål.

CATORHINTHA SELECTOR, Stål.

Catorhinta selector, Stål, Öfv. Vet.-A kad. Förh. 1859, p. 471.

Many specimens were collected on the Mount Gay estate, April 5, at an elevation of 400 feet above the sea, where they were found on the herbage in cocoa orchards. Others were taken on the Lake Antoine estate, April 13, at an elevation of 350 feet, from herbage in the second-growth woods.

ANASA, Am. et S.

1. ANASA SCORBUTICA (Fabr.).

Cimex scorbaticus, Fabr. Syst. Ent. p. 706.

Five specimens were taken on the Lake Antoine estate, April 13, at an elevation of 350 feet above the sea, in second-growth woods on the bank of a stream.

2. *ANASA BELLATOR* (Fabr.).

Cimeæ bellator, Fabr. Mant. Ins. ii. p. 286.

Two specimens were secured on the Black Forest estate and Balthazar, April 6, from weeds in a nutmeg orchard, at an elevation of 400 feet above the sea.

ZICCA, Am. et S.*ZICCA TÆNIOLA* (Dallas).

Clavigralla tæniola, Dallas, List, ii. p. 514.

Six specimens were taken near Balthazar, April 2, at an elevation of 1900 feet above the sea, on grassy and weedy land, from herbage.

ALYDUS, Fabr.*ALYDUS PALLESCENS*, Stål.

Alydus pallescens, Stål, Rio Jan. Hemipt. i. p. 34.

Numerous specimens were collected in most parts of the island. At Balthazar they were brushed from herbage, in open grassy and weedy places, in April; on the Lake Antoine estate they came to the light at night, on March 15. At St. George's specimens were taken, August 22, in open swampy places on herbage, and at the same place as late as September 30.

LEPTOCORISA, Latr.*LEPTOCORISA FILIFORMIS* (Fabr.).

Cimeæ filiformis, Fabr. Syst. Ent. p. 727.

Several specimens were taken on the Mount Gay estate, April 5, where they were brushed from herbage in the cocoa orchards. Other specimens were secured at the same place, September 16, from herbage.

HARMOSTES, Latr.*HARMOSTES SERRATUS* (Fabr.).

Acanthia serrata, Fabr. Ent. Syst. iv. p. 75.

A few specimens were swept from herbage on the Mount Gay, Mirabeau, and Lake Antoine estates in the spring and autumn.

CORIZUS, Fallen.1. *CORIZUS HYALINUS* (Fabr.).

Lygæus hyalinus, Fabr. Ent. Syst. iv. p. 168.

Five specimens of the ordinary type were found on the island. They were taken at Balthazar and on the Mount Gay estate in April and August.

2. *CORIZUS SIDÆ* (Fabr.).

Lygæus sidæ, Fabr. Ent. Syst. iv. p. 169.

Dr. Stål has described a variety of this species as *C. pictipes*. The insect is very variable in size, colour, form, and pattern of marking, much depending upon its condition at time of capture.

Numerous specimens were collected in nearly all parts of the island, both in the early part of the year and as late as the middle of August.

JADERA, Stål.

JADERA LATERALIS, Stål.

Jadera lateralis, Stål, Stettin. ent. Zeit. xxiii. p. 307.

Several specimens of this bright-coloured species were taken at Balthazar, April 1, and on the Mount Gay estate, April 5, also in August and September, on herbage.

BERYTIDÆ.

METACANTHUS, Costa.

METACANTHUS CAPITATUS, sp. nov.

Pale rufo-testaceous. Form similar to *M. elegans*, Curtis, but with proportionately longer legs and antennæ. Head black, rounded, polished, with a pale spot at base, the tylus prominent, vertical; antennæ very slender, yellow, the basal joint nearly as long as the posterior femur, a little thickened and dusky at tip, articulation of the next two joints a little dusky, the fourth thick, fuscous, about half as long as the third; rostrum dull yellow, reaching to the middle coxæ, becoming more slender towards the tip. Pronotum closely distinctly punctate, the posterior lobe large, swollen, with the middle line a little elevated, and tuberculate at the posterior end; antehumeral surface transversely indented, the posterior margin reflexed each side; lateral line obliterated, present as a carina on the short; collar-like anterior lobe, this lobe fulvous, with a pale anterior margin, from each side of which a pale short spine projects obliquely upwards. Legs long, slender, honey-yellow; the tibiæ setiform, paler, annulated with black; the femora a little swollen and deeper coloured at tip, tarsi blackish on the apical half. Scutellum small, tumid, armed with a long, curved, pale spine which projects backwards. Hemelytra almost transparent, tinged with testaceous, the costal border a little arcuated, costal area and clavus obsolete and sparsely punctate. Beneath smooth, pale testaceous, the sternum pale piceous, abdomen straight; venter more distinctly pubescent at tip, hardly wider at base than at apex.

Length to end of venter $3\frac{1}{2}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Six specimens of this insect were collected on the Mount Gay estate, on the leeward side of the island. They were beaten from herbage, at altitudes between 200 and 400 feet, from August 21 to 31st.

LYGÆIDÆ.

NYSIUS, Dallas.

