

UW-Madison ILL Lending (GZM)

728 State Street / Madison, WI 53706

Email: gzmilend@wils.wisc.edu



ILLiad TN: 345572

Borrower: OSU

Lending String:
EEM,*GZM,GZM,MNU,UIU

Patron: Caesar, Ryan

Journal Title: Bulletin of the Buffalo
Society of Natural Sciences.

Volume: 9 **Issue:**

Month/Year: 1909 **Pages:** 149-230

Article Author:

Article Title: Van Duzee, EP;
Observations on some Hemiptera taken
in Florida in the spring of 1908.

Imprint: Buffalo, N.Y. ; Buffalo Society
of Natur

ILL Number: 3738448



Location: mem
Call #: AP B9298 B

Request Date: 20050321

Shipping Address:
Ohio State University
Library- Interlibrary Loan
1858 Neil Avenue Mall
Columbus, OH 43210-1286

ARIEL

Fax:
Arlet: 128.146.9.51

MaxCost: \$25 IFM

Borrowing Notes: Borrowing Notes;

Observations on some Hemiptera taken in Florida in the spring of 1908

By EDWARD P. VANDUZEE

In the present paper I propose to enumerate the Hemiptera taken by me during a four week's collecting trip in Florida in the months of April and May 1908. To the locality notes given under each species I have added synonymical and miscellaneous observations on many of the forms and descriptions of a few new genera and species. Without question Florida has always been a favorite collecting ground for the insect hunter and many species have been credited to that state in the descriptive works of the earlier entomologists, but so far as the Hemiptera are concerned no systematic work has been done there until quite recently. The pioneer worker in this field was Mrs. Annie Trumbull Slosson who for a number of years past has spent a considerable proportion of her winters collecting insects at various localities in that state. She is an enthusiastic and diligent worker and has brought to light a large number of new species, some of them of great interest and rarity. I had hoped she could be induced to publish a list of her captures in the Hemiptera prior to the appearance of this paper but other engagements have rendered this impossible, so she has very kindly sent me a list of the species taken by her with full permission to make such use of these notes as I wished; a privilege of which I have availed myself many times in the following pages. Mrs. Slosson's list includes many forms not taken by me and it is hoped that she will later give us a report on these with annotations on other forms which, owing to the hasty and superficial nature of my work in Florida, I was obliged to include with little more than a notice of their capture.

On the present trip I was accompanied by my brother Millard C. VanDuzee who was collecting the Hymenoptera, Diptera and Coleoptera, while my time was almost entirely devoted

to the acquisition of the Hemiptera. I give our itinerary as a help in studying the faunal relations of the various genera and species.

Our first stop was at Crescent City situated between Crescent Lake and Lake Stella in one of the most fertile portions of the state. Here we worked from April 19th to the 25th, mostly on the borders of weeds and bushes or the grassy and weedy flats along the margins of these two lakes. Mr. F. G. Lasier very kindly gave us free access to the estate of the late H. G. Hubbard and later took us to the Hubbard farms on the prairies along Haw Creek about nine miles by water from Crescent City. There we found an interesting insect fauna quite different from that at Crescent City. On the 25th we left for Sanford, stopping for an hour's collecting about the station at Crescent City Junction. We reached Sanford in the afternoon and worked until dark along the marshy shores of Lake Monroe to the south of the railroad station. On the 26th we worked on and about one of the "palmetto hummocks" on what is there called the "Celery grounds". This hummock adjoined the lake shore just north of the railroad station and proved to be one of the best collecting grounds we found in the state. The following morning we worked in the open fields to the southwest of the village until driven in by the rain, proceeding in the afternoon to Tampa where we arrived early in the evening. On the 28th we collected, with excellent success, at St. Petersburg along the marshy shores of Tampa Bay south of the boat landing. That same evening we went on to Clearwater where we took some good insects under the electric lights. The next day we collected near the village in the forenoon and in the afternoon drove over to Sevenoaks to the home of Mr. R. D. Hoyt, who entertained us very pleasantly for two or three days. Here we worked on his farms and south through the open pine woods to Bay View and north to Green Springs and Phillippi's Mound. About this mound we found a decidedly different vegetation and many peculiar insects. On May 2d we took an early boat to Tampa and spent the afternoon collecting on the barren fields east of the city. Here there was a moderate growth of a broad leaved oak, the first we had found in Florida, and on this I expected to take some good Membracids but was only partially successful. From Tampa my brother started homeward while I went on to Ft. Myer where I collected on the 4th and

gth and then proceeded to Estero, a drive of 16 miles farther south through an almost pathless pine forest. At Estero I was very kindly and pleasantly entertained for a week by the Korean Unity as the guest of my cousin Junius B. VanDuzee. Here the country was comparatively new and the conditions for collecting by no means ideal but the fauna was quite different from that farther north and the results of my work proved in the highest degree satisfactory. At this place there was a large intermixture of West Indian forms and I found this to be especially the case on Estero Island at the mouth of Estero River. Along this gulf coast and on the outlying islands there is a considerable growth of subtropical vegetation of which the mangroves and cocoanut palms form perhaps the best index, and with this vegetation is found the subtropical fauna which extends as far north at least as Sanibel Island at the mouth of the Caloosahatchee.

The physical features of Florida are by no means encouraging to the collector first passing across the state. To him almost the entire state would seem to be one interminable pine barren; a nearly dead level of sand covered with an open forest of the tall slender trees of the long-leaved pine and overgrown below with the tangled stems of the low palmetto, or in places covered with a sparse growth of a long wiry grass intermixed with low huckleberry and other small bushes and weeds. A more careful inspection will however show that the conditions are by no means so monotonous and that frequent local variations of soil and humidity produce a varied vegetation on which subsists a really very rich Carolinian and subtropical fauna. The numerous tidal streams and lakes are bordered by a heavy growth of cypress, water and live oaks, and other deciduous trees which are frequently festooned with the spanish moss. The pine barrens are broken by "cypress swamps" and "palmetto hummocks" and across the middle of the state especially between Orlando and Lakeland, there are slightly elevated ridges clothed with broad leaved oaks and other vegetation quite distinct from that of the pine barrens. The fauna of the shore marshes is characteristic and the open prairie country along Haw Creek has its own peculiar fauna, and even in the monotonous pine forests we find a much greater variety of insect life than one would think possible.

A careful study of the insects herein enumerated has been somewhat of a surprise to me in that it indicates a different origin for the fauna of this state than I had anticipated. The Hemiptera as found by me point to four distinct sources of origin. First and most generally distributed is the Carolinian fauna which seems to have had its center of distribution in the foot hills of northern Georgia and the western portion of the Carolinas. This fauna has evidently spread southward over the low flat country of southeastern Georgia and Florida but south of Tampa forms but a small element in the insect life of the state. Perhaps second in importance is the intermixture of the West Indian fauna which is a conspicuous element at the southern end of the state and spreads northward nearly or quite to the middle of the state, at least along the coasts. A third and relatively important group of forms constitutes what might be termed a native or Floridian fauna which seems to have originated in this state, probably from an intermixture of the two faunas already mentioned, and fostered perhaps by the great extent of the unusual physical conditions found on this peninsula. The fourth element of the fauna is composed of stragglers from the rich faunas of Mexico and Texas; widely distributed species which have followed the gulf coast and have found the conditions here favorable for their preservation. Finally a few species were found which are almost universally distributed in North America. My knowledge of the Hemipterous fauna of our southern and southwestern states is still too meagre for me to attempt to draw the line closely between these elements of the Floridian fauna but the present material is sufficient to enable me to distinguish them quite clearly, and in a rough way to indicate their extent.

This collecting trip was undertaken partially in the interest of the Buffalo Society of Natural Sciences and to one of the directors of this society, Mr. Ottomar Reinecke, I am much indebted for his continued interest and encouragement in planning and carrying it through. I am also under obligations to the kind friends already mentioned whom I met in Florida and who did much to make my trip pleasant and profitable, but I am especially indebted to Mrs. Annie Trumbull Slosson for the loan of many of her most interesting Florida captures which I needed for comparison and study, and to Dr. W. L. Distant, Mr. Otto Heidemann, Mr. J. R. de la Torre Bueno, Prof. Her-

bert Osborn and Dr. E. D. Ball who have very kindly compared certain of the species taken by me with types in their possession, and for assistance in the determination of others.

At the end of this paper I add a brief summary of the number of genera and species taken, with an index to those which are here described as new.

Family Scutelleridæ.

1. **Chelysoma guttatum** H. S.

I swept one pair of this species from rank vegetation on the borders of the tidal marshes along the Caloosahatchee at Ft. Myers.

2. **Diolcus chrysorrhoeus** Fabr.

One fully colored individual was taken from bushes growing about the Phillippi Mound at Green Springs.

3. **Stethaulax** sp.

One specimen was beaten from the bushes growing along the southern shores of Lake Stella at Crescent City.

4. **Sphyrocoris obliquus** Germ.

Several examples were taken at Ft. Myers and Estero on rank vegetation. These represent both sexes and exhibit the usual variation in color markings.

5. **Homæmus grammicus** Wolff.

Apparently rare. Single specimens were taken at Crescent City, Sanford, Sevenoaks and Estero. Mrs. Slosson has taken it at Charlotte Harbor and Jacksonville.

6. **Camirus porosus** Germar.

I swept one example from the parched sparse vegetation in the open pine woods at Estero and Mrs. Slosson has found it at Biscayne Bay.

Family Thyreocoridæ.

7. **Thyreocoris unicolor** P. B.

I took scattering examples of this large species at Crescent City, Sanford, Clearwater and Ft. Myers. These specimens differ in no respect from those we find in the northern states.

8. **Thyreocoris lateralis** Fabricius.

Common and widely distributed in Florida. In a few examples the pale border to the elytra is much reduced or interrupted and at times may be entirely absent as recorded by Dr. Uhler. Prof. Wickham has recently sent me a specimen taken by him at Apipulco, Mexico. This is the species described by me as *Gillettii* in 1894. Elsewhere I have given my reasons for changing this determination.

9. **Thyreocoris pulicarius** Germar.

Taken in abundance everywhere I collected in Florida. This seems quite distinct from the larger northern form I have called *marginellus* Dallas. It may best be distinguished from that species by the more produced head, the margins of which are much more deeply sinuated before the eyes, and by the apex being more convex transversely. The whole surface of the head is also more closely and coarsely punctured.

Family Cydnidæ.

10. **Cyrtomenus mirabilis** Perty.

This large Cydnid was not uncommon about the electric lights at Clearwater on the evening of April 28th. We did not take it elsewhere.

11. **Geotomus robustus** Uhler.

Two examples swept from a weedy field at Tampa.

12. **Amnestus pusillus** Uhler.

Of this tiny species I took a single specimen while sweeping the dry prairies at Haw Creek near Crescent City.

Family Pentatomidæ.

13. **Brochymena arborea** Say.

Taken at Crescent City and Sanford.

14. **Trichopepla semivittata** Say.

Crescent City; one example.

15. **Pentatoma saucia** Say.

We swept a few specimens of this species from the tall marsh grasses on the shore at St. Petersburg. They were accompanied by their young.

16. **Mormidea lugens** Fabricius.

Common everywhere we collected.

17. **Oebalus pugnax** Fabricius.

Taken occasionally at all stations.

18. **Euschistus servus** Say.

Common everywhere in Florida. These present considerable variation in size, color and form of the humeri.

19. **Euschistus ictericus** Linneus.

I took a few examples at Crescent City, Sanford and Ft. Myers. In most of these the humeri are much more acute than in our northern specimens.

20. **Euschistus tristigmus** Say.

Sanford May 6th; a single example of the variety with acute humeri.

21. **Euschistus bifibulus** P. B.

Taken occasionally at Crescent City, Sanford and Estero. I have recently seen specimens from Texas.

22. **Euschistus crassus** Dallas.

I took this species at Sanford only. It seems to be rare.

23. **Proxys punctulatus** P. B.

One example taken at Sanford.

24. **Hymenarcys nervosa** Say.

A single specimen was swept from weeds adjoining a garden at Ft. Myers. This is a little larger and darker than examples in my collection from farther north.

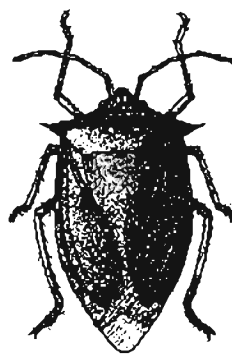
25. **Thyanta custator** Fabricius.

Found at all points where I collected. Most of these show the red band on the pronotum and the black points on the edge

of the connexivum but the humeri are obtuse and I believe they belong here rather than with *perditor*.

26. *Loxa florida* n. sp.

Form of *deducta* Walker but larger: smaller than *flavicollis* with a longer pronotum, and humeri which do not point at all forward. Head apparently impunctate, furnished however with a few minute uncolored punctures; transverse rugæ very distinct behind the line of the antennæ; cheeks surpassing the tylus by about their own width at that point, rather obtuse at apex, their outer margins rectilinear; smooth area between the eye and ocellus unusually large, nearly orbicular, reaching the line of the inner margin of the ocellus. Pronotum as in *affinis* and *deducta*, proportionately longer than in *flavicollis* and *pallida*;



LOXA FLORIDA

the humeri as in *deducta*, shorter than in *flavicollis* but longer than in *affinis*, very acute, pointing outward and a little upward, not at all forward as they do in *flavicollis*: Surface of pronotum very regularly and evenly covered with transverse lines of fine brown punctures between broken transverse rugæ; crenulations of the lateral margins acute, smaller and more regular than in *flavicollis*. Elytra finely and evenly punctured; apical margin as in *deducta*, more acute and less sinuated apically than in *flavicollis*; membrane long, rather sparsely dotted with green. The pale calloused points arc, as in *affinis*, fairly distinct on the elytra, less so on the scutellum and hardly distinguished on the pronotum. Disk of the elytra wanting the round pale discal point seen in *affinis*. Basal joint of the antennæ attaining the apex of the head, third a little longer than the second, fourth still longer. Rostrum a little surpassing the third ventral segment; second and third ventral segments feebly sulcate; fourth and fifth equal, about two thirds the length of the two preceding, hind edge of the fifth feebly angled at the middle, sixth very long, polished and brownish on the disk, its hind edge longitudinally striate and deeply and roundedly excavated; hind angles short, subacute. Genital segment long, exceeding the sixth segment by half of its length, its apex deeply and broadly emarginate as far as the middle, the sides of this sinus nearly rectilinear and having its fundus and apical angles obtuse.

Color clear light green with the narrow margins paler, bordered within by a rufous line, the punctures rufous brown. Antennæ and legs greenish testaceous tinged with brown in places. Lower surface paler with sparse concolorous punctures omitting the disk of the venter and pleural pieces as in the allied species. Length to tip of the membrane 21 mm.

Described from one male taken from an orange tree on the Hubbard estate at Crescent City and one female taken by Mrs. Slosson at Biscayne Bay. This species is unquestionably distinct from any other known to me. It is however very close

to *invaria* Walker but the rostrum is shorter and the ventral sulcus is abbreviated, affecting the first and second segments only.

I have in my collection one female *Lova* from British Guiana that agrees very completely with Walker's description of *deducta* and I so identified the species in my list of the Hemiptera of British Guiana. Dr. Distant however identifies *deducta* Walk. with *flavicollis* Drury, a large species with which this could not possibly be confused. I am inclined to think that in this case the type labels in the British Museum have become misplaced.

27. **Nezara pennsylvanica** DeGeer.

Two males and one female of this rare species were taken at Sanford.

28. **Nezara hilaris** Say.

Crescent City, one example.

29. **Nezara viridula** Linneus.

Crescent City, Clearwater and Sevenoaks, not uncommon.

30. **Banasa lenticularis** Uhler.

Two examples of what I believe to be this species were taken at Crescent City. These are light green blotched with darker green and seem not to be fully developed. They have the subspinose connexival angles found in *calva* and *dimidiata* and the sparse punctuation found in *Packardii* and *varians* but the characters of the genitalia are quite distinct from either. They seem to be entirely identical with this West Indian species a typical example of which was kindly given me by Dr. Uhler.

31. **Piezodorus Guldingi** Westwood.

One small male was taken from the bushes near Phillippi's Mound north of Green Springs.

32. **Arvelius albopunctatus** DeGeer.

Crescent City, one example. Mrs. Slosson has taken it at Biscayne Bay.

33. **Dendrocoris fruticicola** Bergroth.

I took this species as far north as Tampa and Sevenoaks but it was much more common southward where I found it at

Ft. Myers and Estero. At the latter place it was abundant with its young on the scrub oaks which grew everywhere where the pine forests had been cut away. It seemed to be a vegetable feeder and in no case did I find it on orange or on any cultivated tree.

34. ***Edessa bifida*** Say.

My three examples were taken at Crescent City, Clearwater and Ft. Myers.

35. ***Stiretrus anchorago*** var. ***pulchellus*** Westwood.

This pretty species was taken on rank vegetation growing along "Lover's Lane" on the Miller estate at Crescent City and later I took one individual at Ft. Myers. Mrs. Slosson has taken the var. *fimbriatus* at Charlotte Harbor and elsewhere in Florida.

36. ***Stiretrus anchorago*** var. ***violaceus*** Say.

Sanford. Of the two examples taken one was of a deep violet black color; the other was tinged with steel blue and green.

37. ***Podisus maculiventris*** Say.

One dark colored example from Sanford and a paler one from St. Petersburg.

38. ***Podisus mucronatus*** Uhler.

I found but one example of this interesting insect. This was captured on the rank weeds near a garden at Ft. Myers. Mrs. Slosson has found it at Charlotte Harbor and Biscayne Bay.

Family Coreidæ.

39. ***Corynocoris distinctus*** Dallas.

Crescent City and Estero; two examples.

