Notes on Jamaican Hemiptera:

A REPORT ON A COLLECTION OF HEMIPTERA MADE ON THE ISLAND OF JAMAICA IN THE SPRING OF 1906

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In the spring of 1906 it was my privilege to spend a few weeks collecting Hemiptera on the Island of Jamaica. I sailed from New York March 17th, arriving at Kingston on the morning of March 23d; returning I left Jamaica on April 19th. This gave me nearly four weeks on the island, but annoying rains on several days and three days of illness reduced somewhat my time available for field work. I was there at the close of the dry season when insect collecting was probably the poorest. The conditions there I found somewhat unfavorable when compared with those I was used to in the various portions of the United States where I have collected. The cost of living was high and the accommodations and food, except at Kingston, Mandeville and Port Antonio, were very poor. The heat also was a hinderance to my work, especially at Kingston, Balaclava and Montego Bay. At these warmer stations I generally had to be in out of the sun by nine o'clock, which was soon after the dew was off the vegetation, and could rarely start out again before three or four in the afternoon. In the short tropical days that left but little time for actual work in the field. At the higher altitude of Mandeville and on the northern side of the island the heat was less troublesome but there the rains would frequently begin by ten or eleven in the morning and practically put a stop to work for the day. Under these conditions I think the results of my work as given in the following
pages is on the whole satisfactory. The very large proportion of new species, more than one third of all those taken, shows how much need there is of thorough systematic collecting on this island, and the same is probably true of many of the other West Indian islands.

The localities and dates where most of my work was done are as follows:

Rock Fort, just east of Kingston. Here I collected along the shore road from the terminus of the trolley line for about three miles toward Morant Bay. The collecting was excellent after passing the old fort.

Kingston, March 26th. I left the trolley at a cross road about a mile south of the Constant Spring Hotel and worked toward the hills along the roadside and on adjacent fields. Collecting poor.

Kingston, March 27th. At Hope Gardens. Here I found good collecting along the lane leading from Pepine to the Garden office and back of the office buildings.

Mandeville, March 29th to April 4th. I stopped at the Newleigh House and worked in the fields and on the hillsides in the neighborhood, where the collecting was the best I found on the island.

Balaclava, April 4th to 6th. Stopped at Malvern Hill and worked in the near-by fields and roadsides and along the railroad track for about a mile east of the town.

Montego Bay, April 7th and 8th. Here I worked along the shore toward the "Doctor's Cave", up a dry ravine behind the village, and along the road running up the hill to Paradise Pen. It was too dry and hot for good results here.

Appleton, April 9th. Collected east along the railway and on a cross road to the Shiloa River with good results.

Port Antonio, April 12th. Here the land was under complete cultivation and there were no good opportunities for collecting within walking distance of the Hotel.

St. Margaret's Bay, April 12th. Collected along the Rio Grande River just east of the village in the afternoon with satisfactory results.

Hope Bay, April 13th. Worked near the river and along the road east of the village. Collecting poor.

Richmond, April 14th and 15th. Worked on the Alexander estate and along the road north of the town and for about a
mile south of the railway station at Troja, the next station south of Richmond. The collecting was good at Richmond but poor at Troja.

Kingston, April 17th. In company with Mr. P. W. Jarvis I worked along the railroad track for about a mile west of the station and south to the shore with good results.

An examination of the species here listed will show a close parallelism with those recorded from the islands of Grenada and St. Vincent by Dr. Uhler. While each of these islands has its peculiar forms there are many species that seem to be common to all the larger islands and the coasts adjacent to the Caribbean Sea. Most of these widely distributed species spread northward only to Florida or at most along the Gulf coast to Texas and Mexico. A few however are found as far north as Canada. The material taken by me was too fragmentary a representation of the Hemipterous fauna of Jamaica to allow of any discussion of the geographical distribution of the genera and species or of a comparison of this fauna with that of the neighbouring islands or of the adjacent mainland.

I wish to express here my indebtedness to Dr. O. M. Reuter for his kindness in working up the difficult but interesting Capsids taken by me, and to Prof. E. D. Ball for his very valuable assistance in the verification and determination of the Homoptera.

In the following pages I have recorded 234 species as having been taken by me on this trip. Of these 85 species or varieties are new to science and among the latter are representatives of 9 new genera. An index to these new genera and species will be added at the end of the list.

**Family Thyreocoridæ**

*Thyreocoris minutus* Uhler.

Abundant at Mandeville on the hillsides back of the Newleigh House where I swept it from low weeds. I also took it at St. Margaret's Bay and in other parts of the island. Dr. Uhler described it from Cuban material and Prof. E. D. Ball has sent me specimens taken in Hayti. Aside from its small size it may be distinguished by its dull black color, closely punctured surface, transversely rugose pronotum and scutellum, prominent humeri and yellow elytra. The largest specimens I have seen
are rather smaller than the smallest *tibialis* and *pulicaria*. I have followed Dr. Oshanin in using this generic name in place of *Corimelena*.

**Thyreocoris cognatus** n. sp.

Very near *pulicaria* from which it may best be distinguished by a comparative description. A little smaller and somewhat more elongated, punctures coarser and deeper over the whole surface. Head distinctly longer and more narrowed anteriorly. On the pronotum the callousities are more conspicuous as smooth slightly elevated surfaces and there is a slight trace of a longitudinal median line; the carinate lateral edge is continued around beneath the feebly elevated humeri, not conspicuously interrupted beneath the prominent gibbous humeri as in *pulicaria*. The antennae are more slender and with the tibiae and tarsi are paler; the pale margin of the corium is more distinctly punctate; the posterior margin of the scutellum is pale in all the specimens before me, and the margin of the connexivum posteriorly is marked with about three pale points in place of the pale line [sometimes broken] found in *pulicaria*. The genital segment of the male is a little longer and narrower with the sides more oblique than in *pulicaria*.

Described from numerous specimens taken at Rock Fort near Kingston. From *tibialis* this species differs in being proportionately longer and narrower, with a longer head and more closely punctured surface. The corium is pale with no indication of a black costal streak.

**Thyreocoris basalis** Germar.

Of this well marked species I took several examples at Balaclava, and found them not uncommon on weeds along the roadside at Richmond.

**Family Scutelleridae**

**Diolcus irroratus** Fabr.

I took large numbers of this insect at Rock Fort on a coarse almost shrubby weed that has much the appearance of a Chenopodium, in the spiny angular bracts of which these insects were well concealed. I also took it near the Constant Spring Hotel, and at Mandeville and Montego Bay. In this species as in our northern *Eurygaster alternatus* the males were very uniformly punctured or obscurely mottled while the females were strongly marked. Prof. Ball has sent me a fine series of this insect taken on Hayti where it seems to be as abundant as in Jamaica.

**Homemus proteus** Stal.

I took single examples of this species near the Constant Spring Hotel, at Balaclava, Montego Bay and Richmond.
Family Pentatomidae

Mormidea pictiventris Stal.

Not uncommon at many places on the island. I took them at Mandeville, and in abundance at Balaclava. Most of these were deeply colored. Specimens in my collection from Colombia and Mexico are much paler.

Mormidea sordidula Stal.

I swept two examples of this from weeds along a roadside just north of Richmond on April 15th. In my collection is an example taken at Linares, Mexico by Prof. Gillette in July 1899. A similarly colored species from Trinidad, W. I., I have determined as scutellata Westw. It may be distinguished from the present by the pale venter and narrow pale calloused margins of the scutellum.

Oebalus pugnax Fabr.

One example swept from herbage by the roadside at Richmond.

Euschistus crenator Fabr.

Not uncommon in many places. I took it at Rock Fort near Kingston, Balaclava and Montego Bay. In each locality they were taken singly from bushes and coarse weeds.

In this species as I distinguish it the subacute humeri are directed slightly backward. In all my Jamaican and Mexican specimens the humeri are decidedly broader with their anterior margins convexly rounded. Those from the Island of Trinidad and Hayti have the humeri more acute and less recurved.

Euschistus bifibulus P. B.

This was a much more abundant species than the preceding all over the island but it was more common in the more humid and cooler localities while crenator affected the hotter and dryer parts of the island. In this species the humeri are produced in black acute horns which are directed distinctly forward. There is an obvious paler vitta connecting the humeri which is dislocated about an angular blackish mark on the median line, and the genital segment of the male is short with its apical margin broadly and deeply excavated. In crenator this segment is longer, narrowed posteriorly, with the apex feebly notched. I have received one specimen, apparently of
this species, from Mr. Underwood that was taken in Costa Rica. It differs from the Jamaican specimens in having the humeri more obtuse but still directed slightly forward, and the latero-anterior margins are more strongly denticulated.

**Euschistus ursus** n. sp.

Allied to *rugifer* Stal and pertaining to that section of the genus as arranged in the Enumeratio. Size and form of *bisulcis* nearly. Greyish testaceous; above coarsely punctured with black or dark brown, these punctures gathered into blackish areas on the pronotum and leaving a smooth bisinuated pale vitta between the humeri, produced at the middle in an abbreviated longitudinal vitta; base of the scutellum with three indefinite smooth pale spots. Elytra dotted with black, each dot covering from three to eight punctures. Antennae and legs pale, the latter faintly dotted with brown. Beneath paler, obscurely maculated with a darker shade; median line and tip of the rostrum, a dot above the insertion of each leg, another on the anterior angle of the propleura behind the eye, and a spot at each incisure on the margin of the venter, black.

Head rather long, rounded before; cheeks and tylius of equal length, the latter quite regularly punctured with black. Antennae unicolorous impunctate; first joint scarcely attaining the apex of the head, second distinctly shorter than the third. Humeral angles of the pronotum prominent, rounded before, subangular behind; latero-anterior margins quite strongly arcuated, blackened by the segregated punctures, strongly crenulated with pale. Membrane obscured, impunctate, nervures irregularly bent but scarcely anastomosing. Connexivum closely punctured, the edge blackish with a round pale spot at the middle of each segment and an obscure line on the incisure. Rostrum attaining the posterior margin of the metasternum. Genital segment of the male rounded behind, feebly concave at apex. Length 10 mm.

Described from one pair taken at Rock Fort near Kingston and two males from Port au Prince, Hayti, received from Prof. Ball. This species has the size and form, nearly, of specimens of *biformis* Stal with rounded humeri, but in most of its characters it is much nearer to *rugifer* Stal. In the Haytian examples the dotting of the elytra is almost obsolete and the pale calloused vitta of the pronotum is sometimes inconspicuous. I have no doubt but this insect is the same as that figured by Palisot de Beauvois as the female of his *Pentatoma obscursa* on plate 10, figure 9 and described on page 149 of his work. His male *obscursa* however is the same as *crenator* Fabr. and I do not see how we can restrict the name *obscursa* to the female of his species: I have therefore thought it best to rename the species.
Thyanta perditor Fabr.

Abundant everywhere on the island especially in the dryer localities about Kingston and at Mandeville and Balaclava. In my collection are specimens from Hayti, Mexico, Columbia and Peru. This species seems to be more constant in coloration than custator. All the examples before me have the pronotal band distinct, anterior to which are two round black points, and the edge of the abdomen is fulvous with a black point at each incisure. The base of the head between the ocelli and a median line on the tylus are rufous; there are generally a few brown points near the base of the membrane. The pronotal angles in all my specimens are acute and distinctly inclined forward.

Thyanta antiguensis Westw.

I swept five examples of this species from a low whitish succulent weed, apparently allied to Chenopodium, growing in masses along the roadside to Rock Fort. These agree in every particular with the material from Hayti described in my List of the Pentatomidæ of North America.

Loxa flavicollis Drury.

I took numbers of this large Pentatomid on the dry hot hillsides above the Rock Fort quarries. Most of these were beaten from Acacia bushes, March 25th. On April 17th I found the larvæ with the adults near Hope Gardens.

Loxa pallida n. sp.

Closely allied to flavicollis but smaller and narrower with the ground color a paler yellowish green, that may in part be due to immaturity. Transverse rugæ on the vertex and cheeks much less distinct, these surfaces much more strongly punctured with rufous; calloused outer margins of the cheeks before the eyes rectilinear or very feebly concavely arcuated, not distinctly bowed outward as in flavicollis, with their apex a little more slender and acute before the tylus. Surface of the pronotum, scutellum and elytra very uniformly and closely covered with rufous punctures arranged in anastomosing transverse lines, between which are a few pale calloused points. In flavicollis the punctured lines are farther apart with the intervening surface minutely shagreened and irregularly blotched with pale, as is also the apex of the scutellum and the disk of the corium. Humeral spines proportionately a little more slender than in flavicollis, and the abdomen narrower; the connexivum scarcely projecting beyond the elytra, pale, punctured with rufous inwardly as in that species. Lower surface a little more closely punctured with rufous; the apical spines on the outer genital plates of the female more abrupt and slender. Antennæ and legs pale with no indications
of dark punctures or markings except that the extreme tips of the tarsal claws are black. The second antennal joint is equal to the third, not distinctly longer as is generally the case in *flavicollis*. The rufous punctures form a tolerably distinct submarginal vitta about the head, pronotum and elytra as in the allied species. Length 19 mm.

Described from one female example taken with *flavicollis* at Rock Fort near Kingston. It is sufficiently distinct from that species as the above comparative description will indicate but it certainly is very close to *haematica* H. S. and may prove to be a pale form of that species. The difference in the color markings and habitat however seem to me to warrant its description as a distinct species.

**Nezara viridula** Linn.

I took a single example of this insect by the roadside near Hope Gardens at Kingston on April 17th. Later in the season it probably is not uncommon on this island as it is abundant on Hayti.

**Nezara marginata** P. B.

Abundant everywhere on bushes especially on the dry hot fields about Kingston. They fairly swarmed on weeds and low bushes along the river bank a little south of Hope Bay. In my collection are specimens from Peru, Bolivia, Venezuela, Costa Rica, Mexico, Hayti and the southern United States.

**Piezodorus guildingi** Westw.

I swept numbers of this insect from rank weeds along the roadside at Troja and Richmond, and also took them at Hope Gardens and near the Constant Spring Hotel at Kingston. All of my specimens have the base of the pronotum blackish bordered before by a pale calloused band. In none is the rufous band more than indicated. This band is beautifully developed in some examples kindly given me by Prof. E. B. Wilson which he took at Savannah, Ga.

**Edessa meditabunda** Fabr.

Swept from rank marsh plants growing along the railway tracks at Appleton. The larvae were taken with the adults. This species seems to be widely distributed in tropical America. I have specimens from British Guiana, from the La Plata Country, and from Rio Grand de Sul and Victoria, Brazil. Distant places *rugulosa* Uhler as a synonym of this species in which I
believe he is correct, judging from a typical female from the island of St. Vincent kindly sent me by Dr. Uhler.

**Edessa chelonia** n. sp.

Allied to *meditabunda* but larger and more ovate and depressed in form. Deep grass green; clavus and inner field of the corium chestnut brown varied with pale punctures. Three lines of these punctures follow the claval suture, from the outermost of which a few transverse abbreviated lines of punctures radiate into the brown discal area; against the outer border of this brown area lies an indefinite cloud of the pale punctures. Membrane fuscous. Outer edge of the head and pronotum slenderly bordered with pale yellow. Tergum dark blue-green. Antennae pale becoming a little dusky toward the apex; the basal two joints dotted with brown. Legs pale dotted with brown; the dots nearly obsolete on the posterior pair. Lower surface pale green; the minute hind angles of the abdominal segments and an annulus about the pale stigmatic blackish-green. Rostrum pallid with the extreme tip black.

Head, pronotum, scutellum and outer field of the elytra closely and finely punctured between fine irregular rugae; inner portion of the elytra more irregularly punctured. Apex of the scutellum a little wider and more obtuse than in *meditabunda*. Lower surface more coarsely and rugosely punctured, nearly smooth along the middle line; ventral spine broad and flat, obtusely angled at apex. Metasternal plate broad, lateral angles small and abrupt, posterior margin broadly excavated for the reception of the ventral spine. Disk of the genital segment of the male piceous black, its apical margin sinuated either side of the broad shallow median sinus, outer angles obtusely prominent. Length to tip of the membrane 14 mm.

Described from ten examples, representing both sexes, taken with numerous young from small trees growing in the fields along the railway a little west of the station at Kingston, April 17th. In Stal's synopsis in the Enumeratio this species would fall in the section with *meditabunda*, but the depressed and much broader and more ovate form and the finer and closer punctures will at once distinguish it; the brown on the elytra is also confined to the inner field and the venter wants the black incisures and stigmatic lines. I have been unable to identify this with any of the described species in this large genus known to me.

**Family Coreidæ**

**Charisterus gracilicornis** Stal.

I captured one pair of this species while beating weeds along the railway track at Troja, April 14th, and three examples at Hope Gardens near Kingston. The latter have the plates on the third antennal joint a little wider than do those from Troja but I cannot see that they differ otherwise. In one
of the Trojan examples the third joint of the left antenna is wanting, the second joint is much longer and thicker than on the right side while the first and fourth joints are normal. Most of my specimens show a blackish vitta on either side before the ocelli, and in two females there are two broad black approximate longitudinal vittæ on the base of the pronotum. In all my specimens the incisures of the connexivum are faintly blackish.

_Catorhintha guttula_ Fabr.

Not uncommon on low weeds at Rock Fort and Hope Gardens near Kingston the last of March and along the railway tracks west of the Kingston station on April 17th. Most of these specimens have the connexivum immaculate as in_ selector_ but in a few it is more or less maculated as is the case in specimens from Texas and Mexico in my collection.

_Zicca taeniola_ Dallas.

Common. I have records of Mandeville, Balaclava, and Kingston where I found them in numbers on rank weeds about a brush pile at Hope Gardens. These average a little darker in color than a series I have from the island of Trinidad.

_Chondrocera laticornis_ Lep.

This and the two following species were not taken by me but were kindly given me by my friend the late Albert Reinecke of Buffalo, an enthusiastic sportsman and student of birds, who visited Jamaica in 1903 and brought these back to me among other interesting insects and some land shells he gathered while on the island.

_Sephina maculata_ Dallas.

Brought home from Jamaica by Mr. Albert Reinecke.

_Anasa scorbutica_ Fabr.

Also taken by Mr. Reinecke in Jamaica with the preceding species.

_Leptocorisa filiformis_ Fabr.

One example was taken at Hope Gardens near Kingston and another at Appleton on April 9th.

_Magalotomus pallescens_ Stal.

Taken at Troja and Richmond. The males are pale and answer well to Stal’s description except that the posterior
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femora are infuscated, with a pale spot before their apex; the females are nearly black with the pale pectoral vitta almost obsolete; the venter is black with a few pale points on the sides, legs blackish with the tibiæ and base of the femora pale; the basal joint of the tarsi is ringed with pale and there is a pale spot on the front of the posterior femora near the apex. A good series in my collection from the island of Trinidad exhibit variations in both sexes from the darkest individuals to the pale form described by Stal.

Harmostes serratus Fabr.

This species was not uncommon on the island. I took it at Mandeville, St. Margaret’s Bay, Troja, and Richmond. These specimens are larger and darker in color than some sent me from the island of Trinidad by Mr. Chipman.