1. NYSIUS PROVIDUS, sp. nov.

Oblong, narrow; greyish yellow, the upper surface more or less clouded with fuscous, greyish pubescent. Head long, nearly as wide between the front of the eyes as the width of the apex of pronotum; the surface closely pubescent, marked along the middle with a slender, yellow, feebly raised line; the surface between the eyes granulated, the granules each side of middle arranged in lines, punctures few, indistinct; the tylus pale fulvous anteriorly, bounded each side at base by a small knob placed next a dark band; middle of gula, including the bucculæ, blackish piceous; rostrum slender, fusco-piceous or tinged with fuscous, reaching between the posterior coxæ; antennæ dull testaceous, the base and inner side of basal joint, base and apex of second, and base of fourth joint blackish. Pronotum longer than wide, obscurely bilobed, impressed and rather abruptly sinuated on the sides behind the anterior lobe; the surface transversely wrinkled, unevenly punctate with piceous, less so on the anterior lobe, the apical border black; the surface before the humerus spread with a blackish spot, which includes the knob-like angle, but leaves a yellow spot next thereto; the lateral margin obsoletely carinate, indented before the anterior angle, the middle with a pale yellow, slender line; posterior margin a little arched, sometimes bordered with black, having the posthumeral border depressed, expanded, and pale yellow. Mesosternum black in the middle, with the costal segment and the coxa tipped with brown; the anterior and posterior coxæ mostly testaceous. Legs testaceous, the femora banded with concurrent dark brown spots; the tibiæ piceous at base and tip, and the tarsi piceous, excepting the testaceous base. Scutellum obsoletely punctate, with a dark, transverse, sublunate callosity, having a blackish cavity in front of it at base, the apical division paler, acutely carinate at tip. Hemelytra dull whitish or testaceous, punctate with fuscous, finely pubescent, acutely prolonged, with the cuneus rufous; the costal area narrow, pale testaceous, with a few brown points, the veins interrupted with brown; membrane semitransparent, with the veins more or less brownish. Venter rufo-testaceous, more or less sprinkled with darker brown; the ovipositor blackish.

Length to tip of venter $3\frac{3}{4}$ –5 mm.; width of pronotum 1–1½ mm.

This is the common and widely distributed species which has hitherto been wrongly referred to *N. scolopax*, Say. The true *N. scolopax* has a rostrum which reaches to the middle of the venter, which is not the case in the species here described. Our species inhabits North America from Quebec to Arizona, from thence it spreads into Mexico and Central America, and following south it is found on the Isthmus of Panama, and in Colombia and Northern Brazil. In the West Indies it occurs in Trinidad, Grenada,

St. Vincent, Porto Rico, San Domingo, and Cuba, and from thence it extends through Florida into all of the Eastern States as far as Maine.

Possibly it is the most variable species of the group as yet discovered, for it appears in all states of marking and colouring, from the pale testaceous with few spots to the dark grey with all degrees of clouding and specking.

In Grenada specimens were taken at Balthazar, in open weedy places on herbage, April 3, at an altitude of 250 feet; also on the Lake Antoine estate, April 13, at an altitude of 350 feet, on the shores of a stream in the midst of second-growth timber, and in August at various other localities on the island.

2. *NYSIUS INÆQUALIS*, sp. nov.

Subovate, broad, a little more robust than *N. californicus*, Stål. Pale dull fulvous, punctate with fuscous yellowish pubescence. Head subacute, a little longer than wide, fulvous, with a pale line stretching from base to end of tylus; inner border against the eyes pale yellow, followed by a wider black stripe, the antenniferous lobe also pale yellow; gula black along the middle; antennæ dull fulvous, the basal joint blackish on the under surface at tip, the second joint longer than the third, tipped with black, the apical joint blackish, a little longer than the third; bucculæ pale; the rostrum more or less fuscous, reaching to the middle coxæ. Pronotum trapeziform, obliquely narrowing towards the apex, the sides not arcuated, with the margin feebly reflexed, the anterior lobe short, with the transverse incisure carried out to the excavation next the margin, but not through it; the surface distinctly and closely punctate, having a pale callous line each side of the middle throughout its length; the disk often infuscated, the middle line grooved, having a pale callosity on its posterior end at the margin, apex before the callous line deeply sunken, the lateral submargin grooved and lineated with fuscous; humeri with an acute knob, behind which the margin is indented; the posterior margin thick, deflexed, arched, a little scalloped; the posthumeral outer edge pale and feebly expanded. Under surface rufo-fulvous, whitish pubescent, having an interrupted blackish line along the sides, the sternum and base of venter blackish, and the venter mostly fulvous, with the black lines continued along the sides. The legs dull fulvous; pale at base, flecked with brown on the femora, the base and tip of the tibiæ and tarsi more or less fuscous. Scutellum transverse, punctate, pubescent, blackish at base, or each side of middle, the middle line and lateral raised margin pale testaceous, the apex carinate, acute on the tip. Hemelytra pale testaceous or whitish, carried back in a long tapering curve; the veins more or less interrupted with brown, as also the apical and outer border of the clavus and posterior border of the corium; apex of the cuneus darker brown; the costal area narrow, pale, with outer edge strongly reflexed; membrane long and narrow, the veins often marked with long smoky spots, the middle to tip with a long

blackish stripe. Connexivum sharp-edged, thin, recurved, dull testaceous or pale fulvous; disk of the tergum black each side, middle line of the last two segments also black.

Length to tip of venter $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.; width of pronotum $\frac{1}{2}$ – $1\frac{1}{4}$ mm.