40. ***Archlimerus calcarator*** Fabricius.

Of this species I took specimens at Crescent City, Tampa, Ft. Myers and Estero; all females. That from Tampa has the pronotum proportionately a little broader posteriorly but it does not seem to differ otherwise.

For many years *Coreus alternatus* Say has been placed as a synonym of this species but they most certainly are distinct. *Calcarator* differs from *alternatus* in the following particulars: It is a little smaller and paler and wants the white marks on the margin of the abdomen; the arrangement of the femoral spines is different; the bucculæ are distinctly shorter and more elevated, the lateral plates of the female genital segment are less rounded behind and the antennæ are more slender, with their basal joint less incrassated. *A. calcarator* was described from Carolina but the only specimens I have seen are from Florida. Say's species was described from the Missouri Territory of that day but my material is from Kansas.

From the late Prof. Snow I have received an example of the closely related *A. indvcorus* Walker taken by him in southern Arizona. This species has the maculated connexivum of *alternatus* but it is paler in color; the pronotum is more expanded and is marked with three longitudinal dark vittæ, the scutellum is marked with pale and the outer genital plates of the female are larger and more acute behind than in either of the preceding species.

41. ***Spartocera confluenta* Say.**

Crescent City and Clearwater. I took this species on garden fences much as *Anasa tristis* is found in the north. For many years this insect has been identified with *Sagotylus triguttatus* H. S. which however is a very distinct insect. This is a true *Spartocera* very near to *fusca* of which Stal places it as a synonym. I believe however that it is sufficiently distinct to be given specific rank.

42. ***Euthoctha galeator* Fabricius.**

Taken at all stations but much more abundant toward the south.

43. ***Acanthocephala femorata* Fabricius.**

This large coarse insect was not uncommon at most places where we collected. It was most abundant about 4 p. m. flying about weedy places in the bright sunlight; later in the evening they could be picked off from the weeds and grasses where they were resting.

44. ***Leptoglossus phyllopus* Linneus.**

Abundant everywhere in Florida.

45. **Leptoglossus Ashmeadi** Heidemann.

Two examples were beaten from trees at Phillippi's Mound at Green Springs. Mr. Heidemann's description of this species follows this paper.

46. **Chariesterus antennator** Fabricius.

Two immature examples were taken at Estero.

47. **Catorhintha guttula** Fabricius.

Crescent City and Sevenoaks, not uncommon.

48. **Althos obscurator** Fabricius.

This species has never been figured or properly described. The present specimens agree in every particular with the short description by Fabricius and Stal. It has already been reported from many localities from Argentina to Mexico and it would require but little extension of its range to include southern Florida, and such a distribution would not be at all remarkable as it seems to be a salt marsh insect and might readily spread along the shores of the subtropical seas. I found it not uncommon on sedges and grasses on the marshy shores of Lake Monroe at Sanford and took it under similar conditions at Crescent City and St. Petersburg, and Prof. Blatchley has sent me specimens taken by him at Ormond. Kirkaldy substituted the above generic name for *Margus* in 1904.

49. **Leptocorisa tipuloides** DeGeer.

Crescent City and Clearwater among rank weeds. A number of immature examples were seen with the adults and a little later the species might have been common.

50. **Alydus pilosulus** H. S.

Common and widely distributed in Florida.

51. **Stachyocnemus apicalis** Dallas.

St. Petersburg and Estero, two examples. These are somewhat smaller than New Jersey specimens in my collection.

52. **Harmostes reflexulus** Say.

Common everywhere in Florida.

53. *Harmostes affinis* Dallas.

At Ft. Myers I collected quite a series of what I took to be *Harmostes serratus* but on comparison with a series of the latter species taken by me in Jamaica I find that these Florida specimens are less strongly dotted, the antennal joints are more nearly equal in length, the rostrum is shorter and the tubercular spines on the antenniferous processes are shorter and are directed forward, and the clypeus is less produced at apex. In *serratus* the acutely produced tylus almost attains the apex of the first antennal joint and the spines at the base of the antennæ are directed distinctly outward as well as forward. These specimens seem to be conspecific with the Texan example determined as *affinis* in my paper on Jamaican Hemiptera (p. 13,) although that specimen is paler in color and has a still shorter rostrum.

54. *Corizus (Liorhyssus) hyalinus* Fabr.

At Estero I took three very small pale colored specimens that I believe belong to this species. They are almost immaculate except for a black area toward the base of the tergum.

55. *Corizus (Arhyssus) lateralis* Say.

One large somewhat immature example of this common and variable species was taken at Sanford. Two other uncertain forms of *Corizus* were taken at Sanford and Crescent City both of which are near *lateralis* and possibly are not distinct.

56. *Corizus (Arhyssus) punctatus* Signoret.

Crescent City; one example. This species is very near to *nigristernum* Sign. as I have formerly determined that species, but it has the dorsal plate of the female genital segment a little longer and more pointed and a ventral plate of nearly the same shape as that found in its ally. The present specimen is a little lighter in color than an example from San Rita Mts., Arizona, kindly given me by Prof. Snow.

57. *Corizus (Niesthrea) sidae* Fabricius.

This southern species seemed to be rare in Florida. I took examples at Crescent City and St. Petersburg representing both

the large pale form generally known as *sidae* and the smaller darker form described as *pictipes* by Stal. These two forms may yet prove to be distinct but it seems hard to find characters that will separate them satisfactorily.

The American forms of this difficult genus have never been properly worked out. Signoret's so-called Monograph was merely a collection of descriptions founded largely on color characters, of the species of the world known to him, with no attempt at systematic arrangement and few comparative notes. Stal published some excellent systematic work on the genus but he knew but few of our American forms. During the past summer (1908) two interesting papers on our species have been published. A careful and valuable revision by Mr. J. C. Hambleton appeared in the June number of the Annals of the Entomological Society of America, (vol. 1, pp. 133-147.) This paper leaves our species in good shape for further study but unfortunately Mr. Hambleton does not take any notice of the valuable genera and subgenera established by Stal and now generally adopted by the European entomologists, and there are one or two of his determinations of which I cannot but feel doubtful. He is certainly correct in placing *viridicatus* Uhler as a species distinct from *hyalinus* Fabricius but is in error in allying it with *crassicornis*. It is very close to *hyalinus* but may readily be distinguished by the form of the dorsal genital plate of the female which is short and truncated in *hyalinus* and much longer and rounded at apex in *viridicatus*. The July number of the Canadian Entomologist, mailed about two weeks after the appearance of Mr. Hambleton's paper, contains some systematic notes on this genus by Prof. Carl F. Baker in which he has located our species in their generic or subgeneric positions. This paper would supplement the revision by Mr. Hambleton very well were it not that their determinations do not always agree. Through some singular oversight Mr. Baker states that Stal has in the Enumeratio restricted the old genus *Corizus* to *crassicornis* and its allies. Stal does not mention *crassicornis* in the Enumeratio but in this "Genera Coreidarum Europæ disposuit" he establishes genus *Stictopleurus* for this very species and restricts *Corizus* to those species in which the corium is entirely coriaceous, no representative of which is known to me from America. Mr. Baker indicates but does not describe four forms of *noeaboraccensis* Sign. (*crassicornis* Fabr.),

the name of one of which, *pallidus*, conflicts with *Corixus pallidus* J. Sahlbg. from Siberia. I am rather inclined to agree with Mr. Baker in his determination of *nigristernum* and *Bohemani*. He places the former name on the dark form of *lateralis* and the latter on the species usually determined in this country as *nigristernum*. I doubt very much if the identity of some of the species of Signoret and Dallas can finally be determined without reference to the types.

58. **Jadera hæmatoloma** H. S.

Sanford; one example.

Family Metacanthidæ.

59. **Jalysus spinosus** Say.

This species was not at all abundant. I took it at Crescent City and Clearwater only. About Buffalo it is very rare but from New Jersey to Colorado it is the predominant form.

60. **Jalysus perclavatus** n. sp.

Allied to *spinosus* and *Wicklami* but much smaller and with a thicker and shorter antennal knob. Color pale testaceous yellow as in the allied species. Disk of the pronotum and clavate apex of the femora a little darker; apical joint of the antennæ, tarsi and apex of the rostrum black, the former polished and clothed with scattering minute hairs; abdomen more testaceous, sometimes tinged with greenish and darkened to olive on the venter. Head about as long as the posterior lobe of the pronotum; vertex elevated anteriorly and produced in a rather long, almost erect blunt spine between the bases of the antennæ. Antennæ: first joint but little shorter than the two preceding together, clavate at apex; second nearly as long as the third; fourth unusually short and thick, fusiform, a little shorter than the head and almost half as thick. Rostrum attaining the intermediate coxæ, first joint just reaching the base of the head. Scutellar and metapleural spines unusually long. Hind femora surpassing the abdomen by the length of its clavate apex in the male, but very little exceeding the abdominal tip in the female. Elytra almost hyaline, the tip of

the slender apex of the corium concolorous. Length; male 5mm.; female, 6mm.

Described from eleven examples taken at Crescent City, Sanford, Tampa and St. Petersburg. This species is very distinct by its small size, the short thick terminal joint of the antennæ, the erect spine between the bases of the antennæ, and the concolorous tips of the corium.

61. ***Metacanthus decorus*** Uhler.

This pretty little West Indian form I took at Estero only. It pertains to the subtropical fauna which extends up the west coast of Florida as far at least as Estero and Sanibel Islands.

Family Lygæidæ.

62. ***Oncopeltus fasciatus*** Dallas.

Sanford and Sevenoaks. Swept from rank vegetation about the "palmetto hummocks". I found but two examples of this widely distributed species.

63. ***Lygæus lineola*** Dallas.

This insect seemed to be a general inhabitant of the state and was abundant especially toward the south. I took it at Crescent City, Sanford, St. Petersburg, Clearwater, Ft. Myers and Estero. At the latter place it was common on the dry grasses in the open pine barrens.

64. ***Lygæus mimulus*** Stal.

This species was common on the prairies at Haw Creek near Crescent City and I took single examples at St. Petersburg and Estero. Superficially it closely resembles *lincola* but may be distinguished by the rufous immaculate anterior lobe of the pronotum, and the pale orbits of the eyes and knees. The pale margin of the membrane also is nearly obsolete.

65. ***Lygæus facetus*** Say.

Tampa. A single specimen swept from the dry fields east of the city. The inner sutures of the elytra are slenderly pale in this individual and the hind margin is concolorous.

66. *Lygæus albulus* Distant.

At Crescent City I took two examples of what I believe may be a dark form of this species, The typical *albulus* as I identify it, I have taken at Denver and Ft. Collins, Colorado, and have received others from Prof. Wickham that were taken at Marysville, Utah. The western specimens have the elytra dark rufous brown with their margins paler. The present examples from Florida have the elytra almost black with most of the costa and the scutellar margins rufous. In all the basal angle of the membrane is deep black followed by a conspicuous white mark, and a smaller one adjoins the tip of the corium. Dr. Uhler's description of *Lygæosoma solida* agrees very closely with this species.

67. *Nysius californicus* Stal.

Abundant everywhere I collected in Florida.

68. *Belonochilus koreshanus* n. sp.

Smaller and darker than *numenius*. Head more slender anteriorly, the tylus being a little more produced and exceeding the cheeks by at least its own width; ocelli placed distinctly nearer together than in the allied species; scarcely more distant from one another than from the eye. Bucculæ distinctly elevated as far as the base of the antennæ where they become evanescent. Second joint of the antennæ hardly longer than the third, slightly clavate at tip. Scutellum a little longer than in *numenius*. Hind margin of the corium almost straight, scarcely angled at the discal nervure. Anterior femora unarmed. Rostrum normally reaching nearly to the apex of the sixth ventral segment; sometimes shorter, in one specimen not surpassing the fourth segment. Color clear cinerous or slightly tinged with fulvous; head, pronotum, scutellum and pectus coarsely and deeply punctured with brown or fuscous. Antennæ rufous, first joint and extreme tip of the second and third grey, an annulus on the first joint, the clavate apex of the second joint and the apical joint dark brown or blackish, the latter paler at tip; a cloud about the ocelli extended as a smooth line interior to the eye, transverse incised line on the pronotum, narrow smooth basal margins of the scutellum, mesosternum, median line and apex of the rostrum, about two lines of obscure linear marks on each side of the pectus and the tips of the tarsi black; a line on either side of the tylus at base, an oblique mark near the inner angle of the eye, two vittæ before the antennæ, the inferior obscurely extended along either side of the rostral canal, a few marks on the elytral nervures, a broken vitta along the middle of the membrane, the disk of the venter and sometimes a few marginal or submarginal points, fuscous or blackish. Membrane whitish hyaline. Tergum black with the middle line and connexivum broadly castaneous, the margins of the latter pale interrupted with black; margin of the coxal cavities and the thickened

osteolar orifices whitish as are also the carinate median line of the pronotum and scutellum and the bucculae. Legs pale, the femora dotted with fuscous, the base and apex of the tibiae sometimes darker. Wings hyaline, highly iridescent. Whole surface of the body clothed with a minute grey pubescence. Length 5mm.

Described from numerous examples taken at Ft. Myers and Estero. At the latter place I found them abundant on a low branching hirsute labiate plant locally called "pennyroyal". The flowers of this plant form compact heads something like those of the crimson clover, and among the bracts of these this insect could be found by the hundred in all stages of growth. I found them in greatest abundance on the grounds of the Korshian Unity, whose guest it was my good fortune to be while I was collecting at Estero and to whom I take pleasure in dedicating this interesting addition to our fauna.

I have tried in vain to identify this insect with *Lygaeus scolopax* of Say which however seems to be a quite distinct insect that may not pertain to this genus at all.

Belonochilus numenius Say is a much larger and paler species with a black spine on the anterior femora. The length of the rostrum seems to be variable here as in *korshianus*. It is rare about Buffalo but some years ago Mr. Otto Heidemann helped me to secure a good series from a sycamore tree at Washington, D. C.

69. ***Ninus notabilis*** Distant.

I found this insect very abundant everywhere I collected in Florida in sweeping grass and low weeds in damp places and about cultivated fields. The prominent eyes, dark castaneous color, pale almost greenish abdomen, and hyaline elytra with a strong sinuation at the base of the costa, will readily distinguish this tiny species. Mrs. Slosson has sent me specimens from Belleair and I took one in Jamaica.

70. ***Cymus breviceps*** Stal.

I found this insect abundant on the marshy borders of Lake Monroe at Sanford and took representatives at Crescent City, St. Petersburg and Tampa and Mrs. Slosson has found it at Biscayne Bay. It has much the aspect of *luridus* but is smaller being about the size of *angustatus* from which it may be distinguished by its pale color and the longer basal joint of the antennae.

71. *Cymus bellus* n. sp.

Form of *angustatus* but much smaller and marked with black and white on a testaceous ground. Head short and broad, much swollen across the base, strongly punctured; tylus much deflected, viewed from above short and broad, but little longer than the short pointed cheeks. Eyes not prominent. Basal joint of the antennæ thick, cylindrical, as broad as the tylus which it exceeds by one half its length; second about one third the length of the first; third considerably longer than the second and like it slender and feebly clavate at apex; fourth about equal to the first, fusiform. Bucculæ prominent, rounded, thick and punctured like the cheeks and tylus with which they are confused. Rostrum attaining the intermediate coxæ; first joint not quite reaching the base of the head. Pronotum strongly convex posteriorly; lateral margins sinuated just before the humeri, almost rectilinear anterior to this sinus; median carina distinct for a short space before the middle; anterior edge elevated and thin; surface coarsely and regularly punctured. Scutellum short carinate posteriorly. Elytra coriaceous, punctured; apical margin rather strongly sinuated near its apex. Length 3mm.



CYMUS BELLUS

General color castaneous. Head deep black; antennæ testaceous, darker or castaneous on the apical joint; first joint deep black as far as the tip of the tylus, its apex white. Pronotum shading to black posteriorly, at least in the males; anterior edge whitish. Scutellum dark castaneous becoming black at apex, sometimes white on either side. Elytra testaceous becoming a little darker inwardly and along the base of the costa; extreme tip of the clavus and slender hind margin of the corium black; membrane whitish hyaline with a narrow median fuscous vitta. Beneath castaneous; the legs a little paler, claws black.

Sevenoaks. Described from numerous examples swept from a fine grass or more probably a *Juncus* growing on one of the dry open depressions that are common in the interminable pine barrens of Florida. This is a tiny but very pretty species with much the aspect of certain of the Tingids. I have received from Mr. W. J. Gerhard a much paler specimen taken at St. Augustine, Fla. In this individual the intense black of the head and basal joint of the antennæ persists and well distinguishes the species.

72. *Ischnodemus rufipes* n. sp.

Aspect of *falicus* but a little larger. Black, opaque, clothed with a minute cinerous pubescence; hind margin of the pronotum more or less castaneous; antennæ slightly tinged with castaneous basally; tergum and borders of the venter shading to castaneous, the edge of the connexivum

pallid; legs pale rufous, immaculate or nearly so. Antennæ stout, sparsely clothed with hairs, basal joint short, but little surpassing the head: second and fourth equal, the latter fusiform and pallid at tip in some examples; third distinctly shorter and like the second slightly thickened at tip. Rostrum pale rufous, almost exactly reaching the base of the prosternum; second joint extending for nearly half its length beyond the base of the head. Elytra in macropterous examples lurid white; clavus with the scutellar margins slenderly and faintly infuscated; commissural margins broadly infuscated; corium tinged with fulvous along the costa; inner nervure and apical at base heavily blackish; costal area becoming coriaceous and castaneous or blackish at apex, this castaneous color extending up the apical margin to meet the marking on the inner nervure; large discal area of the corium immaculate; membrane marked with a brown cloud near the apex of the corium and a fainter cloud on either side at the middle of the margin; nervures except the median more or less infuscated. Elytra of the brachypterous form reaching to the second tergal segment; testaceous or brownish with a narrow white membrane. Length of macropterous form 5 mm.

