

2. A List of the Hemiptera-Heteroptera collected in the Island of St. Vincent by Mr. Herbert H. Smith; with Descriptions of New Genera and Species. By P. R. UHLER.¹

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A. List of Species of which specimens were obtained.

Diolcus boscii, <i>Fab.</i> , ♂ ♀. (Uncoloured state.)	Clerada apicicornis, <i>Signoret.</i> (Very large.)
Sphyrocoris obliquus, <i>Germ.</i>	Pachygrontha longiceps, <i>Stål.</i> (Large ♀.)
Symphylus deplanatus, <i>H.-Schf.</i>	Gonatas divergens, <i>Dist.</i>
Thyreocoris pulicarius, <i>Germ.</i>	Blissus leucopterus, <i>Say.</i> (One dwarf.)
Pangæus serripes, <i>Hope.</i>	Ptochiomerus dohrnii, <i>Guérin.</i>
Pangæus sp.	Ozophora pallescens (<i>Dist.</i>).
Amnestus subferrugineus, <i>Hope.</i>	— sp. inc.
Mormidea ypsilon (<i>Linn.</i>). Small var.	— burmeisteri, <i>Guérin.</i>
Euschistus bifibulus, <i>Pal. Beauv.</i>	Geocoris lividipennis, <i>Stål</i> (var.).
Proxys victor, <i>Fab.</i>	Pamera bilobata, <i>Say.</i>
Arvelius albopunctatus, <i>De Geer.</i>	— thyncta, <i>Say.</i>
Piezodorus guildingii, <i>Westw.</i>	Nysius providus, sp. nov. (vars.).
Thyanta perditor, <i>Fab.</i>	Cymus virescens, <i>Fab.</i>
— casta, <i>Stål.</i>	Ninus notabilis, <i>Dist.</i>
Nezara viridula, <i>Linn.</i>	Ptochiomera oblonga (<i>Stål</i>).
Edersa cornuta, <i>Burm.</i>	— sp. inc. (soiled).
Spartocera diffusa, <i>Say.</i>	Bathydema socia, sp. nov.
— fusca, <i>Thunb.</i>	Plinthisus sp. inc. (damaged)..
Anasa bellator, <i>Fab.</i>	Ischnorhynchus championi, <i>Dist.</i>
— scorbutica, <i>Fab.</i>	Protacanthus decorus, sp. nov.
Acanthocerus tuberculatus, <i>H.-Schf.</i>	Dysdercus annuliger, <i>Uhler.</i>
Hyalymenus longispinus, <i>Stål.</i>	Trigonotylus pulcher, <i>Reuter.</i>
Alydus pallescens, <i>Stål.</i>	Megacelum rubrinerve, <i>Dist.</i>
Leptocoris filiformis, <i>Fab.</i>	Lygus prasinus, <i>Reuter.</i>
Leptoglossus balteatus, <i>Linn.</i>	— obtusus, sp. nov.
Zicca teniola, <i>Dallas.</i>	Fulvius albomaculatus, <i>Dist.</i>
Catorhintha mendica, <i>Stål</i> , var.	Melinna minuta, sp. nov.
Darmistidus maculatus, sp. nov.	— sp. inc.
Harmostes serratus, <i>Fab.</i>	Engytatus geniculatus, <i>Reuter.</i>
Corizus zidæ, <i>Fab.</i> (var. <i>C. pictipes</i> , <i>Stål</i>).	Collaria explicata, <i>Uhler.</i>
Ochrinnus collaris, <i>Fab.</i>	Phytocoris eximius, <i>Reuter.</i>
Oncopeltus cingulifer, <i>Stål.</i>	Mala decoloris, <i>Dist.</i> (damaged).
— fasciatus, <i>Dallas.</i>	Cyrtocapsus caliginus, <i>Stål.</i>
— varicolor, <i>Fab.</i>	Eccritotarsus atratus, <i>Dist.</i>
Mydocha unispinosa, <i>Stål.</i>	Pycnoderes quadrimaculatus, <i>Guérin.</i>
Pamera serripes, <i>Fab.</i>	Cylloceps pellicia, <i>Uhler.</i>
Sphærobius gracilis, sp. nov.	Macrolophus separatus, <i>Uhler.</i>
Tomopelta munda, sp. nov.	

¹ [Communicated by Dr. D. SHARP, F.R.S., on behalf of the W. India Islands Committee.

N.B.—The specimens dealt with in this memoir were collected by Mr. H. H. Smith, who was sent to the islands for the assistance of the Committee by F. D. Godman, Esq., F.R.S. Prof. Uhler is at present engaged in working out the larger collection formed by Mr. H. H. Smith and Mr. Summers in the neighbouring island of Grenada, and reserves remarks on the distribution of the species until the larger work is complete.—D. S.]

List of Species (continued).