This remarkable species was found in abundance on the Mirabeau estate, on the windward side of the island. It has also been taken in Florida and Cuba. The notes of capture are as follows:—March 25, at an altitude of 500 feet above sea-level, on herbage in open places near a stream of water; April 7, at an altitude of 250 feet, came to light in the night, and was also swept from herbage; also April 13 and 27, in second-growth woods and in weedy places.

This is a variable species, approaching very near to *N. californicus*, Stål, from which it can be at once distinguished by the longitudinal callosities of the pronotum.

ISCHNORHYNCHUS, Fieber.

ISCHNORHYNCHUS CHAMPIONI, Dist.

Ischnorhynchus championi, Dist. Biol. Centr.-Am., Hem.-Het. p. 193, pl. 19. fig. 3.

A few specimens were taken at several localities in the island. At Balthazar they were brushed from herbage in cocoa orchards, in shady and damp places, on March 23; at Chantilly they occurred at an elevation of 500 feet, on May 5, in second-growth thickets. Later in the year they were found on the Caliveny estate, near sea-level, September 1, on the foliage of dry scrubby growth. On October 16 they were found in a similar, but damp place, near St. George's.

NINUS, Stål.

NINUS NOTABILIS, Dist.

Ninus notabilis, Dist. t. c. p. 191, pl. 19. fig. 4.

This species was found in considerable numbers on the Vendôme estate in September, where it was beaten from herbage on marshy land. It was taken also on the Mount Gay estate, and upon the Mirabeau estate, in open places near a stream of water, on herbage, March 25.

NEONINUS, Dist.

NEONINUS ILLUSTRIS, Dist.

Neoninus illustris, Dist. t. c. p. 192, pl. 19. fig. 5.

Specimens were taken at Balthazar, March 23, in damp and shady places, from herbage, in cocoa orchards. It was also found upon the Mirabeau estate, April 7, where it came to the light at night.

BLISSUS, Burm.

BLISSUS LEUCOPTERUS (Say).

Lygæus leucopterus, Say, Heteropt. New Harmony, p. 14, no. 5.

This is the common "Chinch Bug" of the United States, Mexico, and the Greater Antilles. It attains a large size and is more variable in Grenada, both in size and marking, than is commonly found to be the case in the eastern United States. Specimens were collected on the Mount Gay and Caliveny estates in June and September, on weedy places in second-growth thickets near a stream of water.

NINYAS, Dist.

NINYAS STRABO, Dist.

Ninyas strabo, Dist. t. c. p. 194, pl. 19. fig. 6.

This neat little insect was found at several places on the island. On the Mirabeau estate it was taken, March 25, on herbage in open places near a stream of water. It was found also at Balthazar, and on the Mount Gay estate, August 20; also at the Grand Etang, September 15, among piles of weeds and waste from the stable.

PACHYGRONTHA, Germ.

1. PACHYGRONTHA CÉDANCALODES, Stål.

Pachygrontha cédancalodes, Stål, Enum. Hemipt. pt. 4, 1874, p. 139.

Two specimens of this small form were taken at Granville, April 13, at an altitude of 250 feet above the sea, where they came to the light at night. One specimen was captured at sea-level, March 26, on herbage in a thicket growing in a swamp.

2. PACHYGRONTHA BIMACULATA, Dist.

Pachygrontha bimaculata, Dist. t. c. p. 393, pl. 34. fig. 23.

Numerous specimens of this species were secured on the Mount Gay estate, April 1-5, at the light, and September 30, at an altitude of 500 feet above the sea, in second-growth woods.

3. PACHYGRONTHA LONGICEPS, Stål.

Pachygrontha longiceps, Stål, Enum. Hemipt. pt. 4, 1874, p. 140.

This large species was moderately numerous at Balthazar, April 7, at an elevation of 250 feet above the sea, where it was swept from herbage in open weedy places near a stream. It was also found on the Vendôme and Mount Gay estates, August 21 and September 8, upon herbage in open and marshy places.

MYODOCHA, Latr.

MYODOCHA UNISPINOSA, Stål.

Myodocha unispinosa, Stål, Enum. Hemipt. pt. 4, 1874, p. 147.

More than a dozen specimens of this peculiar insect were collected at Balthazar and other localities. At Balthazar it was beaten from herbage, in open places, at night, on March 19. On the Chantilly estate it was found March 7, on herbage in the cocoa orchards. One specimen was captured in August, at Balthazar.

PAMERA, Say.

1. PAMERA VINCTA, Say.

Pamera vincta, Say, Heteropt. New Harmony, p. 16, no. 3.

This common species is widely distributed throughout the littoral region of the United States south of Pennsylvania. *Pamera parvula*, Dallas, is a synonym of this form, which should be replaced by the name given above. It has a wide distribution, spreading from Central Brazil through the regions of Colombia, Central America, Mexico, and the Antilles into the United States.

In Grenada it appears to be as common as in Cuba and San Domingo. Specimens were taken at Balthazar, 1900 feet above the sea, April 2, in open grassy places, upon herbage. It was also found in August on the Mount Gay estate, and in other localities on the island.

2. PAMERA BILOBATA, Say.

Pamera bilobata, Say, Heteropt. New Harmony, p. 17, no. 7.