Described from four macropterous and four brachypterous examples captured at Crescent City, Clearwater and Estero, and one pair taken by Mrs. Slosson at Lake Worth. This species is near *falicus* but it is a little larger, the disk of the corium and clavus are immaculate, not veined with fuscous as in *falicus*; the veins of the membrane are less heavily infuscated and the rostrum is longer. It is still nearer *præcultus* Distant but the color of the antennæ and the markings of the elytra sufficiently distinguish it. In *falicus* the terminal three joints of the antennæ are subequal, the second joint of the rostrum does not nearly attain the base of the head, and the whole rostrum is castaneous or black. In *rufipes* the oblique hind margins of the fifth ventral segment of the female meet on the median line close to the base of the segment while in *falicus* they terminate under the margin of the fourth segment some distance either side of the median line.

73. *Ischnodemus badius* n. sp.

Allied to *Salleti*. Brachypterous form: Long and narrow; castaneous or at times almost black, darker beneath. Superior surface of the head and pronotum and the legs paler or even testaceous. Connexivum testaceous. Scutellum and sometimes a submarginal vitta on the tergum bordering the connexivum and including a row of black points, fuscous. In a few examples the head and anterior margin of the pronotum are also black. Tylus broader than in *falicus*. Antennæ shading to black at apex; first joint stout, exceeding the tylus by one third of its length; remaining joints of about equal thickness, more slender at apex; second and fourth subequal; third distinctly shorter. Rostrum attaining the intermediate coxæ; second joint

surpassing the base of the head by one half its length. Pronotum smooth, oblong; sides straight behind, rounding anteriorly slightly constricted by a broad punctured band behind the middle; anterior lobe with a deep longitudinal furrow ending before in a feebly punctured submarginal line. Elytra very short and narrow, reaching to the base of the second dorsal segment of the abdomen; testaceous brown with an angled fuscous shade bordering the claval suture and apical margin; membrane narrow, whitish. Length 5-7 mm.

Described from fifteen examples which were swept from marsh grass along the shore of Tampa Bay at St. Petersburg. This species may be distinguished by its castaneous color and the oblong smooth pronotum with a conspicuous longitudinal discal furrow.

74. **Ischnodemus lobatus** n. sp.

Closely allied to the preceding. Black, covered with a minute grey pubescence; base of the antennæ, rostrum and legs rufous; lobate posterior angles of the pronotum and the elytra testaceous, the latter obscurely veined and clouded with blackish posteriorly. Membrane short, reaching the middle of the second segment of the tergum; white with two or three fuscous veins. Pronotum rather short, hind edge deeply arcuated; sides parallel posteriorly then abruptly approaching to the narrow apex; median longitudinal furrow nearly obsolete; disk anteriorly with a large smooth intensely black mark on either side. Antennæ stout, basal joint short-oval, but little thicker than the remaining joints; second and fourth subequal; third a little shorter. Rostrum almost attaining the intermediate coxæ; second joint surpassing the base of the head by more than half its length. Length 6 mm.

Described from one brachypterous female taken at Estero.

75. **Blissus leucopterus** Say.

One small macropterous example of the common chinch bug was taken at Ft. Myers and a larger brachypterous one at Sanford. I was constantly on the lookout for this insect but saw only these two.

76. **Geocoris bullatus** Say.

Of this species I took one female at Crescent City, a male at Tampa and another at Estero. It evidently was rare in Florida but farther north replaces *punctipes*.

77. **Geocoris punctipes** Say.

Abundant everywhere I collected in Florida. It strongly resembles *bullatus* but may readily be distinguished by the

head which in *punctipes* is flattish, smooth and polished, and marked by a longitudinal line crossed at about the middle by a sinuated transverse one. In *bullatus* the head is convex, finely punctured or shagreened and without incised lines on the disk. There are also differences in color and markings and in *bullatus* there are two conspicuous smooth pale spots in the callosities of the pronotum which in *punctipes* are but vaguely indicated. Prof. Montondon has kindly studied my material in this genus and these determinations are made by comparison with this material.

78. ***Geocoris uliginosus* Say.**

I took this species at Crescent City, Sanford and Ft. Myers but did not find it at all common. The males have pale legs and antennæ. Mrs. Slosson has taken at Belleair the variety of this species named *speculator* by Montondon.

79. ***Oedancala dorsilinea* A. & S.**

I found this species abundant everywhere I collected in Florida. There can, I think, be little if any question as to the correct determination of this species and of our more northern *dorsalis* Fitch, although Amyot and Serville make their figure proportionately too broad for the southern form to which their description almost perfectly applies. I have however been unable to satisfy myself as to the identity of *crassimana* Fabricius which he describes as having the anterior femora unarmed. If his description applies to either of our species I believe it must be *dorsalis* as indicated by Stal. This southern species may be distinguished from our northern *dorsalis* by its having the first joint of the antennæ nearly or quite as long as the two succeeding together while in *dorsalis* it is nearly one third shorter. In *dorsilinea*, too, the calloused vittæ of the scutellum are generally shorter; the ground color is paler, especially beneath; the anterior femora are not black beneath; there is a brown point on the hind margin of each elytron and the form of the whole insect is decidedly longer and narrower.

80. ***Paromius longulus* Dallas.**

Taken at Crescent City, St. Petersburg, Ft. Myers and Estero. It seemed to be common.

81. **Ligyrocoris abdominalis** Guerin.

A single dark specimen was taken from the borders of a garden at Ft. Myers. Mrs. Slosson has taken it at Lake Worth.

82. **Ligyrocoris multispinus** Stal?

One small dark example was taken at Sanford. This has the head and pronotum entirely black except for a few obscure vittæ on the posterior lobe of the latter, and it is but six millimetres in length. Otherwise it agrees well with Stal's description and Distant's figure.

I searched diligently for a specimen of *L. litigious* Stal which has been taken at Biscayne Bay by Mrs. Slosson but was unable to find one.

83. **Myodocha serripes** Olivier.

One small larva was taken at St. Petersburg.

84. **Heræus plebejus** Stal.

One example taken by sweeping at Sanford.

85. **Pamera vincta** Say.

Common everywhere I collected in Florida. This is the *parvula* of Dallas.

86. **Pamera bilobata** Say.

Another common species found everywhere in the state.

87. **Pamera bilobata** var. **scutellata** Dallas.

At Crescent City I took one example of what for the want of a better determination I am compelled to identify with the above species of Dallas. A series would, I believe, show this to be a good species and perhaps not *scutellata* at all. It has the head more porrect and the base of the fourth antennal joint pale; the ground color is also paler and the anterior femora are much more swollen.

88. **Pamera basalis** Dallas.

Crescent City; one example.

89. **Ptochiomera nodosa** Say.

Crescent City; one macropterous example.

90. *Ptochiomera antennata* n. sp.

Form of *clavigera* but with more slender antenna. Castaneous or fusco-castaneous, very minutely sericeous pubescent on the head, anterior lobe of the pronotum and lower surface; posterior lobe of the pronotum, scutellum and elytra testaceous or somewhat tinged with castaneous, and coarsely punctured with fuscous; the punctures on the elytra forming well marked rows along the principal nervures; five longitudinal vittæ on the posterior lobe of the pronotum, the median line of the scutellum, a longitudinal line and two costal spots beyond the middle of the corium, fuscous or blackish; extreme humeral angles, tip of the scutellum, two marks on the apical margin of the corium and the costa pale or whitish. Membrane slightly infuscated, the nervures paler. Beneath quite uniformly castaneous, a little darkened on the venter, with paler marks about the insertion of the legs and on the stigmata; the latero-posterior angles or "flaps" of the propleura and metapleura whitish, the former with a fuscous discal mark. Rostrum and legs pale, the femora, especially the anterior, infuscated. Antennæ rather short and stout; basal joint cylindrical, as thick as the third, surpassing the tylus by one half its length; remaining joints regularly increasing in thickness from the slender base of the second; the apical fusiform, paler beyond its middle, about the length of the second; third shortest. Length scant 3mm.

Described from one female specimen that I took running on a hot sand bank by the trolley tracks at Tampa, May 2d. Prof. F. H. Snow has sent me for study another female which differs only in being more ferruginous in color. It was taken by him on the Santa Rita Mts. in Arizona at an altitude of 5,000 to 8,000 feet. This species is nearest to *clavigera* Uhler but the length of the antennal joints are different and the apical two are much less thickened. The posterior lobe of the pronotum is also shorter and the elytral markings are different.

Family Largidæ.

91. *Largus succinctus* Linneus.

Sanford, Sevenoaks and Estero. These specimens vary much in color but all are rather light. The western specimens in my collection are from California and are almost black with the rufous border of the pronotum, elytra and abdomen very conspicuous.

For some reason I was unable to find a single specimen of *Dysdercus* in Florida where Mrs. Slosson has taken at least three species.

Family Tingidæ.

92. *Corythuca marmorata* Uhler.

Det. Myers; one example only. This is intermediate in size between our large northern specimens and the small ones taken by me at Montego Bay, Jamaica, and I feel confident that they represent but a single species.

93. *Corythuca floridana* Heidemann.

Of this little species I took numerous examples from the bushes growing along the southern shore of Lake Stella at Crescent City. It is somewhat allied to *gossypi* Fabr. and *marmorata* Uhler but sufficiently distinct from either. It has much the shape of *unifasciata* Champ. as figured in the *Biologia* but it is smaller and less spinose and the cresting is different. Mr. Heidemann's description follows this paper.

94. *Teleonemia Belfragii* Stal.

Closely related to *notata* Champion but smaller with more slender antennæ and paler colors. Whitish testaceous or more or less tinged with ferruginous; head, pronotum anteriorly and the abdomen more distinctly ferruginous; head and lower surface covered with a mealy pubescence. Anterior spines of the head a little longer than in *sacchari*, the median suberect. Antennæ more slender than in any other species known to me, clothed with a very minute pubescence; pale whitish testaceous; tip of the first and second and whole of the apical joint fuscous brown; bucculæ and lateral dorsal spine whitish. Pronotum tinged with ferruginous anteriorly; the strong carinæ and the apex and anterior margin broadly whitish, the latter quite deeply bisinuate, the middle and anterior angles being well produced and subacute; the triangular posterior portion obtuse, scarcely if at all areolate. Elytra mostly fuscous with the base and two marginal spots on the discoidal area and a large cloud on the base of the membrane subhyaline and including a fuscous apical spot. Costal membrane rather wide for this genus, the transverse nervures strong, brown, about four or five of them black, these areoles longer than wide. Wings fuscous, at least at apex. Legs pale or whitish; the knees and tips of the tibiæ brown; tarsi black. Length $3\frac{1}{2}$ mm.

Three examples were taken at Crescent City and Sanford. I have redescribed this species as Stal's description is altogether insufficient and even with the aid of Champion's figure in the *Biologia* I could not finally satisfy myself as to its identity. Mr. Heidemann has however very kindly compared my specimens with undoubted examples of *Belfragii* in the National Museum and pronounces them identical. Mrs. Slosson reports this species from Biscayne Bay where she has taken so many rare and interesting Hemiptera.

95. *Atheas exiguus* Heidemann.

I took a good series of this insect at Sevenoaks from a low plant with small leaves having much the aspect of wild indigo. It is described by Mr. Heidemann in a paper in this number of the Bulletin.

Family Phymatidæ.

96. *Phymata erosa* Guerini L. & S.

This West Indian variety of *erosa* has thus far been recorded from Cuba only. I took it in abundance at Ft. Myers and Estero and found it in less numbers as far north as Crescent City. Mr. Gustav Beyer of New York has kindly sent me specimens of this same variety taken by him at Key Largo, Fla. It may be distinguished from *fasciata* by the strongly expanded pronotal margin having the humeral portion behind the deep median notch acutely bidentate. The abdomen is also more broadly and acutely expanded at the fourth segment.

97. *Phymata vicina* Handlirsch.

At Sanford I took a single example that I feel quite certain belongs to this species and from Prof. John Barlow I have received another taken by him at Kingston, R. I. Mr. Heidemann has examined my Florida specimen and agrees with me in this determination. These specimens agree in every respect with the description given by Handlirsch except in color. Both are males and are black varied with pale yellow or whitish on the abdomen posteriorly and basally at either side, and there are two white marginal spots on either side of the pronotum ante-

riorly. The apical two joints of the antennæ and the knees, tibiæ and tarsi of the intermediate and posterior feet are also pale and the elytra are testaceous brown. The apical bifurcations of the head are directed outward and forward, not forward only as shown in Handlirsch's figure. This variation from the type in color is no more than we find in several other species in this genus. The discovery of this species in Rhode Island extends its range far to the north.

98. *Macrocephalus cimicoides* Swederus.

Tampa; one example. This species is very close to *notatus* from Central America but the second and third joints of the antennæ are shorter and broader and I follow Handlirsch in considering them distinct.

99. *Macrocephalus prehensilis* Fabricius.

Sanford and St. Petersburg. This is a much smaller species than the preceding with the scutellar keel but slightly thickened at base. It seems to be widely distributed through the warmer portions of the United States.

Family Aradidæ.

100. *Aradus gracilicornis* Stal.

I took a single example of this species at Crescent City and Mrs. Slosson has several taken in Florida. It is very near *lugubris* but is a more slender insect and has a very different male genital segment.

101. *Aradus Falleni* Stal.

Described from Brazil and heretofore reported from so far north as Washington, D. C. I took it at Crescent City, Sanford, St. Petersburg and Clearwater. With the exception of *cinnamomeus* this is the smallest *Aradus* known to me. It may be distinguished from the other members of the *lugubris* group by its thicker and shorter antennæ the second joint of which is distinctly shorter than the apical two together.

102. *Mezira granulata* Say.

Taken in numbers from under the loose bark, or more correctly leaf scales, of a rotten palmetto palm on the prairies

at Haw Creek near Crescent City. This generic name now replaces *Brachyrhynchus* which is preoccupied. These were the only Aradids taken by me but Mrs. Slosson has reported a number more including the rare southern *Calisius pallipes* Stal.

Family Reduviidæ.

103. **Ploiariodes errabunda** Say.

Taken at Crescent City, Sanford, Tampa and Ft. Myers.

104. **Emesa longipes** DeGeer.

Crescent City; nymphs and adults taken together.

105. **Stenopoda culiciformis** Fabricius.

Ft. Myers; one nymph.

106. **Conorhinus sanguisugus** Le Conte.

Estero. Sometimes troublesome about houses.

107. **Sirthenea carinata** Fabricius.

Clearwater; one example taken at electric light. This specimen bit viciously when captured producing a wound as painful as that inflicted by the Notonectas.

108. **Ectrichodia cruciata** Say.

Crescent City; one example.

109. **Apiomerus crassipes** Fabricius.

Crescent City, St. Petersburg, Clearwater, Tampa and Estero. Not uncommon and exhibiting no great variation.

110. **Zelus bilobus** Say.

Crescent City, Sanford and Estero. In this species the legs and antennæ are entirely black; in *longipes* the legs are annulated while in *rufus* the legs and antennæ all are annulated. In *bilobus* and *rufus* the venter is rufous but in *longipes* it is banded with black. These forms are very close and might perhaps be arranged as varieties of one species as was done by Stal in his Hemiptera Mexicana.

111. **Zelus cervicalis** Stal.

Abundant everywhere I collected in Florida.

112. **Pindus socius** Uhler.

Crescent City; one example. This individual differs from western material in my collection in having the pronotum narrower and the feet immaculate.

113. **Pselliopus cinctus** Fabricius.

Crescent City; one example only.

114. **Repipta taurus** Fabricius.

Crescent City, Sanford and Clearwater. Not uncommon.

115. **Atrachelus cinereus** Fabricius.

Not uncommon at most places where I collected.

116. **Arilus cristatus** Linneus.

The young of this species were taken occasionally at Crescent City and elsewhere.

117. **Sinea spinipes** Herrick-Schæffer.

I took this species as far south only as St. Petersburg. In my collection are examples from Key Largo, Fla., Atlanta, Ga. and Kansas.

118. **Sinea Rileyi** Montondon.

Taken at nearly all stations where I collected in Florida. At Estero it was abundant but was more rarely met with toward the northern parts of the state. It can be separated from the preceding species by the shorter spines on the anterior lobe of the vertex and the concolorous antennæ.

Family Capsidæ.

119. **Monolocoris filicis** Linneus.

Sanford. Not uncommon on ferns. Paler than is usual in *filicis* with the tip of the second antennal joint black.

120. *Pycnoderes insignis* Reuter.

Crescent City, Sanford, Sevenoaks and Ft. Myers. This is a smooth deep black species with the antennæ, legs and apex of the membrane white. I have taken this form at Gowanda, N. Y.

121. *Pycnoderes* sp.

Very closely allied to the following but the antennæ and legs are pale with the apical half of the hind femora black. I took one example at Sanford on April 26th.

122. *Sixeonotus tenebrosus* Distant.

Near *P. insignis* but smaller with the basal two joints of the antennæ and the legs except the tarsi black. The hind edge of the pronotum is straight, not at all emarginate as in the allied species. I took one example at Clearwater.

123. *Cyrtocapsus caliginus* Stal.

Crescent City; four examples. A subtropical form which I took in Jamaica.

124. *Pœcilocapsus nigriger* Stal.

Not uncommon at all localities. This species has the head and anterior portion of the pronotum bright fulvous and the cuneus has a large central black spot. Otherwise it differs little from our northern *lineatus* Fabr.

Dr. Distant has very kindly compared this form with the Mexican material figured in the *Biologia* and reports that they agree in all essential particulars.

125. *Pœciloscytus basalis* Reuter.