In my collection I find a single example from Brownsville, Texas, that differs from serratus in being smaller, paler in color, and in having the second joint of the antennæ equal to the third and the rostrum barely attaining the intermediate coxa. These characters are just those given by Dallas to distinguish his affinis from serratus and I think it quite likely that it may be the form described by him.

Corizus pictipes Stal.

A very abundant insect everywhere I collected on the island. Mr. Chipman sent me large numbers from Trinidad showing it to be equally common there. I have also received it from Mexico and Florida.

Corizus hyalinus Fabr.

I took this with the larvæ at Hope Bay. It may be abundant later. It belongs to subgenus Liorhyssus Stal.

Jadera sanguinolenta Fabr.

One example taken in a house at Mandeville. I saw broken remnants in spider webs about houses in several places, so, apparently, the season for its occurrence had about passed. Mr. Reinecke took it in Jamaica in February and I have specimens taken in British Guiana by Mr. Crew.

Family Metacanthidæ

Jalysus reversus n. sp.

Close allied to macer Stal. Pale ochraceous. Head with the basal collum and three longitudinal lines pale; the lateral interrupted by the
antenniferous tubercles; the intermediate a little expanded between the antennae and on the tylius; tip of the labrum black, polished; pale basal collum interrupted by the large red ocelli below which is a pale spot followed by a fuscous one behind the eyes; lower surface paler with an abbreviated rufescent vitta either side of the middle. Basal joint of the antennae nearly or quite as long as the two succeeding together, strongly annulated with black, second a little shorter than the third, both of these joints dusky; fourth about two thirds the length of the second, black with the apical one third white and the extreme tip blackish; all the incisures pale. Pronotum closely and regularly granulated; anterior lobe clearly defined, sublunately convex posteriorly, anterior angles rounded, prominent; these and a median basal spot obscurely pale and calloused; posterior lobe gibbous, with a feebie pale median carina which becomes obsolete behind the middle, the posterior margin narrowly reflexed and pale, a little emarginate at the middle; anterior angles tuberculate, pale and calloused. Sternum darker rufous, mesosternum with two pale feeble median carinæ, divergent posteriorly; osteolar spine long, straight, rather stout and pale at base with a more slender black tip. Scutellum rather narrow, armed on the base with a long curved pale spine. Hemelytra almost attaining the apex of the abomen, greenish hyaline, costal nervure slenderly blackish, the other nervures and the clavus ochraceous, the latter transversely wrinkled. slender apex of the corium linear, defined within by a blackish nervure, reaching three fourths the length of the membrane. Membrane transversely wrinkled with about four simple straight nervures. Abdomen greenish above, at least on the connexivum, more ochraceous beneath and on the base of the tergum. Legs long and slender dotted and annulated with black, apex of the tibiae and tarsi blackish. Length 6½ mm.

Described from 14 specimens taken as follows: Rock Fort, near Kingston; Balaclava; Montego Bay; Kingston, from the railway yards just west of the city, April 14th. It was a common insect everywhere on the island.

This form is closely allied to mæcer and tenellus Stal but the fourth antennal joint is white on the apical one third with the tip black, not black with the extreme tip white; the elytral nervures are ochraceous not testaceous white, and there are other points in which it fails to answer to Stal's descriptions. The apex of the first joint of the antennae and the femora are clavate, brownish, tipped with pale. The greenish color of the abdomen and elytra may be dependant upon an immature condition, as some individuals are entirely ochraceous tinged with rufous in places, especially on the tergum.

Metacanthus decorus Uhler.

Taken at Mandeville and Balaclava. Apparently more characteristic of the higher elevations. In his Rhynchotal Notes, no. 10, Dr. Distant places this species as strictly con-
specific with *Metacanthus capitatus* of Uhler and there certainly is nothing in the descriptions to distinguish the two species. Dr. Uhler's new genus *Protacanthus*, established for *decorus*, seems to differ from *Metacanthus elegans* only in having the rostrum a little longer and the spines at the anterior angles of the pronotum longer and more slender.

### Family Lygaeidae

**Oncopeltus pictus** n. sp.

Closely allied to *varicolor*. Orange fulvous marked with black and white. Head fulvous, apex of the tylus base of the vertex, occipital area, and antenniferous tubercles black; Antennae black, proportionately shorter and thicker than in *varicolor*, second joint perhaps a little longer relatively. Rostrum black, shorter than in its ally, scarcely attaining the apex of the first ventral segment. Pronotum narrower than in *varicolor* with the lateral margins rectilinear, not arcuated; humeral angles not rounded; depressed basal margins narrow and broadly rounded, not broad and subangularly produced as in *varicolor*; color fulvous, base, sides, and median line black. Scutellum black. Elytra black with a large white spot on the base and another at apex, omitting the costal nervure, the apical spot obliquely produced and arcuated anteriorly; not cut square across as in *varicolor*. Beneath fulvous; meso- and meta-sternum, except their posterior margins, a cloud exterior to the coxae, much smaller on the propleura, edge and apex of the venter and a discal area, which scarcely attains the base and extends to the margins on the fifth and sixth segments, black. Tergum apparently coccineous with the apex, narrow lateral margins, and a transverse vitta on the posterior segment, black. Legs black. Length: male, 10; female 12 mm.

Described from a single pair taken on the northern side of the island; the male at St. Margaret's Bay; the female at Hope Bay.

This species may vary in color as does its ally but the different form of the pronotum, as well as the shorter antennæ and rostrum will distinguish the species. It is also smaller and has the elytra proportionately narrower at base. My specimens of *varicolor* are from the island of Trinidad and agree very closely with Distant's figure in the *Biologia*.

**Oncopeltus gutta** H. S.

One male swept from weeds by the railway tracks near the Kingston station, April 17th. This corresponds with Distant's *Biologia* figure except that the ground color is a light scarlet including the entire head except the apex of the tylus and a cloud behind the ocelli, and the sides of the scutellum.
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Oncopeltus sandarachatus Say.

Abundant everywhere I collected on the island. Those from the hilly districts about Mandeville, Balaclava, and Appleton were of the pale form as described by Say and were smaller. Those from the north side about Hope Bay and St. Margaret's Bay were more deeply colored and were larger. I can however find no specific characters to distinguish these two forms and all gradations occur connecting the two.

Lygaeus (Graptolomus) formosus Blanch.

I captured four examples of this pretty species at Rock Fort, and have in my collection another labelled Port au Prince, Hayti, that was received from Prof. E. D. Ball. Heretofore this species has been recorded only from the continental countries from Mexico to Venezuela.

Lygaeus (Ochrostomus) pulchellus Fabr.

Taken at Constant Spring near Kingston, in an old banana field overgrown with weeds; Montego Bay, April 8th, with the young; Richmond, April 15th with larvae. Prof. E. D. Ball has sent me specimens from Port au Prince, Hayti.

Ortholomus jamaicensis Dallas.

I took occasional examples of this species at various places on the island and found it fairly abundant at Richmond. These specimens agree in every respect with Dallas' short but adequate description. I have compared them very carefully with Uhler's description of his providus and am compelled to the conclusion that our well known Hemipterist has combined the characters of this species and the common longiceps Stal from the United States in forming his providus. It is not unlikely however that these really may be forms of one and the same species in which case Dallas' earlier but awkward name will take precedence over those of Stal and Uhler. Dr. Distant has already pointed out the identity of Uhler's species with that of Dallas. I feel inclined at present to follow Baker in placing Ortholomus as a genus distinct from Nysius.

Ninus notabilis Dist.

One example swept from weeds at Mandeville.

Ischnorrhynchus championi Dist.

This tiny insect was common almost everywhere on the island. I took it most abundantly about Kingston and at Mandeville.
Bliasus leucopterus Say.

I watched closely for this insect but found only two examples, both brachypterous. One I took in the railway yards at Kingston, April 17th, and the other in an old banana plantation about a mile south of Constant Spring Hotel. Both are small and proportionately more elongated than specimens from the northern states. It is of course quite possible that they may have been introduced from the United States as they were taken near the principal seaport of the island.

Ninyas Strabo Dist.

This looks like a miniature Geocoris. I found it not uncommon toward the western end of the island. It was taken at Mandeville, Balaclava, Appleton and Montego Bay.

Paronius longulus Dallas.

I took a few examples of this widely distributed species at Hope Gardens at Kingston, under a pile of brush and rubbish. I also took it on cultivated lands at Mandeville.

Pamera vincta Say.

Common everywhere I collected in the southern and western districts of the island. Distant now places as synonyms of this species parvulus and gutta of Dallas, amyoti of Guerin, vinulus of Stal, and bipunctatus of Kirby; thus extending its range to India and Ceylon.

Pamera bilobata Say.

I found this species fairly common at Rock Fort near Kingston, Mandeville, Hope Bay, Troja and Richmond. These specimens were a little smaller and more clearly marked than those I have seen from the United States. They very closely resemble Distant's figure of Pamera vicinalis on plate 19, fig. 13 of the Biologia.

Pamera sp.

Mandeville, April 1st, one example. This specimen is somewhat mutilated and I have been unable to place it satisfactorily. It has a broad form and shows some affinities with genus Ptochiomera but the clavus is irregularly punctured and I prefer to place it in Pamera.

Ptochiomera sp.

St. Margaret's Bay, April 12th, one example. This is a tiny little insect scarcely more than a millimetre in length. It might be mistaken for a Cligenes were it not that the sides
of the pronotum are not at all carinate. In form it much resembles *Ptochionera nodosa* but is not half its size and has the apical joint only of the antennæ moderately enlarged.

**Ozophora pallescens** Dist.

One example, taken at Hope Bay April 12th, agrees exactly with Distant's figure and description. I have received it also from the island of Trinidad.

**Ozophora concava** Dist.

I took one example of this species at Gordon Town, March 24th. It would not be surprising should a long series show this and *pallescens* to be forms of a single variable species.

**Family Pyrrhocoridae**

**Dysdercus mimus** Say.

Very abundant at every locality where I collected on the island. I took all variations in size, form and marking as described by Dr. Uhler in his List of the Hemiptera from West of the Mississippi River.

**Dysdercus andræ** Linn.

Another very common species occurring in great numbers on certain trees and bushes, and frequently coming to light at night. I have this species from Cuba and Mrs. Annie Trumbull Slosson has taken it in Florida.

**Dysdercus jamaicensis** Walker.

I took this large showy species from the hillside at Port Antonio and at St. Margaret’s Bay, Richmond, and at Hope Gardens at Kingston. At Balaclava I took it on a large tree called by the natives “Aaron’s Rod.” The six individuals taken by me show but slight variation in the extent of the black markings. They differ from Walker’s description only in having the rostrum extended to the middle of the third ventral segment. *D. sanguinarius* Stal is an allied species with a longer rostrum and black scutellum.

**Family Tingidae**

**Corythuca gossypi** Fabr.

Many examples of this tiny species were taken at Kingston, Mandeville and Montego Bay. It may readily be distinguished from *spinosa* Champ., which it most closely resembles, by its
having the median pronotal carina nearly or quite as high as
the hood, which is set well forward.

**Corythuca marmorata** Uhler?

I beat numbers of this species from a bush on the bank of
a ravine back of Montego Bay. I do not yet feel fully satisfied
of its identity with *marmorata*.

**Corythaica carinata** Uhler.

I took two examples of this queer looking insect by the
railroad tracks east of Balaclava on April 5th; several at Kings-
ton, and found it common at Montego Bay on bushes along the
roadside near Paradise Pen. Two of those from Kingston are
smaller and paler and seem to be somewhat immature. Dr.
Uhler described this species from material taken on the island
of Grenada.

**Leptostyla tumida** Champ.

This is one of the most beautiful Tingids that has come
under my observation. I swept eight examples from low weeds
about a mile east of Rock Fort, Kingston, on March 25th. My
specimens correspond in every respect with Champion's figure
and description.

**Leptostyla angustata** Champ.

A pretty little whitish species of which I took five examples
at Montego Bay. These differ from the description in the Bio-
logia in having a round blackish spot a little behind the middle
of the discoidal area, which is almost obsolete in some individu-
als and very distinct in others.

**Leptostyla constricta** Champ.

One specimen of this little species was swept from grass
and weeds along the railroad track a little south of the station
at Troja. The apical joint of the antennæ is dark brown rather
than black.

**Leptostyla colubra** n. sp.

Form and general appearance of *constricta* Champ. Body black; spines
of the head, antennæ, bucculae, and legs pale testaceous or white. Basal
joint of the antennæ about twice the length of the second; third elongated,
slender; fourth about equal to the first and second united, darker. Prono-
tum broad across the subangulated humeri behind which is a distinct trans-
verse impressed line separating the large triangular posterior portion, the
extreme tip of which is truncated and slightly emarginate. Anteriorly the
pronotum is strongly narrowed; sides with a slender carina which is higher across the anterior sinus; hood moderately elevated; disk strongly, almost tubercularly elevated, as high as the hood, tricarinate; color ferruginous becoming blackish posteriorly; the median carina and a slender line bounding the pale lateral carinae, black; hood and anterior edge of the pronotum white, the latter with two black points beneath the hood. Elytra fuscous or blackish, the costal area whitish hyaline, broken by a broad black band at the middle and a narrower one at apex, the disk of some of the apical areoles subhyaline; bounding nervures of the discal area white at apex; discal, subcostal and sutural areas finely areolate, the costal and apical areoles larger; costal area indistinctly triseriate. Wings almost attaining the apex of the elytra. Rostrum reaching the insertion of the posterior legs. Length 2 to 2 ½ mm.

Described from 22 examples taken at Mandeville and Balaclava where it appeared to be common. This little species has the form, size and markings almost exactly of *constricta* but may readily be separated by its having the expanded membranous margins of the pronotum reduced to a mere carina; the disk much more convex and divided by a transverse suture, and the posterior tip truncated. The basal joint of the antennæ is also a little shorter and the colors are more varied. Some of these characters might be construed to be of generic value. The specific name is suggested by the dark markings which recall those seen on certain serpents.

*Acanthochila armigera* Stal.

I took four adults and one larva of this pretty species from the hill south of the Newleigh House at Mandeville, and two adults by the roadside near Paradise Pen at Montego Bay. These are all rather pale ferruginous with the head, apical joint of the antennæ, its base excepted, anterior disk of the pronotum, body beneath and tips of the marginal spines of the pronotum, black. The two long spines on the head are white and conspicuous, and the transverse vitta on the elytra is pale and poorly defined.

*Acanthochila spinicosta* n. sp.

Closely allied to *armigera* but differing principally in having the costa armed with spines to behind the middle, those near the base longer, and tipped with black as are those of the pronotum; the head ferruginous instead of black; the basal joint of the antennæ with a black line exteriorly, and the apical joint black only on its apical one third. Membranous margin of the pronotum somewhat broader than in *armigera*; disk of the discoidal and subcostal areas conjointly ferruginous, darker than in *armigera*, the intervening carina white at apex with a black dash before the middle.
Lower surface of the head pale, of the body deep black, with the insertions of the coxae, broad margins of the propleura, legs and rostrum pale. Genital segment ferruginous. Bucculae white. In armigera as known to me the entire lower surface is deep black with the bucculae white and the rostrum, legs and insertion of the coxae pale. The spines on the base of the vertex are whitish as in armigera but the transverse black band on the anterior lobe of the pronotum of that species becomes paler in this.

Described from one example taken on the borders of a rich cultivated field at Mandeville, April 3d. This species has the form and general appearance of armigera but the characters given above will readily separate it. I confess that I do not feel at all certain of the synonymy given by Mr. Champion in the Biologia for armigera Stal.

Amblystira maculata n. sp.

Closely allied to opaca Champ. Deep black, shining; antennae, legs and elytra whitish, the latter with a large angulated median black spot, which omits the calloused sutural and apical margins and becomes much narrowed to the costal nervure, along which it runs anteriorly for a short space; the large sutural area is a little emfumed, with black nervures. Antennae: first and second joints short, subequal in length; third about twice the length of the fourth; apical one third of the latter blackish. Bucculae narrowly edged with pale. Pronotum obscurely carinate on the sides; disk tricarinate, median carina strong, scarcely attaining the apex of the posterior prolongation, the lateral subobsolete; whole surface coarsely punctate. Elytra with the discoidal area narrow, subcostal finely reticulated in several rows; costal area forming a very narrow margin to the subcostal, beyond that much widened, with one series of large areolae. Wings smoky toward their tips, with fuscous nervures.

Described from one example taken on the hillside south of Richmond village, April 15th. Differs from opaca in color, the shining black of the upper surface, the tricarinate disk of the pronotum, and the large areolae in the sutural area of the elytra.

Leptoypha binotata Champ.? Kingston, two examples swept from bushes near the railroad tracks west of the station on April 17th. I feel some uncertainty about this determination as these specimens differ from Champion’s description in several particulars. The body is dark ferruginous, not black, beneath; the elytra have a double transverse vitta and the whole sutural area fuscous, with the included nervures black; the discoidal and subcostal areas are confused, and together with most of the sutural area are closely and minutely areolate; costal area very narrow and uniseriate; wings well developed. I have little doubt but
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Further West Indian material would connect these with the darker specimens from the main-land described by Mr. Champion.

**Teleonemia sacchari** Fabr.

Taken in numbers at almost all places where I collected on the island.

**Teleonemia scrupulosa** Stal.

Taken with the preceding and equally abundant. I distinguish this species most readily by its smaller size, paler color, the longer pale spines on the head, and particularly by the much wider costal area.

**Teleonemia prolixa** Stal.

Troja, April 14th, one example. Mr. Otto Heidemann who has determined this species for me and who has very kindly assisted me in the verification of some of the doubtful species of the Tingids thinks this the "var. a" of *prolixa* as described by Mr. Champion. This is a larger and darker species than *sacchari*, with a narrower and more sinuated costal margin. I have in my collection a still larger and darker specimen taken by Mr. R. J. Crew near Demerara, British Guiana, April 12th, 1901.

**Teleonemia cylindricornis** Champ.

This is a larger and paler species of which I took two specimens at Mandeville and one at Hope Gardens, near Kingston, among weeds by a roadside on March 27th. This species is separable from the two preceding by its larger size, longer and stouter antennae, and by the partially biseriate costal area. It is very close to *variegata* Champ. of which Mr. Otto Heidemann has very kindly sent me an example taken in Arizona. I can separate *cylindricornis* by its having the median pronotal carina distinctly elevated in front and the lateral carinae almost parallel behind, not distinctly divergent as in *variegata*; and the costal area is much more distinctly biseriate. The antennae are longer and stouter and the elytra more ampliated, but these characters are less noticeable.

**Atheas nigricornis** Champ.

Several examples of this species were swept from herbage in a pasture at Mandeville, March 30th. These have the extreme
tip of the third antennal joint paler and the apex of the discal area of the elytra blackish. In all other respects they agree with Champion's description and figure.

**Monanthia monotropidia** Stal.

Three examples swept from weeds along the road to Paradise Pen at Montego Bay, April 8th.