Fundanius rubens, sp. nov.	Emesopsis nubilus, <i>Uhler</i> , sp. nov.
Pæciloscytus obscurus, sp. nov.	Salda humilis, <i>Say</i> .
Agalliaestes simplex, <i>Uhler</i> .	— humilis, var. Large size.
Corythuca sp.? Allied to <i>C. gossypii</i> , Fab.	Pelogonus marginatus, <i>Latr.</i> Two varieties.
Typonotus planaris, <i>Uhler</i> , sp. nov.	Limnometra marginata, <i>Guérin</i> .
Teleonemia sacchari, <i>Fab.</i>	Brachymetra albinervis, <i>Amyot</i> .
Phymata annulata, <i>Uhler</i> .	Microvelia pulchella, <i>Westw.</i> Un- winged.
Coriscus capsiformis, <i>Reuter</i> .	— capitata, <i>Guérin</i> . Dark coloured form.
— roripes, <i>Reuter</i> .	— marginata, <i>Uhler</i> . New sp.
Saica recurvata, <i>Fab.</i>	Mesovelia bisignata, <i>Uhler</i> .
Stenopoda culiciformis, <i>Fab.</i>	Rhagovelia obesa, <i>Uhler</i> .
Narvesus carolinensis, <i>Stål</i> .	— elegans, sp. nov.
Henicocephalus flavicollis, <i>Reuter</i> .	Zaitha anura, <i>H.-Schf.</i>
Emesa angulata, <i>Uhler</i> , sp. nov.	Anisops elegans, <i>Fieber</i> .
Luteva gundlachii, <i>Guérin</i> .	— pallipes, <i>Fabr.</i> Immature.
Westermannia tenerrima, <i>Dohrn</i> .	Plea striola, <i>Fieber</i> .
— sp.?, immature.	
Cerascopus? larva.	

There are also in the collection representatives of about 9 species of the family Anthocoridae and of about 8 species of Ceratocombidae.

B. Descriptions of New Genera and Species.

Fam. COREIDÆ.

Sect. *Alydina*.

DARMISTIDUS, gen. nov.

Form shorter than usual, almost flat above, the basal division of pronotum less sloping than usual. Head large and long, fully as long and a little wider than [the pronotum, much wider than deep, gradually narrowing behind the eyes; the ocelli large, placed behind the line of the eyes and wide apart, but not far from the eyes; the eyes globular, moderately prominent laterally; the tylus narrow and gently sloping, enlarged at tip and a little bent down towards the base of rostrum. Antennæ slender, short, the basal joint thick, short, and not extending much beyond the tip of tylus; the second and third joints long, nearly equal, more slender than the others; the apical joint much thicker, scarcely as long as the third, contracted and a little bent at tip. Rostrum slender, reaching between the posterior coxæ; the bucculæ slender, waved in front and not enclosing the base of the first joint, the first joint shorter than the throat. Pronotum trapeziform, almost as long as wide, with the disk convex each side of the deep longitudinal groove, the apex contracted by a narrow collum, which is followed behind by a transverse curved series of slender callosities; the lateral margins bluntly carinate, oblique and feebly sinuated; the posterior margin is callous each side, and has lamellar lobes between the callosities and the humeral tubercle. Scutellum long and narrow, with the submargin carinate to near the acute tip. Tip of corium short, a little blunt, and not protracted backwards as in *Alydus* and next related genera; membrane long, charged with numerous, chiefly simple

and almost straight veins, the one next the outer apex forked. Posterior femora bent, stout, projecting about one-fourth of their length beyond the end of venter, armed beneath with series of short and longer teeth, which are set closer and arranged in a double series on the apical half.

DAERMISTIDUS MACULATUS, sp. nov.

Pale testaceous, shaded and flecked with fuscous. Closely related to *Siachyocnemis*, but with a longer head and less robust figure, and destitute of the pilous covering of the head and pronotum. Head obsoletely punctate, minutely pubescent, with the longitudinal middle line slender and faintly defined; the crown and the surface at the ocelli marked with fuscous; throat pale testaceous; antennæ pale fulvous, the basal joint darker; rostrum piceous at tip and along the middle line. Pronotum either testaceous or pale fulvous, marked with dark brown dots, minutely, remotely pubescent, closely punctate and somewhat granulate, with the central line pale and the callosities dark brown; the humeral prominences and the posterior submargin usually brown, with the edge paler; the sternum pale and the pleural pieces darker and punctate. Legs sprinkled with reddish brown; the tibiæ pale testaceous, banded with a few dark brown, slender lines; tarsi with the last joint, nails, and tip of the long basal joint blackish. Scutellum remotely punctate, granulate, fuscous at base, and white on the apex and subapical carinate border. Hemelytra thin, translucent, greenish white, or pale fulvo-testaceous, with the veins interruptedly rufo-castaneous, and the thick end of the medial vein, apex of the clavus, and border at tips of corium piceous black; membrane whitish, with the veins minutely and faintly marked with rufous. Tergum with a broad black stripe along the middle, which grows narrower towards the tip; venter pale, smooth, minutely, transversely wrinkled, a little punctate on the middle and at base.

Length to tip of venter $6\frac{1}{2}$ –7 millim.; width of base of pronotum $1\frac{3}{4}$ –2 millim.

Four specimens, one without a head.

Fam. BERYTIDÆ.

PROTACANTHUS, gen. nov.