Abundant everywhere I collected in Florida, and as elsewhere showing much variation in the extent and intensity of its markings.

126. *Polymerus americanus* Reuter, variety.

Sanford; two examples. Entirely black and not at all pubescent; slender costal margins, nervures of the membrane and apical two joints of the antennæ whitish; legs pale, the femora orange. Otherwise like the northern specimens of this species.

127. **Lygus tenellus** Uhler, MS.

Sevenoaks and Crescent City. These specimens agree in every respect with northern material. No description of this species has ever been published.

128. **Lygus apicalis** var. **prasinus** Reuter.

Taken at Sanford, Tampa, Sevenoaks, and at Ft. Myers where it seemed to be abundant. A subtropical species that I did not take in the northern part of the state.

129. **Lygus olivaceus** Reuter.

Abundant everywhere in Florida. Dr. Reuter described this species from material taken by me in Jamaica.

130. **Lygus** sp.

A small but very neat little species near the preceding, which I took only at Sevenoaks.

131. **Lygus?** sp.

One example of a small pale green species which may be immature was taken at Sevenoaks.

132. **Eustictus grossus** Uhler.

One example was beaten from trees in a grove at Crescent City. This genus which includes also *Megacolum catulum* Uhler and *M. pusillum* Uhler has only recently been founded by Dr. Reuter.

133. **Eustictus mundus** Uhler.

One damaged specimen of this species was beaten from bushes at the northern end of Lake Stella at Crescent City. In this species the scutellum is piceous and the fuscous band at the apex of the elytra covers most of the cuneus excepting its outer margin. The membrane is quite strongly infuscated with the nervures darker. It is very closely allied to the western *pusillus* Uhler.

134. **Creontiades rubrinervis** Stal.

Not uncommon at all localities. Dr. Distant now merges genus *Creontiades* with *Megacolum*.

135. **Creontiades** sp.

Swept from low oak bushes at Estero. This is a smaller species than *rubrincravis*; pale yellowish in color with the tibiae and slender margins of the elytra clear bright green and the head and a basal cloud on the pronotum reddish fulvous.

136. **Neurocolpus nubilus** Say.

One example with the corium almost uniformly dark rufous was taken at Sevenoaks.

137. **Phytocoris eximius** Reuter.

Crescent City and Sevenoaks. The six examples taken show the usual variation in depth of color.

138. **Phytocoris** sp.

Estero; one example. Allied to the preceding and *puella*.

139. **Phytocoris** sp.

Sevenoaks. A small dark rufous species a series of which was swept from coarse grasses in a swampy opening in the pine forests.

140. **Phytocoris antennalis** Reuter.

Common on the dry sparse grasses in the pine barrens everywhere south of Sanford. This is a black insect with white points on the elytra and has much the aspect of certain species of *Fulvius*.

141. **Resthenia insitiva** Say.

Crescent City; three examples.

142. **Resthenia** sp.

Three examples of what I take to be variations of a single species near *thoracica* Distant were taken at different localities. One from Crescent City is sanguineous with the eyes, antennæ, legs and elytra black. Another from St. Petersburg differs in having the disk of the pronotum also black. The third is like the last variety except that the costal margin is sanguineous. It is from Clearwater. These all differ from *insitiva* in having the rostrum longer, attaining the posterior coxæ.

143. **Resthenia** sp.

This was a common species at all localities. It has the body sanguineous with the disk of the head, antennæ, legs, apex of the abdomen, scutellum and elytra, its costal margin excepted, black. It has a rostrum reaching to the intermediate coxæ. Sometimes the sanguineous portions are lighter or even yellowish.

144. **Resthenia insignis** Say.

Common and widely distributed in Florida.

145. **Trigonotylus pulcher** Reuter.

Taken frequently at Crescent City, Sanford, St. Petersburg and Ft. Myers.

146. **Collaria oculata** Reuter.

Crescent City and Sevenoaks; two examples.

147. **Lomatopleura** sp.

Crescent City and Sanford. I have taken this species at Phoenicia and Lancaster, N. Y.

148. **Haltica Uhleri** Girard.

Of this common and widely distributed species I took a male at Crescent City and a female at Sanford.

149. **Garganus fusiformis** Say.

Crescent City. Not common.

150. **Coquillettia mimetica** Osborn.

Two males and three females from Crescent City. This interesting insect is allied to *insignis* Uhler but it is smaller, the colors are darker, the ground color of the elytra being fulvous where it is olive in *insignis*. The shape of the head is also quite distinctive; in *mimetica* this is narrowed behind the eyes in a neck which is almost as long as the width of the eye. The females look very much like a large black ant but the long legs and different movements will quickly reveal their identity to the practised collector. Mrs. Slosson has taken this at Jacksonville.

151. **Ceratopsus pumilus** Uhler.

Crescent City and Sanford. This is a smaller and paler form which Mr. Heideman believes is not specifically distinct from *pumilus*.

152. **Ceratopsus** sp. nov.?

This is a very pretty species of a pale greenish color with red head and antennæ which seems to be still undescribed. I beat it occasionally from low bushes of a broad leaved oak at Estero, and found one at Sevenoaks.

153. **Pumilla** sp.

So determined by Mr. Heidemann. It is a black little species resembling the West Indian *Ceratopsus nigropicus* Reuter. I took it at Crescent City and Sevenoaks.

154. **Dicyphus separatus** Uhler.

Ft. Myers; one example. This is smaller than our northern specimens of this species but Mr. Heidemann thinks it conspecific.

155. **Cyrtopeltis tenuis** Reuter?

Ft. Myers; two examples. Mr. Heidemann has very kindly compared these with the Reuter co-types and reports that they are very close if not identical.

156. **Macrotylus** sp.

A single example of a tiny little species that is very close to the northern *annuus* Reuter was taken at Estero.

157. **Reuteroscopus ornatus** Reuter.

One small but clearly marked and typical specimen was taken at Sanford.

158. **Reuteroscopus uvidus** Distant.

Crescent City; one example. I have taken this species in New York, New Jersey and Colorado. Dr. Uhler places it as a synonym of the preceding and Distant's var. "a" seems to be that species.

159. *Atomoscelis seriatus* Reuter.

Sevenoaks and Tampa. Determined by Mr. Heidemann. This species has much the aspect of *Psallus atomophorus* Reuter from Jamaica.

160. *Psallus sulphureus* Reuter.

Taken in numbers from a low clammy weed which was growing on open depressions in the pine barrens at Sevenoaks. Scattering examples were also taken at Tampa and Estero. This is a subtropical form described from material taken by me in Jamaica.

161. *Psallus* sp.

St. Petersburg; one example. This species is near *juniperi* Heid.

162. *Psallus* sp.

A small species with much the aspect of *Rhinacloa forticornis* Reuter was taken at Crescent City, Sevenoaks, Ft. Myers and Estero.

163. *Psallus* sp.

This species is a little larger and more strongly colored than the preceding. One example was taken at Estero.

164. *Sthenarus* sp.

Crescent City and Sevenoaks. A small black species near *plebejus* Reuter from Jamaica.

165. Another Capsid probably representing a new genus and species was taken in two examples at Crescent City.

Family Gelastocoridæ.

166. *Gelastocoris* sp. nov.?

Not uncommon along the shore of Lake Stella at Crescent City and single examples were taken at St. Petersburg and Ft. Myers. This and the following two were kindly determined for me by Mr. Bueno.

Family Nepidæ.

167. *Benacus griseus* Say.

Abundant about the electric lights at Clearwater.

168. *Amorgius Uhleri* Montondon.

With the preceding and equally abundant.

Suborder Homoptera.

Family Cicadidæ.

169. *Cicada viridifascia* Walker.

A pretty little species closely resembling the *canicularis* group from the northern states. I took several males from a tall bunch grass growing along the shore at the southern end of Estero Island. The day was cool and rainy and these insects were not at all active and were easily traced by their short, hoarse note. They vary considerable in the extent of the black markings above but the broad green band on the hind margin of the pronotum is characteristic. Dr. Distant places *Cicada sordidata* Uhler as a synonym of this species although the hind margin of the pronotum is described as piceous in that species.

170. *Cicada hieroglyphica* Say.

Apparently common throughout the southern portion of Florida. I was unable to capture any in the pine woods if indeed they live there but in the clearings along the Estero River they were abundant on the low oak bushes. They were not particularly shy and I was able to approach sometimes very close to them before they would stop their shrill and long continued notes. As in the case of the preceding species I took only males. I did not feel that I could spare the time to hunt for the silent females among the dense foliage of the oak bushes.

171. *Melampsalta parvula* Say.

One tiny male was beaten from a small tree of a broad-leaved oak at Tampa. This specimen made a surprisingly loud noise for so small an insect. It is pale green, almost immaculate, and measures scarcely 12mm. to the tip of the closed elytra.

Family Fulgoridæ.

Subfamily Fulgorinæ.

172. *Cyrpoptus Belfragei* Stal

I have one large female from Tampa which I believe belongs to this species. It is almost certainly specifically identical with a smaller and paler male from Virginia sent to me by Mr. Heidemann under this name and in all essential particulars answers to Stal's description. In this female the elytra are largely opaque and fuscous with a small pale spot on the clavus near the middle of its sutural margin and a similar mark along the base of the inner ulnar nervure; the apical portion of the costal area is paler and subhyaline interrupted by an oblique fuscous cloud near the apex thus indicating the pale oblique vitta described in the next species, and there are a few pale points toward the inner apical angle. In this species the outer ulnar nervure is forked close to its base and its inner branch is again forked beyond the middle. It is rather larger than the next and the genital characters are quite distinct.

Stal has described four species in this genus: *Belfragei* from Texas, *suavis*, *nebulosus* and *ferruginosus* from Mexico, the two latter of which were omitted from the *Biologia*. Of *nebulosus* Prof. Wickham has sent me a small but undoubted example taken by him at San Antonio, Texas.

173. *Cyrpoptus Reinecke* n. sp.

Form of *Belfragei* and nearly of the same size but best distinguished by having the posterior one half of the elytra hyaline with its fuscous apex bisected by an oblique hyaline vitta. Length to apex of abdomen 7 to 8 mm.; to tip of the closed elytra 10 to 13 mm

Vertex obviously longer than the pronotum, rounded or but feebly angled before nearly straight across the middle of the basal margin; median line with a broad sulcate carina. Front as in the allied species transverse, longitudinally striate, sides sinuated, apex concavely arcuated. Pronotum very feebly emarginate behind, truncate before; median line carinate; disk either side with a round impressed dot. Scutellum ecarinate or nearly so, marked with two impressed marginal points before the apex. Elytra long obliquely truncated but not as strongly narrowed there as



CYRPOPTUS REINECKE

in *Belfragei*, the outer apical angle rounded; costa feebly sinuated beyond the middle; inner ulnar nervure twice forked beyond the middle, outer ulnar forked near its base but distinctly farther than in the preceding species, its two branches simple until lost in the confused venation of the apical portion. Postocular tubercle subacute. Anterior femora broadly foliaceous, the intermediate narrower.

Color dull testaceous brown, more or less tinged with ferruginous especially on the base of the elytra; vertex, pronotum and scutellum minutely irrorate with paler; face paler testaceous with a still lighter indeterminate apical band which covers the lateral pleural pieces; anterior and intermediate legs black irrorate with pale; the posterior pale irrorate with fuscous; venter fuscous irrorate with pale or testaceous irrorate with fuscous. Elytra ferruginous or almost coccineous on the basal one half, sometimes obscurely clouded with fuscous in places; apical half hyaline, fusco venose, with a large fuscous cloud at apex which is bisected by an oblique hyaline vitta from the outer angle. In pale examples this oblique vitta is strongly distinguished by an irregular fuscous cloud on either side. Wings coccineous at base, then fuscous for a space and again along the immediate apex, the intermediate surface hyaline with fuscous veins.

Described from numerous examples taken at all places where I collected in Florida but more abundantly toward the south. This species is most closely related to *suavis* Stal but the hyaline areas of the elytra are much more extended, the colors seem to be different as is also the form of the vertex. I believe them to be entirely distinct.

It affords me pleasure to dedicate this fine Fulgorid to Mr. Ottomar Reinecke of this city, an experienced collector of the Coleoptera, whose enthusiasm and friendly interest during many years acquaintance has been an inspiration to me in my insect studies.

Subfamily Dictyopharinae.

174. *Dictyophara lingula* VanDuzee.

One example swept from a tall wiry grass near the river at Estero. This species was described last year from material taken by me in New Jersey and a Florida specimen received from Mrs. Slosson.

I took the young of one other species of *Dictyophara* in Florida but these are too immature for me to fix the species.

175. *Scolops desiccatus* Uhler.

Crescent City and Sanford; two examples only. One larva, perhaps of this species, was taken at Sevenoaks.

176. *Phylloscelis atra* Germar.

Taken occasionally at St. Petersburg, Sevenoaks, Ft. Myers and Estero.

177. *Phylloscelis pallescens* Germar.

Not uncommon among the sparse grasses and low huckleberry bushes on the pine barrens at Estero.

Subfamily Tropiduchinæ.178. *Pelitropis rotulata* Van Duzee.

Six examples of this interesting insect were beaten from bushes at Ft. Myers and Estero. These specimens are pale testaceous and only slightly tinged with green.

Subfamily Achillinæ.179. *Catonia picta* VanDuzee.

Estero; two examples. In these the general color is rather more ferruginous than testaceous, becoming darker on the scutellum and base of the elytra and almost piceous on the front where there are two rather narrow transverse white vittæ. The broad transverse pale band on the elytra also is nearly obsolete. Otherwise they do not differ from the type which was from New Jersey.

Subfamily Cixiinæ.180. *Bothriocera undata* Fabricius.

A small dark form probably of this species was taken everywhere I collected in Florida. At Crescent City I found a pale variety abundant among ferns and weeds in a dark shady copse near "lover's lane" on the Miller estate. I also took this pale form at Sevenoaks but elsewhere I found only the darker fuscous form.

181. *Oliarus vicarius* Walker.

Not uncommon in the barren pine woods at Estero and less frequent at Ft. Myers, St. Petersburg, Clearwater and Sevenoaks. In this species the female is larger, reaching a length of 9 mm. at times, and is much more strongly marked

than are the males. In fully colored examples the disk of the mesonotum is much paler or almost rufotestaceous, there is a broad fuscous band across the middle of the elytra and a larger fuscous cloud at apex either of which may be represented by two rows of broken spots.

182. **Oliarus complectus** Ball.

St. Petersburg, Sevenoaks and Estero. Much less abundant than *Occlus decens* Stal which it much resembles.

183. **Cixius dorsivittatus** VanDuzee.

Crescent City; one example. This specimen is less strongly colored than was the unique type taken by Mrs. Slosson in Florida. It is a very distinct species that need not be confounded with any other now known from our country. I described it as *Cixius dorsalis* in the Proceedings of the Academy of Natural Sciences of Philadelphia for December 1907, but as that name proved to be preoccupied I have changed it to that here used.

184. **Occlus decens** Stal.

Abundant at all places especially toward the southern end of the state.

185. **Myndus Slossoni** Ball.

I found this pretty species in great abundance on the prairies at Haw Creek near Crescent City, and more rarely at other localities. It shows much variation in the extent of the pale "saddle" on the dorsal line of the elytra. The head, pronotum and scutellum are always deep picaceous or black.

186. **Myndus enotatus** n. sp.

Very near *Slossoni* and perhaps but a variety of that species. Color soiled yellowish testaceous, almost uniform above or a little darker toward the costal base of the elytra and on the sides of the scutellum; abdomen and beneath quite strongly tinged with fulvous or at times almost rufous; tergum more or less blackish at base. Eyes, oviduct, and hind margins of the meso- and meta-pleura at times, black. Costa narrowly whitish. Length 4 mm.

Described from numerous specimens. This form was swept from the grass on the prairies at Haw Creek in untold thousands and in lesser numbers at other localities farther

south. *Enotatus* is very close to *Slossoni* with which it occurred but the characters separating them seem constant. The front is narrower basally, the expanded divergent apices of the plates in the male genitalia are smaller and narrower, and are distinctly whitish, and the stiles are longer.

187. *Myndus lunatus* n. sp.

Female: Pale straw-yellow or testaceous-yellow varied with white and fuscous. Head rather longer than in most of our species. Vertex long, whitish, its margin strongly carinate, fulvous, slenderly lined with fuscous. Front unusually broad, rapidly widening almost to the straight deeply impressed clypeal suture, its thin expanded sides broadly reflexed and rounded to the base of the clypeus; greenish white in color and marked with a narrow transverse fulvous band at base and a broader one at apex, the latter outlined above by a fuscous or black lunate vitta which may be much extended over the fulvous area; clypeus pale green marked with fuscous or black on either side at base. Pronotum narrow, subangularly emarginate behind, marked with an angular black spot behind either eye and a similar spot below the lateral margin. Eyes black superiorly. Ocelli rufous. Scutellum varied with fuscous on either side, the disk pale between the prominent straight carinae. Elytra varied with fuscous, the most conspicuous marks being a large basal area containing a whitish cloud, a vague vitta beyond the middle, and the apex; the claval suture and one or two of the principal longitudinal nervures lined with fuscous. In fully colored examples there is a fuscous or black spot on the middle of the clavus at the junction of the nervures, another on the costa opposite this, one on the base of the stigma, a larger one behind a white mark on the tip of the clavus, a spot on the transverse veinlet at base of the second apical areole, and a point anterior to this. Nervures obsolete punctate but not dotted. Body beneath whitish varied with fuscous on the sides of the venter; oviduct fuscous or black. Legs pale, the femora fuscous exteriorly. Length nearly 4 mm.