**Monanthia c-nigrum** Champ.

Mandeville, three examples: a large specimen taken on the hillside near the Newleigh House, March 29th, and two smaller ones from a cultivated field April 3d. These all agree well with Champion's figure and description except that the femora are concolorous, ferruginous, instead of black.

**Family Phymatidæ**

**Phymata marginata** Fabr.?

I took one example of this little species from bushes along the roadside in Balaclava village on April 6th. This is a male measuring but five millimetres in length, and differs from the figure and description given by Handlirsch in having the posterior "wings" of the pronotum and the expansion of the connexivum on the fourth abdominal segment less pronounced and acute. They seem to agree in all other essential respects and I see no reason to doubt the correctness of this determination.

**Family Veliidæ**

**Rhagovelia Taylorella** Kirk.

I found quite a colony of these active little insects sporting on the surface of a small stream near the railroad station at Troja. In all of these the legs are metallic greenish black, with the trochanters, coxae, base of the anterior femora and of the other femora beneath, fulvous.

**Microvelia pulchella** Westw.

One fully winged example that I determine as Westwood's species was taken from a rivulet near the road about a mile south of the Constant Spring Hotel. The elytra in this are really dull whitish with the nervures broadly fuscous; the pronotal collum is fulvous, bisected by the blackish median pronotal line. This individual answers in all respects to the brief description given by Amyot and Serville except that the elytra
are more obscurely white. Dr. Uhler's *M. robusta* would seem to be a very closely allied species.

Near Rock Fort I took from a little pond of water by the roadside a larval form of *Microvelia* that I take to be the young of the present species as it has the same characters of the antennæ and legs. It is blackish above with the collum and a large quadrate spot on the middle of the pronotum and a dot on the connexival margin of the first tergal segment fulvous.

I was much disappointed in not taking more of the aquatic and littoral forms of the Hemiptera in Jamaica. Although I searched diligently wherever I collected near the water I took but this, the *Rhagovelia* mentioned above, and the single specimen of *Buenoa* noticed further on.

Some years ago while collecting at Rivington, N. J. with Prof. C. W. Johnson my attention was directed by him to a colony of *Microvelias* that had their home in a water barrel under some trees. These specimens agree in every respect with Champion's description of his *albonotata*, founded on a single specimen from Guatamala. This differs from Uhler's description of *modesta* in several minor particulars, and for the present at least I prefer to place these northern specimens under Champion's species.

**Family Reduviidae**

**Ghillanella Signoreti** Dohrn.

This large species was not uncommon on trees and bushes in various parts of the island. I have notes of having taken it at Mandeville and Hope Bay. In the specimens brought home the intermediate and posterior legs are no darker than the anterior but show the pale rings on the femora quite distinctly. Two small immature examples from Mandeville and Balaclava are apparently the young of this species.

**Ploiariola errabunda** Say.

I captured three specimens at Mandeville that I cannot distinguish from this species as found in the United States.

**Luteva** sp.

One example of a species I have been unable to determine was taken at Balaclava, April 5th.
Pnirotis infirma Stal.

One nymph that I place here was taken at Mandeville, April 1st. The extreme edge of the abdomen has not the black spots mentioned by Stal but that character may depend somewhat upon maturity.

Zelus rubidus St. F.

This was a common insect throughout the island. I took it wherever I collected. I can see no reason for separating this from Zelus longipes Linn. Our northern form, Zelus bilobus Say, is reasonably distinct in having a longer and more slender head.

Metatropiphorus Belfragei Reut.

One slightly immature example of this interesting insect was swept from grass and weeds at Hope Gardens, Kingston, March 26th. In this individual the elytra are somewhat flaccid, pale, with the nervures fuscous on their base and across the middle, thus indicating the dark bands mentioned by Reuter. In all other characters it agrees exactly with his description.

Nabis sordidus Reut.

A macropterus example was taken near the Constant Spring Hotel and a brachypterous one from the roadside a little beyond Rock Fort.

Nabis ferus Linn.

Two examples from the fields near the Constant Spring Hotel, March 26th. These are a little longer and narrower than examples from further north but I cannot distinguish them specifically.

Carthasis rufonotatus Champ.

I took several examples of this delicate little species at Mandeville and Balaclava. These were beaten singly from trees in open sunny situations.

Family Cimicidæ

Cimex lectularius Linn.

Not an uncommon guest at the hotels in the smaller towns and interior villages.
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Family Anthocoridæ

Ple'zostethus sp.

Numbers of a small species in this genus that I have been unable satisfactorily to determine were taken in various parts of the island.

Triphleps insidiosus Say.

One specimen, certainly pertaining to this species, was taken at Mandeville and two smaller examples that I cannot feel sure are distinct were swept from herbage at Hope Bay.

Cardiastethus fraterculus n. sp.

Pulvous, tinged with rufous in places. Head and prothorax rufo-piceous; the pronotum, excepting the disk of the anterior lobe, and the humeri piceous black with metallic reflections in certain lights. Elytra dull and opaque, apical one half of the clavus, disk of the corium, and inner field of the embolium within the longitudinal furrow, fuscous; cuneus blackish. Membrane fuscous with iridescent reflections, the inner margins fulvous at base and pallid toward the apex. Antennæ, rostrum and legs testaceous yellow.

Head short, the prolongation before the base of the antennæ quadrate. Eyes large, granulated. Antennæ: first joint attaining the apex of the head, second longest, clavate and fuscous at apex, third and fourth more slender, dusky, fourth shortest, much shorter than the third; all but the basal armed with long scattering hairs. Rostrum reaching to between the anterior coxae. Pronotum broad, transverse, strongly narrowed to the front, sides feebly arcuated; surface coarsely punctured, omitting however the large pale disk of the anterior lobe; collum rather narrow, distinct. Scutellum pale, the transverse impression conspicuous. Elytra with scattering coarse shallow punctures; embolium narrow, at apex about one half the width of the corium; nervures of the membrane almost obsolete. Propuleura and sutures of the other pleural pieces rufo-piceous. Ostoealar canal long, strongly curved and attaining the anterior suture of the mesopleura. Whole upper surface sprinkled with short, stiff, yellow hairs. Length 2 mm.

Described from one example taken at Mandeville, March 29th. This seems to be quite distinct from any species yet described. It answers most nearly to Reuter's description of Pergandei but has the short rostrum and feebly sinuated costa, and in his synopsis would go directly to consors from New Zealand. It is perhaps still nearer to assimilis which has a short rostrum notwithstanding that Prof. Reuter has placed it in his table among those in which the rostrum attains the middle of the mesosternum. From that species however ours may be distinguished by the different sculpture of the pronotum, the
deeper impression on the disk of the scutellum, the narrower embolium, and the different coloring.

Termatophyllidea pilosa Reut.

Quite a number of specimens of this very interesting species were beaten from bushes and small trees at Mandeville, Balac­lava and Montego Bay. Dr. Reuter writes me that this is the first American representative he has seen of this subfamily of the Anthocoridae. He will describe the genus and species, both of which are new, in a paper on the Termatophyllinea he now has in preparation.

Family Capsidæ

The Capsidæ were well represented among the material taken in Jamaica. The specimens averaged much smaller than those found in the United States and in most cases but few individuals of each species were taken, but this was true of all the Hemiptera I took on the island. Some of these Capsids were very prettily colored and marked and the collection on the whole was an interesting one. Dr. O. M. Reuter of Helsing­fors very kindly offered to study these for me and has published the results of this study in the Of. Finsk Vet-Soc. Forhandl. xlIx. No. 5, pp. 1 to 27, 1907, to the pages of which paper reference is made after the name of each new genus and species. In this paper Dr. Reuter has described as new seven genera, twenty nine species and two varieties from the material brought home by me. In the nomenclature and arrangement of the divisions, and so far as possible of the genera, I have followed the classification published by Dr. Reuter in the Festschrift f[r Palmen No. 1, p. 27 et seq., 1905.

Division Plagiognatharia

Psallus atomophorus Reut. (n. sp. p. 22.)

Two examples taken at Rock Fort near Kingston, March 25th. This is a delicate little species of a pale yellow color with a fuscous cloud across the elytra and the whole upper surface dotted with brown points.

Psallus (?) sulphureus Reut. (n. sp., p. 23.)

Taken in numbers along the roadside at Rock Fort. It is a pale yellow species with a black point on the apex of the cuneus and a dot a little behind this on the margin of the maculated membrane.
Reuteroscopus ornatus Reut.

One example of this northern species was taken at Hope Gardens and another near Constant Spring Hotel at Kingston. The generic name *Episcopus*, under which this species was described, being preoccupied Mr. Kirkaldy in 1905 proposed the name *Reuteroscopus*, (vide Reuter) and again in 1906 the name *Aristoreuteria*, the former of which has been adopted by Dr. Reuter.

Atomoscelis diaphanus Reut. (n. sp., p. 24.)

Mandeville, April 2d, one example.

Leucopoecila (Reut. n. gen., p. 24) albofasciata Reut. (n. sp., p. 26.)

Rock Fort, March 25th, two examples. This is a little black insect resembling our northern *Chlamydatus* (*Agalliasles*) but marked with a transverse white band on the elytra.

Sthenarus plebejus Reut. (n. sp., p. 26.)

Mandeville, seven examples Balaclava, one example. A shining black little creature with the base of the antennae and legs pale yellow.

Sthenarus basilis Reut. (n. sp., p. 26.) Mandeville.

Division Cyllocoraria

Jornandes semirasus Dist.

Very abundant at Mandeville and Balaclava and also taken at Richmond. This species looks somewhat like a miniature *Ceratocapsus* (*Melinna*) modesta Uhler. Distant's material was from Guatemala.

Zanchisme illustris Reut. (n. sp., p. 11.)

Balaclava, April 5th, two examples. A neat little species with much the aspect of a small *Pilophorus*. This generic name was substituted for Reuter's preoccupied name *Schizonotus* by Mr. Kirkaldy in 1904.

Falconia caduca Dist. var. (Reut. p. 11.)

Mandeville and Balaclava. A pale yellow species with nearly the form of a *Dicyphus*, with the eyes and apex of the scutellum deep black, and the last joint of the antennae, claval suture and a spot on the base of the membrane fuscous. The type was from Guatemala.
Baculodema (Reut. n. gen., p. 12.) luridum Reut. (n. sp., p. 13.)
Balaclava, one example. Looks like a slender Jornandes.

Ceratocapsus nigro-piceus Reut. (n. sp., p. 13.)
Balaclava, four examples; Montego Bay, one example.
Dr. Uhler described this genus in 1887 as Melinna and Mr. Kirkaldy renamed it Hypereides in 1903. Dr. Reuter however considers it identical with his genus Ceratocapsus published in 1875.

Ceratocapsus consimilis Reut. (n. sp., p. 14.)
Balaclava, one example. This has much the appearance of a small Ceratocapsus modestus Uhler.

Orthotylus compsus Reut. (n. sp., p. 14.)
Kingston, one example.

Orthotylus divergens Reut. (n. sp., p. 15.)
Rock Fort, near Kingston, two examples. A pale little species with a red band across the base of the elytra and scutellum and a black membrane.

Platyscytus (Reut., n. gen., p. 16.) binotatus Reut (n. sp., p. 17.)
Hope Gardens, Kingston, one example. This is an odd little insect: pale yellow with the scutellum and a round dot on each elytron red.

Melanostictus (Reut., n. gen., p. 17.) Van Duzeei Reut. (n. sp., p. 18.)
Balaclava, April 5th, one example.

Hyalochloria (Reut., n. gen., p. 18.) caviceps Reut. (n. sp., p. 20.)
Not uncommon. I took it at Mandeville, Balaclava, Montego Bay and Richmond. This is an exceedingly delicate little insect much resembling Diaphnidia parvula Uhler from Florida.

Hyalochloria unicolor Reut. (n. sp., p. 20.)
Mandeville, March 31st., one example.

Mesotropis (Reut. n. gen., p. 21.) viridifasciatus Reut. (n. sp., p. 22.)
Hope Gardens and Constant Spring Hotel, Kingston, two examples; Balaclava, one example. Another delicate green little species with a band of deeper green across the elytra, which may, however, be almost obsolete.
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Division Pilophoraria

Tirynus punctulatus Reut.

Taken at Mandeville, Balaclava, Montego Bay and Richmond. Described in 1875 as a Tirynus from material taken in the southern United States.

Division Dicypharia

Dicyphus separatus Uhler.

I took numbers of this species from a bush, I think a species of Croton, growing in a garden at Gordon Town, March 24th, and at Rock Fort the next day. Dr. Reuter did not report on this species but my specimens seem identical specifically with others in my collection from Maryland and Florida, and my friend W. J. Palmer took what I believe to be the same species at Lake Temagami, Ontario. (See Can. Ent. xxxviii, p. 407, 1906.) In my report upon these Temagami Hemiptera I listed this species as a Macrolophus under which name I had received it from correspondents. I now find that it was described as a Dicyphus by Dr. Uhler (Proc. Zool. Soc., 1893, p. 194), from specimens taken in the island of Granada together with material from the United States.

Division Laboparia

Halticus Uhleri Girard.

Common at Mandeville and Balaclava. Dr. Distant has redescribed this species in the Biologia as Calocoris canus.

Division Miraria

Collaria oleosa Dist.

A very abundant insect everywhere on the island.

Trigonotylus tenulis Reut.

A delicate little species of which I took four examples at Hope Gardens at Kingston, April 17th.

Creontiades rubrinervis Stal.

This was the largest Capsid taken by me on the island. I found it at Mandeville, Balaclava and Appleton. The type specimens were from Mexico. Distant records it from Guatemala and Uhler from St. Vincent and Granada, and Mrs. Slosson has
taken it at Biscayne Bay, Florida. I follow Reuter in placing this genus in the *Miraria*.

**Division Capsaria**

*Phytocoris compsocerus* Reut. (n. sp., p. 4.)

I took two examples of this at Mandeville and two at Balac­lava. It is closely allied to *eximus*.

**Lygus apicalis** Fieb.

Three examples taken near the Constant Spring Hotel. This is a small green species somewhat resembling *prasinus*. It was described by Fieber in his Europäischen Hemiptera from material taken in Spain. I cannot find any previous record of its having been taken in America.

**Lygus apicalis** var. *inops* Horv.

Very near the preceding. I found this form at Hope Gar­dens and in numbers at Mandeville.

**Lygus aeruginosus** Reut. (n. sp., p. 5.)

Mandeville, April 1st, two examples. A shiny little species with much the aspect of an *Orthops*.

**Lygus olivaceus** Reut. (n. sp., p. 6.)

Not uncommon on the southern side of the island. I took it near the Constant Spring Hotel, at Mandeville, Balac­lava and Montego Bay. It looks somewhat like a small compact *invitus*.

**Lygus suspectus** Reut. (n. sp., p. 6.)

Smaller and more strongly maculated than the preceding. I took one example at Rock Fort, March 25th, and another at Mandeville, April 3d.

**Lygus cunealis** Reut. (n. sp., p. 7.)

Mandeville, three examples. At Balac­lava I took two ex­amples of what seems to be a pale form of this species. *Cunealis* is near the preceding species but has the pronotum behind, scutellum, clavus and inner angle of the corium piceous black.

**Peciloscytus cuneatus** Dist.

Common about Mandeville and Balac­lava. I also took it at Rock Fort near Kingston. I have received this species from British Guiana and the island of Trinidad and Distant, who
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described it as a *Lygus*, records it from Mexico and Central America.

**Poeciloscytus cuneatus** var. *rufu-cuneatus* Reut. (n. var., p. 8.)

Differs from the typical form in being paler with a red cuneus. I found it abundant, particularly about Mandeville.

**Poeciloscytus flavo-cuneatus** Reut. (n. sp., p. 8.)

Two examples taken at Hope Gardens, March 26th. Very near *cuneatus* of which Dr. Reuter thinks it may prove to be a variety.

**Cyrtocapsidea irrorata** Reut. (n. sp., p. 9.)

Mandeville, April 1st, one specimen. This is a pretty little species with somewhat the aspect of a small *Phytocoris*. Dr. Reuter records its occurrence in Mexico.

**Neoborops oculatus** Reut. (n. sp., p. 10.)

Mandeville, April 1st, one example.

**Division Clivinemaria**

**Lamproscytus** (n. gen. Reut., p. 3.) Van Duzeel Reut. (n. sp., p. 4.)

Mandeville, one example. Looks a little like a small *Pilophorus*. Piceous black with red elytra marked with a large white spot on the membrane.

**Division Bryocoraria**

**Cyrtocapsus caligineus** Stal.

Taken at Kingston, Mandeville, Balaclava and St. Margaret's Bay. Not uncommon. Distant records it from California, Mexico and Guatemala and Dr. Uhler from the island of Granada.

**Pycnodere*s Van Duzeel Reut. (n. sp., p. 1.)

Common at Mandeville and also taken at Balaclava and Kingston. Closely resembles *atratus* Dist.

**Pycnodere*s angustatus** Reut. (n. sp., p. 2.)

A larger and more slender species taken with the preceding and equally abundant.

**Bryocoris minutus** Reut. (n. sp., p. 2.)

Mandeville, two examples. Aspect of a small *Chlamydatum*. 
Neocarnus vitreus Dist.

Common at Mandeville and Balaclava and taken also at Montego Bay and Hope Bay. The types were from Panama.

Family Notonectidae

Buenoa antigone Kirkaldy.

One example, a female eight millimetres in length, was brought into the house at Mandeville with water from one of the cisterns that are everywhere used in that part of the island for the domestic water supply.

Family Fulgoridæ

Subfamily Cixiinæ

Bothriocera Signoreti Stal.

I found this species fairly abundant throughout the island and have received an example from Mrs. Slosson taken at Biscayne Bay, Florida. These specimens do not altogether agree with Stal's description of this or any of the other known species. The fuscous markings on the elytra form a distinct transverse stigmatal band followed by a narrow broken pale vitta, a round subcostal spot, and an apical hyaline vitta; the base and sides of the vertex and the tegulae are also pale. One smaller example from Balaclava seems to approach bicornis Fabr.

Bothriocera undata Fabr.

One example taken at Mandeville, April 1st.

Oliarus complectus Ball.

Apparently common throughout the island. These specimens were somewhat smaller than those taken in Ohio, Colorado and at Washington, D. C., now in my collection, but they seem to be otherwise identical.

Myndus crudus n. sp.

Form of sordadipennis nearly; a little smaller with a narrower vertex and less expanded front. Color a uniform soiled white. Carina of the head and marginal nervure of the elytra tinged with yellow, the latter slightly embrowned around the apex of the membrane; discal nervures of the elytra slender, whitish, setigerous-punctate; stigma scarcely differentiated. Extreme tips of the tibial spines and tarsal claws black. The anterior margin of the mesonotum has a black cloud that shows through the pronotum but is mostly hidden by the posterior margin of the head. Eyes black; ocelli orange. Tergum in one female slightly embrowned at base and along the median line. Length to tip of the elytra 5 mm.
Described from two examples taken at Hope Bay, April 13th, and one from Troja taken the next day. These insects have the appearance of being immature but on careful examination I believe they have attained their full coloring. If a deeper color is attained later it is possibly a light green as this color is faintly indicated in one example. This species bears some resemblance to *radicus* Osborn but the vertex is shorter and less angled before, the eyes are much more deeply excavated below, the pronotum is narrower, the front is less angled at apex, and the whole insect is smaller and slighter.