Form of *Metacanthus*, Fieb., with the same tumidly convex head and conically produced clypeus. Eyes subspherical, set laterally and below the line of the vertex; ocelli placed far behind the eyes on a collum-like distinct lobe. Antennæ long and slender, the basal joint longest, not quite so long as the posterior femur, but longer than the two following joints united, minutely clavate at tip; the second and third joints subequal, still more slender; the apical joint shorter than the third, slender, fusiform. Rostrum slender, reaching to the posterior coxæ, with the basal joint not quite so long as the head. Pronotum short and stout, scarcely

wider anteriorly than the base of head, the anterior margin forming a collum, which is armed each side with an obliquely directed spine; posterior lobe wide and convex, carinate on the middle line, the posterior border deflexed, with the edge reflexed. Scutellum armed with a long, erect, curved spine. Corium long, impunctate, carried far along the border of the membrane, tender and translucent; veins of membrane few, long, curved, not connected by cross-veins. Legs long and slender, the middle and posterior femora a little thickened towards the tip. Abdomen long, a little shorter than the wing-covers, subcylindric, contracted at base, tapering from the middle to the tip.

PROTACANTHUS DECORUS, sp. nov.

Pale tawny yellow, with the head black and highly polished, the collum of the pronotum white, the spines pale testaceous, and the abdomen greenish testaceous, polished and impunctate. Antennæ yellowish, with the basal joints and tips of the following ones darker, the apical joint fuscous; rostrum pale yellow, darker at tip. Pronotum coarsely punctate, with the surface a little tumid behind on each side of the middle line; pleuræ also punctate. Legs pale honey-yellow, a little darker on tips of femora, the tibiæ annulated with black. Wing-covers whitish, translucent, the membrane hyaline.

Length to tip of wing-covers 4 millim.; width of pronotum $\frac{3}{4}$ millim.

Two specimens of this interesting species were collected by Mr. H. H. Smith on low swampy land, in an open place, near sea at the south end of the island, September 27.

Fam. *LYGÆIDÆ*.

TOMOPELTA, gen. nov.

Robust, oval, with both ends narrowed, opaque and pubescent above. Head short, set in as far as to the eyes, small, narrow, acutely triangular above; antennæ stout, about as long as the head, pronotum, and scutellum united, the basal joint longer than the head, the second joint a little longer than the third and subequal to the fourth, all conspicuously pubescent; throat flat; the rostrum reaching between the middle coxæ, basal joint as long as the throat. Pronotum distinctly bilobate, broad, the anterior lobe much wider than the head, longer than the posterior lobe, collar-like, one grade narrower and lower than the basal one, both arched, and with their lateral margin reflexed concurrently with the curve of each; prosternum with an uneven longitudinal ridge on each side of the middle line; the pleural pieces coarsely punctate, polished. The anterior femora fusiform, compressed. Scutellum longer than wide, abruptly acute at tip. Hemelytra coarsely punctate, pubescent, dull, the costal margins almost straight and parallel, a little sinuated on the middle; the costal area wide and grooved; membrane with the veins long and curved.

TOMOPELTA MUNDA, sp. nov.

Reddish chestnut-brown, pubescent, punctate all over the upper surface and beneath upon the pectus. Head dull blackish; antennæ fuscous, sometimes piceous or fulvous at base, the apical joint whitish excepting at base, tips of all the joints generally whitish; rostrum fulvous, sometimes darker at base and tip. Pronotum rufo-castaneous on the front lobe, which is also less distinctly punctate than the other and has the lateral margin almost straight; the posterior lobe is dark brown, coarsely punctate, and has four short, yellow, longitudinal stripes; the humeral angles prominent, a little rounded, the transverse line separating the lobes deep, indented at the outer ends, and with a minute pit in the middle. Scutellum reddish brown, marked with a yellowish Y-shaped figure, which is continued on the apical carina to the tip, the hollow space each side of tip dark brown. Beneath dark ferruginous, polished, especially on the venter. Legs pale yellow, hairy, punctate, a little brownish on the coxæ, base and tips of femora and tarsi. Hemelytra pale testaceous, minutely pubescent, remotely punctate with rufous or brown, middle of the costa with a small brown point; the inner apex of the corium has an irregular brown spot, which connects with the margin and runs out to a smaller spot on the extreme tip; membrane clouded with brown, the outer border thick and pale; venter fulvous, or soiled yellow, feebly polished, the sutures blackish.

Length to tip of abdomen about 2 millim.; width of base of pronotum $\frac{3}{4}$ millim.

Several specimens of this bright little insect were captured by Mr. H. H. Smith while they were flying at sunset, in the forest, in April, at an altitude of 1000 feet above the sea. This insect bears some resemblance to the genus *Drymus*, Fieb., but it is much narrower than *D. silvaticus*, Fab., of Europe.

BATHYDEMA, gen. nov.

Elliptical, body deep, thicker and wider than in *Peritrechus*, Fieb., minutely pubescent, dull, polished only on the venter. Head short, broad, inserted against the eyes, the eyes projecting a little beyond the side of the front of pronotum. Antennæ long, reaching almost to the tip of scutellum, the basal joint a little shorter than the head, the second longer, nearly equal to the third, the fourth much thicker, fusiform, about equal to the second in length; rostrum reaching between the anterior coxæ, not much thicker at base, the basal joint a little shorter than the throat. Pronotum trapeziform, thick, strongly sloping forwards, the lateral margin carinate through to the callous humeri; callosities prominent, long, placed obliquely; stricture separating the lobes conspicuous only on the sides; surface punctate, dull. Underside of head, propleura and mesopleura coarsely punctate. Anterior femora moderately thick. Scutellum small, simple, a little longer than wide, longitudinally callous at tip. Corium dull, wide, minutely

pubescent, with the veins thick and prominent, the costal margin almost straight, a little curved at tip; membrane wide, with a large, closed cell at the inner angle from which two veins run curving towards the tip.