Male: A little smaller than the female. Pale straw yellow becoming fulvous on the sides of the scutellum and abdomen. Vertex and face greenish white, the front showing two transverse fulvous vittae but wanting the fuscous markings found in the female. Elytra without the fuscous markings but showing a white subapical cloud and the black points as described in the female, those on the clavus and costa much reduced or obsolete.

Described from numerous specimens swept from low huckleberry bushes and accompanying weeds and grasses on the dry pine barrens at Sanford, Sevenoaks, Ft. Myers and Estero. This is a very pretty little species distinguished by the broad greenish front banded with fulvous and marked with a fuscous lunule in the female. In one female the fuscous markings of the elytra form a large blackish cloud on the base of the clavus and an elongated mark on the disk of the corium posteriorly against the claval suture.

188. ***Myndus pusillus*** n. sp.

Allied to *radicis* Osborn but much smaller with a narrower and immaculate front. Female: Vertex rather wider than in the allied species, its carinate sides almost parallel. Front moderately broad, distinctly convex in both diameters, strongly carinate. Eyes fuscous. Pronotum very short, the broadly and deeply emarginate hind edge attaining the base of the vertex. Vertex and pronotum pale greenish, the latter with a black mark on either side beneath the eye. Face dull fulvous with whitish carinae. Scutellum fulvous. Tergum more or less embrowned. Beneath pale, tinted with fulvous on the pectoral pieces. Elytra hyaline, immaculate, the nervures obsolete punctate.

Male smaller than the female and without the blackish marks behind the eyes, front greenish white like the vertex. Length $3\frac{1}{2}$ to 4 mm.

Described from one female taken at Crescent City and two males from Sevenoaks. This is the smallest and most delicate Cixiid known to me. It is closely related to *viridis* Ball but is much smaller; the vertex is broader and shorter, scarcely surpassing the eyes; the front is wider at base and fuller and more convex in both diameters; the elytral nervures are more strongly punctate and are obviously infuscated toward the apex; the pygofers of the male genital segment are more produced dorsally so the apical margin is strongly oblique, and the tergum is distinctly marked with blackish.

Subfamily Issinæ.

189. ***Bruchomorpha pallidipes*** Stal.

Of this species I took a small male at Crescent City and a large female at Estero. The female has the anterior and intermediate legs pale brown and the posterior black with pale knees. In the male the legs are fulvous.

190. ***Bruchomorpha suturalis*** Melichar.

The species I place under this name I found common throughout Florida. In the form of the head it is intermediate between *pallidipes* and *tristis*. In the extent of the pale dorsal vitta these individuals vary as do those of *tristis* from a mere indication on the vertex to a broad conspicuous vitta to the apex of the scutellum. In none does this pale vitta attain the tip of the clytra as described by Melichar and as found in Colorado material in my collection, but this character seems to be subject to much variation.

191. ***Bruchomorpha tristis* Stal.**

Crescent City, Sevenoaks, St. Petersburg and Estero. I distinguish this species by the short nearly vertical head. These specimens differ from Stal's description in having a pale dorsal line on the vertex and generally on the pronotum and scutellum but as stated above I believe this character to be subject to variation and not of specific value. Melichar mentions a similarly marked example from Texas. The St. Petersburg specimen is macropterous and has the elytra a little longer than the abdomen; hyaline with the transverse and apical nervures fuscous, those toward the base pale. In some examples the surface about the insertion of the coxæ is fulvous or pallid; occasionally the anterior and intermediate feet are pale brown and the posterior black with pale knees. In others the legs are almost entirely black. I have taken this species in Colorado and at Niagara Falls.

192. ***Bruchomorpha jocosa* Stal.**

This very distinct species I took at Crescent City, Sanford, Sevenoaks, St. Petersburg, Tampa and Ft. Myers. Here the head is even shorter and more vertical than in *tristis*. Normally the base of the clypeus is black beneath and there is a broad fuscous ray on the disk of the elytra which is continued as a curved vitta to the tip of the abdomen. Some of my specimens are darker while one is entirely rufo-testaceous. Four have the fuscous color deepened to blueblack and agree in every respect with Stal's description.

193. ***Naso Robertsoni* Fitch.**

One pair of this rare insect was swept from a fine grass in a clearing in the pine forest at Estero.

194. ***Aphelonema decorata* VanDuzee.**

Taken at Crescent City and St. Petersburg. The bright fulvous and blue-black colors of this species give it a strong superficial resemblance to *Bruchomorpha jocosa* but its generic characters will at once distinguish it.

195. ***Hysteropterum punctiferum* Walker.**

Swept from the sparse vegetation of the interminable pine barrens everywhere I collected in Florida. At Crescent City

they were rare and here and at Sanford where they occurred in numbers they were mostly of the unicolorous form described both by Walker and Uhler. Farther south they became abundant and were marked with brown and fuscous. In fully colored examples from Estero these markings remind one much of those seen in genus *Gelastocoris*.

196. **Thionia simplex** Germar.

I swept three examples of this insect from a grassy field near the shore between Sevenoaks and Green Springs.

Subfamily Acanaloniinae.

197. **Amphiscepa bivittata** Say.

Estero; three examples. These are smaller and paler than those taken farther north.

198. **Amphiscepa pumila** VanDuzec.

I took a good series of this pretty little species on Estero Island. They were swept from a peculiar succulent plant growing along the shore near the line of high tides. The males are but $3\frac{1}{2}$ mm. in length and both sexes are of a uniform clear pea green with the apical margin very slenderly brown in the male and alternated with brown in the female. Immature specimens are brownish testaceous more or less touched with green according to age, and the specimen taken by Mrs. Slosson from which the species was described was probably in this condition as it had not attained the full green coloring.

199. **Acanalonia latifrons** Walker.

Tampa, Ft. Myers and Estero. At Ft. Myers it was not uncommon. The specimens taken by me agree in every respect with the descriptions by Walker and Melichar except that the scutellum shows the two black points found in the South American *florica*. My specimens vary from 9 to 12 mm. in length. This species is quite distinct specifically from the single specimen taken by me in Jamaica and listed as *Servillei* in my report on those Hemiptera. That specimen like these however shows the two black points on the scutellum which are not noticed by either Melichar or Spinola.

Subfamily Flatinæ.**200. *Ormenis pruinosa* Say.**

Sevenoaks and Estero. This species was abundant at all places where I collected in Florida. In the northern portions of the state only larvæ were found but at Estero adults were fairly abundant although imperfectly colored.

201. *Ormenis rufifascia* Walker.

Ft. Myers and Estero, not uncommon; Clearwater, one example. In fully colored individuals the head, pronotum and scutellum are deep green with two broad approximate deep orange longitudinal vittæ which reappear further down on the face; the face is also bordered with orange basally. The sides of the scutellum are pale fulvous as are also the inner and apical margins of the elytra. On the elytra there is but one distinct subapical line of transverse veinlets but a second line is fairly well indicated. This species has the size and general outline of *septentrionalis* but the apical angles of the elytra are more rounded.

202. *Cyarta Melichari* Van Duzee.

Common everywhere in Florida. I found it especially abundant on the dry prairies at Haw Creek near Crescent City and but little less so throughout the monotonous pine forests that cover nearly the whole state. As pointed out by me last year (Proc. Acad. Nat. Sci. Phila., xix, p. 496,) this is distinct from the *Cyarta* taken by me in Jamaica which I now identify as *acuminipennis* Spinola.

203. *Flatoides punctatus* Walker.

Taken occasionally on trees and bushes at all places where I collected in Florida. Most of these specimens are quite strongly tinged with green but some are more testaceous and all when fresh are covered with a gray powder which renders them inconspicuous on the whitish trunks of certain trees on which they most frequently rest.

In Jamaica I took a species which I formerly identified as *Dascalia grisca* Fabricius but I am now convinced that that was an error and that the species is really the *Dascalia acuta* of

Uhler, which pertains to genus *Flatoides* Guerin and is closely related to *punctatus* Walker. In these species the vertex is nearly or quite as long as the pronotum and distinctly angled. I have separated *acutus* from *punctatus* by its smaller size, the blunter apex of the head and the trispinose posterior tibiæ, but these species are very closely related and may not be distinct. *Flatoides lichenosus* Melichar seems to differ only in the dark atoms sprinkled along the nervures of the elytra. It is probable that the Florida specimens noticed by Dr. Uhler under *acutus* pertain to *punctatus* as separated here. Walker's *Elidiptera punctifera* has a very short vertex, according to his description, and may belong to my genus *Eurocalia*.

The forms of *Flatoides* allied to *punctatus* constitute a very puzzling group of species which was placed in *Cyarda* by Stal in 1862 but not in 1866, and in *Dascalia* by Uhler. Stal in 1866 distinguished *Dascalia* from *Flatoides* and its allies by its having the longitudinal nervures of the elytra united by two series of transverse veinlets and at and beyond these simple and parallel; while in *Flatoides* there is at most but one regular series, and the longitudinal nervures are more or less furcate to the apex. As thus distinguished *Dascalia* would include *Elidiptera punctata* Walker and its allies but Melichar adds to the characters named by Stal the short transverse vertex and nearly vertical elytra which have their apical margins in contact for most of their width. As Melichar has studied most of the species listed by Stal under *Dascalia* it seems but reasonable to accept his limitations for the genus. This would necessitate the placing of *Dascalia acuta* and *guttata* of Uhler and *Elidiptera punctata* of Walker in *Flatoides* along with *fuscus* Van Duzee, *lichenosus* Melichar, *griscus* Melichar, *signatus* Melichar and *tortrix* Guerin, in a little group of species which must be considered as typical as it includes Guerin's type species. In his synoptic table of 1866 Stal rightly defines genus *Cyarda* but unwarrantably places his own name after it as authority and misled by this Kirkaldy has renamed "*Cyarda* Stal, 1866" as *Gelastophantia* which name must therefore fall as a synonym of *Cyarda* Walker. If the large genus *Flatoides* has to be dismembered, as is not unlikely, the southern forms with a more simple elytral venation, and including my *monilis* from Jamaica, will have to be renamed unless *Phalænomorpha* A. & S. should prove to be available for this group.

Subfamily Derbinae.

204. *Otiocerus Degeeri* Kirby.

Sevenoaks; one strongly colored example.

205. *Cenchrea fulva* n. sp.

Very closely allied to *Heidemanni* Ball but with a narrower and more deeply channeled front. Elevated margins of the vertex as high as the width of its carinate base. Front distinguished from the vertex by a slight angle but the dividing line not at all carinate; narrow, but little broader at apex; the edges greatly elevated; middle line feebly carinate. Eyes vertical, sinuated behind and strongly narrowed below. Second joint of the antennæ large, ovate, but not nearly attaining the margin of the post-ocular cavity in which it stands; setæ short, black. Pronotum shorter than the dorsal aspect of the vertex, angularly emarginate behind; on either side produced in a semicircular auriculate cavity for the reception of the antennæ; the elevation of the posterior wall of this cavity is about equal to the length of the pronotum. Mesonotum transverse, convex, polished and very obscurely tricarinate on the disk; the obtuse triangular apex depressed. Elytra long and narrow; the outer claval nervure distinctly granulate. Genital plates of the male with their inner margins strongly toothed at the middle leaving a rounded opening at base and an oblong one apically. Length to tip of the abdomen $3\frac{1}{2}$ mm.; to apex of the closed elytra $6\frac{1}{4}$ mm.

Color obscure rufo-fulvous, deeper on the abdomen and paler or sub-testaceous on the elytra; eyes, slender edge of the facial carinæ and stiles of the male black. Wings and plates of the male whitish, the nervures of the former brownish; apical margin of the elytra slightly enfumed and very minutely serrate.

Described from one male taken at Estero. This large species may readily be distinguished by its pinkish color. It differs from the closely related *Heidemanni* Ball by its narrow and deeply sunken vertex and front and the fulvo-testaceous elytra. It has a much more produced vertex than *Uhleri*. Our dark slate colored *Lamenias* differ from these species in having a shorter and broader vertex which is separated from the front by a transverse carina which is sometimes obscure, and in having the margins of the front and vertex much less elevated and the elytra shorter. My *Lamenia flavida* from Jamaica is strictly intermediate between these genera.

206. *Lamenia obscura* Ball.

Taken at Crescent City and Haw Creek. Unfortunately only females were brought home so I cannot be certain of this identification but the specimens agree in almost every particular

with the general characters given by Dr. Ball and as the species is evidently distinct from *vulgaris* and is from one of the type localities of *obscura*. I think there can be little risk of error in placing it with that species. Dr. Ball confirms my determination in so far as that is possible with the poor condition of my material.

Subfamily Delphacinae.

207. **Stenocranus saccharivorus** Westwood.

One example taken at Tampa. So far as I know this is the first recorded occurrence of this pretty little green insect within our territory. It is common in the West Indies.

208. **Stenocranus dorsalis** Fitch.

Not uncommon at Crescent City and Sanford. These specimens are as dark and clearly marked as are any found in the northern states. One male is smaller and paler but probably not distinct.

209. **Stenocranus palactus** VanDuzee.

Crescent City; eight examples. The long vertex, soiled brown color and large tibial spurs will readily distinguish this species.

210. **Megamelanus elongatus** Ball.

Crescent City; not uncommon on a tufted marsh grass growing on the borders of Lake Stella and on a similar and probably identical grass on the gulf coast at St. Petersburg and Estero Island. Some of the females are almost uniformly soiled straw-yellow with the outer carinae of the front margined within with fuscous and the oviduct, two or three points on the basal margins of the venter and a small spot at the apex of the middle apical areole of the elytra, black. Sometimes however the sides of the abdomen above and below are quite broadly infuscated. In the males the general color is darker, the abdomen is largely black and the elytra have a fuscous mark at the inner apical angle covering the two inner two areoles and the apex of the third.

With these I took at Estero and St. Petersburg one male and five females which differ in that the females are marked

almost exactly as are the males of the paler form, and the single male has nearly the whole lower surface including the face and legs, most of the tergum and the whole apex of the elytra black. I cannot see that these differ structurally from *elongatus* of which they are perhaps a dimorphic form.

211. **Megamelanus spartini** Osborn?

I took at St. Petersburg one male that I place here with some hesitation. It is deep shining black with the vertex, disk of the pronotum and scutellum between the lateral carinæ, the second joint of the antennæ, legs, surface about their insertion, and a spot on the base of the tergum, pale yellowish. The commissural margin unevenly and a large spot at the apex of the costal areole of the elytra white. This white commissural margin is enlarged to a round spot at the apex of the clavus opposite to the costal spot. These markings are quite similar to those described by Prof. Osborn for the male of *spartini*, but the vertex is distinctly longer and the front is narrower and less swollen than in my only specimen of *spartini*, which is a female. Further material is needed to connect the present specimen with *spartini*.

212. **Megamelus marginatus** Van Duzee.

At Estero I took two females of this species in which the frontal carinæ are margined with brown only at the apex of the head. Although not really brachypterous the elytra of these specimens are decidedly shorter than in the fully winged form.

213. **Peregrinus maidis** Ashmead.

Estero; four examples. This species certainly was not common when I was in Florida as I looked carefully for it and found but these specimens.

214. **Macrotomella carinata** Van Duzee.

Crescent City and Ft. Myers; two examples. I took this species in Jamaica and described both the genus and species in my report on that collection. This is its first recorded occurrence in the United States.

215. *Pissonotus marginatus* Van Duzee.

I took one brachypterous female at Sevenoaks which agrees in every respect with material taken in New York.

216. *Pissonotus ater* Van Duzee.

Crescent City, Tampa, Sevenoaks and Ft. Myers. Moderately abundant. Most of those taken were macropterous females.

217. *Pissonotus basalis* VanDuzee.

I took a male at Ft. Myers and a female at Estero which agree in all essential particulars with the male from Columbus, Texas, mentioned in my description of this species and bears a superficial resemblance to *Liburnia puella*.

218. *Pissonotus delicatus* VanDuzee.

Of this species I obtained eight females at Crescent City, Sevenoaks and Estero and one male at Estero. These females vary from almost uniform fulvous to ferruginous with the extreme apex of the elytra and of the front pale. In only two specimens is there any indication of the piceous band on the base of the clypeus. Four other males from Estero and Crescent City are dark castaneous with a black interruption on the pale apical border of the elytra and a strong frontal piceous band. They seem to be but a color variety of this species.

219. *Pissonotus brunneus* VanDuzee.

Crescent City; one brachypterous female.

220. *Phyllodinus nitens* n. sp.

Somewhat allied to *Kwabelei* but with much the aspect of *Pissonotus ater* or *delicatus*. Brachypterous female: head distinctly narrower than the pronotum; vertex quadrate; front moderately wide, slightly convex, highly polished and feebly carinate. Pronotum short, scarcely carinate. Elytra reaching onto the second abdominal segment, without visible neuration. Anterior tibiae very broad; foliaceous, about twice the width of the femora. Length $2\frac{1}{2}$ mm.

Color rufo-piceous, darker on the abdomen and anterior tibiae. Elytra clear rufous with a sharply defined white apex; pronotum, except anteriorly, and the posterior tibiae testaceous white. Front concolorous.

Macropterous female: Elytra longer than the abdomen, whitish hyaline, narrowly infuscated at base; nervures slender, concolorous, the marginal brown becoming whitish on base of the commissure. Color piceous black,

paler beneath; base of the pronotum white; tip of the scutellum fulvous. In both forms the antennæ are pale with the basal joint rufous. In this as in the allied species the scutellum is much larger in the macropterous form.

Described from two female examples: one brachypterous from St. Petersburg and one macropterous from Estero. This species may be distinguished from all its congeners by its uniformly colored front. With *Kæbelci* Osb., *fuscous* Osb. and *flabellatus* Ball, it forms a group of species closely resembling *Pissonotus* and distinguished from the typical species *nervatus* by the much narrower head. The present species is peculiar in being highly polished all over.

221. *Stobæra affinis* n. sp.