**Brixia fulgida** n. sp.

Size and form of *Cixius pini* nearly. Pale testaceous yellow; narrow elongated disk of the pronotum either side of the middle and the scutellum, its extreme tip excepted, brilliant metallic green; elytra entirely hyaline, slightly tinged with smoky and exhibiting brilliant green reflections by oblique light; nervures brown, the marginal, especially on the costa, heavy and fuscous. Tergum mostly black. Slender edges of the facial carinae, basal joint of the antennæ, broad inferior margins of the clypeus, lineations of the femora and the anterior and intermediate tibiae and tarsi, fuscous or black. Length to tip of the elytra 5 mm.

Described from two examples taken at Mandeville on March 30th, from pimento bushes. In this species the vertex is narrow, almost linear, but a little widened at base. So far as I am aware this is the first recognition of genus *Brixia* from America. Its nearest American representative is *Paulia opposita* Fabr. which possesses the same brilliant green coloring on the scutellum. In both my specimens the apex of the abdomen is wanting.

**Brixia fuscosa** n. sp.

Form and size of the preceding. Pale testaceous brown; metanotum, abdomen in large part, some spots on the pleuræ and the disk of the front black; clypeus, carinae of the face, pronotum and scutellum, sides of the prothorax, edges of the pleural pieces, and the legs paler; the latter with some lineations and the tarsi, darker or fuscous. Antennæ brown, basal joint whitish. Elytra hyaline, slightly enfamed, exhibiting metallic green reflections by oblique light; nervures, about three spots on the transverse nervures at the base of the membrane, and a marginal cloud at the tip of each apical nervure, fuscous; marginal nervure strong, interrupted with white on each side at the first row of transverse nervures. Length to the tip of the elytra 5 mm.

Described from a single specimen taken at Mandeville, March 31st. This species is closely allied to the preceding but
is very distinct in color and has the front broader above and the pronotum wider.

**Subfamily Tropiduchinae**

*Tangia sponsa* Guer.

Three examples, taken at Mandeville, Balaclava and Hope Bay. This is a broad species of a pale yellowish green color with the head triangularly produced, obtuse at apex, about as long as the width of the head across the eyes. Elytra with a broad costal membrane crossed by numerous oblique veinlets.

*Tangia cultellator* Walker.

Taken at Kingston, Montego Bay and Hope Bay. This is a slender light green species with the head drawn out in a long slender and linear process fully twice as long as the width of the head across the eyes. The elytra are narrow with the whole surface of the areoles minutely papillate; costal membrane very narrow. This species closely mimics a *Dictyophora* in which genus it was placed by Walker. The type came from St. Domingo.

**Subfamily Achilinae**

*Catonia intricata* Uhler.

Three examples taken at Mandeville, April 3d. Two smaller and darker specimens, probably males, have the rufous tinge at the apex of the costal area quite pronounced, and agree perfectly with a specimen determined as *intricata* by Prof. Ball and kindly sent to me for comparison by him. One larger specimen has the white granulations of the elytra much more distinct. In all there is a dark cloud at the base of the clavus bounded behind by a whitish transverse spot, and the wings are dark smoky brown with fuscous nervures.

At Mandeville I took one example of a very pretty and interesting representative of this subfamily which unfortunately had its head eaten off by ants so it is impossible for me to locate either the genus or species, both of which I believe are new. It is a short compact little fellow, 4 mm in length, convex above, oblong in form, of a piceous brown color with the claval region closely dotted with white and with an oblique white line at the base and another at the apex of the costal area.
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Subfamily Derbinae

Lamenia Uhleri Ball.

I took three specimens of what I am sure is this species at Balaclava, April 4th, and another in an abandoned banana field near Constant Spring Hotel at Kingston. These differ from two of Prof. Ball’s types of this species now in my collection in being a shade darker, in having the edges of the facial carinae slenderly brown, and in wanting the round fuscous spot at the apex of the costal area. They agree with these types in having the marginal nervure around the apex of the elytra very slenderly bright sanguineous; a feature not mentioned by Prof. Ball, and in the form of the male genitalia.

Lamenia flavida n. sp.

A little larger than the preceding species. Fulvous yellow, paler beneath; elytra milky white with a fuscous cloud about the apical margin becoming darker on the stigma, and broken just beyond the apex of the clavus, along the commissural margin of which it is extended to the base. Wings white. Tergum at base, eyes and tips of the tarsal spines black. Plates of the male long, ligulate, widest just beyond the middle, then narrowed to an acute apex.

Vertex short and broad, scarcely advanced before the eyes; front parallel above, abruptly widened below to the base of the broad clypeus. Length to tip of the closed elytra 4½ mm.

Described from four examples taken at Mandeville. In one individual the base of the front and expanded sides of the pronotum exterior to the eyes are infuscated.

This must be closely related to Cenchrea Heidemanni Ball and dorsalis Westw. but it seems to be smaller with a differently shaped vertex and front, and maculated elytra. I confess I am utterly unable to distinguish between the genera Cenchrea Westwood and Lamenia Stal. Unfortunately I do not possess Westwood’s C. dorsalis for a direct comparison of these genera.

Subfamily Issinae

No representative of this subfamily was taken by me in Jamaica.

Subfamily Ricaniinae

Colpoptera rugosa n. sp.

Closely allied to sinuata Burm. but a little smaller and more slender with a distinctly longer and narrower vertex. Vertex almost rectangular, projecting for about one third its length before the eyes, the posterior margin
more deeply sinuated that in *sinuata*. Front longer and much narrower above, the sides almost angled below, margins sharply reflexed, median carina distinct, either side of which is an arcuated pale line simulating an intermediate carina. Pronotum about as long as the vertex, strongly produced anteriorly in an obtuse angle between the eyes, the sides behind the eyes very short. Scutellum with three parallel longitudinal carinae and an abbreviated oblique one on either side which meet at the anterior end of the median carina and are subparallel with the fore border of the pronotum. Elytra surpassing the abdomen by nearly one half their length, almost linear, the costa a little expanded near their base; inner ulnar nervure forked beyond the middle, outer ulnar and radial nervures simple; transverse nervures numerous, less so on the clavus and costal area, membrane more irregularly reticulated. Legs short, posterior tibiae simple. Antennæ short, about as in *Cixius*; first joint very short, second longer, subglobose.

Color light fulvous brown, sometimes darker on the front, middle of the scutellum and elytra, the latter with the costal area and clavus pale, apical margin and a spot beyond the tip of the clavusfuscous; carinae of the face, pronotum and scutellum paler, apex of the clypeus, base of the second antennal joint, a spot behind the eyes, sides of the genital pieces and tarsal claws black; two transverse bands on the anterior femora, a longitudinal ray on either side of the apex of the front and some marks on the abdomen dark brown. Eyes dark brown or black; ocelli amber yellow.

Described from numerous examples. This insect was abundant everywhere on the island, especially on Lantana bushes. It exhibits considerable variation in the depth of coloring but it is quite distinct in its structural characters from Mexican material I determine as Burmeister's *sinuata*, and from Canon Fowler's figure of that species in the Biologia. I cannot find that Burmeister's genus or species have either of them been properly described and I have therefore included most of the generic characters in the above description. Dr. Melichar now places this genus in the *Ricaniiæ*.

**Subfamily Flatinæ**

*Amphiscopa plana* n. sp.

Much smaller than *bivittata*. Of about the same shade of green over the whole insect; a narrow dorsal line, sometimes almost obsolete, and the costa slenderly pale or whitish; orbits of the eyes, ocelli and tip of the first antennal joint whitish; tibiae toward their apex and the tarsi, a series of concentric linear marks along the commissural and apical margins of the elytra and the oviduct of the female, brown.

Front longer and more nearly parallel above than in *bivittata*. Pronotum shorter at the sides and longer on the middle, anterior margin more produced before, subconical and overlapping the base of the vertex, hind margin almost truncated, not emarginate as in *bivittata*. Scutellum with a small, abrupt and acute pale apex. Elytra narrower, costa not strongly
rounded, almost straight for a space along the middle; nervures strong, darker green. Length 5 mm.

Described from five examples taken at Rock Fort, March 25th. This pretty little green species is very distinct from our northern *bivittata*. *Amphiscepa cartilaginea* Stal from Brazil is about the size of this species but is sufficiently distinct in having maculated elytra, a feebly tricarinated front, and the vertex separated from the base of the front by a transverse carina, not rounded as in this species and *bivittata*.

*Acanolonia Servillei* Spinola.

One example taken at Appleton, April 9th. This is the largest Fulgorid I took on the island. It was swept from rank vegetation growing along the Siloah River.

*Orminis contaminata* Uhler?

Montego Bay and Hope Bay, five examples. These do not agree well with Dr. Uhler’s description and Prof. Ball thinks them distinct. I have not however enough related material to warrant me in describing them as new.

*Ormenis ? albipennis* n. sp.

Aspect of *septentrionalis*. Smaller; elytra closely reticulated almost to the apex, with but one row of stronger transverse nervures and these frequently not prominent; inner angle acute and slightly falcate; costa more broadly expanded at base, the costal membrane somewhat narrower with the transverse nervures less oblique. Characters of the head, pronotum and scutellum practically the same as in *septentrionalis*. Length 10 mm.

Color clear green, paler in one example that probably is immature; slender costal, apical and commissural margins of the elytra as far as the tip of the clavus, apex of the tibiae, tarsi, and edges of the genital segments, brown; the costal nervure within this brown line narrowly pale. Wings white with green nervures.

Described from two examples; a dark yellowish-green specimen from Mandeville, and a paler whitish-green individual taken at Richmond.

*Ormenis ? albipennis var. brevis* n. var.

A smaller form measuring 8 mm, with the elytra proportionately shorter and its hind angle not at all falcate, about right-angled, was taken by me at Kingston, Mandeville, and Hope Bay. In most of these the venation of the elytra is somewhat indistinct with the transverse nervure scarcely discernable. Possibly these should not be considered as a distinct variety even, but the characters given seem to be constant.
Ormenis ? herbida Walker? (List of Homoptera p. 470)

Form of the preceding species but smaller with the hind angles of the elytra more produced and falcate. Pale green, each elytron with three black points, a pair placed obliquely before the middle and near the claval suture, the third about midway between these and the truncated apex; the numerous areoles toward the apex of the elytra more or less conspicuously marked with brown, those about the apical margins forming a regular series of longitudinal brown lines which become radiating at the angles; sometimes a few of the smaller areoles on the disk or toward the base are also touched with brown; tips of the tibiae and the tarsi and sometimes the cheeks washed with brown.

Vertex very short, reduced to a thickened carina across the front of the truncated pronotum. Front transverse, the rounded sides strongly reflexed and more or less embrowned, median carina strongly above, becoming obsolete before the clypeal suture; this suture strongly impressed and nearly rectilinear. Pronotum rather long on the middle, fore margin roundedly truncated, hind margin sub-angularly concave, sides about half the length of the middle line. Scutellum with a prominent median carina, the lateral carinae scarcely indicated. Elytra narrow, costa almost rectilinear beyond the basal third, the costal membrane of nearly uniform width, with strong, close-set transverse nervures; apex straight or slightly concave, outer angles a very little rounded, inner angles subacutely prominent or falcate. Length 5 to 8 mm.

Description made from twelve examples taken at Kingston, Mandeville, Balaclava, Appleton, Montego Bay and Hope Bay. This species seems to be common on the island of Jamaica. It shows much variation in size and extent of the brown markings in the elytral areoles. The three black points on the disk of the corium seem to be constant although in some examples they become much reduced. One large individual shows a brown line on the claval commissure.

This insect agrees in every respect with Walker's description of his Poeciloptera herbida except in two points: He says the middle chest is "concave behind" which is not true of any species of this family unless he means that the sides posteriorly are concavely arcuated. He also describes the fore wings as "rounded at the tips". He may have meant that the apical angles were rounded, which is partially true and is a somewhat variable character; or it is possible that his specimen was slightly mutilated. His material was from Jamaica and it seems to me quite likely that this is the species he had before him. If, however, it proves to be distinct I would propose the name tessellata for the present form.
Cyarda Melichari n. n.

(*Cyarda punctata*, Melichar, Monog. Acan. und Flatiden, p. 135, pl. 7, fig. 17.) This species is well described and figured by Melichar in his Monograph as cited above. It was common all over the island and especially about Kingston where I beat it from Lantana bushes.

I confess I cannot understand how Stal came to locate Walker's West Indian species of *Elidiptera* (*punctata*, *guiana*, *punctifera* and *debilis*) in *Cyarda*, especially as he is supposed to have made his synomymical notes directly from Walker's type specimens at the British Museum. Walker's descriptions, in part at least, refer to a *Dasca/£a* mentioned further on. These describe a broad winged form and cannot possible be so construed as to apply to *Cyarda*. Dr. Melichar has evidently followed Stal in this synonymy, and, as he has well described and figured the species I think it quite appropriate that it should bear his name. *Cyarda difformis*, Walker's type species from St. Domingo, seems to be quite distinct from this as does also *acuminipennis* Spinola which is also figured by Melichar. Stal certainly had no warrant for placing *acuminipennis* as the type of this genus unless he considered it to be identical with *difformis* Walker, nor had he the right to place his own name as authority for this genus. Walker's description of the genus was amply sufficient for its recognition and *difformis*, being the only species recognized by Walker, must be used as the type. I have received what I believe to be *Cyarda Melichari* from Florida.

Eurocalla n. gen.

Allied to *Neocerus* Melichar. Head with the eyes a little narrower than the pronotum. Vertex short, transverse, truncated before. Front about as long as broad, basal margin almost rectilinear, or very slightly angularly concave, sides below rounded to the straight clypeal suture. Pronotum subcrescentic, obsoletely tricarinate. Mesonotum moderately elevated, the flattened disk bounded by distinct carinae. Elytra about twice longer than the width of each, narrowed posteriorly to a rounded apex, commissural margin straight; costal membrane much expanded toward the base, about three times the width of the costal cell, its transverse nervures numerous, mostly simple, along the middle more or less united by a supernumerary longitudinal nervure which runs close to the costal; longitudinal nervures strong, united beyond the middle by numerous weaker transverse veinlets; the costal nervure continued across as a single subapical line beyond which most of the longitudinal nervures are once forked; no obvious second subapical line; clavus with some weak reticulations toward the apex, its
base granulated; gibbous knob at the base of the ulnar nerves minutely granulated and there are a few scattering granules on the base of the costal membrane. Posterior tibiae bispinose.

**Eurocalia collaris** n. sp.

Pale greenish testaceous tinged with fulvous brown in places especially across the anterior margin of the head and toward the apex of the elytra; a dark brown collar occupies the declivous anterior margin of the mesonotum and there is an elongated mark of a paler brown color along the commissural margin of the clavus; two approximate points near the anterior margin of the pronotum, a minute line on the tegulae, and a slender oblique line near the base of the radial nervure, black; two distinct points close to the anterior margin of the vertex, a dot behind each eye, two larger spots on each latero-posterior margin of the mesonotum, a round dot toward the base of the corium close to the claval suture, and two larger spots on the apical third of the corium near the commissural margin, the posterior of which tends to form a broken vitta along the subapical line, dark brown. Spines of the tibiae and tarsi tipped with black.

Vertex very short, its anterior margin a little elevated, almost carinate, a little sinuated across the middle. Front with three short basal carinae feebly indicated, the lateral very oblique and placed near the margins which are quite strongly reflexed; apex with a transverse brown cloud next the depressed clypeal suture; viewed from the side the front is quite strongly bent inward and almost horizontal beyond the middle. Pronotum with a very obtuse median carina which may be traced as far as the middle of the mesonotum, the lateral carinae scarcely indicated, exterior to these lateral carinae the surface is pitted with brown. Costal margin of the elytra slightly sinuated before the narrowly rounded apex. Wings smoky with strong nervures. Length 10 mm.

Described from one example taken at Hope Bay, April 14th. This species will not fit into any genus described by Stal or Melichar although it comes very near *Neocerus* of the latter author. It is not impossible that some of the species described by Melichar under *Dascalia* might be placed here. His limitation of that genus does not seem to me to be altogether the same as that intended by Stal.

**Dascalia grisea** Fabr.


I think there can be no question as to the correctness of the above synonymy. *Dascalia acuta* Uhler (Proc. Ent. Soc. Wash., iv, p. 514, 1901.) is a very closely allied species if it be not identical, and we may have to add to this synonymy *Elidiptera*
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occidentis Walker (List of Homop, ii, p. 331, 1851.) This seems to be a common species through the West Indies and southern Florida. I beat three specimens from bushes along the roadside beyond Rock Fort near Kingston, March 25th and one more at Hope Gardens on April 17th.

Melichar seems not to have recognized this species as he has redescribed it as *Flatoides lichenosus*. He makes *Poeciloptera sinuatipennis* Stal the type of *Dascalia*, but it seems to me it would have been better to have taken the first species mentioned by Stal as the type. That would have made the typical group include those species allied to *grisea* in which the apex of the elytra are rounded and the costa straight; in place of those with truncated vertex and sinuated elytra.

*Flatoides? monilis* n. sp.

Near the preceding but paler and more depressed in form with a narrower head and much longer pronotum. Head much narrower than the pronotum. Vertex hardly half the length of the pronotum; short conical; its anterior and posterior margins nearly parallel; its disk strongly depressed before the obtuse apex and less conspicuously so either side. Front long, ovate, one and one half times as long as broad, broadest opposite the lower angles of the eyes, its base angularly prominent, polished; the disk quite strongly depressed leaving the margins, including the apical, prominently reflexed; clypeus long-triangular with its narrow base straight. Pronotum narrow, strongly produced, the narrow rounded apex advanced before the anterior angles of the eyes, posterior edge moderately concave, not nearly reaching the posterior line of the eyes; disk with a broad longitudinal depression either side of the middle leaving three very obtuse slightly divergent carinae. Mesonotum rather small, the disk flat and bounded either side by a low carina. Elytra ample; rather more horizontal than in *Dascalia grisea*, almost parallel sided; costa a little wavy before the tip which is rounded; costal membrane about three times the width of the costal areole, with numerous simple transverse nervures; longitudinal nervures strong, transverse veinlets rather indistinct, forming about one subapical line which is not very prominent; no transverse nervures in the costal areole, a few faint ones in the clavus. Posterior tibiae bispinose. Base of clavus tuberculate.