This is also a common species with a wide distribution southward and westward from the United States to Brazil and Colombia. At Balthazar it occurred at an altitude of 1900 feet above the sea, April 2, on grassy and weedy lands, where it was beaten from herbage; it was also taken as late as April 25, in second-growth thickets on plants.

3. PAMERA CURVIFES, Stål.

Pamera curvipes, Stål, Enum. Hemipt. pt. 4, 1874, p. 148.

A variety of this species was found in moderate abundance at Balthazar, Chantilly, and other places. It was met with in March under decaying vines and weeds on a damp rock; while the greater number of the specimens were obtained later in the season on rank herbage and in thickets.

OZOPHORA, Uhler.

1. OZOPHORA CONSANGUINEA (Dist.).

Davila consanguineus, Dist. Biol. Centr.-Am., Hem.-Het. p. 395, pl. 35. fig. 2.

This species is placed in *Davila* by Mr. Distant, but it is congeneric and perhaps identical with *O. burmeisterii*, Guérin, from

Cuba. Many specimens were collected at Balthazar, April 7, from herbage on open weedy places near a stream of water.

2. *OZOPHOEA PALLESCENS* (Dist.).

Davidia pallescens, Dist. *t. c.* p. 395, pl. 35. fig. 3.

This is the smallest species of the genus which has thus far been discovered. It has likewise been placed in the genus *Davila* by Mr. Distant. Specimens were collected at Balthazar, Chantilly, and other localities, on the same kinds of herbage as the preceding species.

PTOCHIOMERA, Say.

PTOCHIOMERA OBLONGA (Dist.).

Plociomeria oblonga, Dist. *t. c.* p. 209, pl. 17. fig. 24.

Numerous specimens of this insect were taken at Balthazar, March 27 and later, on herbage in cocoa orchards near water.

The names *Plociomerus* and *Plociomeria* are later inventions of authors and are not to be found in the writings of Mr. Say. That used above is the spelling given by Mr. Say, and there seems to be no satisfactory reason for changing it.

PYGÆUS, gen. nov.

Form similar to *Ptochiomeria*, but with the pronotum transverse, obsolete constricted, with the lateral raised margin callous along the sides of the almost flat posterior lobe, carried forward very slender to the anterior angle. Antennæ thick, a little longer than the head and pronotum united; the first joint not so long as the head, not thickened towards the tip; second a little longer, growing thicker towards the tip; the third much shorter, thicker, fusiform; the fourth not quite so thick as the third, subfusiform, acute at both ends. Rostrum slender beyond the basal joint, reaching the middle coxæ, the basal joint as long as the gula, the second joint a little longer. Head moderately long, in front of the eyes narrower than the apex of pronotum; eyes large and prominent; the face tapering, sloping forwards, with the tylus prominent; the bucculæ very low, slender. Prosternum collar-like in front of the anterior coxæ. Fore femora moderately thick, without spines, posterior femora long, curved at the tip. Scutellum a little longer than wide, acute and carinate at the tip, the sides strongly decurved. Hemelytra long oval, with a tapering curve posteriorly, the membrane a little protracted behind the abdomen, the costal border thick and slightly reflexed, a little sinuated, with the embolium long and broadly grooved.

PYGÆUS PALLIDUS, sp. nov.

Long oval, fulvous, polished, minutely pubescent, and feebly punctate; antennæ darker beyond the testaceous basal joint. Rostrum, coxæ, and legs testaceous. Underside highly polished. Posterior lobe of pronotum punctate, anterior lobe smooth; pos-

terior margin a little deflexed, sometimes slenderly infuscated. Scutellum at base coarsely and deeply punctate. Claws punctate in lines, the corium a little less coarsely punctate, with the cuneus dusky; the membrane whitish, immaculate.

Length $1\frac{3}{4}$ mm.; width of pronotum $\frac{3}{4}$ mm.

This plain little insect inhabits also Cuba, Texas, Florida, the eastern side of the United States as far north as Tewksbury, Mass., and spreads into Lower Canada. It is sometimes quite common in Maryland. The four specimens from Grenada were secured at Balthazar, August 4, at an altitude of 250 feet above the sea, in open places, where they were flying at sunset, on the Mount Gay estate, August 20 to 25, and September 15, on the Grand Étang road.

SALACIA, Stål.

SALACIA PICTURATA, Dist.

Salacia picturata, Dist. Biol. Centr.-Am., Hem.-Het. p. 406, pl. 35. fig. 19.

Five specimens of this species were taken at Balthazar and other places on wet sand, or on weeds close to running water, April 15, and also August 17 under bundles of weeds.

In placing this insect in the genus *Salacia*, I have merely followed the lead of Mr. Distant, because no type of that genus is within my reach, and I desire to avoid multiplying genera in this much-divided family.

TRAPEZUS, Dist.

TRAPEZUS FASCIATUS, Dist.

Trapezus fasciatus, Dist. t. c. p. 217, pl. 20. fig. 5.

Three specimens of this insect were collected on the Grand Étang, August 13, at an elevation of 1900 feet above the sea. They were beaten from masses of brush in a clearing of the damp forest. One specimen was taken September 15.

PETISSIUS, Dist.

PETISSIUS DIVERSUS, Dist.

Petissius diversus, Dist. t. c. p. 407, pl. 35. fig. 22.