BATHYDEMA SOCIA, sp. nov.

Robust, blackish piceous, yellowish pubescent. Head tinged with brown, not polished, punctate above and below; antennæ closely pubescent, pale fulvous or piceo-testaceous, with the basal joint darker above, and the thick apical joint fuscous, the apex of the second joint and base of the third sometimes with a narrow dark band; rostrum fulvo-testaceous, hairy, piceous at base and tip. Pronotum dull blackish, coarsely punctate, the anterior lobe interruptedly margined with yellow, the posterior lobe feebly sinuated behind, with a testaceous arc next the humeri and a dot of the same colour on the middle of the margin, the lateral margin pale castaneous behind; pleuræ dull piceous, punctate, pubescent, bordered with pale castaneous. Coxæ pale castaneous; legs yellow, tinged with fulvous. Scutellum dull fuscous, transversely convex at base, obsoletely punctate, pubescent, compressed and testaceous at tip. Corium and clavus testaceous, crossed in common by a dark brown broad band at tip, which includes two short yellow streaks and a dot; membrane brownish, with a pale dot at tip. Venter dull piceous.

Length to tip of membrane 2 millim.; width of base of pronotum $\frac{3}{4}$ millim.

This interesting little insect approaches nearer to *Peritrechus*, Fieb., than to any other genus with which I am acquainted. But the characters here given will, it seems to me, serve full well to separate it from that genus.

Four specimens were secured on the Soufrière volcano, in April, distributed in the moss, at altitudes of 2000 and 3000 feet above sea-level.

SPHEROBIUS, gen. nov.

Form similar to that of *Heraeus*, Stål, but differs most conspicuously in having the anterior lobe of pronotum globose and as wide as the very short posterior lobe. The head is conico-ovoid, acute at tip, the tylus projecting prominently in front of the clypeus, with the two adjoining lobes of the cheeks short and feebly prominent; eyes placed on or below the line of the vertex; basal joint of rostrum thick and shorter than the throat. Antennæ moderately long, gradually thickening towards the tip, the basal joint much shorter than the head, the third joint a little shorter than the second, the apical joint longest and much thicker than the third; the bucculæ short and restricted to the tip. Collum of the pronotum wide below, narrow above; the anterior lobe of the pronotum fully as wide as the very short, transverse posterior lobe, separated by a deep stricture, coarsely punctate, with the posterior margin sinuated and the humeral angles callous. Anterior femora very thick, fusiform,

armed beneath with about four long spines, which have shorter spines between them throughout the greater part of the length. Scutellum long, compressed and acute at tip. Wing-covers narrow, the costal margin almost straight, a little curved at tip; veins of the corium distinctly prominent. Connexivum strongly elevated along the margin of the abdomen.

SPHÆROBIUS GRACILIS, sp. nov.

Coal-black, polished beneath and on the anterior lobe of the pronotum, invested with erect hairs on most parts of the surface, both above and below. Head dull black, set with remote bristly hairs, remotely punctate, scabrous especially on the clypeus, the throat coarsely punctate; antennæ fulvo-piceous, with the apical joint and tips of the others fuscous; rostrum piceous, paler on the middle, reaching between the anterior coxæ. Pronotum jet-black, with the posterior lobe rufo-piceous, coarsely and evenly punctate, pubescent, the anterior lobe set with bristly hairs, obsoletely punctate in remote lines, a few series of more distinct punctures upon the lower part of the sides. Legs piceous black, paler on the tibiæ, the tarsi chiefly testaceous, the anterior tibia of the left side (possibly of both sides) armed with a long curved spine. Scutellum pubescent, coarsely, remotely punctate, paler at tip. Corium whitish testaceous, coarsely punctate with brown in longitudinal series, the posterior half blackish brown, with a subquadrate pale spot exteriorly before the tip, the base also brown; membrane short, incomplete, blackish, pale at base. Abdomen black, polished.

Length to tip of venter $4\frac{1}{2}$ millim.; width of base of pronotum 1 millim.

One specimen only was captured, on the leeward side of the island. As it is closely glued to the slip of card the underside and femora of the right side cannot be studied.

The presence of the spur on the anterior femur adds a new element of structure to this remarkable insect. It bears much resemblance to an ant, and is much narrower than the other species described as *Hercus insignis*, Uhler.

Fam. CAPSIDÆ.

CYLLOCEPS, gen. nov.