Color pale greenish grey, darker on the pro- and metanotum and base of the elytra. Tubercular base of the front, vertex, longitudinal depression on the pronotum, and sides of the mesonotum, brownish; anterior submargin of the pronotum with a row of about eight or ten black points on either side behind the oblique carinate anterior edge; ocelli large, set in a red annulus. Elytra pale greenish, subhyaline, faintly clouded with smoky toward the apex; a broken submarginal commissural line on the clavus, a dot near the base of the clavus and about three smaller ones on the tubercular base of the elytra, black; a few intra-venal dots around the apex and a suggestion of a wavy transverse line before the subapical line, brown. Length 10 mm.
Described from one example taken at Mandeville, April 3d. This is quite different from any other *Flatoides* known to me and should perhaps form the type of a distinct genus.

Subfamily Delphacinae

*Copicerus irroratus* Schwarz.

Not uncommon on various parts of the island. I took them in greatest numbers at Mandeville and Balaclava but also found them about Kingston and at Troja. These are rather dark in color with the sides of the pronotum and scutellum embrowned. A larva taken at Balaclava is whitish, dotted with fuscous on the thorax, wing pads and legs.

*Stenocranus (?) saccharivorus* Westw.

I took several examples of this insect at Mandeville and others at Balaclava, and at Richmond I swept them in numbers from a coarse grass-like plant that might have been a dwarf cane escaped from cultivation. Unfortunately these were mostly destroyed by the ants on the journey home but enough were left to show well the peculiar characters of the insect. It has much the aspect of a diminutive *Dictyophora*. I hardly believe this can be retained in genus *Stenocranus*. It seems to me much nearer *Tropidocephala* and may form the type of a new genus.

This is a pale green insect with the elytra long, subhyaline, a little embrowned along the inner margin toward the apex, with the nervures green. The vertex is narrow, long conical and produced about one half its length before the eyes. Front narrow, slightly but regularly widened toward the clypeus, with a prominent median carina; viewed from the side the apex is distinctly, subangularly, deflected before the eyes. Ocelli brown. Antennae conspicuously lineated with black anteriorly. Length to tip of the elytra about 5 mm.

*Peregrinus maidis* Ashm.

Appleton, April 9th, one example. Mr. G. W. Kirkaldy founded this genus in 1904 (Ent. xxxvii, p. 175) for the reception of the present species. He reports it as found throughout Queensland and on Hawaii. The types were from Florida. The present specimen I swept from vegetation along the Siloah River but its home was doubtless on the sugar cane which was largely grown all along the river.
Macrotomella n. g.

Form broad and stout. Head broad, considerably narrower than the mesonotum. Vertex short, strongly declivous, rounded to the base of the front. Front broad; middle keel forked for its entire length the two branches passing over on to the vertex where they are curved outwardly and meet the lateral keels at the hind margin; clypeus tricarinate. Antennae short, basal joint not longer than broad. Pronotum tricarinate, about as long as the vertex, truncated behind, lateral carinae very oblique, straight, reaching the hind edge much exterior to the scutellar carinae. Scutellum rather short, tricarinate.

This genus seems to be most nearly related to Jassideus but the vertex is not at all five angled, being truncated before, and the lateral carinae of the pronotum attain the hind margin. All the carinae are strongly distinguished.

Macrotomella carinata n. sp.

Yellowish testaceous; carinae of the head, pronotum and scutellum white, bordered with black; deflexed sides of the pronotum deep velvety black narrowly edged with white; pleural pieces with some brown spots. Legs lineate with brown which becomes black on the outer face of the tibiae. Abdomen black marked with pale on the venter. Elytra whitish hyaline; nervures slender punctured with brown, the apical margin slenderly brown. Wings almost as long as the elytra, whitish hyaline; apical nervure brown, discal slender and white.

Vertex almost square, scarcely surpassing the eyes; carinae very prominent, basal fossae obsolete but in their place a short median carina. Front broad, sides well rounded, disk divided into three almost equal compartments by the forked median carina. Median carina of the pronotum continuous with that of the vertex; lateral running parallel with the hind margin of the eyes. Sides of the scutellum rather deeply arcuated; lateral carinae moderately divergent. Elytra but little longer than the abdomen. Oviduct of the female not exceeding the pygofera, pale.

Described from four macropterous females taken at Rock Fort near Kingston, March 25th.

Plssonotus delicatus Van Duzee.

This species was described from a single brachypterous female from California. Later I received a fine series of macropterous and brachypterous females from Mr. Howard E. Weed taken at Agricultural College, Miss., and have myself taken the brachypterous females at Grand Junction and Pueblo, Colorado, Riverton, N. J. and Washington, D. C. All those from Colorado and Mississippi have the apex of the head concordous, the basal joint of the antennae in part black, and the femora lineated with brown. Those from New Jersey are darker in color with the abdomen piceous, but do not differ
otherwise. The single specimen I took at Washington has the basal joint of the antennæ pale and the apex of the head black. While in Jamaica I took two brachypterous females at Balaclava and one at Mandeville that have the basal joint of the antennæ pale and the apex of the head piceous as in the Washington specimen. All these females I believe to be but variations of one species. I also took at Balaclava and about Kingston five examples of what I take to be the brachypterous male of this species. These are piceous black, a little paler on the elytra, which are broadly bordered with white at apex. The antennæ, legs, coxa in part, and the apex of the front are testaceous-yellow with the femora and tibiae lineated with fuscous. The genital segment is large with the aperature oval and vertical, broadest below, with the basal angles deeply excavated leaving a prominent ventral tooth either side; the plates are difficult to make out but seem to be short, ligulate, slightly curved and reaching about half way to the anal tube. Another male taken with these is macropterous. This has the extreme tip of the scutellum white, the elytra whitish hyaline clouded with smoky at base, the nervures pale testaceous and distinctly punctate, the marginal heavy and fuscous, and on the apex of the clavus is an indefinite brown spot.

I took single examples of two other species of *Pissonotus* but I have been unable to locate the species with this material.

**Chloriona nigrifrons** n. sp.

Pale testaceous yellow; carinae mostly white. Eyes, front, cheeks, sides of the clypeus, a few small spots on the pleural pieces, claws, a mark on the apex of the clavus, the apical margin of the elytra, some marks on the tergum and the sides of the oviduct, black.

Vertex rather long, quadrangular, extending for about one third its length before the eyes, basal foveæ obsolete. Front narrow, a little wider below, carinae pale. Antennæ short, basal joint about half the length of the second. Pronotum short deeply emarginate behind, lateral carinae strong, curved, parallel to and near the hind margin. Scutellum short, the sides deeply sinuated with the apex large. Elytra reaching the apex of the sixth tergal segment; nervures strong, punctate, the commissural white alternated with black at the apex of the clavus.

Described from one brachypterous female taken at Rock Fort near Kingston, March 25th.

**Liburnia seminigra** Stal.

Rock Fort, March 25th, six examples; Mandeville, March 31st, two examples. These are all males and agree entirely
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with Stal's short description except that in some the frontal foveae are fuscous or black and the base of the tergum is orange yellow. Two males taken at Biscayne Bay, Florida, by Mrs. Slosson differ only in having the abdomen, its apex excepted, fulvous. At Rock Fort I took with the above males one brachypterous female that I believe belongs here. This agrees with the males in all structural details but it is larger (2 mm.) and entirely pale testaceous tinged with yellow, with the frontal foveae and sides of the tergum embrowned. The base of the tergum is fulvous as in the male; the elytra are faintly smoky hyaline with the marginal nervure white; oviduct black.

Liburnia Andromeda n. sp.

Allied to *seminigra* but smaller and more brightly colored. Head, pronotum and scutellum entirely black, polished; clypeus, breast, metanotum and base of the tergum and elytra, orange; narrow posterior and lateral edges of the pronotum and extreme tip of the scutellum white; basal joint of the antennae black, second whitish. Legs pale yellow; apex of the posterior femora and base of the tibiae embrowned. Elytra reaching the middle of the tergum, pellucid, tinged with orange at base and white toward the apex, marginal nervures fulvous, becoming fuscous around the apex and on the commissure behind the scutellum. Tergum orange at base, black across the middle and on the sides, pale yellow at apex. Venter mostly orange, black at apex.

Vertex almost square, scarcely projecting before the eyes. Front rather broad, a little narrowed above, disk transversely a little convex, carinae not strongly differentiated. Pronotum short, lateral carinae curved behind the eyes. Scutellum a little longer than the pronotum, lateral carinae widely divergent, sharply defined. Aperature of the pygofers regularly oval as in *seminigra*; constricted dorsally by the lateral teeth which are broad and not prominent, ventral notch shallow, obtuse; styles slender, strongly arcuated at apex; plates narrow below, angularly truncated at apex. Length 1 mm.

Described from two brachypterous males; one taken at Mandeville and one collected by Mr. R. J. Crew near Demerara, British Guiana, April 2d, 1901. The latter specimen has the abdomen almost entirely orange.

Liburnia Teapae Fowler.


Taken at Kingston, Mandeville, Balaclava and Hope Bay. This is a very black little insect with the antennae and legs testaceous yellow. I brought home seven examples which exhibit much variation in the depth of coloring on the elytra. In some these are deep black with a small hyaline area on the costa.
beyond the middle. In the other extreme the elytra are hyaline with a fuscous ray through the middle from base to apex toward which it is more or less extended inwardly, nervures punctate.

The only female in the lot differs in being fuscous in place of black, with the narrow edges of the pleural and ventral segments, hind edge of the pronotum, carinae of the vertex, pronotum and scutellum, and the cheeks, pale. Antennae and legs yellow as in the male.

**Liburnia albolineosa** Fowler. (Op. cit. p. 135, pl. 13, fig. 14.)

I took three examples of this pretty species at Kingston. Two of these were swept from a patch of a fine grass growing in a damp railroad ditch. Fowler's description of this species is very inadequate but his figure is excellent and leaves little question about the identity of the species. There seems to be much variation in the amount of black on the elytra. In one example the whitish hyaline areas on the clavus and apex of the costa are so extended as to cover most of the surface. In all my specimens the deflected sides of the pronotum are pale yellow and the frontal carinae are blackish for most of their length.

**Liburnia culta** n. sp.

Allied to *pellucida*. Black, somewhat polished; facial carinae, slender margin and carinae of the pronotum, apex of the scutellum, commissure of the elytra on the basal half of the clavus; basal forae of the vertex, carinae and slender margins of the scutellum, nervures of the elytra in part, antennae and legs, testaceous.

Vertex as in *pellucida*, almost square, scarcely produced before the eyes, rounded to the front, the apical triangular forae more acute and elongated. Front narrow, sides almost parallel, forae deep black; second joint of the antennae hardly longer than the first, scarcely expanded, almost smooth. Pronotum as long as in *pellucida*, the lateral carinae less oblique, the included area more or less invaded with white. Scutellum a little shorter, more convex, with a more slender apex and less distant carinae. Elytra almost hyaline, a little smoky toward the base and interiorly at apex, the nervures mostly pale becoming blackish along the disk of the corium and toward the apex of the clavus, punctate and forked as in *pellucida*. Abdomen piceous, touched with pale along the margins and on the edges of the segments in places; the metapleura largely pale. Length to tip of the elytra 3½ mm.

Described from two macropterous females swept from a cultivated field at Mandeville, March 31st.

Another form that I believe to be the brachypterous form of the above I took in both sexes at Rock Fort near Kingston,
March 25th. These are tiny little things measuring scarcely more than a millimetre in length. In the color and characters of the vertex, pronotum, scutellum, antennae and legs they agree with them exactly except that the lateral carinae of the pronotum are much more strongly divergent as is usual in the brachypterous forms. The elytra, which are considerably shorter than the abdomen, are smoky with the margins whitish hyaline interrupted by a conspicuous black mark on the apex of the clavus, and with the hyaline border sometimes expanded over the basal field of the clavus. In the solitary female example the elytra are nearly hyaline with a fuscous cloud following the claval suture and returning around the apical margin, and the lower surface of the abdomen is mostly testaceous-yellow. It may seem strange to place this insect as the brachypterous form of a species nearly twice its size and I do so with some misgivings, but most of their characters are similar and the moist mountain habitat of the larger form may account for the difference in size.

Liburnia humilis n. sp.

Macropterous form: Pale brownish testaceous. Eyes, tarsal claws, oviduct of the female and abdomen of the male in large part black; elytra subhyaline, nervures testaceous becoming fuscous toward the apex. Vertex subquadrate, deflected before, basal face hardly distinguished, apical very small. Front moderately wide, a very little broader toward the apex which is feebly angularly emarginate at the clypeus. Antennae rather long; second joint much longer and broader than the first, distinctly crenulated on the edges, apex of the first joint slightly embrowned. Pronotum short with the hind margin strongly, angularly concave, lateral carinae strongly curved. Scutellum large, deeply sinuated on the sides, lateral carinae nearly parallel, placed near together, tip broad and obtuse. Elytra as in pellucida. Length to tip of the elytra 3 mm.

Brachypterous form: similar to the macropterous but with the front somewhat broader toward its apex and the lateral carinae as usual more strongly divergent. Length 2 to 2½ mm.

Pygofer of the male quite deeply excavated below. The sides sinuated; plates broad, strongly arched and almost meeting above near the anal tube.

Described from five macropterous examples representing both sexes taken at Mandeville, and seven brachypterous specimens from Rock Fort. This plainly colored little species may be distinguished by the large tibial spur, the broad straight uncolored front and the large second antennal joint.
**Liburnia terminalis** n. sp.

Macropterous form: Pale fulvo-testaceous; carinae of the head, pronotum and scutellum pale, the median conspicuously whitish; cheeks, clypeus and frontal foveae fuscous bordered with black next the pale carinae, or their entire surface may become blackish. Apex of the first antennal joint and sometimes the base of the second conspicuously black; abdominal segments edged with black. Elytra somewhat narrower than in *pellucida*; hyaline, the punctured nervures pale becoming fuscous toward the apex. Head broad; vertex short, apical fovea small; front well narrowed between the eyes, sides subparallel below; first antennal joint slender, about three fourths the length of the second. Length to tip of the elytra 3 mm.

Brachypterous male: Similar to the macropterous but with the front a little wider and paler and the lateral carinae of the scutellum more oblique. Length 2 mm.

Pygofer of the male roundedly excavated below, the sides scarcely sinuated; plates rather short, ligulate, almost parallel or feebly divergent, somewhat incurved at apex against the margin of the anal tube.

Described from eight macropterous and one brachypterous example, all from about Kingston. One of the males has the abdomen almost entirely black. I took at Mandeville two other brachypterous females that I do not like to place with either of these species although they seem to be very closely allied to *humilis*.

**Liburnia** ? reducta n. sp.

Macropterous female: Pale testaceous yellow; vertex, face, antennae and legs brownish; carinae of the head, tip of the second antennal joint and margins of the eyes paler. Pronotum and scutellum with a broad median vitta bisected by the pale median carina, and a broad lateral vitta behind the eyes, piceous brown. Abdomen and pleural pieces pale marked with dark brown, the tergum trilineate with pale brown; oviduct black; mesopleura with a lateral round piceous spot. Elytra yellowish hyaline with a brownish vitta following the median nervure of the corium to the transverse nervures where it is deflected inwardly; the marginal and apical nervures, the claval commissure and two vittae on the disk of the clavus brown.

Form broad with a wide head and short vertex, the latter with distinct foveae; front moderately broad almost parallel, carinae distinct, apex straight; basal joint of the antennae almost as long as the second. Pronotum about as long as the vertex, truncate behind, the lateral carinae divergent, almost attaining the hind edge. Scutellum moderately contracted at apex, sides regularly arcuated, lateral carinae a little divergent at apex. Length 3½ mm.

Brachypterous female: Scutellum shorter with the lateral carinae as usual more divergent and the sides nearly rectilinear. Elytra scarcely attaining the second tergal segment, dark brown with pale margins and nervures. The pronotum and scutellum are piceous brown with three pale vittae following the carinae.
Described from one macropterous female taken from grass in a damp place by the Railroad tracks just west of the station at Kingston, and a brachypterous female from Mandeville. The broad form and straight lateral carinæ of the pronotum as well as the general pattern of marking separate this species from *Liburnia* but I can find no established genus in which it can be better placed and do not care to found a new genus without access to fuller material.

*Liburnia ? dorsilinea* n. sp.

Size and general aspect of *Stenocranus dorsalis* but with a broad and short vertex. Dull testaceous brown with a whitish dorsal stripe on the vertex, pronotum and scutellum which is continued slenderly along the elytral commissure to the tip of the clavus; elytra with a brown longitudinal vitta, obsolete toward the base but strongly accentuated beyond the transverse nervures; the surface interior to this vitta darker especially toward the apex, with the nervures fuscous. Wings smoky hyaline with fuscous nervures. Clypeus, legs and lower surface pale becoming whitish on the sides of the venter; ovicud black on either side.

Head broad with a short vertex, the foveae poorly defined. Front moderately broad, rectilinear, scarcely narrowed between the eyes; apex very feebly emarginate, median carina not strongly distinguished. Pronotum short, posterior margin quite deeply emarginate, lateral carinæ following the curve of the eyes. Scutellum large with the sides regularly arcuated. Length to tip of the elytra 5 mm.

Described from one macropterous female taken at Balaclava April 5th. In color and marking this large species bears a striking resemblance to our northern *Stenocranus dorsalis* but it can at once be distinguished by the short and broad vertex, broad concolorous front, and the curved lateral carinæ of the pronotum. The carinæ are poorly defined.

**Family Cercopidæ**

*Tomaspis bicincta* Say.

One example was swept from rank vegetation on a stony hillside at Mandeville, March 31st. In this individual the transverse bands are very faintly visible. It does not differ otherwise from specimens of var. *ignipecta* in my collection from the United States and Mexico.

*Clastoptera funesta* Stal?

With the preceding I took one example of a small *Clastoptera* related to *proteus* that I place with some doubt as Stal's *funesta*. It is deep black with a yellow band across the apex.
of the front, another on the pronotum, and the base of the scutellum is also yellow. The elytra have a large square black spot on the middle of the costa about which is an arc of reddish salmon color fading to hyaline at apex and along the costa, and to black at base and on the clavus. At the apex of the costa is the usual black dot. Legs whitish dotted and banded with black on the tibiae and tarsi.

**Family Membracidæ**

Of this family I took what I believe should be listed as ten species. Five of these I have been able to place with some degree of certainty, the others I have been unable to locate satisfactorily in their proper genera. Some and possibly all these doubtful forms are probably still undescribed but my acquaintance with this family and the material at my disposal is much too limited for me to attempt to describe new forms, nor do I know of a student of the family to whom I could look for assistance. I have therefore contented myself with placing these doubtful species as nearly as I could in their proper sequence leaving their identification for some future time.

**Subfamily Smiliinæ**

*Acutalis calva* Say?

Three specimens of what I believe to be this species were taken at Hope Gardens, March 27th, one at Mandeville, April 3d, and one at Balaclava. These are a little smaller than the same species as found in the United States but I cannot see that they differ in any other respect.

*Micrurus malleifera* Fowler.

One example taken at Hope Gardens, near Kingston, with the preceding. This individual agrees with Fowler's description in every respect. It is but little more than half the size of the *Acutalis* mentioned above but I can see no possible reason for placing it in a separate genus. In this specimen the pedicellate apical areole is reduced to a mere point but is still quite distinguishable.