Numerous specimens of this little insect were collected at Balthazar, April 22, in open weedy places, among second-growth thickets, and on the Chantilly estate, April 15, where they were flying about the flowers of an orange-tree.

GONATAS, Dist.

GONATAS DIVERGENS, Dist.

Gonatas divergens, Dist. t. c. p. 219, pl. 20. fig. 10.

Many specimens of this species were taken at Balthazar, April 8, from wet sand on the banks of a stream, where they

were alighting from the air. Others were found on the Mount Gay estate, August 20-25, under piles of weeds and leaves.

RHAPTUS, Stål.

RHAPTUS COLLINUS, Dist.

Rhaptus collina, Dist. *t. c.* p. 410, pl. 36. fig. 3.

Seven specimens of this insect were found on the Mount Gay estate, where they were either beaten from herbage in open places or taken from beneath piles of weeds and leaves.

MELANOCORYPHUS, Stål.

MELANOCORYPHUS BICRUCIS (Say).

Lygæus bicrucis, Say, Journ. Acad. Nat. Sci. Philad. iv. 1825, p. 322.

Four specimens of this common North-American insect were taken on the Mount Gay estate, August 21-26, on herbage.

ONCOPELTUS, Stål.

1. ONCOPELTUS FASCIATUS (Dallas).

Lygæus fasciatus, Dallas, List, iv. p. 538.

Five specimens were found on the Mount Gay estate, August 26 and 30. They were beaten from herbage on an open flat tract near the sea.

2. ONCOPELTUS CINGULIFER, Stål.

Oncopeltus (Erythrischius) cingulifer, Stål, Enum. Hemipt. pt. 4, 1874, p. 103.

Numerous specimens were collected at Balthazar, March 7 and April 2, from herbage in second-growth woods. One specimen was secured at Granville, March 27; another was found on the Mount Gay estate, April 5, on herbage; and another at the same place on August 26.

3. ONCOPELTUS VARICOLOR (Fabr.).

Lygæus varicolor, Fabr. Ent. Syst. iv. p. 149.

A few specimens of this beautiful species were found at Balthazar and other places in April, on open places upon herbage. One was also found on the Lake Antoine estate, another on the Mirabeau estate, and yet another was found at Windsor, on the windward side of the island, March 28, on herbage in an open area at an elevation of 500 feet above the sea.

PYRRHOCORIDÆ.

DYSDERCUS, Am. et S.

DYSDERCUS ANNULIGER, sp. nov.

Form of *D. suturellus*, H.-Schf., and differing from that species

in having a white ring at the base of the apical joint of the antennæ, and in lacking the white cross on the inner margin of the corium and clavus. There are two principal patterns of marking in this insect: one in which the upper surface is dusky black, with the exception of the head, the anterior two-thirds of the pronotum, and the base of scutellum, which are red; in the other the insect is red above, excepting the base of the pronotum and the membrane, which are black. In the female the underside is red with a black edge to the basal margin of the ventral segments and pleural sutures. In the male most of the venter is white, as are also the collum and posterior border of the pleural pieces. The rostrum of the male usually reaches to the middle of the second ventral segment, but in the female it extends only to the basal segment.

Varieties occur which connect the two extremes of colour. The legs vary in the amount of red upon the femora and tibiæ. Many of the specimens have these members piceous blackish.

Length to tip of abdomen ♂ 8-10, ♀ 10-12 mm.; width of pronotum $2\frac{3}{4}$ -4 mm.

This species is also closely related to *D. ruficollis*, Linn., but it is a much larger insect, with a longer head, exactly as in *D. suturellus*, H.-Schf., and with a proportionally longer rostrum in both sexes. In *D. ruficollis* all the specimens I have examined were marked with a more or less distinct black dot behind the middle of the corium.

Many specimens were collected on both sides of the island.

At Balthazar they were found March 30, in considerable numbers upon decaying oranges in shady places. On the Mount Gay estate (leeward) they were taken, April 5 and 25, in the cocoa orchards, where they were brushed from the undergrowth. In August and September they were found on the Mount Gay estate and St. George's.

The white colour of the base of the fourth joint of the antennæ is sometimes indistinct, but not quite absent.

CAPSIDÆ.

LOPUS, Hahn.

LOPUS MILITARIS, sp. nov.

Long oval, pubescent, bright yellow beneath, the markings rufous above. Head short, with a dusky oval loop on the cranium, open at base, and closed at the base of the tylus; the tylus stout, black, the cheeks and throat bright yellow; rostrum yellow, fuscous from the middle to the tip, reaching behind the middle coxæ, the basal joint thickened at tip, reaching upon the sternum; antennæ black, long, tapering, the second joint rod-shaped, about as long as the more slender third and fourth joints united; eyes black, very prominent. Pronotum dark brown, dull, pubescent, with the collum, and a broad reddish stripe running

back from it, widening at the basal margin, narrowing between the callosities and sending off a slender line behind them; lateral margins sinuated, acutely reflexed, excepting the sides of the prominent collum; margin of the propleura also reflexed. Legs black, orange or rufous on the coxæ and base of femora. Scutellum almost flat, flavo-rufous, a little fuscous near the basal angles. Hemelytra dark brown, greyish-pubescent, with the cunetus and inner edge of the clavus fulvous; costal areole long, narrow and almost straight, the membrane dark brown, the vein of the areole pale. Venter yellow, invested with long whitish pubescence, the sides obscured with a series of spots, and the ovipositor black.