Long elliptical, blunt at both extremities, almost flat above, polished, with the hemelytra thin, pellucid. Head very short, vertical, the sides enclosed by the vertical eyes; tylus very short, projecting a little before the line of the eyes; vertex transverse, cylindrico-convex on the middle, scarcely higher than the low-placed upper line of the eyes; bucculæ wide apart, narrow; rostrum slender, the basal joint longer than the head; gula constricted; lobe behind the eye in contact with the pronotum. Pronotum transverse, trapezoidal, feebly sloping, almost flat, destitute of a collum, the sides oblique, bordered with a linear callous margin

from the humeri to near the bluntly rounded anterior angle; the surface polished, with the callosities large, smooth, almost contiguous, the suture behind them faintly defined, the humeri acutely tubercular, the anterior margin slightly excavated across to the middle of the eyes, and the posterior margin feebly sinuated. Scutellum of medium size, about as wide as long, prominently convex. Legs of medium size, the posterior femora long, curved, compressed; unguiculi long, slender, widely spreading apart. Hemelytra complete, much longer than the abdomen, bluntly rounded at tip, almost parallel-sided, the costal margin only a little curved, abruptly reflexed, the discoidal vein well defined, and the membrane almost as long as the corium. Abdomen ample, not contracted at base, blunt at tip in the female, but tapering towards tip in the male.

CYLLOCEPS PELLICIA, sp. nov.

Pale testaceous, long elliptical, polished, minutely pubescent. Head yellow, black along the middle line, including the tylus, sometimes with a black band between the lower line of the eyes; bucculae blackish; rostrum yellowish, piceous at tip, reaching behind the middle coxae. Antennae long, gradually decreasing towards the tip, the basal and second joints stout, the second much the longest, obscure yellowish, the third a little shorter than the second, and the fourth still shorter, the basal one shortest, a little longer than the head, black excepting at base and tip. Pronotum moderately polished, dull yellow, obscured by brown posteriorly and towards the sides, the surface a little scabrous, transversely wrinkled, remotely punctate, minutely pubescent, the sides beneath more or less infuscated and a little scabrous; sternal segments polished, mostly yellow, those of the mesosternum more or less dusky. Coxae and legs pale yellow, the femora usually a little darker at base and with the immediate tip piceous, the nails and tip of tarsi piceous. Scutellum dark brown, obsoletely carinate on the middle line, polished, not distinctly punctate. Hemelytra pellicular, translucent, pale testaceous, obsoletely fuscous on the inner border of the clavus and corium, the coarse bounding vein at basal angle of membrane piceous, the vein on middle of corium is also dusky in some specimens; veins of membrane usually a little brownish. Venter yellow, more or less dusky on the middle, with the sides tinged with rufous or orange and the ovipositor piceous.

Length to end of venter $2\frac{1}{2}$ millim., to tip of membrane 3 millim.; width of base of pronotum barely 1 millim.

Several specimens of both sexes, collected by Dr. Gundlach in Cuba, were submitted to me for examination, and others are in the collection from the island of St. Vincent, which were captured by Mr. Herbert H. Smith in the month of May. I have also seen a specimen from Southern Florida and others from the island of San Domingo.

Not having specimens for dissection, I have been unable to ascertain a few points necessary to establish the precise relations

of this genus. It seems to be closely related to *Agalliastes*, but it is without the saltatorial hind femora, and it differs from that genus in the details given above. In a few specimens the pronotum has simply a narrow black band across the base.

Genus *MELINNA*, Uhler.

MELINNA MINUTA, sp. nov.

Narrower than usual, with the sides parallel, the surface highly polished, dull dark horn-brown, relieved with pale yellowish testaceous. Head particularly convex, very highly polished, with a few obsolete punctures on the crown, dull pale yellowish, with the middle broadly piceous and the tylus dusky; the occiput contracted, narrower than the collum of the pronotum, but the space between the eyes wider than the front of the pronotum; eyes brown, large, most prominent laterally, almost spherical. Antennæ moderately stout, horn-brown, the second joint pale at base, reaching from the front of eye to basal angle of pronotum, becoming gradually a little thicker towards the outer end, the third joint abruptly thinner and with the fourth continuing of the same thickness throughout; both of these joints pale yellow, hairy; rostrum slender, yellowish white, reaching behind the anterior coxæ. Pronotum transverse, moderately convex, obsoletely punctate, with the lateral margins very oblique, a little sinuated, with the edge moderately acute, but not carinated, and the humeral angles prominent, the posterior margin hardly sinuated, the border a little rolled and turned down. Scutellum minutely, obsoletely punctate, concolorous with the thorax and hemelytra, and polished like them, convex, pinched at the tip. Legs, coxæ, and ovipositor ivory-white. Hemelytra polished like the pronotum, minutely golden pubescent, minutely obsoletely punctate; the costal border straight, honey-yellow; the incisure of the cuneus and inner edge of the same pale; membrane a little dusky, darker at base. Venter chestnut-brown, polished, a little paler at tip.

Length to tip of venter $1\frac{3}{4}$ –2 millim.; width of pronotum $\frac{7}{8}$ of a millim.

Similar to *M. elongata*, Uhl., but with a nick behind the eyes. Two specimens are present in the collection and a fragment of a third adheres to the card of another pin. Two specimens were obtained in the wooded country at an altitude of 1000 feet above sea-level, and a third was beaten from bushes in the Petit Bordelle Valley at an altitude of 1600 feet above the sea.

Another small species, coarsely punctate, apparently belonging to this same genus, was obtained, but the only specimen present is too imperfect for description.