Three other species of this subfamily were taken by me that I have been unable to assign to their proper genera. One of these, of which I took a good series, superficially resembles *Trachytalis isabellina* Fowler, figured in the *Biologia, Homop.*
ii, pl. 7, fig. 25. In the female of this species the elytra are narrowed to an acute apex much as in *Polyglypta*.

**Subfamily Darninæ**

I took quite a series of what I believe to be varieties of one species belonging to this subfamily. Of the 23 specimens taken hardly two are alike. They vary in size as well as pattern of marking, but all are small.

**Subfamily Centrotime**

*Callicentrus aurifascia* Walker. (Cat. of Homop. p. 618.)

At Montego Bay I took one female that I believe should be placed here. This specimen has nearly the whole front of the thorax bright yellow, and wants the "stripe of pale yellow down each side of the breast" and the "bright yellow stripe each side beneath the abdomen". It also differs in the color of the tibiæ and in the presence of the band of white tomentum on the sides of the pleural pieces. *Pyamba aurifacies* (n. gen. et sp.) Buckton (Monograph p. 248.) is a closely allied species, but apparently wants the white spot on the base of the corium and has the posterior process of the pronotum extended to the apex of the closed elytra. Buckton's genus *Pyamba* is certainly identical with *Callicentrus* Stal but it would not be valid in any case as he gives no indication of the characters on which he purports to found it. Buckton's Monograph is almost worthless for determination; his figures are unrecognizable and the descriptions, so far as I have had occasion to make use of them, are no better, while his nomenclature in places is positively weird. It would be a boon to all students of this group if some entomologist who understands the characters of the Membra-cidæ would go over Buckton's types while they are still accessible and tell us what they really are.

*Callicentrus jucundus* Walker. (Cat. of Homop. p. 620.)

I took one male at Montego Bay that agrees in every essential particular with Walker's description. Another male taken at Balaclava, April 4th, differs in being a little larger, of a uniform ferruginous brown color on the head and prothorax and in having a longer and more protracted head with its apex more rounded. The legs also are paler in color and the humeral angles are more rounded and prominent. It does not agree.
with any of Walker's other Jamaican species of Centrotus and is probably undescribed.

Stal founded this genus for *Centrotus ignipes* Walker and *flavivitta* Walker. After a careful study of the descriptions and material accessible to me I would place the following species in this genus, all from Jamaica:

Suprhemeral horns broad:

Suprhemeral horns slender, acute:
- Prothorax marked with yellow vitæ:

- Prothorax without the yellow vitæ:

*Aethallon nervoso-punctatus* Sign.?  

While at Mandeville I took two examples of a small *Aethalion* that is very near Signoret's species. A comparison with Mexican material may, however, show it to be distinct.

In placing this genus under the Membracidæ I do not wish to be understood as passing any judgment as to its systematic position. Perhaps a more logical arrangement would be to place it as a separate family of equal rank with the Membracidæ on the one hand and the Bythoscopidæ on the other, and arrange these with the Tettigonidæ and Jassidæ in the superfamily Jassoidea.

**Note:** I took at Mandeville four examples of a very small brown insect belonging to the Centrotinæ that I have been unable to locate in any described genus. It is a roughly punctured little fellow, two millimetres in length, with the basal one half of the elytra coriaceous and punctured. The pronotum is triangularly produced to about the middle of the abdomen and wide enough to cover most of the scutellum.

**Family Bythoscopidæ**

*Agallia novella* var. *tropicalis* n. var.

While on the island I took a long series of what I prefer at present to place as a variety of this species. They were most
abundant at Mandeville but I took them also at Balacava, St. Margaret's Bay, Hope Bay, Richmond and Kingston. These are all smaller than the species as found in the United States, (2½ to 3 mm.), the clypeus is narrower toward the apex, and the sinus of the last ventral segment of the female is much more shallow with the outer apical angles more produced, forming a prominent blunt tooth. The colors vary as widely as in our northern form but the dark males differ from the northern males in having the disk of the pronotum before the middle marked with a more or less extended pale spot bisected by a rather broad black longitudinal line. In novella from the United States there is a narrow black median line bordered either side by pale which may be so extended as to cover nearly the whole surface. In the dark Jamaican males the elytra are almost black with a costal area, broadest at the middle, the claval suture, an oval spot at its base, an elongated angular mark on the claval commissure near its apex and the claval surface within the inner nervure, pale yellow, or subhyaline on the costal area. In even the palest females the rounded apex of the clypeus, the lateral sutures of the front and clypeus, the antennal pits, two dots on the vertex, two on the disk of the pronotum, and the basal angles of the scutellum are black; the frontal arcs, the sutures of its base with an abbreviated median line from its angle, a spot on the ocelli, the median line on the pronotum anteriorly and a cloud on its anterior margins behind the eye are ferruginous, and in darker examples become black. In the paler examples the elytra are yellowish hyaline, faintly smoky at apex, with pale nervures, between which are indications of fuscous lines.

The study of material from intermediate localities may make it advisable to raise this form to specific rank but its present assignment will serve to show its affinity with novella. Agallia lingula n. sp.

Allied to novella but with the vertex perhaps a little more angulated and the pronotum shorter. Front a little broader than in novella with the sides more strongly arcuated, the basal sutures meeting in a more obtuse angle, and wanting the short median line running from the apex of the angle toward the hind edge of the vertex; clypeus a little shorter and more ovate and the lobe broader than in the Jamaican form of novella. Last ventral segment of the female short, truncated, with a slender ligulate process, fully as long as the basal portion of the segment; plates more slender than in novella, their sides parallel and apices acute. Length scant 3 mm.
Color pale brownish testaceous becoming more yellowish on the head apex of the scutellum and legs; vertex with a round black dot over each ocellus; the latter placed on a brown dot; sutures of the face, apex of the clypeus, pleural pieces, some marks on the base of the vertex and the disk of the tergum, black. Front, except the middle line, some obscure marks on the apex of the vertex, a lobate oblique spot either side of the anterior margin of the pronotum, and the base of the scutellum ferruginous brown; from either lateral angle of the pronotum an indefinite pale ray follows the anterior margin and invades the lobate brown mark; disk of the pronotum discolored posteriorly, the pale color forming a triangular spot with its apex resting on the base of the vertex. Elytra brown, almost unicolorous, a little darker along the commissural margin and apex, nervures pale; nervures of the wings fuscous.

Described from one male and two female examples taken at Montego Bay, April 7th. This species may be distinguished from novella by its wanting the black dots on the pronotum and scutellum, and by its having those of the vertex a little farther apart; the pale color of the pronotum also is differently arranged forming a triangular mark on the disk anteriorly in place of a pale area either side of a median dark line. The form of the last ventral segment of the female is also quite distinctive.

**Agallia basilavla** n. sp.

Allied to *sanguinolenta*. Front broader and shorter than in *novella* with the sides more deeply sinuated below the eye; clypeus narrower and more nearly linear. Last ventral segment of the female long, obtusely triangular, the apex truncated or slightly emarginate. Valve of the male longer than in the preceding two species, plates broad and short, forming an obtuse triangle with its sides feebly sinuated and its apex rounded. Length 3 mm.

Color pale ferruginous brown; face with two dots placed on the ocelli, two others above these on the vertex, antennal pits, and sutures of the front, black; cheeks broadly whitish, subhyaline; orbits of the eyes, a large quadrate median spot on the vertex, excepting the median line and including the four black points, a bilobate median vitta on the front and the sides of the clypeus basally, pale cream white. On the pronotum is a pale border to the dark median line meeting in front and produced either side in a curved wing-like mark that does not quite attain the latero-posterior angle. Scutellum with a black spot within the basal angles and three approximate pale spots on the apical field, the larger of which occupies the apex. Elytra pale brown clouded with darker, especially at apex and in an indefinite oblique vitta before the middle; anterior to this oblique vitta the nervures are broadly yellow, behind they are mostly pale with a few brown interruptions. In pale examples the oblique vitta is indicated by a sagitate blackish mark before the apex of the clavus. Pleural pieces and base of the abdomen blackish; produced tip of the ultimate ventral segment of the female brownish. Legs pale, the posterior tibiae dusky beneath.
NOTES ON JAMAICAN HEMIPTERA

Described from one pair taken at Balaclava, April 5th, another example taken with these, and two others from St. Margaret's Bay, April 12th. This species may best be distinguished from *novella tropicalis* by its wanting the black dots and median line on the pronotum and the black apex of the clypeus. The yellow veins on the base of the elytra seem to persist. The genital characters are very characteristic and in the female seem to ally this species with *tenella* O. & B. from Mexico.

**Agallia liturata n. sp.**

*Form of constricta* nearly. Front broad, strongly sinuate below the antennæ, apex broad, abruptly narrowed to the clypeus which is somewhat ovate. Last ventral segment of the female short at the sides, the outer angles a little prominent, the middle one third produced and almost square with the apex broadly angularly emarginate. Valve of the male transverse, appearing as an additional ventral segment; plates together triangular, a little longer than broad at base, sides slightly sinuated, apex obtuse. Length 3 to 3½ mm.

Color pale fulvous brown, vertex except the median line and another near the eye, cheeks, lorræ, and the usual bilobate median vitta of the front, pale; frontal sutures, apex of the clypeus usually, antennal pits, ocelli, and two dots above them on the vertex black. Pronotum with pale marks forming two arcs beginning at the middle of the anterior margin and diverging to the center of the disk where they are deflected at right angles almost to the inner angle of the eye, behind which they form an oval ring. In dark examples the median vitta, a small spot at the inner angle of the eye and a larger oval one near the basal margin either side of the eye are deepened almost or quite to a black color. Ground color of the elytra brown on which the strong nervures are conspicuous, these are connected by a number of supernumerary transverse nervures in the marginal and apical areoles and on the clavus. Wings deep smoky brown with blackish nervures. Scutellum pale with the basal angles and a median spot dusky. Abdomen pale with the tergura darker and the apex of the ultimate ventral segment dusky. Legs pale, the posterior tibie embrowned beneath; tarsal claws deep black.

Described from fifteen examples taken at Rock Fort, near Kingston, March 25th; Montego Bay, April 7th; Richmond, April 15th and Mandeville. This species must bear a very close resemblance to *Balli* Baker (described as *reticulata* by Ball; *Psyche*, IX, p. 127, 1900) from Hayti but the very different genital characters will at once separate them.

**Agallia scortea** n. sp.

*Form of oculata* nearly. Vertex very short; face flat; front short and broad, sides feebly sinuated below the eye and rounded to the broad apex; clypeus long, widened apically; lorræ rather wide, cheeks strongly angled at about their middle, not attaining the apex of the lorræ. Pronotum unusually
long, the latero-posterior margins much extended, posterior margins feebly sinuated, almost entirely covering the basal field of the scutellum. Elytral nervures inconspicuous, ultimate ventral segment of the female but little longer than the penultimate, apex truncated, almost parallel with the basal. Valve of the male inconspicuous, broad triangular, its apex truncated, plates hardly twice the length of the valve, much shorter than the pygofer which together with the plates form a long triangular segment. Length 3 to 3½ mm.

Color a soft fulvous brown. Head pale yellow; two small dots on the vertex placed close to the basal margin and wide apart, a larger angular spot close to the inner angle of the eye, a minute dot below this placed near to the inner margin of the eye, the ocelli and antennal pits, black; on the apex of the vertex is a slightly discolored patch on which may be a basal brown dash or point. Pronotum a little paler about the borders; two small distinct black dots placed well forward on the disk and two minute points close to the anterior margin either side of a slender short median dash, dark brown or black. Scutellum yellowish with the minute acute tip deep black; the incised transverse line brown. Elytra pale, subhyaline, highly polished, the nervures inconspicuous and a little paler; across the middle of the elytra a darker band is indicated mostly by a fuscous cloud near the commissural margin of the clavus. Abdomen dusky beneath; disk of the tergum black. Pleural pieces deep black, edged with pale; feet, claws black.

Described from one male and three female examples taken at Mandeville, March 29th, and Montego Bay, April 8th. This very distinct form cannot be confused with any described species known to me. A larger but closely allied species recently taken near Buffalo, N. Y., seems to be still undescribed.

Note:—Agallia repleta n. sp.

Male: General appearance of A. punctata Prov. but smaller and more slender. Clear brownish testaceous tinged with fulvous on the face and with yellow on the scutellum. Front rather strongly constricted below the eye; clypeus and a large spot in the antennal cavities deep black; frontal sutures, an angled line bounding its base, an elongated curved line on each side of the front, a dot on each ocellus and a larger round spot above them on the vertex black. Pronotum with five black spots on the disk, one median and four forming a quadrangle of which the anterior are nearer, and on the anterior border is a black line behind each eye. Scutellum with a triangular spot well within the basal angles connected by another on the incised line. Elytra fuscous hyaline with the nervures pale, simple. Beneath black with the connexivum and genital pieces testaceous. Legs fulvo-testaceous. Valve very large, cut square across the broad apex, plates small, triangular, subacute. Length 2½ mm.

The female differs from the male in having the black marks on the face more extended and in having those of the pronotum represented by a curved black line, concave anteriorly, touching the anterior margin at either end, and faint indications of the median and two posterior discal spots. Elytra
**Pediopsis elegans n. sp.**

Closely allied to *virescens* in form but a little smaller; front broader and shorter, as in *viridis*, but with its sides straighter and apex broader; vertex longer, not as thin and sharply angled as in *virescens*; Pronotum minutely and almost transversely striate; face punctured rather than striate. Ultimate ventral segment of the female long, cylindrical, distinctly carinate along the median line; the middle of the hind edge on either side drawn out into a slender subacute appendage resembling the "tails" on some Papilios. Valve of the male very small but obvious. plates long, convex, triangular, their sides nearly straight, scarcely sinuated toward their smooth acute apex. Length, male 3\(\frac{3}{4}\) mm; female 4 mm.

Color in fully developed examples clear bright grass green with red markings on the pronotum. Face clear light yellow above fading to greenish toward the mouth, superior surface of the vertex and pronotum deeper green, the latter with the anterior margins and median line posteriorly clear blood red, the hind edge narrowly pale reddish; scutellum tinged with yellow on the basal angles and apex. Elytra somewhat smoky, the costa and commissural nervures green. Connexivum light yellow.

Described from nine examples, representing both sexes; taken at Mandeville, March 29th to April 3d. These were beaten from bushes the names of which I did not learn. When fully colored this is a most beautiful little insect. In immature examples the red color is barely indicated by paler marks. The males are smaller with darker elytra than the females. The form of the ultimate ventral segment of the female is very distinct from anything I have before seen in this genus.

**Family Tettigonidae**

**Tettigonia histrio** Fabr.

This seemed to be a common species at some localities. I took it in numbers in a dry ravine at Montego Bay and in smaller numbers at Kingston. Some of these individuals are suffused with red as indicated by Stal in his description in the rather deeper colored with the pale nervures heavier and more conspicuous.

Last ventral segment short, cut almost square off behind, but little longer at the middle than at the sides; pygofer rather thick toward their apex, unarmed.

Described from one pair taken on the island of Trinidad by Mr. Chipman. This genus appears to be well represented in the tropics. Messers Uhler, Osborn, Ball and Baker have described quite a large number from Mexico and the West Indies and five more are here added, all of which seem to be sufficiently distinct.
Hemip. Fabriciana. In many however this color is scarcely indicated and in others it is confined to one or more elytral areoles. In two examples from St. Margaret's Bay the black lines are much reduced making them very close to T. fausta Walker, from St. Domingo.

**Tettigonia histrio var. sanguinipes n. var.**

Color deep black. Head pale with two broad black vittae that extend over the vertex and meet at the apex of the front where they form a single median vitta on the clypeus; cheeks with a black vitta below the antennae and a broken one below the eye. Pronotum black with three longitudinal bands and the lateral margins pale. Scutellum black with a median basal spot and the broad apex pale. Elytra black; corium marked with four pale spots forming incomplete transverse vittae; the apex smoky hyaline; clavus with four pale spots, the two apical elongated, near the commissure. Wings almost black, highly iridescent. Breast, abdomen and legs sanguineous marked with black on the pleural pieces and disk of the abdominal segments, apex of the tibiae and tarsi and frequently the middle of the femora black or fuscous. In some specimens the pale markings are deeply suffused with sanguineous, the face may be almost entirely pale and the other pale markings may be so extended as to show clearly its relationship with histrio. Through the varieties figured on plate 15, figures 28 and 29 of the Biologia there seems to be a direct connection between histrio Fabr. and Stalii Sign. The present variety appears to be an extreme form even more distinct than Stalii, but the genital characters are the same and I cannot feel justified in describing it as a new species. Length 7 mm.

This variety was common especially in the more elevated and moist localities. It was abundant at Mandeville and I took it at Balaclava, Appleton, Richmond, Hope Bay and St. Margaret's Bay. I did not find it either at Kingston or Montego Bay.

**Tettigonia macrocephala n. sp.**

Somewhat allied to gothica but with a smaller and much more slender body. Head large, much broader than the pronotum, more rounded before than in gothica; clypeus more convex. Pronotum narrower, about one third longer than the vertex, almost semi-circular before, feebly concave behind, valve of the male large, rounded behind; plates narrow, subacute at apex.

Color pale yellow tinged with fulvous on the sides of the vertex and with testaceous on the pronotum. Vertex with a broad pale median vitta, angularly expanded before the ocelli, bordered by a brown line; behind the ocelli is a short brown line and exterior to them a brown cloud, temples with a blackish spot on the line between the face and vertex, apex of the head with a round black spot either side of which the frontal striæ are marked with brown where they encroach upon the vertex. Face pale with a short longitudinal brown vitta on the apex of the front and extending over on to the base of the clypeus; cheeks with a brown cloud beneath the eyes. Pro-
notum clouded in places and marked with two broken longitudinal lines continuing those on the vertex, a short curved line behind the inner angle of the eye and the latero-posterior margins dark brown. Scutellum pale with the basal angles and a transverse line faintly brown. Elytra dull sanguineous, the apex subhyaline clouded with fuscous; costa greenish yellow toward the base, nervures dark. Wings deep smoky hyaline. Abdomen yellow beneath, connexivum sanguineous, breast and legs pale yellow, mesosternum with a blackish cloud; tibiae dotted with brown. Length 4½ mm.

Described from five examples taken at Montego Bay, April 8th. This species seems somewhat closely allied to *compta* and *tunicata* Fowler, figured on plate 18 of the Biologia, but it is smaller, has a broader and more rounded head and the markings on the vertex and pronotum are quite different.

*Tettigonia similis* Walker.

This pretty little green insect was common everywhere on the island. I took it at Kingston, Mandeville, Balaclava, Montego Bay and St. Margaret's Bay. As pointed out by me in *Ent. News* (v. p. 155, 1894) Signoret wrongly identified this species with *Helochara communis* Fitch in which error he was followed by Walker in 1858.

*Tettigonia fuscolineella* Fowler.