Length to end of venter 5-5½ mm.; width of pronotum 2¼ mm.

Only two specimens, a male and a female, of this bright insect were secured. They were found on an open and weedy place upon herbage, on La Force estate, at an elevation of about 350 feet above the sea.

CALOCORIS, Fieber.

CALOCORIS (MEGACCELUM) RUBRINERVIS (Dist.).

Creontiades (Megacelum) rubrinervis, Dist. Biol. Centr.-Am., Hem.-Het. p. 237, pl. 23. fig. 12.

A fine series of specimens were brought back from the island. They were found on both sides of the region. At Balthazar they were taken April 7, from plants in open weedy places near a stream of water. In March they were found on the Mirabeau and Lake Antoine estates. In August they were swept from herbage on the Mount Gay and Lake Antoine estates.

The form of the sides of the head and proportions of the antennæ seem to place this species in *Calocoris* rather than in *Megacelum*.

MELINNA, Uhler.

MELINNA MODESTA, Uhler.

Melinna modesta, Uhler, Entomol. Americana, iii. 1887, p. 69.

Several specimens were taken on the Mount Gay estate and at St. George's, late in August and early in September, by sweeping the herbage.

In Maryland this species occurs in late summer on willows, and also on undergrowth of thin woods and on pine-trees, near streams of water.

PHYTOCORIS, Fabr.

PHYTOCORIS EXIMIUS, Reuter.

Phytocoris eximius, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 67.

Three specimens, all different in markings, were found at Balthazar, March 2, and at St. George's in September. They came to the light at night.

This is a common species with an extensive distribution. It inhabits Colombia, Central America, Mexico, California, Washington State, Oregon, Colorado and Utah, New Mexico, Arizona, Minnesota, Lower Canada, and all the Atlantic States from Maine to Florida, and the Gulf States west into Texas, as also San Domingo and Cuba. Degrees of maturity affect its colours and pattern of marking.

PECILIOSOYTUS, Fieber.

PECILIOSOYTUS (LYGUS) CUNEATUS (Dist.).

Lygus cuneatus, Dist. Biol. Centr.-Am., Hem.-Het. p. 435, pl. 37. fig. 24.

This is a common species in the Antilles and on the borders of the adjoining continent. It is found in Central America, Mexico, Texas, and Florida, and apparently as far north as Virginia. Specimens from the last-named State have passed through my hands, but, as their antennæ were mutilated, a slight element of uncertainty exists in the identification.

Many specimens were collected on the Mirabeau estate, April 7, as they came to the light at night. At Balthazar and on the Mount Gay estate they were swept from herbage in August.

FULVIUS, Stål.

1. FULVIUS ATRATUS, Dist.

Fulvius atratus, Dist. t. c. p. 282, pl. 27. fig. 18.

Several specimens of this species were taken at Balthazar, March 7, and also early in August, in bushy places on herbage and at the light. Others were captured at Chantilly, and on the Grand Étang they were met with at an altitude of 1900 feet upon decaying weeds. In the United States this species frequents fungi in damp, shady borders of woods, and it flies freely in the sunshine.

2. FULVIUS LUNULATUS, sp. nov.

Black, polished, oblong-ovate, with the head shorter than normal, wider than the apex of pronotum, and swollen between the eyes, vertex with a faint impressed line; antennæ dark brown, the second joint paler, very long, and white on the apical one-third, the third and fourth a little more slender than the second, but not setaceous; rostrum piceous, reaching behind the posterior coxæ. Pronotum wider than long, tumidly convex on the middle, broadly indented, and grooved in the centre behind the collum, the posterior submargin bounded by an incised line; humeral angles acutely prominent, the lateral margin deeply sinuated. Scutellum piceous black, highly polished, convex. Legs pale fuscous, the anterior femora darker. Hemelytra black, or brownish black, marked with a minute pale fleck at the base of

the corium, and with the inner border of the clavus slenderly fulvous; corium with an obliquely placed lozenge-shaped white spot on the basal third, and a smaller oval spot of the same colour on the inner half of the cuneus; membrane smoke-brown, showing a slender edge of white against the margin of the cuneus.

Length to tip of venter 2-2½ mm.; width of pronotum ⅔ mm.

Several specimens were collected on the Black Forest estate and about the Grand Étang, on the windward side of the island, from August 13 to 19, at an altitude of 1500 to 1900 feet above the level of the sea, under leaves on the ground, on bark of decaying logs in a clearing, and also beaten from masses of brush and leaves.

ECCRITOTARSUS, Stål.

1. ECCRITOTARSUS ATRATUS, Dist.

Eccritotarsus atratus, Dist. *t. c.* p. 285, pl. 26. fig. 20.

This is a common species in the West Indies, Mexico, Central America, and Colombia. It inhabits also California and Texas. Numerous specimens were taken at Balthazar, at an elevation of 1900 feet above the sea, April 2, on herbage, in open grassy places near water. It was found also on the Mount Gay estate in August, flying at sunset.

2. ECCRITOTARSUS INCURVUS, Dist.

Eccritotarsus incurvus, Dist. *t. c.* p. 285, pl. 26. fig. 19.