Genus *LYGUS*, auctor.

LYGUS OBTUSUS, sp. nov.

Soiled pale green, polished, minutely pubescent, with the head short and blunt as seen from above and closely pressed against the

pronotum, with the eyes large and prominent outwards; the face triangular, convex on middle, highly polished, obsolete punctate, with a punctate impressed line on the middle of the vertex; tylus prominent, a little discoloured, with the cheeks each side callously prominent; antennæ moderately long, the second joint rod-shaped, as long as the width of the pronotum, third and fourth more slender, tinged with fuscous; rostrum pale greenish, reaching upon the middle coxæ. Pronotum short, strongly convex, minutely pubescent, highly polished, unevenly punctate in wavy transverse series, the posterior margin feebly sinuated, the lateral part of this margin widely rounded, with the edge acute and pale, terminating exteriorly in an acute tubercle; pleura with a dark stripe extending to the end of the posterior segment; legs pale green, a little obscured at end of femora, the posterior femora with the common oblique pair of brown bands near the tip; tibial spine fuscous. Beneath whitish. Hemelytra closely pale pubescent, unevenly punctate, with the disk infuscated, the outer border broadly pale and the cuneus equally pale, the apical extremity of the inner border of corium pale piceous, the clavus coarsely punctate like the convex scutellum; the membrane brown, especially at base.

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

Two specimens, a male and a female, were obtained on the leeward side of the island.

The scutellum may be faintly pale along the middle line and a little obscured each side near the tip.

Genus FUNDANIUS, Dist.

FUNDANIUS RUBENS, sp. nov.

Cinnabar-rufous, tinged with orange. Form normal, the upper surface roughly punctate, excepting the head. The head highly polished, less distinctly punctate, with the face vertical, deeply sunken and grooved on the middle; the eyes prominent, dark brown. Antennæ brownish black, stout, stouter in the male; third joint short, abruptly slender; the fourth a little shorter and more slender than the third; the second joint rod-shaped, not tapering, a little shorter than the width of the pronotum. Rostrum slender, yellow, reaching between the middle coxæ. Pronotum strongly, broadly constricted behind the hood of anterior lobe, most coarsely punctate on the posterior lobe, and the disk occupied behind by a large trapezoidal black spot which touches the posterior margin, anterior part of the middle line carinated; propleura and sternum bright orange, the meso- and metapleuræ soiled orange or pale brown, but brighter on the sternum. Legs and coxæ pale dull testaceous, soiled brownish on the apices of femora and tibiæ, the tarsi and nails piceous. Scutellum blackish brown, coarsely punctate, deeply sunken and grooved on the middle line, the margin prominently elevated, callous, smooth. Hemelytra black along the entire length including the membrane, the outer border broadly

orange, and this colour covers the entire cuneus, the outer border and cuneus less coarsely punctate than the clavus. Venter blackish, with the disk basally dull orange.

Length to end of venter $2\frac{3}{4}$ –3 millim., to tip of membrane 4 – $4\frac{1}{2}$ millim.; width of pronotum $1\frac{1}{4}$ – $1\frac{1}{2}$ millim.

Three mature specimens, a male and two females, and two larvæ were secured. These were met with on both sides of the island, and the larvæ were obtained at the roots of grass on the marsh 500 feet above the level of the sea.

This genus belongs to the division *Clivinemaria* of Reuter, and this species, together with the two other hooded species of Mr. Distant, may eventually be found to belong to the genus *Clivinema*, Reuter. In this genus there is lack of uniformity in the proportions of the antennæ, not only in the two sexes, but also among individuals of the same species.

Genus PÆCILOSCYTUS, Fieber.

PÆCILOSCYTUS OBSCURUS, sp. nov.

Closely related to *P. basalis*, Reuter. Dark chestnut-brown, oblong-ovate, spread with close fine golden pubescence; female broader than the male. Head long, acutely triangular, dull, not distinctly punctate, polished when denuded; face convex, surface around the eyes, a slender streak on the middle, and the cheeks each side of tylus more or less yellowish; the tylus, bucculæ, and base, tip, and middle of rostrum dark brown, the rostrum mostly yellowish and reaching behind the posterior coxæ; the transverse carina at base of head prominent, piceous, polished. Antennæ of medium thickness, as long as from front of eye to tip of cuneus; the joints either dark brown or pale with brown ends, excepting the apical ones which are pale fuscous and nearly setaceous; the second joint is about as long as the base of pronotum. The pronotum is moderately convex, obsoletely punctate, and covered with the same prostrate golden pubescence as the head, scutellum, and hemelytra; the collum is generally testaceous or white, and back of its middle is a short yellow double spot or band, against each anterior angle there is usually a velvet-black round spot, the posterior margin is a little sinuated and usually pale; the sternum, posterior border of pleural segments, and coxæ are usually pale testaceous. Legs dark brown in full-coloured specimens, but pale yellowish brown in others, paler on the tibiæ, and having the posterior femora marked near the tip by the usual two darker bands. Scutellum moderately convex, obsoletely wrinkled and punctate, bordered with testaceous near the tip. Corium, clavus, and cuneus finely but distinctly punctate, the embolium and costa with a testaceous spot at base, the fracture and tip of cuneus and vein of membrane dull testaceous; the membrane dark fuliginous. Venter black-piceous or sometimes pale chestnut-brown on the middle, spread with silvery pubescence and with the edge of the genital valves testaceous.