Another common species which I took at many places on the island. Prof. E. D. Ball in a letter to me considers this as a mere variety of *bifida* Say, in which he is probably correct. It has however, a shorter head and the markings, which seem to be constant, are somewhat different on the head and pronotum, and in a faunal list it can do no harm to place it under a distinctive name. Canon Fowler's material was from Mexico.

*Draculacephala sagittifera* Uhler.

I found this tiny species not uncommon about Kingston and took it also at Montego Bay and Hope Bay. This is the smallest Tettigonid known to me. Some of the smaller males measure but 3 mm. to the tip of the closed elytra.

*Xerophilœa viridis* Fabr.

Not uncommon about Kingston and taken also at Richmond, Mandeville and Montego Bay. Most of these specimens were of a clear light bluish-green color but a few were washed with brown on the pronotum, scutellum and elytral commissure. I believe Osborn and Ball were quite right in placing *grisea*
Germ, virescens Stal, and peltata Uhler as synonyms of this species. *X. viridis* and *peltala*, the two forms I have examined, while variable seem to exhibit no differences of specific value.

**Gypona unicolor** Stal.

Prof. Ball doubtfully determines this as *unicolor* and I can see no good reason for changing it. The hind margin of the last ventral segment of the female is rather broadly and deeply excavated, a character that would ally it with *Germari* Stal.

I took this species at Kingston, Balaclava, Montego Bay and St. Margaret's Bay. It was taken singly on bushes.

**Gypona nupera** n. sp.

Female: Most nearly allied to *Wallengreni* Stal and *nana* Fowler. Above dark testaceous brown inclining to olivaceous; beneath pale yellow. Head short, about as wide as the pronotum. Vertex of about equal length across its whole width, incised median line and a dot on the hind margins almost behind each ocellus black; ocelli sanguineous, placed before the middle of the vertex and about equally distant from one another and from the eyes; anterior edge of the head well rounded to the front, transversely striated or furrowed, the stria straight, simple. Front broad and short, strongly and convexly narrowed to the apex, base feebly but distinctly transversely depressed. Clypeus rectangular, about one third longer than broad; cheeks broad, slightly tinged with green. Pronotum about two and a half times the length of the vertex, strongly transversely striate; anterior margin paler marked with a pair of approximate black dots at the middle and a curved brown line and a few points on either side; lateral margin narrowly yellow, bordered within with fuscous. Scutellum with the curved incised line fuscous. Elytra rather short, nervures pale dotted with fuscous, basal one fourth of the costa pale yellow, bordered within by a fuscous line which beyond runs along the costal margin, where it is dotted with pale, to the apical third and is expanded inwardly over the apex of the costal areole; beyond this brown cloud is a clear spot followed by a fuscous one on the tip of the first apical areole; elytral appendix and two or three commissural marks brown. Wings almost black. Tergum ferruginous, the incisures slenderly pale. Legs whitish, the tarsal spines and claws brown. Last ventral segment a little longer than the preceding, the apical margin broadly concavely arcuated with a median notch barely indicated. Length 7 mm.

Described from one female taken at Mandeville, April 3d. I cannot identify this species with any description known to me. The short vertex, testaceous brown color, with dotted nervures and costa, the latter marked with a yellow base and spot toward the apex, and the yellow and fuscous lines on the sides of the pronotum and base of the costa will most readily distinguish it.
NOTES ON JAMAICAN HEMIPTERA

Family Jassidæ

Spangbergiella vulnerata Uhler.

I took about eight examples of this pretty species at Mandeville, Kingston and Richmond. These have the red dorsal lines quite widely dislocated where they pass from the pronotum to the vertex. From the descriptions and figures I have seen of this species I gather that usually these lines are nearly continuous and not so closely approximated anteriorly.

Xestocephalus pulicarius Van Duzee.

I took at Montego Bay one rather large clearly marked female that certainly belongs to this species. It was swept from the short grass growing along the roadside just east of the village. This individual has a large quadrate dark spot on the costa beyond the middle and a narrower one nearer the base. The form of the last ventral segment differs in no wise from that found in material taken in the United States.

Xestocephalus brunneus n. sp.

Female: Color a rich soft brown becoming paler on the head and legs; abdomen piceous with the pygofer paler at base. Vertex short and more rounded than in pulicarius, with the front immaculate except for a small pale dot above the ocelli. Pronotum short, distinctly transversely striate, a little paler behind the eyes, otherwise immaculate. Scutellum slightly paler on the disk, the transverse incised line dark. Elytra paler beyond the middle, scarcely maculated at base, the discal transverse nervures of the corium and a dot at the tip of each claval nervure obsoletely paler; a quadrate spot on the middle of the costa, a smaller and darker one beyond this, and the broad apex darker, the sutural margin with two pale spots beyond the clavus and there is another opposite to these on either side of the costal spot. By transmitted light the disk of the corium shows faint indications of some of the paler spots found in pulicarius. Wings smoky hyaline, iridescent. Ultimate ventral segment short, anterior and posterior margins parallel, leaving the apex subangularly concave, the median notch found in the allied species scarcely indicated; pygofer proportionately shorter and broader than in the allied species. Length about 2 mm.

Described from a female example taken in a small dry gully at Montego Bay, April 7th, and another female taken at Kingston, R. I., and kindly sent me by Prof. John Barlow of the Agricultural College located there. The specimen from Rhode Island is a little larger and darker but seems to differ in no other way from that taken in Jamaica. The four previously described species in this genus show but slight variations in the form of the last ventral segment of the female and the present
species is no exception. I believe however that *brunneus* is a good species that may be distinguished by its uniform rich brown color, with the elytral maculation almost obsolete except at apex.

**Xestocephalus ornatus** n. sp.

Male: A little smaller than *pulicarius* with the vertex more produced. Clear light lemon yellow. Eyes, a small oval spot on the anterior margin of the pronotum, a transverse band on the base of the scutellum continued across the base of the clavus, a common large quadrangular spot on the middle of the elytral commissure, bisinuated exteriorly and including a central oval spot of the ground color, and three points on the costa opposite to this quadrangular spot, black. Corium less deeply colored and becoming a little smoky toward the apex, and almost white exterior to the black discal mark. Antennae, legs, and lower surface of the body whitish.

Vertex produced, obtusely rounded at apex, its length three fourths its width at base. Pronotum one fourth longer than the vertex, hind edge rather deeply arcuated, lateral and latero-posterior margins subequal, rectilinear, meeting at a right angle. Valve large, roundedly truncate at apex; pygofer one half longer than the valve, subacutely triangular, sides almost rectilinear, surface armed with coarse white bristles.

Female a little larger. Common commissural black mark reduced to two curved vittae, connected posteriorly, and including the broad oval discal spot which connects anteriorly with the ground color. Last ventral segment longer than the preceding, apical margin broadly, angularly excavated so as to be nearly parallel with the basal. Pygofer strongly narrowed toward their apex and sparsely armed with white bristles. Length 2 ½ mm.

Described from two male and two female examples taken at Mandeville. This very pretty little species introduces a new facies in this genus, so far as it is known to me at least.

**Xestocephalus bipunctatus** n. sp.

A little larger than the preceding. Soiled white tinged with yellow on the scutellum and faintly clouded with smoky toward the apex of the elytra. These latter marked with a conspicuous black dot at about the middle of the commisural margin, a minute brown point anterior and exterior to this, about three blackish dots on the costa, and an obscure one on the inner margin just beyond the apex of the clavus which extends along the transverse nervure for a little space. Face and lower surface tinged with ferruginous; legs whitish with dark tibial spines, the femora lineated with brown. Vertex obtusely conical, its length two thirds its width at base. Pronotum about as in *ornatus*. Last ventral segment of the female and the pygofer shaped about as in *ornatus*, but the former more deeply excavated. Pygofer of the male small, obtusely triangular, armed with stout white bristles. The position of this male as mounted is such that I cannot make out satisfactorily the form of the valve and plates. Length 2 ½ to 3 mm.
Described from one pair taken at Mandeville. This is a little white insect with much the aspect of a diminutive white Phlepsius.

**Xestocephalus Balli** n. sp.

Aspect of a small Eutelitix seminuda. White, tinged with fulvous on the vertex, pronotum and scutellum. Front suffused with ferruginous and sending two slightly divergent lines of the same tint over the apex of the head to about the middle of the vertex where they are deflected and end in two brown dashes, anterior edge with a black point close to each eye. Anterior border of the pronotum with a few brown marks and a black point behind each eye, disk with an angulated transverse pale brownish vitta produced anteriorly on the middle and deflected laterally almost to the posterior angles, disk posteriorly with a vague median cloud. Scutellum a little darker toward the base. Elytra white, becoming a little smoky toward its apex; marked before the middle with a strong oblique angulated fuscous vitta widened into a large square blotch on the middle of the claval commissure; behind this on the costa is a small dot at the middle, a larger one on the node and another at the first apical nervure; inner margin with a short oblique fuscous vitta just beyond the apex of the clavus, and the transverse nervures beyond the middle are touched here and there with brown. Legs white; the tibiae and tarsi spotted with fuscous. Length 3½ mm.

Described from one female example taken at Mandeville April 3d.

**Platymetopius loricatus** Van Duzee.

Seven examples of a species that I place here with some misgivings were taken by me at Kingston, Mandeville and Montego Bay. Some of these have the face entirely pale yellow, while in others it is quite evenly covered with obscure irrorations, sometimes almost indiscernable, but wherever there is any darker color on the face the pale angulated mark on the base of the front is visible. The females have the last ventral segment about as long as the two preceding united and quite strongly, almost angularly, produced at the middle. The valve of the male is short and broad and rounded behind and the plates are short and arcuated, forming a border to the valve, with a small acute apical prolongation.

Prof. Ball has kindly sent me for examination an insect from the Island of Trinidad that I believe belongs to this species.

**Platymetopius nasutus** n. sp.

Form and general appearance of *loricatus*. Vertex strongly produced, its length about twice its width between the eyes at base, surface flat and horizontal. Front a little wider toward the apex than in *loricatus*, the
sides of the clypeus a little less arcuated and the cheeks broader and more rounded outwardly. Pronotum unusually short, the hind margins feebly concave. Last ventral segment of the male short, a little angularly excavated behind; valve large, ovately triangular, the apex obtusely angled, plates a little longer than the valve, broad, sides nearly straight, slightly rounded to the blunt apices, edges fringed with long bristles; pygofera considerably exceeding the plates, obtuse at apex. Last ventral segment of the female short, broadly triangular, at apex obtuse; pygofera stout, scarcely exceeded by the oviduct.

Color dark fuscous brown, vertex becoming almost black toward the apex, marked before the eyes with a rather broad transverse white band that is slightly angled and is crossed by from three to five longitudinal dark lines; slender edge of the vertex and a spot at the tip white. Front pale or clouded with fuscous with a white mark at base. In the female from Jamaica the face is clear yellow clouded with fuscous on the cheeks exteriorly, within which are some sanguineous irrorations. Pronotum and scutellum irrorated with pale, the former with four pale longitudinal lines indicated, the latter with the extreme tip and two marginal spots on each side pale. Elytra white, nervures fuscous, areoles rather strongly reticulated and in part irrorated with brown, the oblique costal nervures nine to twelve, strong. In the male the elytra are darker showing the usual white spots quite strongly; the inner apical areole with a white lunule bordered with brown, which forms an annulus when the elytra are closed and is most conspicuous in the female. Wings suffused, with fuscous nervures. Length 4 mm.

Described from one pair: a male from Durango, Colorado, received from Prof. Ball, and a female taken by me at Mandeville. In most of its characters this species is close to frontalis. The longer and more clearly marked vertex and the generally paler colors may not be characters of specific value. The genitalia, while of the same general pattern show differences that it seems to me entitle this to specific distinction. The plates of the male are longer and more rounded toward the apex and the last ventral segment of the female is shorter and more triangular.

Platymetopius nanus n. sp.

General appearance of frontalis but much smaller. Dark chocolate brown above; entire face pale yellow. Vertex a little more acute at apex than in frontalis but similarly marked with an abbreviated longitudinal pale dash at apex, two approximate parallel ones between this and the eye, and a pair of smaller ones at base placed on either side of the dark median line; clypeus distinctly longer than in frontalis, considerably surpassing the cheeks, quite strongly constricted toward its base; lora narrow, outer edges of the cheeks rectilinear. Pronotum almost truncated before between the eyes, very minutely and obscurely irrorated with paler, and showing five indistinct longitudinal lines of pale points. Scutellum with the basal angles blackish and carrying a pale point at the extreme tip of the angles, and
another at each basal angle of the apical field. Elytra with the vermiculations and nervures but little darker than the surrounding surface, white points scarcely obvious except three pairs along the claval commissure of which the basal are very minute; costal area hyaline, broadest posteriorly, and crossed by eleven or twelve oblique nervures, of which four or five are placed close together near the stigmatal region. Propleura yellowish white, polished like the face, with a brown cloud anteriorly and a black spot on the sternum; remainder of the lower surface grey varied with brown. Legs pale yellow; tip of the rostrum and tarsal claws black. Last ventral segment of the female pale at base strongly produced and truncated at apex; pygofer but slightly exceeded by the darker oviduct. Valve of the male very large, semioval, convex, the rounded apex pale; plates pale, narrow, strongly sinuated on the sides, the short slender apices and edges fringed with pale bristles. Length, male 3 mm; female 3½ mm.

Described from one female taken at Appleton, April 10th, one male from Montego Bay, and one male taken along the railroad track just west of the Kingston station, April 17th. This is the smallest Platymetopius known to me. It may be recognized by its close resemblance to frontalis, but the entire face and most of the propleura is pale yellow and the form of the male genitalia is very distinct.

Platymetopius brevis n. sp.

Most nearly related to fuscifrons but smaller with a still shorter vertex. Color above greyish testaceous much as in cinereus O. & B. Vertex short, triangular before, scarcely more produced than in certain species of Deltocephalus; quite strongly tinged with fulvous; median furrow generally a little darker, disk marked either side by an oval pale spot opposite the anterior angle of the eye and a dart at base, another pale line follows the inner margin of the eye a little way from its base; extreme edge of the head with five ivory white spots which show above as a median spot and a ring about each ocellus. Pronotum very short at the sides showing five distinct longitudinal pale lines. Scutellum tinged with fulvous, the incised line black; basal angles of the apical field pale. Elytra with the nervures and reticulations strong, brown; the areoles with some white spots and mostly bordered with minute pale points; costal field broad with from eight to twelve strong oblique nervures. Wings highly iridescent. Face pale yellow, closely covered with fusaceous irrorations which omit a slender median line and some short arcs on the front and most of the clypeus and loral; base of the front with a white point, sutures black; disk of the cheeks with a small blackish cloud; clypeus not exceeding the cheeks, moderately widened at apex; lornæ large. Beneath brown, pleural pieces edged with pale, the propleura with an oblique pale vitta. Legs pale dotted with brown. Last ventral segment of the female short, moderately produced, with a pale discal spot on either side of the median line; oviduct scarcely longer than the pygofer, blackish on the sides. Valve of the male large, apex slightly angled and appressed, plates long, acute at apex, their sides but slightly sinuated; black, fringed with black bristles. Length 3½ mm.
Described from one male taken at Mandeville, March 30th, and three females from Kingston. This species may be distinguished by its short vertex, the five polished white dots on the anterior edge of the head, the infuscated face and the pale point on the base of the front.

**Deltoccephalus flavicosta** Stal.

Common and widely distributed in Jamaica. All the specimens brought home were of the pale variety described by Stal from Brazil and lately redescribed by Dr. Uhler from St. Vincent as *D. retrorsus*. The darker northern form described by me in 1892 as *D. flavocostatus* is probably identical with Stal's species, as pointed out by Prof. Baker some years ago, although the male plates are narrower and the last ventral segment of the female is more produced and not sinuated as in the southern examples. In the United States this form is common throughout the southern states and is distributed west at least to Kansas and Iowa and northwardly to western New York.

**Deltoccephalus senilis** n. sp.

Size and general appearance of *Sayi* to which it seems to be related in the form of the facial pieces, vertex and pronotum. Vertex with the anterior margin and median vitta ivory white, the former carrying six brown points, one either side of each ocellus and a fainter pair at the tip; the median vitta bisected at base by an incised brown longitudinal line. Pronotum with five longitudinal pale lines which may be more or less distinct. Scutellum paler at tip. Elytra a little narrower than in *Sayi* but of the same length and with similar venation; nervures pale, most of the areoles more or less distinctly edged with brown and a few carrying fuscous spots; most persistent of these is a rather large one on the sutural margin of the clavus a little before the middle and a somewhat fainter one on the corium exterior to and behind this. Face brown, darker above; about eight arcs on either side of the front, an indistinct median vitta, a discal spot on the clypeus either side of the median line, and the disk of the lore and cheeks below, pale. Body and beneath brown varied with pale, the tergum in some examples almost black. Legs pale more or less distinctly banded and spotted with brown; apex of the last ventral segment of the female feebly bisinuated forming three rounded teeth, the middle a little the larger. Valve of the male very short; plates short, rapidly narrowed to a rather slender point. Pygofer prominent beyond the plates and armed with short bristles. Length 1½ to 2 mm.

Described from 15 examples, representing both sexes, taken about Kingston from March 25th to April 17th; and one from Richmond taken April 15th. In the paler examples the dark marginal dots on the vertex are almost obsolete but the pair
adjoining the ocelli is always discernable. Generally there is a fuscous vitta on the apex of the elytra which is interrupted by the pale nervures. Prof. Ball suggests that this may prove to be an extreme variety of *flavicosta*.

**Deltoccephalus nigrifrons** Forbes?

I took a single male example of what may prove to be a small form of this species at Rock Fort, near Kingston. This individual has the vertex distinctly longer and more angled than in my northern material of *nigrifrons*. It may represent a new species but in the present unsettled state of the synonymy of this species I prefer to leave it here with a mark of doubt.

**Athysanua exitiosus** Uhler.

This was a very abundant species everywhere I collected on the island especially at Richmond where I found them in great numbers on grass along the roadside. These were smaller and darker than those from the United States, the males in particular sometimes were almost black.

**Eutettix Balli** n. sp.

Form nearly of *johnsoni* but smaller with a shorter vertex. Pale testaceous yellow. Two minute points on the base of the front, two larger ones on the ocelli, a pair of minute ones on the vertex between the latter, a round spot on each side of the pronotum behind the eyes, and two marginal points on either side of the scutellum, black. Elytra with a few brown marks. Front rather narrow toward the apex, clypeus, lora and cheeks about as in *johnsoni*; the antennal pits deep and marked by a blackish spot; vertex sloping, anterior edge rounded, scarcely longer on the middle than next the eye, hardly one half the length of the pronotum. Pronotum with a transverse spot on the disk and an angular mark anteriorly bisected by the nearly obsolete pale median line. Anterior field of the scutellum with minute brown points on the middle, the edges a little paler marked with two black points on either side. Elytra subhyaline, golden brown with coppery reflections from the highly iridescent wings beneath; clavus with a fuscous cloud at apex of each areole and a fuscous point near the base; corium with two fuscous discal spots before the middle, the anterior smaller and placed on the transverse nervure, apical areoles very slightly enfumed, the inner apical nervure a little infuscated, base of the two outer antapical areoles with brown points. Breast and legs pale, the posterior tibiae dotted with brown. Metanotum black. (Abdomen wanting.) Length to tip of the elytra 4 mm.