Numerous specimens were found at Balthazar, also on the Mirabeau, Mount Gay, and Lake Antoine estates, either in March or August, on grass and herbage near streams of water. In the southern United States it lives in midsummer on low herbs in open places on sandy beaches of streams.

CYTOCAPSUS, Reuter.

CYTOCAPSUS CALIGINEUS (Stål).

Capsus caligineus, Stål, Freg. Eugenie Resa, Ins. p. 258; Dist. *t. c.* p. xx.

Pirithous pallipes, Dist. *t. c.* p. 303, pl. xxix. fig. 11.

A few specimens were taken at Balthazar and on the Mirabeau estate in March and April in weedy places.

ENGYTATUS, Reuter.

ENGYTATUS GENICULATUS, Reuter.

Engytatus geniculatus, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 83.

Neoprobe varians, Dist. *t. c.* p. 271, pl. 26. fig. 7.

This species is distributed all the way from Colombia to Mexico.

the Antilles, Texas, and Florida. In San Domingo it lives on various kinds of weeds growing on the sides of the roads and in neglected gardens.

Numerous specimens were collected on both sides of Grenada. On the Mount Gay estate they were found, late in August, on herbage in the open country. At St. George's they were taken during the same month, at night, from herbage.

DICYPHUS, Fieber.

DICYPHUS SEPARATUS, sp. nov.

Long and moderately narrow, pale greenish, erect-pubescent, with the basal joint and apex of the second joint of antennæ black; punctures of the hemelytra coarse, sparse, black; corium with a large black dot a little behind the apex, with the apex, the posterior border faintly, the tip of scutellum, and the end of the cuneus also black. Head moderately short, highly polished, remotely pubescent; eyes dark brown; antennæ pale green, minutely pubescent, a little longer than from tip of head to apex of clavus; rostrum testaceous, dusky at tip, reaching almost to the apex of the posterior coxæ. Pronotum obsoletely punctate, marked with a deeply-impressed longitudinal line, the posterior margin deeply sinuated. Legs pale greenish, with the apex of the tarsi piceous. Scutellum a little punctate, set with erect hairs. Corium and clavus with remote erect fuscous pubescence; cuneus minutely striato-punctate, long, sinuated on the inner border; the membrane long, iridescent, with the veins of the areole a little dusky.

Length to tip of abdomen 3 mm., to tip of membrane 4 mm.; width of pronotum $\frac{7}{8}$ mm.

This species extends its habitat from Cambridge, Mass., to Florida and Texas; it is also found in California.

Six specimens of this insect were taken on the Mount Gay estate, October 16, on low herbage.

PARACARNUS, Dist.

PARACARNUS MEXICANUS, Dist.

Paracarnus mexicanus, Dist. Biol. Centr.-Am., Hem.-Het. p. 445, pl. 39. fig. 2.

This species was captured at Balthazar, March 23, in a cocoa orchard in a damp situation. On the Mirabeau estate it was found March 25, on herbage near a stream of water.

ANNONA, Dist.

ANNONA LABECULATA, Dist.

Annona labeculata, Dist. t. c. p. 446, pl. 39. fig. 3.

One specimen was found near Balthazar, March 23, in a shady damp locality, on herbage, in a cocoa orchard.

HALTICUS, Burm.

HALTICUS UHLERI, Giard.

Halticus uhleri, Giard, C. Rend. Soc. Biol. sér. 9, iv. p. 81.

Halticus minutus, Uhler, in Popenoe, Report, Kansas, 1889, p. 212, pl. 9. figs. 10 & 12.

Calocoris canus, Dist. t. c. p. 430, pl. 37. figs. 11 & 12.

Several specimens were found, most of which were winged. A brachypterous specimen was taken, March 25, on the Mirabeau estate; the other specimens were found, in August, among dry weeds and rubbish on damp ground at Balthazar and Chantilly.

EPISCOPUS, Reuter.

EPISCOPUS ORNATUS, Reuter.

Episcopus ornatus, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 90.

Lygus uvidus, Dist. t. c. p. 433, pl. 37. fig. 18.

In the United States this species is distributed from New York to Florida, and from thence to Cuba and San Domingo. It abounds in midsummer in fields from which wheat has been cut, and where it lives upon the *Ambrosia artemisiæfolia*.

In Grenada it was common at Balthazar and on the Mirabeau estate, on weeds, both in April and August.

PSALLUS, Fieber.

PSALLUS POLITUS, sp. nov.

Oval, black, highly polished, minutely pubescent. Head large, triangular, almost vertical, moderately convex, rufo-piceous beneath, with a few indented points on the vertex, the width across the eyes a little greater than the apex of the pronotum; antennæ yellow, short, moderately stout, the two apical joints and sometimes the distal end of the second joint fuscous, the second nearly as long as the head and pronotum united; rostrum testaceous, piceous at base, the tylus also piceous. Pronotum transverse, simple, moderately convex, obliquely narrowed, and abruptly decurved on each side in front, the surface highly polished, sparsely pubescent, obsoletely punctate. Scutellum nearly equilateral, moderately convex, acute at tip, obsoletely wrinkled. Legs testaceous, the tarsi usually more or less dusky. Hemelytra highly polished, minutely greyish pubescent, covered with shallow punctures; the membrane smoke-brown. Pleural pieces and sternum piceous. Venter highly polished, not apparently punctate, often rufo-piceous at base.