Very close to *tricarinata* Say but with a shorter vertex, almost unicolorous face and shorter pronotum. Vertex distinctly shorter than broad, the carinæ and fovæ less prominent than in the allied species. Front scarcely parallel, distinctly narrowed from base to apex in the male. Pronotum not longer than the vertex, the carinæ obscure. Color as in *tricarinata* and *concinna*, fusco-testaceous becoming darker on the sides of the thorax; face obscurely mottled and crossed by a faint lighter band below the antennæ; marked with a minute black point on either lateral carina opposite the lower angle of the eye and another pair on the base of the rostrum. Legs whitish conspicuously dotted with fuscous; Elytra whitish hyaline, the white nervures dotted with black and marked with fuscous as in *tricarinata* except that the oblique vitta from the stigma to the inner apical angle is narrower at apex, not widened there after passing the outer oblique vitta. Abdomen mostly pale in the female, more or less blackish in the male. Length to the tip of the elytra scant 4 mm.

Described from four examples taken at Crescent City and Ft. Myers. This species is a little smaller than either *tricarinata* or *concinna* of the former of which it seems to be the southern representative. It has the oblique fuscous vitta found in *tricarinata* but the short vertex and nearly unicolorous front will distinguish it. It is sufficiently distinct from *minuta* Osb. and *concinna* Stal. This latter species has been taken at Biscayne Bay by Mrs. Slosson but I was unable to find it at any of the localities visited by me. It has a longer vertex than *affinis* but shorter than *tricarinata*, the carinæ are sharp and prominent over the apex of the head and the elytra want the oblique vitta at the outer angle. The posterior oblique elytral vitta is broader in *concinna* and covers the apex of the elytra as it does in *pallida* Osborn.

222. *Stobæra pallida* Osborn.

Taken at Crescent City, Ft. Myers and Estero. This is a large species easily distinguished by its sordid fulvous color. Prof. Osborn's description (Ohio Naturalist, v, p. 375, 1905.) will readily identify it.

223. *Stobæra 4-pustulata* n. sp.

Brachypterous form: Pale yellowish testaceous, obscurely varied with darker, marked with a broken black band which crosses the base of the clypeus and sides of the pleural pieces, and with two black pustules on either side of the fourth tergal segment. Length: male $2\frac{1}{2}$; female 3 mm.

Vertex broader and more quadrate with the carinæ weaker than in *tricarinata*. Front long ovate, broader than in *tricarinata*, regularly narrowed at base and apex. Antennæ but moderately flattened, almost as in *Liburnia*. Pronotum short, carinæ rather weak, the lateral almost attaining the hind margin. Elytra reaching the first tergal segment, arcuated at apex. This segment with two polished blunt tubercles on either side placed lengthwise of the segment and near the margin. Pygofers of the male deeply excavated below and showing on either side a longitudinal ridge above the base of the stiles. These stiles slender, sinuated and but little divergent.

Color pale yellowish testaceous, obscurely varied or maculated with a darker shade on the abdomen and marked with black as follows: a spot on the cheeks below the eyes, a band on the tumid base of the clypeus which is continued along either side as a row of large blotches on the pleural pieces, a dot or broken line on the front of the first antennal joint and a heavier line behind, a spot near the apex of the femora and another on the base of the tibiæ, the stiles of the male and the oviduct of the female, and the four polished tubercles on the fourth tergal segment. Elytral nervures dotted with fuscous. Eyes brown. Front with a few dark dots or marks above but not transversely brown at base as in *tricarinata*.

Described from one male and nine female examples, all brachypterous, taken at Estero. This species is somewhat anomalous in any genus. It has the frontal characters and general aspect of *Stobæra* while in the characters of the antennæ and pronotal carinæ it is intermediate between that genus and *Liburnia*. Genus *Stobæra* seems to have been redescribed as *Goniolcium* by Fowler in the *Biologia*. His *G. granulatum* is perhaps the same as *Stobæra concinna* Stal.

224. *Bostæra nasuta* Ball.

Swept from a fine matted grass growing in slight depressions in the pine forests at Tampa and Sevenoaks. A single specimen was later taken at Ft. Myers. This is an odd looking

insect easily distinguished by its very broad *Idiocerus*-like head and long triangular elytra which are cut off obliquely at apex with the inner angle a little produced. In these specimens the color is ivory white inclining to fulvous on the scutellum in some examples. The elytra are whitish hyaline with white nervures ornamented with concolorous granules which become conspicuous on the V-shaped apical fuscous vittæ. The lower surface is whitish marked with fuscous on the pleural pieces and coxæ; the anterior and intermediate feet lineated with fuscous. Posterior femora short, unarmed. The types were from Colorado.

225. *Liburnia Slossoni* Ball.

Crescent City and Estero; four examples. A large and distinct species somewhat allied to my *dorsilinea* from Jamaica but readily recognized by the two slender longitudinal black lines in the pale dorsal vitta.

I see my friend Kirkaldy still persists in calling this genus *Embolophora* Stal but I am unable to discover any justification for so doing. If the type of *Embolophora* could possibly be placed in this genus his course would necessarily be right but by Stal's description of both the genus and species it is evidently very distinct and should we supplant *Liburnia* by *Embolophora* we must at once establish another genus for the African type of *Embolophora* which of course could not be done. The fact is Stal merely replaced the old name *Delphax* Auct. by *Liburnia* and left under it all the group of species at that time generally placed under that name, including his own *Embolophora* as one extreme of the series on account, probably, of the long-produced head. I still think that *Liburnia* should stand for that group of species allied to *pellucida* Fabricius, which should perhaps be considered its type.

226. *Liburnia laminalis* Van Duzee.

Crescent City, two macropterous females. These are a little larger than the types from Mississippi. One brachypterous male taken with the preceding is very much smaller but I believe it belongs here. I have taken this species at Hamburg and Phoenicia, N. Y. and Columbus, Ohio. These specimens are smaller than those from Florida.

227. *Liburnia Weedi* Van Duzee.

At Sanford I took one male and at Crescent City four females of this species. The macropterous female is 5 mm. in length and has the abdomen concolorous with the segments edged with black. In the brachypterous females the tergum is brown with three whitish longitudinal lines, the lateral bordered below with fuscous beyond which are some pale and fuscous markings. This is a large species recognizable by its dark testaceous-brown color and the heavy fuscous nervures toward the apex of the elytra.

228. *Liburnia humilis* Van Duzee.

At Sanford and St. Petersburg I took a series of brachypterous males and females and macropterous females. The latter are larger and darker than the types which were from Jamaica. Two small brachypterous females from Estero are considerably paler but I believe they belong here.

229. *Liburnia puella* Van Duzee.

Crescent City and Sevenoaks, not uncommon. This little species seems to be pretty generally distributed in North America and Mr. Kirkaldy has recently reported it from Australia.

230. *Liburnia basivitta* n. sp.

Small; blackish fuscous with a narrow black front and marked with bright fulvous on the base of the abdomen. Length 2 mm.; to tip of the elytra 3 mm.

Macropterous form: Vertex narrow, nearly square; fovea distinct; median carina prominent over the apex. Front narrow, a little constricted at base; sides nearly rectilinear; carinae strong. Pronotum short; sharply carinate. Mesonotal carinae distinct, the lateral slightly divergent posteriorly. Pygofers of the male less excavated below than in *puella*; stiles slender, curved away from one another; but moderately separated.

Color fuscous brown to black. Front always black with the carinae slenderly brownish; carinae of the vertex and sometimes of the pronotum paler in black specimens. In pale specimens the pronotum is mottled with pale and the cheeks and pleural pieces are brown. Metapleura pale or fulvous with a large fuscous spot on either side. Legs pale brown. Antennae black; second joint pale except at base. Abdomen dark brown or black, the first dorsal segment fulvous which color sometimes invades the second segment, and beneath there is a fulvous spot on the middle of the first two segments. Elytra whitish hyaline with the nervures fuscous toward their apex, the marginal heavy.

Described from numerous specimens taken about Buffalo, N. Y., at Ridgeway, Ont., Milan, Ohio, and one macropterous female from Crescent City, Florida. This is a small plainly colored species closely allied to *puella*. It has the same form of front, vertex and pronotum and the same fulvous band on the abdomen frequently found in that species. It wants the distinct black and white coloration and the black commissural line, and the genital characters are quite distinct. The antennæ also differ in being black at base, not entirely pale as in that species. In the brachypterous form the elytra sometimes attain the apex of the abdomen and the colors are apt to be paler.

231. ***Liburnia albolineosa*** Fowler.

Sevenoaks and Estero. The seven examples taken are all males and differ from those taken by me in Jamaica in having the vertex, frontal carinæ and clypeus whitish and the elytra are mostly hyaline.

232. ***Liburnia seminigra*** Stal.

I swept this species in large numbers from the lawn on the Hubbard Estate at Crescent City. The females which were taken with the males are entirely of a pale straw color with the eyes and oviduct black and are nearly twice the size of the males. A single male example was taken at Estero. The types were from Brazil and I have taken it in Jamaica.

233. ***Liburnia Andromeda*** Van Duzee.

I took one brachypterous male at Sevenoaks and a macropterous male at Tampa. In the latter the orange parts are dull ferruginous varied with fuscous and the elytra are hyaline with the nervures punctate, the marginal heavy and fuscous. A beautiful little species the types of which were from Jamaica and British Guiana.

234. ***Liburnia ornata*** Stal.

Crescent City; two examples. These specimens are somewhat smaller than those from the northern states.

235. ***Liburnia circumcincta*** n. sp.

Whitish testaceous sometimes tinged with fulvous on the abdomen which is marked with fuscous; front rather broad at the middle, concolorous, the white carinæ edged with black. Length: male 2; female 3 mm.

Brachypterous form: Vertex well advanced before the eyes, rather longer than broad; fovæ distinct, the apical long and continued well over the anterior edge of the head. Front moderately broad, strongly narrowed between the eyes and slightly at apex, carinæ strong, Pronotum unusually long, produced a little before the middle of the eyes; lateral carinæ closely following the posterior margin of the eyes. Scutellum about the length of the pronotum; carinæ strong, divergent. Color whitish testaceous, a little tinged with yellow or even fulvous on the abdomen and front; facial carinæ white; the apical areole of the vertex, clypeus and slender margins of the frontal compartments black. Tergum of the male marked with black on its immediate base and across the middle and with a black median spot on the fulvous basal half; end of the genital segment, a spot on either side of the last ventral segment and another on the metapleura black; anterior and intermediate legs lineated with black. In the female the abdomen is more brownish-yellow marked with black on the sides of the tergum, edges of the ventral segments and along the oviduct. Legs and lower pleural pieces marked as in the male. In both sexes the disk of the pronotum and mesonotum are paler than the rest of the surface. Pygofers of the male genital segment broadly subangularly arcuated at apex; the stiles stout, widely divergent and a very little wider toward their truncated apex.

Described from two male and four female examples taken at Crescent City and St. Petersburg. One macropterous male differs in being smaller, in having a narrower front not abruptly constricted between the eyes, a shorter vertex and more approximate and scarcely divergent mesonotal carinæ. It also has the elytra a little embrowned toward the apex where the nervures are darker. The genital characters are the same and it probably belongs here. I have also placed here two macropterous females taken by Mrs. Slosson at Biscayne Bay and Lake Worth. They are large, $2\frac{1}{2}$ mm., have the tergum mostly black and the elytral nervures fuscous toward their apex, the marginal especially heavy and fuscous.

Family Cercopidæ.

236. *Tomaspis bicincta* Say.

Sanford and Ft. Myers.

237. *Lepyronia angulifera* Uhler.

Found in moderate numbers at all places where I collected in Florida.

238. *Aphrophora saratogensis* Fitch.
Crescent City; one example.
239. *Clastoptera proteus* var. *flava* Ball.
Crescent City; one example only.
240. *Clastoptera proteus* var. *vittata* Ball.
A single example taken at Sevenoaks.
241. *Clastoptera xanthocephala* Germar.

Abundant everywhere in Florida. Most of the specimens taken are of the typical black form as described by Germar but I took a few of the pale glaucous form. Both forms varied much in depth of coloring and in size from 3 to 4 mm.

Family Membracidæ.

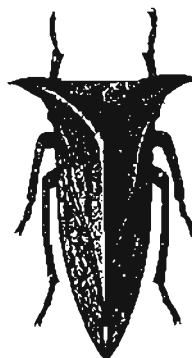
242. *Ceresa brevitylus* VanDuzee.

I took a good series of this species at Crescent City and Sanford all but one of which were females. They agree in wanting the black marks on the pectus and femora. In my description the length of this species was inadvertently omitted. It is for the male 6 to 6½ mm, and for the female 7 to 7½ mm. The short recurved horns, convex metopidium and short tylus will distinguish the species.

243. *Ceresa aculeata* n. sp.

Allied to *taurina* but easily distinguished by the short tylus and the feebly emarginate last ventral segment in the female. Length 8 mm.

Face uneven, most of its surface covered with longitudinal; curved or somewhat oblique rugæ fading into vague punctures about the clypeus; anterior margin regularly arcuated, obtusely emarginate next the short and broad clypeus which when viewed from before but little exceeds the line of the cheeks and is clothed with a few stiff hairs at the rounded apex; when viewed from the side the median line is nearly straight. Sides of the metopidium moderately divergent to the long horizontal



CERESA ACULEATA

and very acute suprahumeral. When viewed from above the line of the metopidium is feebly bisinuate exactly as in *taurina*, the middle being slightly convex leaving a sinus at the base of either horn; the suprahumeral slightly recurved. Pronotum well arched above with a distinct semicircular impression: rather short and depressed with a very slender and acute apex which attains the middle of the upper anteapical areole. Last ventral segment short with a shallow emargination, either side of which the margin is a little convex.

Color dark green becoming more or less fulvous in the dried specimen; suprahumeral, a vitta from their base to the humeral angles and the dorsal carina including the attenuated apex rufocastaneous, becoming piceous or black on the tips of the horns and slender apex; Tylus with a brown mark on either side next the rounded apex of the cheeks.

Described from three females taken at Estero. This species has the aspect of *taurina* but is readily separated by the characters given above. It may be a West Indian species but I can find no description that answers to it at all. It is very distinct from *vitulus*.

244. ***Stictocephala festina* Say.**

Crescent City and St. Petersburg. This species seemed to be rare and local. It evidently pertains to the more northern Carolinian fauna.

245. ***Stictocephala substriata* Walker.**

Abundant everywhere I collected in Florida. In some examples the sternum and legs are concolorous while in the other extreme of variation they are quite broadly spread with black.

246. ***Acutalis semicrema* Say.**

Another abundant species taken at all stations and exhibiting every gradation in marking from a uniform pale green to almost entirely black above.

247. ***Micrutalis calva* Say.**

Generally distributed in the state but less abundant than the preceding and exhibiting the same range in color markings, among which occurs the variety named *illinoensis* by Goding.

248. ***Telamona monticola* Fabricius.**

Sevenoaks; one example beaten from an oak tree.

249. *Telamona* sp.

I secured one specimen at Tampa that I have been unable to place to my satisfaction. It is nearest to *declivata* but the dorsal crest is longer and the apex of the pronotum is less produced.

250. *Archasia galeata* Fabricius.

Five examples of this remarkable looking insect were beaten from low oak bushes at Estero.

251. *Cyrtolobus ovatus* VanDuzee.

At Sanford I took one example of this species and at Estero eleven, all females. These agree in every particular with the type from Atlanta, Ga., except that they average a little smaller. They were found on low oak bushes growing in the clearings along Estero River.

252. *Cyrtolobus* sp.

Clearwater; one specimen captured at electric light in the evening.

253. *Ophiderma salamandra* Fairmaire.

Tampa and Sevenoaks: three females.

254. *Ophiderma flavicephala* Goding.

Estero; two females.

Idioderma n. gen.

Form of *Ophiderma* with the elytral venation of *Vanduzee* nearly. Pronotum greatly depressed; transversely broadly rounded, dorsal outline almost rectilinear, impunctate, apex well surpassing the tip of the abdomen; surface coarsely punctured and short hirsute but polished. Head very short and broad, Elytra hyaline, becoming coriaceous and punctured at the extreme base of the costal areole only; base of the corium with two long nervures; one large basal areole followed by two antepical; terminal (third apical) areole short, nearly transverse, long-stylate, its basal nervure feebly angled; second apical divided into two by a transverse nervure.

This genus is intermediate between *Ophiderma* and *Vanduzee* but the elytral venation allies it unquestionably with the latter, immediately before which I would place it in a linear arrangement. *Virescens* is the type.

255. *Idioderma virescens* n. sp.

Clear bright green with the head and legs more or less rufous. Length $4\frac{1}{2}$ to 5 mm.

Head about twice wider than long; margin of the cheeks sinuated, a little rounding to the base of the broad clypeus the apex of the latter tumid and moderately incurved. Pronotum almost attaining the tip of the terminal areole; its median line impunctate but not at all carinate, its base feebly arcuated. Color of the pronotum clear bright green; head and legs usually bright rufous, sometimes pale, the face at times exhibiting traces of a transverse fuscous vitta below the ocelli and another across the apex of the clypeus; tibiae and tarsi becoming greenish apically; abdomen pale yellowish green, brighter in places especially on the tergum; oviduct of the female rufous; stiles of the male slender, recurved and black at apex.

Described from numerous examples of both sexes. It was taken occasionally at all places where I worked but most abundantly at Estero. The brilliant green and red of this little insect makes it a really beautiful object when it is resting in the bright sunshine. I at first imagined this to be the *Acutalis inornata* of Ball but closer inspection showed the clavus and part of the corium to be covered by the pronotum thus excluding it from that subfamily.

256. *Idioderma varia* n. sp.

Bright rufotestaceous varied with lighter and darker shades; face with the apex and a transverse band below the ocelli fuscous. Length $4\frac{1}{2}$ mm.