Length to end of venter $2\frac{1}{2}$ millim., to tip of membrane $2\frac{3}{4}$ -3 millim.; width of base of pronotum $\frac{7}{8}$ - $1\frac{1}{4}$ millim.

Numerous specimens, including some of both sexes, were collected in various parts of the island. This species is also common in Cuba, and I have swept specimens of it from weeds in the department of the Grand Anse, Hayti. Other specimens have also been seen by me, which were collected in Southern Florida, Mexico, Jamaica, and Brazil. This form will illustrate the variation which occurs in the joints of the antennæ, some specimens having the antennæ tapering, while in others the apical joints are abruptly setaceous.

Fam. TINGITIDÆ.

TYPONOTUS, gen. nov.

Form similar to *Gargaphia*, Stål, but lacking the transverse carina at the end of the mesosternum. The pronotal hood protracted long in front of the head, acutely compressed at tip and curved downwards, opaque, carinate on the middle line, with two longitudinal series of sunken areoles, followed beneath at base by a shorter series of smaller ones, with the lower border strongly reflexed. Carina of the mesonotum high, indistinctly areolate, arched and sinuated. Wing-covers almost flat, subquadrangular, narrowing posteriorly, the costal area amplified about the middle, with the border strongly reflexed; the basal division of the area is occupied by two imperfect series of areoles, which are followed towards the tip by a single series of much larger ones. Sternal carinæ high, set wide apart, and curving on the metasternum. Throat enclosed by an elevated border of the prostethium. The antennæ slender, of medium length, with the apical joint short, clavate. Pronotal lobes subtriangular, widely extended, protracted in a narrow lobe anteriorly, reflexed, set with curving series of nearly circular, large areoles. Legs slender.

TYPONOTUS PLANABIS, sp. nov.

Oblong, milk-white, opaque, contracted at the base of wing-covers and narrowing obliquely behind the middle, marked with brown across the sunken middle of the pronotum and in the grooves each side of the hood. Hood long and narrow, acutely compressed at tip. Scutellum with an obscure spot each side. Veins of the wing-covers a little dusky in patches, sometimes tinged with yellow, the discoidal area with a dusky spot at base and tip, the costal area usually with a brown crescent near the base and one or two spots near the tip; veins of the membrane marked with fuscous so as to form a broad, double, transverse loop next the tip: this dark area encloses cells of a larger size and more transparent colour than those of the corium. Underside black, with the bucculæ, margins of the pleural pieces, and sternal carinæ whitish. Legs pale fulvous, darker at the ends of femora, tibiæ, and tarsi. Antennæ pale, the clavate apical joint dusky.

Length to end of abdomen $1\frac{1}{8}$ millim., to tip of wing-covers 3 millim.; width across lobes of pronotum 2 millim.

The less mature individuals of this species are paler and almost translucent in the meshes of the wing-covers, while the fully mature ones are tinged with yellow and more opaque.

About one dozen specimens were collected by Mr. Herbert H. Smith.

Genus *CORYTHUCA*, Stål.

Examples of a species of this genus, approaching *C. gossypii*, Fabr., were taken on the island by Mr. Smith, but the few specimens are either immature or not in condition for accurate identification.

Fam. *EMESIDÆ*.

Genus *EMESA*, Fabr.

EMESA ANGULATA, sp. nov.

Body and members more robust than in *E. longipes*, De G., and the other normal species. Obscure fulvo-testaceous, unpolished, with the sides of the head and thorax broadly blackish piceous. Head stout and deep, remotely punctate in patches, obsoletely scabrous, minutely pubescent, the division behind the stricture longer than the one before it, base of tylus armed with a short curved spur. Rostrum reaching the anterior coxæ, the basal joint stout; the second a little longer and thicker, tapering towards the tip; the third pale testaceous, tapering at base, swollen, growing quite slender, longer than the first and second united. Antennæ slender, filiform, of medium length, fuscous, pale at base, and sometimes with an obscure band on this paler portion, the basal joint equal to the thorax in length, the second much shorter. Middle and posterior legs filiform; the tibiæ more slender than the femora, black at base and banded with black, in four spots upon the femora and three upon the tibiæ; anterior femora thick, subcylindric, compressed, obscurely banded with fuscous, set with two sizes of teeth from before the middle to the tip, the inner tooth much longer than the others; the tibiæ fuscous with a pale band, the tarsal nail not quite reaching to the inner tooth. Pronotum obsoletely scabrous and almost flat above, faintly marked with a longitudinal impressed line, the anterior half a little swollen, back of this the lobe is a little contracted, while the posterior lobe is quite small, and elevated into two transverse toothed callosities, anterior angles tubercular. Mesonotum taperingly contracted from the middle forwards, so as to be much narrower than the pronotum, while the basal portion swells to nearly the width of the pronotum, the middle line has a slender carina which runs back through the grooved metanotum; the metanotum is much shorter than the mesonotum and has carinated sides. The underside, including the venter, is smooth, somewhat glossy on the sternum, with the venter dusky and dull. The abdomen is thick and gradually widens posteriorly, the posterior end being obliquely truncated in the female, but

rounded and with a curved spur above in the male; the outer angle of the dorsal segments is more or less toothed.