The male has the second joint of antennæ a little thickened at apex and often fuscous there.

Length to tip of venter $1\frac{3}{4}$ -2 mm; width of pronotum $\frac{3}{4}$ mm.

Nineteen specimens of this little insect were secured in various places on the windward side of the island. Of these both sexes

were found on the Mirabeau estate, April 7, at an altitude of 250 feet; on the Mount Gay estate, at levels from 200 to 400, on August 21; and on the Chantilly estate, September 17, at an altitude of 500 feet. Some came to the light at night, others were taken while flying at sunset, and some others were swept from herbage in open places.

RHINACLOA, Reuter.

RHINACLOA FORTICORNIS, Reuter.

Rhinacloa forticornis, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 88.

This species was found at Balthazar, St. George's, and on the Mount Gay estate in August, upon herbage growing in swampy ground.

CERATOCOMBIDÆ.

CERATOCOMBUS, Signoret.

1. CERATOCOMBUS BRASILIENSIS, Reuter.

Ceratocombus brasiliensis, Reuter, Monogr. Ceratocomb. p. 7, no. 3, fig. 3.

This species is common in both St. Vincent and Grenada, and it seems to have a general distribution from Brazil to the Antilles. Numerous specimens were collected at Balthazar, March 5, under decaying leaves on a damp rock, next the shady bank of a stream. At Woburn one specimen was found on the Windsor estate, at an elevation of 500 feet, March 28, under decaying leaves on wet sand on the shady bank of a stream. In August it was abundant on the Mount Gay estate, at an elevation of 1900 feet above the sea, in a clearing of the damp forest, with masses of brush and leaves.

Individual specimens vary somewhat in the extent of the white colour near the costal margin of the hemelytra. In some of them scarcely more than a white dot is present, while in others the colour is extended into a broad streak. In a small proportion of the specimens the white is obsolete or absent.

This form is closely related to, if not the same as, one which belongs to the Gulf States and Florida; but, as only soiled specimens have been accessible to me, it is not possible to express a settled opinion as to the identity of these insects.

2. CERATOCOMBUS MINUTUS, sp. nov.

Oblong-ovate, dull black; form similar to *C. brasiliensis*, Reut., but small, and comparatively wider across the hemelytra. Head subconical, longer than wide, a little narrower than the apex of the pronotum, minutely pubescent, sometimes tinged with rufous, indented in the middle, with the tylus wide and prominent, and the eyes projecting beyond the sides of the pronotum; underside of head testaceous, piceous on the tumid base of the gula, the rostrum testaceous, reaching upon the middle coxæ; antennæ moderately stout, testaceous, the two apical joints slender and

more distinctly hairy. Pronotum transverse, moderately convex, minutely pubescent, strongly decurved behind the eyes, with the lateral margins reflexed and set with remote bristles, the humeral angles a little prominent, posterior margin a little curved; sternum piceous, transversely tumid at the collum, and smooth. Legs dusky testaceous, with the anterior femora broad and compressed. Hemelytra dull black, pubescent, gradually widening posteriorly, the membrane almost as long as the corium, opaque, and bluntly rounded at tip, with the middle area large and oval, similar to *C. brasiliensis*; costal margin broadly recurved almost to the tip of corium, the cell adjacent to the costa long and wide, subtriangular.

Length to tip of hemelytra $1\frac{3}{4}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Numerous specimens were collected in various localities in the island. At Balthazar, 250 feet above tide-level, specimens were secured, April 20, in weedy open places in second-growth thickets, and at the same place on August 4, 10, 15, flying at sunset. On the Mount Gay estate they were found August 28-31 and September 6, at an altitude of 200 feet, flying at sunset. On the Grand Étang they were secured at an altitude of 1900 feet on a clearing in the damp forest, where they were beaten from masses of brush and from leaves. On the Chantilly estate they were found, August 5, at an altitude of 500 feet on open hillsides, amidst a second-growth timber, where they were swept from piles of decaying weeds and rubbish.

CRYPTOSTEMMA, H.-Schf.

CRYPTOSTEMMA FASCIATUM, sp. nov.

Dark brown, opaque, oblong-oval, gradually widening posteriorly, minutely pubescent. Head subconical, tinged with rufous in front and below; antennæ long, stout, rufo-testaceous, hairy; rostrum pale testaceous, reaching to the posterior coxæ. Pronotum a little wider than long, indistinctly grooved on the middle line, steeply decurved on the sides anteriorly, where it becomes a little narrower. Legs pale testaceous. Hemelytra apparently coriaceous throughout, dark brown, minutely scabrous and pubescent, crossed behind the scutellum by a wavy, broad, deep yellow band. Beneath dull yellow on the meso- and metasternum, and sometimes on the base of the venter. The entire underside is sometimes pale piceous.

Length to tip of venter 1 mm.; width of pronotum $\frac{1}{2}$ mm.

Four specimens were collected on the Grand Étang, August 9, at an altitude of 1900 feet above the sea, from masses of roots, phyto-parasites, and decaying leaves on trees.

SCHIZOPTERA, Fieber.

SCHIZOPTERA FLAVIPES, Reuter.

Schizoptera flavipes, Reuter, Monogr. Ceratocomb. p. 19, no. 2, fig. 10.

The original type of this species came from Rio, Brazil; but the
PROC. ZOOL. SOC.—1894, No. XIV. 14