Face as in *virescens* but with the disk of the clypeus a little more elevated; dorsal line of the pronotum feebly sinuated at the middle; its apex reaching about to the base of the terminal areole. Color some shade of rufotestaceous varied on the pronotum as follows:—a large subtriangular pale spot above each post-humeral sinus, which obscurely unite in a vague anterior dorsal cloud; a broad transverse paler vitta behind the middle and another before the apex both of which are broadest at the sides and become indefinite dorsally; the margins of these light areas are eroded and intensified by a darker, almost fuscous, shade. Viewed from above these darker shades form a roughly rhomboidal figure, a transverse vitta and a dusky tip, and above each eye is a darker spot or cloud. Face pale with a transverse vitta below the ocelli and another on the apex. Beneath and the abdomen pale yellowish green with the posterior femora, an annulus on the anterior and intermediate femora, a broken lateral vitta on the pleural pieces and the apex of the stiles of the male black. Elytra hyaline; the apical nervure a little embrowned.



IDIODERMA VARIA

Described from one male taken at Estero. This insect has somewhat the aspect of a slender depressed *Vanduzea* but the elytral venation will distinguish it. It seems hardly conceivable that it should be but a color variety of the preceding. When viewed from above the markings have much the aspect of Emmon's figure of *Gargara discoidalis* as given in the Insect volume of the Natural History of New York; plate 13, fig. 4.

257. *Vanduzea vestita* Goding.

Taken at St. Petersburg, Estero and Sevenoaks; apparently rare. At Sevenoaks I swept three examples from a coarse weed growing in a grassy shaded copse on Mr. Hoyt's farm.

258. *Entylia sinuata* Fabricius.

Crescent City, Sanford and Ft. Myers. Five dark colored males and one pale female were taken.

259. *Entylia concisa* Walker.

Crescent City; two females.

260. *Platycotis sagittata* Germar.

Crescent City and Sevenoaks; beaten occasionally from various trees and bushes. These all have the correct horn but it varies much in length in the different individuals.

261. *Tylopelta brevis* VanDuzee.

Crescent City; two males and one female. These agree in all respects with the types which were from Florida.

Family Bythoscopidæ.

262. *Macropsis robusta* Uhler.

Sanford and Ft. Myers; two examples.

263. *Agallia novella* Say.

Crescent City; not common. These specimens are much smaller than those from the north and are scarcely larger than the form I took in Jamaica and described as variety *tropicalis*.

264. *Agallia constricta* VanDuzee.

Common at Crescent City and Sanford but not found at the southern end of the state.

265. *Agallia sanguinolenta* Provancher.

Crescent City and Sanford; two examples.

266. *Agallia lyrata* Baker?

Crescent City; one male. The characters of the male genital segment in this example agree exactly with Baker's description but the colors are darker and the markings more distinct. Considering the difference in locality it would not be surprising if this should prove to be distinct.

267. *Agallia deleta* n. sp.

Allied to *constricta* but smaller and unicolorous brown. Length $2\frac{1}{2}$ to 3 mm.

Form of *constricta* nearly, the vertex short as in that species and thus crowding the ocelli low down on the face. Pronotum short, its surface posteriorly coarsely transversely wrinkled and separated from the smooth anterior margin by a sinuated impressed line. Elytra rather long and narrowed posteriorly, about as in *constricta*. Last ventral segment of the female short, truncate behind or a little concavely arcuated; pygofers broad and well inflated at base with their apex less produced than in *constricta* and scarcely exceeded by the oviduct. Valve of the male long and almost truncated at apex; plates very short, broad on their immediate base then abruptly narrowed to a short obtuse apex.

Color brown obscurely tinged with fulvous, almost unicolorous in the female, a little paler beneath. In the male the disk of the tergum and venter are black, the elytra are subhyaline, a little clouded with fuscous toward the apex and discolored by the black disk of the tergum beneath; basal angles of the scutellum sometimes blackish showing through as fuscous marks on the base of the pronotum; basal dots on the vertex sometimes indicated; antennal pits conspicuously black, the sutures of the face at times fuscous below the antennæ. In both sexes the eyes are brown, the tarsal claws are black and the elytral nervures are concolorous but distinct.

Described from four male and two female examples taken at Crescent City, Sanford and Ft. Myers. The males show some obscure lighter marks on the base of the pronotum in addition to the dark spots on the basal angles of the scutellum. The male genital characters are very distinct from those of any other species known to me.

Mrs. Slosson has sent me one pair taken at Belleair which I believe may belong to this species and will in that case slightly modify the above description. In these the ground color is more testaceous with the dark maculation of the head and pronotum fairly distinct. This maculation consists of the median line and two round dots on the vertex and four spots on the disk of the pronotum, the posterior pair more distant with a median oblong spot between them. Exterior to these four spots there is a dark cloud and the elytra are more infuscated than in the typical specimens with the nervures paler. The genital characters are identical with those of the typical form and such a range in coloration is not unusual in this genus.

268. *Idiocerus nervatus* VanDuzee.

Crescent City; two examples. In these the nervures of the wings are not as deep fuscous as is usual in this species.

Family Tettigoniellidæ.

269. *Aulacizes guttata* Uhler.

Ft. Myers; one example. This is the insect identified by Dr. Ball as *Aulacizes pollinosa* Fowler of which I have examined specimens so determined by Dr. Ball. I confess however that I cannot make these agree satisfactorily with either the description or figure of this species given in the *Biologia*. But this can have no effect on the name here used as the species was well described by Dr. Uhler in the *Standard Natural History* under this name which, having priority over Fowler's name, must be used even if it be considered but a variety of *irrorata* Fabr. and identical with *pollinosa* Fowler. When publishing my catalogue of the Jassoidea I quite unaccountably confused this species with *Tettigonia guttata* Signoret which is a very different insect as stated by Ball. For the present at least I prefer to retain this form as a distinct species. *Irrorata* Fabr. is smaller and darker. I have taken it in Ohio and have seen others from the more southern states.

270. *Oncometopia undata* Fabricius.

Found commonly throughout Florida. At Ft. Myers and Estero most of those taken were of the dark variety; farther

north the paler bluish form predominated. I follow Ball in using the name *undata* in place of *obtusa* for this insect, although as he says it may later have to be sunk as a variety of that species.

271. ***Oncometopia costalis*** Fabricius.

Crescent City, Sanford and Tampa. I found but few specimens of this species and all were of the dark, almost black variety. Fabricius first described this species as *Cercopis lateralis* but in 1803 when he placed his earlier described *Cicada lateralis* in genus *Cercopis* he renamed this *marginella* and discovering that he had already used this name on the preceding page for another *Cercopis*, he again changed it in the "Errata" to *costalis* under which specific name it has since been known. I can see no real gain in the rehabilitation of the old name as has been done by Dr. Ball.

272. ***Homalodisca triquetra*** Fabricius.

Sanford and Sevenoaks; four examples. *Tettigonia vitripennis* Germar and *coagulata* Say are now considered as synonyms of this.

273. ***Tettigoniella occatoria*** Say.

Crescent City and Sanford. Taken on rank vegetation in damp places and around the borders of gardens. I found it in a few such restricted localities only, but there it was not uncommon.

Dr. Distant has, it seems to me, finally settled the synonymy of this genus by showing that neither *Tettigonia* nor *Tettigonia* are available and we must therefore fall back upon the name recently proposed by Dr. Jacobi.

274. ***Tettigoniella*** sp.

At St. Petersburg I took one example of a species slightly resembling *Dræculacephala reticulata* but with the cephalic characters nearly of genus *Tettigoniella*, which as yet I have been unable to determine to my satisfaction.

275. ***Kolla fuscolineella*** Fowler.

Common everywhere in Florida. This is the same dark form I took in Jamaica which should probably be considered but a variety of *bifida* Say.

276. *Kolla geometrica* Signoret.

Taken with the last but much less abundant. It has a longer vertex and unicolorous green elytra on which are three pale oval spots before the blackish membrane.

277. *Kolla Hartil* Ball.

Ft. Myers and Estero. Still smaller than *geometrica* and with a shorter head. I took two males and two females; the latter were colored exactly like the males instead of being lighter with pale nervures on the elytra. In both sexes the whole insect is deep shining black becoming fuscous toward the apex of the elytra, before which is a subhyaline spot on the costa. The legs and markings of the head are white as described by Dr. Ball.

Kolla similis Walker.

I did not take this species in Florida although Mrs. Slosson has done so. I notice it here to call attention to the fact that Dr. Distant in his Rhynchotal Notes No. 44, reverses this species and *herbida* Walker, claiming that while Walker mixed these two species in his descriptions his types show that our identifications are wrong. These descriptions by Walker are accurate and entirely adequate for the determination of these very distinct species and it is simply a case where the types and descriptions have become reversed, and I cannot see as we have any choice but to follow the descriptions: Otherwise what would be the use of publishing a description at all if the type label alone carries authority? The type must agree reasonably well with the description and I confess I can see no alternative in this case but to follow the nomenclature pointed out by me in 1894 (*Ent. News*, v. p. 155.) identifying *similis* Walker with the southern form and *herbida* Walker with our northern *Helochara communis*.

278. *Diedrocephala coccinea* Forster.

Crescent City, Sanford and Ft. Myers. These are of the bright scarlet variety described by Say as *4-vittata*. This is the southern form of this species and is represented in my collection by material from North Carolina, New Jersey, Ohio, Kansas and western New York. The larger green northern

form was described by Walker as *teliformis* and is found from western New York to the Adirondack Mts. and northwardly to northern Canada. Dr. Ball does not separate this latter from *coccinea* but it is a good variety if not a distinct species.

279. **Diedrocephala versuta** Say.

Taken everywhere in Florida but it was most abundant at Crescent City where I generally swept it from weedy fence rows and the borders of fields.

280. **Dræculacephala mollipes** Say.

Crescent City and Clearwater; not especially abundant.

281. **Dræculacephala mollipes** var. **minor** Walker.

Taken in damp places and near water at most localities where I collected in Florida especially toward the southern end of the state.

282. **Dræculacephala 7-guttata** Walker.

Generally distributed but not common in Florida. I follow Distant in considering this as a good species quite distinct from *mollipes*. Its pale straw color marked with seven black points above will readily distinguish it.

283. **Dræculacephala reticulata** Signoret.

This species I took at St. Petersburg and Estero. It has been redescribed as *Diedrocephala flaviceps* by Riley.

284. **Penthimia americana** Fitch.

Taken in moderate numbers everywhere in Florida but it was more abundant toward the southern end of the state.

285. **Gypona cana** Burmeister.

Common everywhere in Florida. Under this name I now place our most abundant and widely distributed species, found from Canada to Florida and west at least to Ogden Utah. It has the eight fulvous vittæ on the vertex, pronotum and scutellum and the elytra are closely reticulated all over. Burmeister says the anterior margin of the vertex is acute at the middle. The vertex in this species is not acutely angled before nor have I ever seen a *Gypona* with such a shaped head. In

our species the vertex is more or less obtusely angled and not evenly rounded as in the South American *lineata* with which Burmeister was evidently comparing his *cana*, and I believe that a comparison with his type if that were possible would show that this is the form he was describing. If he meant that the vertex of his *cana* was acutely angled before it could not be a *Gypona* as that character alone would throw it into another genus. Spangberg has evidently redescribed this same species as *flavilineata* Fitch. He describes the vertex as "subangularly produced" which is frequently the case in this species especially in the males. I am unable to distinguish between this form and that described by Provancher as *quebecensis*. The latter has a slightly different aspect as it is of a deeper green, is a little smaller, and the fulvous vitta: are almost or quite obsolete. Provancher's species has the elytra entirely reticulated as I know from the examination of a typical specimen sent me by himself at the time he was publishing his *Petite Faune Ent. du Canada*, although this character was not mentioned in either of his descriptions of the species.

286. ***Gypona striata*** Burmeister, *variety*.

This form I took with the preceding from which it differs in being of a clearer green color with the elytra reticulated at apex only. It is smaller and darker than the typical *striata* as found farther north and is really intermediate between these two species. The typical *striata* Burmeister was redescribed by Fitch as *flavilineata*.

287. ***Gypona*** sp.

Sanford and Sevenoaks: two examples. This species seems to have about the same distribution as *cana* but perhaps does not extend its range quite so far north and south. It can readily be recognized by its dark olive green color closely mottled with pale and marked with two black points on the pronotum. It is perhaps the *olivacea* of Spangberg but at present I have not access to his description.

288. ***Gypona tenella*** Spangberg.

Sanford and Sevenoaks. This is a neat little green species having the elytral areoles without reticulations.

289. ***Gypona citrina*** Spangberg.

Crescent City and Sanford. A little larger than the preceding and easily recognized by its pale golden brown color with the vertex, anterior margin of the pronotum and scutellum green, and by its having each elytron marked with four minute black points arranged in a square and with a brown cloud on the base of the appendix. The four black points on the elytra are found in a number of allied species and are not distinctive.

290. ***Gypona sanguinolenta*** Spangberg.

Sanford and Ft. Myers; three examples. This is a large species closely dotted with sanguinous on the vertex, pronotum and scutellum and veined with the same color on the elytra the areoles of which are dotted with black. It is related to *scarlatina* Fitch.

291. ***Gypona irrorella*** Spangberg.

Ft. Myers; one example. This is another red species but it is smaller than the preceding, has a short vertex and the elytra are marked with coagulated red spots or irrorations.

292. ***Gypona*** sp.

At Estero I took one example of a small testaceous species allied to *mystica* which I have been unable to identify with any described species known to me.

Family Jassidæ.

Subfamily Acocephalinæ.

293. ***Xestocephalus pulicarius*** VanDuzee.

Crescent City and Ft. Myers; four examples. Mrs. Slosson has taken *tesellatus* VanD. at Biscayne Bay and elsewhere.

Subfamily Jassinæ.

Tribe Dorydini.

294. ***Dorycephalus vanduzei*** Osborn & Ball.

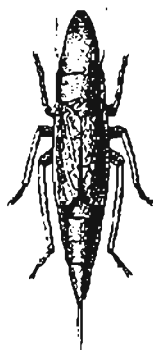
At Clearwater I took one immature example that I feel sure belongs here. It differs from the adults in my collection

in having the head longer and narrower at apex. In its larval state this insect has a very long and slender abdomen and altogether bears a striking resemblance to a miniature alligator.

295. *Hecalus apicalis* n. sp.

Brachypterous female: Long and slender posteriorly; apple-green with a small black spot on the extreme apex of the head. Length 14 mm.; of the head 3 mm.; width of vertex at base 2 mm.

Head regularly elliptical, very thin; vertex one and a half times as long as its width at base; feebly convex transversely, a little elevated at apex; longitudinally rugose becoming smooth at base. Front moderately convex along its disk, depressed and foliaceous at the sides before the antennæ; clypeus rectangular, scarcely longer than broad. Pronotum transverse, very feebly arcuated before, slightly angularly emarginate behind. Elytra oval, reaching on to the third abdominal segment, costal margin feebly reflexed; clavus with two distant nearly straight nervures. Last ventral segment feebly arcuated behind with a broad triangular median tooth; oviduct exceeding the pygofers by more than one third its length; the latter triangularly produced at apex dorsally.



HECALUS APICALIS

Color dull apple-green slightly tinged with testaceous about the apex of the head at the extreme tip of which there is a blackish spot scarcely visible from above. Eyes, produced apex of the pygofers, and oviduct rufous brown.

Described from two examples taken at Crescent City and St. Petersburg. At Estero I took two larvæ which I refer to this species. They have the head a little narrower anteriorly, and the color more testaceous with three longitudinal lines on the head, pronotum and scutellum. They have the same black mark at the apex of the head that we find in the adult.

A single macropterous male taken at Estero I also refer to this species, but with some doubt. The vertex is shorter than described above for the female as is the rule in the allied forms, and the clypeus is proportionately longer. It has the same black spot at the apex of the head but the markings otherwise are quite different. The color is dark green shaded with brown, there are two parallel brown vittæ from the apex of the vertex, where they converge a little, to the middle of the scutellum, and on either side of these are two more obscure dusky parallel lines; the elytra are brownish hyaline with the nervures darker,

those about the outer apical areole heavy and fuscous. Valve wanting; plates long and acutely-triangular; pygofer much exceeding the plates, broadly and deeply forked at apex where they are clothed with long heavy bristles.

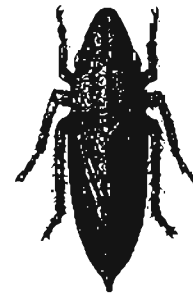
Neoslossonia n. genus.

Allied to *Hecalus* but differing in having the vertex obtusely triangular and furrowed, the pronotum subcarinate and the clavus with two nervures which are united in one posteriorly. Head as wide as the pronotum, obtusely triangular, as long as the width at base, sloping moderately forward in conformity with the slope of the pronotum; vertex almost flat, depressed about the edges; median line with a broad furrow, either side of which is an elevated ridge. Front convex as far as the apex of the head, the margins depressed and nearly foliaceous either side before the eyes; broad, convex and truncated at apex; clypeus abruptly much narrower. Pronotum transverse, a little wider posteriorly; anterior margin scarcely arcuated, hind margin broadly feebly arcuated across the base of the scutellum; median line carinate, either side with a slightly oblique obscure ridge continuing those on the vertex; sides bicarinate behind the eyes. Elytra opaque, rounded at apex, the nervures distinct showing five long apical areoles on the corium; the two nervures of the clavus united at about its middle, the resulting nervure joining the commissural a little beyond. Head and pronotum coarsely punctured. Type of genus *N. atra* V. D.

It affords me pleasure to dedicate this genus to Mrs. Annie Trumbull Slosson its first discoverer and one to whom I am indebted for many courtesies extended during the study of this Florida material.