Length to end of abdomen 18-19 millim.; width of front of pronotum 1 millim.; width of last segment of abdomen $1\frac{1}{4}$ - $1\frac{1}{2}$ millim.

Several specimens of both sexes were secured at various places on the island. Only unwinged ones were found, and three or four of these are in the younger stages. These nymphs are essentially like the adult and differ more in size than in the elements of structure. The form of pronotum and abdomen with the accompanying teeth is nearly the same as in the full-grown specimens. One specimen was found on the leeward side of the island, in September, at an altitude of 2000 feet, and others were captured under logs on the Richmond estate, leeward, in an open valley near sea-level, on October 31. In my collection there are specimens from the vicinity of Panama.

EMESOPSIS, gen. nov.

Form similar to that of *Ploiaria*, Scop., agreeing therewith especially in the form of the head, but differing in the venation of the hemelytra. Head wide and short, tumidly convex behind, the transverse stricture crossing between the eyes; the throat unarmed. Rostrum reaching between the anterior coxæ; the basal joint stout, extending behind the line of the eyes; the second shorter, tumid; the third slender throughout, shorter than the basal one. Antennæ almost setaceous, the basal joint a little stouter, about as long as the head and pronotum united; the second and third shorter, subequal. The eyes subglobular, placed below the level of the vertex. Anterior tibiæ and tarsi together scarcely shorter than the femora, the femora apparently armed with fine spines throughout nearly the entire length. Pronotum short, the posterior lobe more than twice as long as the anterior one, tumidly convex behind; the anterior lobe very short, elevated into a callosity each side. Scutellum small, distinct, conical at base, constricted behind, the narrowed portion evenly cylindrical to the tip. Hemelytra membranous throughout, gradually widening towards the tip, the costal margin straight to beyond the middle; veins of the corium sharply distinct, the transverse ones few, crossing at nearly right angles, the cells growing larger posteriorly, the apex with a triangular narrow cell at both the outer and inner angle; cells of the membrane large, the basal one longest, ending in a protracted narrow loop, which sends off a vein to the tip. Abdomen moderately flat, widened towards the middle.

EMESOPSIS NUBILUS, sp. nov.

Pale fulvo-testaceous, elongate, but not linear, smooth above, pilose over most of the surface. Head obsoletely, minutely punctate, the transverse impressed line and a small spot on the middle brown. Antennæ setaceous, the last joint infuscated; eyes fuscous. Legs pilose, the intermediate and posterior femora

banded with pale fuscous, the anterior legs a little clouded with fuscous. Pronotum smooth, obsoletely, minutely punctate on the posterior lobe. Hemelytra longer than the abdomen, the veins and a series of spots at the apex of the membrane fuscous. Outer margin of the abdomen piceous.

Length to end of abdomen 4 millim., to tip of membrane $4\frac{3}{4}$ millim.; width of base of pronotum $\frac{3}{4}$ millim.

One specimen is in the collection from this island.

This species seems to be not rare in Cuba. Several specimens have been sent to me from that island by Dr. Gundlach, and others are in his collection.

Fam. VELIIDÆ.

Genus MICROVELIA, Westw.

MICROVELIA MARGINATA, sp. nov.

Dull black, nearly wedge-shaped, minutely pubescent, and obsoletely punctate, with the breast orange and the pronotum bordered with orange. Head rather blunt, convex between the eyes, a little compressed and produced at the end of the clypeus, the underside pale testaceous. Antennæ stout, closely hairy, black; third and fourth joints longer than the others, the fourth longest, acutely tapering at tip; the basal joint thicker than the others, much longer than the second, pale beneath. Rostrum stout and swollen at base, reaching behind the anterior coxæ, pale testaceous, piceous at tip. Pronotum broad, moderately convex, with the humeral angles bluntly rounded, and not prominent as in *M. capitata*, Guér. Pectus broadly yellow, dusky on the middle and posteriorly. Coxæ and legs pale testaceous; the posterior legs dusky above, and fulvous on the middle of the tibiæ. Scutellum dusky, mostly concealed by the pronotum. Wing-covers black, bluntly rounded at tip. Abdomen black above, tinged with lead-colour and a little sericeous beneath, the lateral margins broadly fulvous; the venter has sometimes a row of fulvous dots each side.

Length to tip of abdomen $1\frac{3}{4}$ -2 millim., to end of wing-covers $2\frac{1}{4}$ millim.; width of pronotum $\frac{3}{4}$ millim.

Several specimens, both winged and unwinged, were collected by Mr. Smith in the pools of cool water at various localities on the island.

3. Observations on the Refraction and Vision of the Seal's Eye. By G. LINDSAY JOHNSON, M.D., F.Z.S.

[Received November 21, 1893.]

In the course of my investigations on the vision of the Mammalia, I was particularly struck with certain peculiarities in the eye of *Phoca vitulina*, the Scotch Seal, so frequently met with off our northern coasts. The eye, as everyone must have observed, is