Described from a single example taken at Montego Bay, April 8th. This very distinct species may be known by its pale color, the four black points on the vertex in a transverse row, and the two conspicuous round black spots on the sides of the
pronotum behind the eyes. It affords me pleasure to name this neat little species for my friend Prof. Elmer D. Ball who has very kindly assisted me in the determination of some of the doubtful forms here enumerated, and whose unfailing energy has added so much to our knowledge of the North American Homoptera.

**Phlepsius cinereus** Van Duzee.

I found this species in numbers on low tangled vines and herbage along the roadside a little north of the village of Richmond on April 15th.

**Acinopterus acuminatus** Van Duzee.

Richmond, April 15th, three examples. Two of these were swept from grass and weeds along the roadside in company with the preceding species. They seem to differ in no respect from our northern specimens.

**Scaphoideus fasciatus** Osborn.

I took two examples of this species at Mandeville, March 30th, and a third from near the railroad track a little west of the station at Kingston, April 17th. These agree in all respects with a pair in my collection taken by Mrs. Annie Trumbull Slosson at Biscayne Bay, Florida, and an example taken by me at Rivington, N. J. With the Rivington specimen I took what I place as the typical *sanctus* Say. Prof. Osborn has fully indicated the characters by which these closely allied species may be distinguished and I quite agree with him that for the present at least they should be considered distinct species.

**Thamnotettix colonus** Uhler.

Taken at Hope Gardens and near the Constant Spring Hotel at Kingston, at Mandeville, and from Richmond, where they were common in a pasture on the hillside above the town. The types were from the Island of St. Vincent. Dr. Uhler placed this species in genus *Deltoccephalus* but it seems to me that its affinities are rather with *Thamnotettix* although the front is somewhat broader than in our more typical species.

**Thamnotettix comata** Ball.

I took numerous examples of this species at Kingston, Mandeville, Balaclava, Hope Bay, and Richmond. These differ from Ball's description in wanting most of the black markings above except the two large round spots on the vertex.
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and two minute brown points between them on the apex of the head. I have however in my collection specimens from Washington; D. C., and Florida that were determined by Prof. Ball as his comata and agree with these Jamaican specimens in every particular. Like the preceding species this was described as a Deltococephalus but it seems to me that its affinities are with Thamnotettix where I prefer to place it. In form and ornamentation these specimens agree almost exactly with colonus Uhler, but they are much smaller and are sufficiently distinct in their genital characters. The types of comata were from Mexico.

Thamnotettix rubicundula n. sp.

Female: Form of placida Osborn, nearly, but much smaller. Pale yellowish tinged more or less strongly with sanguineous. Vertex short, a little longer on the middle than next the eye, moderately sloping, the edge well rounded to the base of the moderately broad front; clypeus narrow; cheeks feebly angled below the eye. Sides of the pronotum short with a thickened carina. Face, lower surface and tergum more deeply suffused with sanguineous than above. Legs pale tinged with red, especially the anterior pair. Tergum black on the disk. Last ventral segment with a narrow but deep and rounded sinus the mouth of which is contracted by a projecting tooth, either side of which the apical margin is feebly sinuated; pygofera stout, scarcely exceeded by the oviduct. Elytra subhyaline, nervures rather strong, pale sanguineous. Length 3½ mm.

Described from one female example taken at Rock Fort near Kingston March 25th. This species is so distinct from anything known to me that I do not hesitate to describe it from a unique specimen.

Thamnotettix fessula n. sp.

Form of placida Osborn but much smaller with the vertex more produced. Clypeus slightly widened at apex; cheeks broad, prominently angled below the eye, the edge beyond almost rectilinear, forming a broad margin exterior to the small lobe. Last ventral segment of the female rather short, the outer angles rounded either side of a rather broad median sinus, at the center of which is a spatulate tooth similar to that found in clitellaria, but shorter.

Color fulvo-testaceous, somewhat paler on the vertex, scutellum, elytral nervures and beneath; vertex with a slender median line at base and a small oval spot just above each ocellus ferruginous; the facial incisures and a series of arcs on either side of the front pale ferruginous. Eyes, claws and oviduct blackish. Length 4 mm.

Described from a single female specimen taken at Mandeville, April 3d. This species approaches Chlorotettix in some of its characters.
Chlorotettix viridia Van Duzee.

Taken with the following species at Richmond and about Kingston but in less abundance. Its slightly larger size, deeper green color and different form of vertex and the distinct genital characters will readily distinguish it.

Chlorotettix minima Baker. (Can. Ent. xxx, p. 220, 1898.)

Appleton, April 9th, two examples swept from rank grass along the Siloah River; Troja, April 14th, one example swept from grass by the railroad track. At Richmond I took it in numbers from a springy spot in a hillside pasture on the Alexander property and also took it at St. Margaret’s Bay and Kingston. These specimens agree perfectly with Baker’s description and I cannot doubt their identity. The species is very close to my galbanata and has almost the same form of vertex and ultimate ventral segment in the female. It is however considerably smaller and seems to be sufficiently distinct.

Chlorotettix Tethys n. sp.

Form of lusoria but much smaller. Vertex subangularly produced; clypeus broad, of equal width throughout, sides rectilinear, cheeks narrow, feebly angled beneath the eyes, forming a narrow margin around the ample lore. Pronotum with a rather pronounced callous parallel to the anterior margin, the disk behind this distinctly transversely striate. Last ventral segment of the female moderately long, with the outer angles rounded and a little prominent, leaving a shallow median sinus on which rests a brownish cloud.

Color pale greenish luteous, more or less tinged with fulvous; the commissural margin at apex and some vague marks along the base of the apical areoles faintly smoky. Disk of each elytron with two small brown specks, one placed just beyond the transverse nervure near the base of the corium and a smaller one before this lying against the claval suture; elytral nervures pale; eyes, tip of the rostrum, tarsal claws and sides of the oviduct blackish. In one example the anterior submargin of the pronotum shows a sinuated darker vitta similar to that seen in certain species of Cicadula, and the basal angles of the scutellum may be darker. Length 4 to 4 ½ mm.

Described from three female examples; two taken at Kingston, April 11th, and Hope Bay April 13th, and a third taken on the Island of Martinique, July 26th, by Mr. August Busk and kindly sent to me for study by Prof. Ball.

Jassus merus n. sp.

Deep black. Vertex with the basal margin, an incomplete median line, and the carinate sides opposite the inner angles of the eyes, pale; face and deflected sides of the pronotum pale yellow, immaculate; antennal seta brown; base of the eyes pale; legs whitish, the claws and upper surface of
the hind tibiae black; sides of the pleura, a transverse vitta on the mesopleura, the edges of the connexivum and the oviduct whitish; margin of the posterior field of the scutellum in part and the slender hind edge of the pronotum, a spot on the elytral commissure just beyond the apex of the clavus and another opposite to this on the costa, the apical margin and slender costal nervure pale yellowish or soiled white.

Head distinctly narrower than the pronotum. Vertex narrow, much contracted by the approximated inner angles of the eyes where the width is about one third that at apex. Front narrow with a submarginal furrow above the antennae; clypeus broad at apex. Pronotum short, about two thirds the length of the vertex, hind edge feebly emarginate, surface transversely rugose; basal field of the scutellum shagreened; elytra narrow, nervures strong. Length 5 mm.

Described from a single female example taken at Mandeville. This is a small slender species with a narrow head and vertex, and would fall into section "EE" of Spangberg's arrangement. The deep black of the upper surface is strongly contrasted with the pale yellow of the face and legs beneath. The pale markings on the elytra suggest the possibility of a pale vitta on the transverse nervures and more or less paling of the nervures toward the base, but allowing for such variation the species seems to be quite distinct.

_Cicadula intensa_ n. sp.

Allied to _punctifrons_ in form and pattern of marking, but smaller. Vertex flattish, sloping, very obtusely angled before, scarcely longer on the middle than next the eye. Front rather narrow; clypeus oblong, distinctly constricted toward its base. Pronotum proportionately longer than in _punctifrons_, the hind edge distinctly concavely arcuated, posterior angles prominent. Elytra as in _punctifrons_.

Color soiled white tinged with yellow on the vertex and scutellum. Front with a pair of large round black spots on its base and a few short brown arcs on either side below. Vertex with a transverse black vitta passing just behind the large brown ocelli, posterior to which is an incised median line and a pair of small discolored points. Pronotum with a sinuated dusky band behind the calloused anterior margin as is frequently the case in this genus. Scutellum with an intensely black elongated spot within the basal angles; about half of this spot is covered by the pronotum through which it may be seen. Elytra white with a brown cloud at apex; the disk of the areoles mostly fuscous, paler toward the costa. Beneath whitish with small black spots on the pleural pieces. Legs white with a few brown points. (Abdomen wanting.) Length 4½ mm.

Described from a single example taken at Hope Bay April 13th. This specimen is apparently a female but unfortunately its abdomen was broken off and lost in transit from the island.
The species however is so distinct that it seems safe to describe it from an imperfect example.

**Cicadula sex-notata** Fallen.

I took numbers of this species at Rock Fort near Kingston on March 25th. These differ in no respect from those found in the northern states except that they are smaller, measuring but 2 to 2½ mm. to the tip of the elytra.

**Balclutha sp.**

Rock Fort near Kingston, two examples. This genus, formerly known as *Gnathodus*, is difficult to study without more material than I have at my command. The present species seems to be most nearly related to *viridis* Osborn but differs in some respects.

**Balclutha sp.**

Two examples of another species I cannot determine were taken at Rock Fort. These are marked with black somewhat as in *abdominalis* but have the ocelli distant from the eyes and do not pertain to Baker's genus *Eugnathodus*.

**Eualebra rubra** n. sp.

White; base of the pronotum, scutellum and basal one half of the elytra orange red marked with irregular dots of purple-black. These dots are composed of minute purple points on a whitish ground which in most cases they almost entirely cover; they are arranged as follows: three small ones on the base of the vertex; three larger ones on the anterior submargin of the pronotum, the median ovate, the lateral elongated and somewhat angled and almost attaining the humeral angles; a small one on the propleura; a square median one on the base of the scutellum; a very minute one at each basal angle of the scutellum and the basal angles of its apical field; three on the clavus, the median of which is larger and irregular; and five on the corium, one basal, a larger median one almost divided in two, and three beyond this is a transverse row forming a line with the posterior spot on the clavus, the two near the costa very small; the spots in the terminal row are more open, showing the minute dots on the pale ground plainly. The red color on the elytra terminates very abruptly with a broken indistinct brown line; the apex of the elytra beyond this line pale yellowish hyaline, immaculate, with the nervures indistinguishable. Apex of the wings palê yellowish hyaline, the base beneath the red portion of the elytra clear smoky hyaline, iridescent. Beneath white with the clypeus and a point on the disk of the plates of the male black; disk of the venter embrowned.

Vertex strongly angularly produced, the anterior edge thickened and rolled over on to the base of the front; apparently notched above the base of the antennae. Front strongly depressed, flat and horizontal and sunken below the level of the cheeks and tumid basal margin. Length 2½ mm.
NOTES ON JAMAICAN HEMIPTERA

Described from one male taken at Hope Gardens near Kingston, April 18th, the last evening of my stay on the island. In this example the base of the scutellum has been somewhat injured and the square basal spot may be in the form of two parallel longitudinal vittae. Prof. Baker in describing the type species says: "Face in the single specimen collapsed in drying", my specimen however is a well developed adult and I believe the sunken face to be characteristic of this genus which is very distinct in its general facies from any other known to me. It was founded in 1899 (Psyche viii, p. 402,) for the reception of the Brazilian species, Smithii Baker. Later (Invertebrata Pacifica i, p. 7, 1903,) Prof. Baker described a second species, notata, from Guatemala.

Protalebra apicalis n. sp.

Soiled white marked with black, orange, and pale yellow. Head ivory white; vertex quite strongly produced and angled before, convex; ocelli distinct; basal joint of the antennae tinged with yellow. Pronotum one and one half times as long as the vertex; hind margin distinctly concave, the posterior angles prominent, subacute; orange, with the deflected sides and a large rounded median spot resting on the base whitish. Scutellum ivory white with the small basal angles brownish. Elytra whitish hyaline; a basal curved band on the clavus following the sutural margin from the base to about the middle where it is abruptly deflected to the commissure, and a small spot just beyond this on the corium against the claval suture, sometimes vaguely extended basally in a broken band parallel with that on the clavus, orange; apex of the elytra from just before the transverse nerves fuscous, with the nerves yellow and the disk of the areoles mostly hyaline; the extreme apical areoles are bordered with blackish; before this fuscous apical area are some vague pale lemon yellow marks covering the apex of the clavus and forming a broken oblique band toward the middle of the costa. Beneath and legs white with the apex of the abdomen and genital pieces yellowish. Last ventral segment of the female long, quite strongly produced in the middle where it is minutely tipped with brown; sides of the pygofer sometimes with a curved vitta; plates of the male long triangular, their sides straight and ciliated and their subapex with a triangular blackish mark. Length 3½ mm.

Described from one male and five female examples taken at Mandeville, April 1st. In its pattern of marking this species seems to be allied to Alebra sanguinolinea Baker from Nicaragua, (Invert. Pacifica i, p. 5, 1903,) but the colors are much paler and it certainly is a Protalebra as the marginal vein of the wings is returned but a short distance around the apex.
Protalebra bifasciata Gillette.
I took one example of this very distinct little species at Rock Fort on March 25th. This has the black spot on the scutellum and base of the clavus very intense but narrow, not reaching more than half way to the costa. The types were from Brazil.

Protalebra omega n. sp.
Near vexillifera Baker. Smaller than apicalis; marked with white, orange and golden brown. Vertex quite convex and strongly produced, whitish with two approximate points behind the apex and a large discal spot dusky. Pronotum milk-white; a large oval orange spot occupies the apex anteriorly, deflected sides behind the eyes including the humeral angles reddish orange. Scutellum fulvous at base, whitish at apex, with the slender edges and apex minutely black. Elytra light golden brown with a broad curved milk-white vitta beginning on the claval commissure just behind the tip of the scutellum, touching the costa at about its middle, and then deflected inwardly and backwardly where it becomes narrower and terminates just before the middle of the transverse nervures. This white vitta is slenderly bordered with black exteriorly at base and with fuscons within and exteriorly at apex, and with the elytra closed forms a conspicuous and almost perfect mark the shape of the Greek letter omega; Apical areoles hyaline, a little smoky at tip and bordered costally by a curved fuscous marginal vitta which is deepened to a black spot on the node. Beneath and legs whitish; the posterior tibiae dotted with black. Last ventral segment of the female strongly triangularly produced almost to the middle of the pygofers, the latter with stout black and white bristles. Length about 2 mm.

Described from two female examples taken at Rock Fort, March 25th. This is a small but very pretty species that must be related to vexillifera of Baker, but it is quite distinct.

Protalebra octolineata Baker. (Invert. Pacifica, i, p. 7, 1903.)
Two males and two females of this neat little species were taken at Rock Fort at Kingston. I also found it in numbers on Lantana bushes along the path to the office of the Hope Gardens. In my examples the vertex is soiled yellowish with the median line darker; a line either side of this and another adjoining each eye paler. The common dark median line of the pronotum and scutellum is bordered on either side by paler; anterior submargin of the pronotum with a narrow pale yellow callous and there is a smaller one behind each eye; the calloused slender lateral edges whitish. The four parallel slender black lines on the elytra are well described by Baker but he fails to say that the included area between them is whitish hyaline
where it crosses the disk of the elytra. The transverse lines on the apical areoles seem really to be one line strongly folded on itself, forming a large transverse loop in the apical areoles, at the costal end of which is a fuscous cloud. The extreme apex of the elytra has a narrow fuscous marginal vitta. Wings faintly smoky hyaline with fuscous nervures. Tip of the rostrum and tarsi and apex of the hind tibiae and a large spot on the prosternum black. Apex of the pygofer of the male and of the oviduct of the female, and a transverse cloud at the apex of the last ventral segment of the female, black. Sometimes the pale markings on the vertex and pronotum are almost obsolete, but the dark median vitta and the black lineations seem to be constant. Although more strongly marked than Baker's specimens from Nicaragua and Mexico seem to have been I have no doubt but they represent the same species.

**Protalebra brasiliensis** Baker. (Psyche viii, p. 405, 1899.)

I found this insect very abundant everywhere in the warmer parts of the island, especially about Kingston. These have an abbreviated brown vitta on the base of the vertex, and the hyaline spots in the fuscous areas of the elytra are larger and regularly placed: two on the median transverse area, one at the tip of the clavus, another near this on the corium and the third larger resting on the costa and usually tinged with yellow; and three on the apical area, two medial and a larger one on the costa; and the extreme apex is usually whitish. I have received exactly this same form from Mrs. Annie Trumbull Slosson, taken at Lake Worth, Florida. All these agree so closely with Baker's description that I feel little doubt of their identity. The concavely arcuated posterior margin of the pronotum with prominent posterior angles seem to be characteristic of this genus.

**Empoasca mali** LeBaron.

Rock Fort near Kingston, two examples; Mandeville, one example. These specimens agree in every particular with those in my collection from various parts of the United States except that they are a little smaller.

**Empoasca flavescens** Fabr.

One example taken at Mandeville March 30th, appears to be specifically identical with specimens determined for me by Prof. Gillette as *flavescens* of Fabricius.
Emoasca sp.

One example taken at Montego Bay, April 8th seems to belong to a still undescribed species. It is near the preceding but has the vertex a little longer and fuller and the base of the front suffused with yellow. Among the material taken at Mandeville is one more large specimen, apparently an Alebra, too immature for determination.

Typhlocyba pseudo-maculata Baker.

(Invert. Pacifica, i, p. 8, 1903.)

One pair of this obscure little species was taken at Rock Fort. They agree in every respect with Baker's short description and I have no doubt of their identity. The female has the extreme apex of the oviduct black.

Additions

The following species were omitted from their proper place in the list:

Edessa bifida Say.

Not uncommon at various places on the island. I have records of Mandeville, Balaclava, Appleton and St. Margaret's Bay.

Podisus sagitta Fabr.

I found this species fairly abundant at Rock Fort near Kingston, Mandeville and Balaclava and took one example at Hope Bay.

Pachygrontha bimaculata Distant.

One example taken at Port Antonio in a little grave yard on Richmond Hill, April 12th. This specimen differs from Distant's short description only in having the apex of the third antennal joint concolorous. It has the sides of the pronotum rectilinear a character not mentioned by Distant but one which would ally it with longiceps Stal, but its small size and general characters are so close to those given by Dr. Distant for his bimaculata that I prefer to place it there.
Index to new genera, species, etc.

This index includes the names of new genera, species and varieties described in the preceding pages, new names proposed, and also the names of the new genera and species described by Dr. Reuter from material taken by me in Jamaica and recorded in this paper.

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