296. **Neoslossonia atra** n. sp.

Deep black all over with the tarsi testaceous and the tibial spines ferruginous. Vertex and pronotum coarsely punctured, those along the margin becoming dragged giving the appearance of rugae. Convex sides of the front showing curved arcs by oblique light, the depressed margins more deeply punctured. Clypeus longer than wide, sides rectilinear. Elytra reaching nearly to the tip of the abdomen; venation distinct. Valve of the male broad and short, triangular; plates long-triangular, slender and acute at apex, reaching a little beyond the middle of the pygofer; the latter exerted, subcylindrical, armed with four or five short distant bristles on either side. Length $5\frac{1}{2}$ mm.



NEOSLOSSONIA
ATRA

Described from two male examples. One of these I took from a "palmetto hummock" at Sanford, the other was taken by Mrs. Slosson at Jacksonville. This remarkable insect has

almost exactly the aspect of a narrow Aphrophorid but the position of the ocelli on the edge of the vertex close to the eye will distinguish it. It may readily be recognized by its very black color.

297. **Spangbergiella vulnerata** Uhler.

Crescent City, Sanford, St. Petersburg and Ft. Myers. These specimens, males and females, agree exactly with those taken by me in Jamaica and differ from Signoret's figure in having the scarlet lines on the pronotum converge nearly to a point at the anterior margin, not at all in line with those on the vertex.

298. **Parabolocratus flavidus** Signoret.

Taken at most of the places where I collected but not at all common. This species is very close to *viridis* but the vertex is more pointed; the pygofers of the male are longer and narrow to a point at the apex; the last ventral segment of the female is produced in a short obtuse median tooth, and the venation is a little different as described by Signoret. The type specimens must have been faded as the color of the living insect scarcely differs from that of *viridis*.

Tribe **Delftocephalini**.

299. **Platymetopius lorincatus** VanDuzee.

Sevenoaks, St. Petersburg and Ft. Myers. Occasional. The dark color and pale yellow front will distinguish this from the others here enumerated.

300. **Platymetopius obscurus** Osborn?

Not uncommon at most places where I collected. These individuals have the vertex longer than those from Canada in my collection and they may represent a distinct species.

301. **Platymetopius cinereus** Osborn & Ball.

Taken occasionally at all stations. The small size and pale grey color will distinguish this species.

Two other species of *Platymetopius* were taken by me which I have not been able to determine to my satisfaction.

302. ***Deltocephalus inflatus*** Osborn & Ball.

Crescent City, Sevenoaks and Estero. The specimens taken seem to be somewhat intermediate between this species and *reflexus* having the claval nervures united in some examples and in others the dark brown on the base of the front is abruptly distinguished from the pale apex.

303. ***Deltocephalus*** sp.

Very abundant and almost universally distributed in Florida. It finds its home among the thin grasses growing on the dry sands of the pine barrens which cover the whole length and breadth of the state.

304. ***Deltocephalus*** sp.

Estero; two examples of a species that seems to be very near *imputans* but I believe is distinct.

305. ***Deltocephalus*** sp.

Estero; four examples. This species is near *imputans* but probably is distinct. It may be the female of the preceding.

306. ***Deltocephalus obtectus*** Osborn & Ball.

Taken occasionally at nearly all places where I worked in Florida and Mrs. Slosson has taken it at Belleair and Biscayne Bay. Heretofore I have taken it about Buffalo and at Columbus, Ohio. It is one of our prettiest and most clearly marked species.

307. ***Deltocephalus Weedi*** VanDuzee.

Crescent City, Clearwater, Sevenoaks and Estero. Mrs. Slosson has taken this species at Biscayne Bay and I found numbers at Effingham, Ks., in July 1900.

308. ***Deltocephalus sonorus*** Ball.

Estero and St. Petersburg; two examples. Mrs. Slosson has found it at Biscayne Bay and Belleair. It is very close to *nigrifrons*.

309. **Deltocephalus** sp.

At Sanford and Sevenoaks I took an undescribed species allied to *sonorus* but reasonably distinct. It was not common.

310. **Deltocephalus littoralis** Ball.

St. Petersburg. Swept from marsh grasses along the shore of Tampa Bay.

311. **Deltocephalus** sp.

Sevenoaks; one example of a species allied to *parvulus*.

312. **Deltocephalus capreatus** Ball.

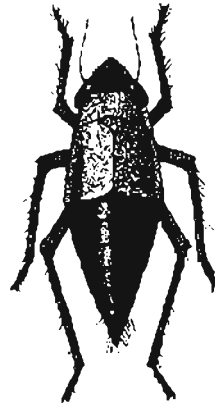
Sevenoaks; one example. This individual is imperfectly colored and probably is immature but I believe it belongs here. The apical half of the vertex is black with white arcs.

313. **Lonatura bicolor** n. sp.

Apparently most nearly related to *catalina*, a species still unknown to me in nature. Deep black with the pronotum, scutellum and elytra pale straw yellow. Length 3 mm.

Head conical well produced; about as in *catalina* as figured by Osborn and Ball; closely punctured; marked on the base of the vertex by two oblique scars placed near the eyes. Front very broad and short, convex; closely and evenly punctured; sides and apex rectilinear. Clypeus broadest at base, tapering moderately to the apex. Scutellum small as in brachypterous *catalina*. Elytra reaching almost to the base of the second tergal segment. Last ventral segment of the female rather long, the hind margin broadly roundly produced across two thirds of its width. Valve of male concealed; plates small, triangular, narrow at apex, scarcely attaining the tip of the rounded pygofers.

Color deep black; apex of the head with three minute pale points, one at the tip inferiorly and two on the vertex anteriorly; ocelli pale. Narrow hind margin of the vertex, pronotum except the anterior angles behind the eyes, scutellum and elytra pale straw yellow. Front with very obscure paler arcs and there are some indefinite pale marks on the cheeks, loræ, pleural pieces and base of the venter; tibiæ and tarsi more or less brown marked with paler at the base of the spines.



LONATURA BICOLOR

Described from one male and two female examples taken at Ft. Myers and Estero.

At Sevenoaks I took what appears to be a color variety of this species. It is entirely pale straw yellow with the anterior margin of the vertex unevenly black; the pale color on the base being extended forward in the middle to the two pale points and almost uniting before with a pale spot close to the apex. The anterior angles of the pronotum behind the eyes are black as they are in the black form above described, and the genital segment of the male and the disk of the sixth ventral segment are black. The front, pleural pieces and legs are mostly brown, the former showing pale arcs and a median line, and the latter are varied with pale on the tibiae.

Tribe Athysanini.

314. *Athysanus exitiosus* Uhler.

Common everywhere in Florida. Those taken vary much in size and coloring, the palest being from Estero.

315. *Athysanus bicolor* VanDuzee.

Crescent City, St. Petersburg and Tampa; not common.

316. *Athysanus obtutus* VanDuzee.

Crescent City; moderately abundant about waste places.

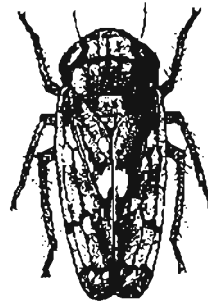
317. *Eutettix Slossoni* VanDuzee.

Sanford, St. Petersburg, Sevenoaks and Ft. Myers. Three males and three females were taken which agree very closely with my description of the type, a pale female. The females in the present lot want the black points on the face; the band on the base of the pronotum is black or dark piceous, and in one example the elytra are deepened to a rich brown, fading to hyaline at the costa. The males are piceous-black above with the vertex, pronotum anteriorly and scutellum clear yellow; costa broadly whitish-hyaline tinged with brown basally and with the apex abruptly deep fuscous. In two the black band at the base of the front is entire.

318. *Eutettix Bartschi* n. sp.

Form and size of *Slossoni*. Fulvous or brown varied with paler; base of the front black in the male, rufocastaneous in the female. Length: male 4; female 5 mm.

Male: Vertex light yellowish; transverse impressed line between the ocelli and a short longitudinal line either side fulvous. Face pale yellowish, a transverse band on the base of the front, about five arcs more or less united in a cloud below this and a dot below the antennae black. Clypeus with a double longitudinal brown line. Pronotum paler anteriorly with a few fulvous marks and points. Scutellum pale with the basal angles, two dots between them and the transverse line fulvous-brown. Elytra varied with whitish; paler toward the costa and darker along the commissure; saddle small and distinct, connected by a black vitta to two white points before and two behind, the latter at the tip of the clavus; the anterior pair sometimes obsolete. Legs pale; abdomen black, the margins and edges of the segments yellow. Female bright fulvous marked as in the male. Abdomen and beneath pale yellow; the face pale with a rufous band at base; oviduct castaneous.



EUTETTIX BARTSCHI

Described from numerous specimens beaten from scrub oaks at Sevenoaks and Estero, at the latter place abundant.

This is a typical *Eutettix* nearest *Slossoni* and *marmorata*. I cannot as yet agree with my friend Dr. Ball in placing all the species of *Eutettix* of the *lurida* group as subspecies of one typical form; and, if this were done I do not see how we can use the name *subaenea* for this group as that is an aberrant form from the Pacific coast and not at all typical of the group it would have to represent. *Lurida* is the type of the genus and it seems to me is the name that should have been used for the group notwithstanding *subaenea* was published first. The three species I took in Florida show very little variation and are as distinct in both sexes as are the species in any of our large plastic genera. I take pleasure in naming this species after my good friend Walter F. Bartsch of Estero who has taken much interest in my work and has sent me some interesting Hemiptera since my return from Florida.

319. *Eutettix nitens* n. sp.

Allied to *picta*. Clear yellow; elytra black in the male, fusco-hyaline in the female. Length: male $5\frac{1}{2}$; female 6 mm.

Head and scutellum clear light yellow. Eyes black. Elytra piceous-black in the male; fusco-hyaline in the female; saddle light yellow, rather small; costa broadly hyaline as far as the apical areoles. Prosternum with a black spot beneath the anterior coxa; vertex marked with a black vitta on either side; tergum with about four transverse black vittae.

Described from one pair taken at Sevenoaks and a female from Estero. This is a typical *Eutettix* and quite distinct by its uniformly yellow head pronotum and scutellum. The female from Estero is pale, evidently not having attained its full coloring. In two examples the humeral angles are marked with a black vitta and in both females the hind margin of the last ventral segment is much more produced at the middle than in our other allied species. These three specimens were beaten from oak bushes.

320. *Eutettix* sp.

At Sevenoaks I took one example of a species that is still undescribed. It seems to be most nearly related to *cincla* O. & B.

321. *Phlepsius excultus* Uhler.

Crescent City, Sanford, Sevenoaks and Ft. Myers. Taken occasionally while beating bushes over an umbrella.

322. *Phlepsius decorus* Osborn & Ball.

Tampa; one example. I have taken this species at Hamburg and Gowanda, N. Y., Mr. Metcalfe at Brockville, Ont., and Mr. Coleman has collected it in Santa Clara Co., California. This extends its range over a great part of the United States and Canada.

323. *Phlepsius mimus* Baker.

At Crescent City I took one example that agrees very closely with Baker's description and I think there can be no doubt but it is the female of his species, which was described from a male collected by Dr. Uhler at Odenton, Md. In this female the three pairs of brown spots along the commissure are quite conspicuous and the margin of the scutellum is alternated with black and white. The form of the last ventral segment is distinctive, the hind edge being quite deeply sinuated either side of a deep triangular median notch the margin of which is

black and polished. I would arrange this species in the *irroratus* group near *turpiculus*.

324. **Phlepsius truncatus** VanDuzee.

One pair taken at Crescent City and Sevenoaks. These are a little smaller than were the types from North Carolina but this variation in size is no more than we find in *irroratus*.

325. **Phlepsius** sp.

Three examples of a still undescribed species of *Phlepsius* were taken at Ft. Myers and Sevenoaks. This is a pale species with the head thin and produced.

326. **Phlepsius pulchripennis** Baker.

Taken at Crescent City, Sanford, Sevenoaks, St. Petersburg and Ft. Myers and Mrs. Slosson has sent me specimens taken at Belleair. This is a small narrow species recalling certain dark species of *Scaphoideus*. The elytra are strongly marked with fuscous areas along their axes and the scutellum may be almost fulvous. Prof. Osborn thinks this species may prove identical with *Allygus costomaculatus* VanD. from Texas.

327. **Phlepsius fuscipennis** VanDuzee.

Common everywhere in suitable locations. It lives on a low fine *Juncus* growing in abundance along the shores of most of the lakes I visited in Florida. I took it in greatest numbers about Lake Stella at Crescent City and Lake Monroe at Sanford.

328. **Acinopterus acuminatus** VanDuzee.

Taken occasionally at Tampa and Sanford.

329. **Scaphoideus obtusus** Osborn?

Crescent City, Sanford, Sevenoaks and Ft. Myers. This is the only representative I found of the typical *immitus* group. It is with some doubt that I place it with Osborn's species as the vertex is not shorter and less acute than in *immitus*. It bears a strong resemblance to var. *minor* of that species but the male plates are long triangular, at least two thirds the length of the pygofers. In this respect it approaches *luteolus* but it is very distinct otherwise. It may readily be

recognized by the two transverse white bands on the pronotum connected by a slender median line. The white commissural vitta is conspicuous in most specimens and is twice interrupted by the oblique and heavily infuscated claval nervures. There is a large brown cloud on the antepical areoles more or less extended basally, and a distinct apical black or fuscous cloud beyond which the extreme edge is white. I have taken one example of undoubted *obtusus* Osb. at Lancaster, N. Y., which Prof. Osborn has kindly compared with his types. He is inclined to place these Florida examples as a variety of *immistus*.

330. **Scaphoideus opalinus** Osborn.

Sevenoaks; two examples. This species was described in Prof. Osborn's paper on the Jassidæ of New York State. I have taken it at Riverton, N. J., and Gowanda, N. Y. The whitish vertex, middle of the pronotum and scutellum, give it the appearance of having a white dorsal vitta anteriorly.

331. **Scaphoideus consors** Uhler.

Crescent City; three examples. This is a pretty little species sufficiently distinct from the more western *scalaris*. The vertex is longer, more pointed and more clearly marked than in *scalaris* and in the present specimens the facial sutures are conspicuously fuscous.

332. **Scaphoideus albonotatus** n. sp.

Closely allied to *consors* and *scalaris* but larger and stouter than either and marked with three pairs of nearly round white spots along the commissure of the closed elytra. Length $5\frac{1}{2}$ mm.

Vertex about as long as in *scalaris* with the apex more obtuse in the female, subacute in the male; anterior edge more obtusely rounded than in *consors* but sharper than in *scalaris*. Front and clypeus proportionately broader than in *scalaris*, much broader than in *consors*. Outer antepical areole of the corium of equal width throughout, not distinctly narrowed at apex as in the allied species; inner areole with two supernumerary transverse veinlets behind the regular veinlet which forms its base. Claval nervures strongly approaching one another and sometimes connected, the outer connected to the claval suture by a transverse veinlet. Last ventral segment of the female short triangular,



SCAPHOIDEUS
ALBONOTATUS

the apical margin oblique and nearly rectilinear either side, not regularly rounded at the outer angles. Valve of the male short, broadly rounded; plates long and bluntly triangular, their flaccid tips nearly attaining the apex of the pygofers, armed with stout marginal bristles.

Color fulvous brown, a little lighter on the vertex, anterior margin of the pronotum, scutellum and venter; step-shaped pale marks on the base of the vertex sometimes rather obscure but with the brown shade bounding it anteriorly quite distinguishable, the median brown line distinct; anterior margin with a fuscous vitta usually broken into four spots. Front becoming fuscous at base with a few abbreviated arcs either side and bounded at base by a black line and a blackish cloud covers the base of the cheeks; sutures scarcely darker. Anterior submargin of the pronotum with a few darker marks among which is a blackish dot behind each eye; basal angles of the scutellum obscurely fulvous. Elytral nervures fuscous, the areoles with from one to three whitish spots in each, more or less distinctly outlined in brown, those in the inner discal areole connected by a brown cloud; commissural nervure pale, the surface either side ornamented with three nearly round conspicuous white spots outlined in brown and separated by the curved brown claval nervures, the basal enclosed in a larger oval blackish spot, the outer claval areole with a long blackish streak intercepted by the posterior of these white commissural spots.

Described from one male and three female examples taken at Estero. The markings found in this species are substantially those of *consors*, *scalaris* and *mexicanus* but the insect is larger, the last ventral segment of the female is more distinctly triangular, the venation of the elytra is different and the six commissural spots are conspicuous and characteristic although a similar maculation is found in *Eutettix cincta* and in a few other species not congeneric with this.

333. **Scaphoideus jucundus** Uhler.

I obtained one female of this species at Estero.

334. **Scaphoideus sanctus** Say.

Of this conspicuous species I took a female at Clearwater and a male at Ft. Myers.

335. **Scaphoideus fasciatus** Osborn.

Crescent City and St. Petersburg; three females. I think there can be no question but this species is distinct from *sanctus* although I would not rely upon the form of the vertex which is variable in each species as they are represented in my collection. *Fasciatus* is distinctly smaller and paler and the last ventral segment of the female is shorter and less produced at the middle.

336. **Thamnotettix subcuprea** Provancher.

Sanford, Sevenoaks and Ft. Myers. This species seems to be widely distributed. It occurs in western New York, Mr

Palmer has taken it about Lake Temagami in Ontario, I have taken it in New Jersey and have seen others from Medicine Hat in Assiniboia.

337. **Thamnotettix perpunctata** VanDuzee.

Crescent City, Sanford and St. Petersburg. The few specimens taken agree in every respect with those I have seen from Mississippi and other southern states.

338. **Thamnotettix comata** Ball.

Taken occasionally at Crescent City, Sanford, Sevenoaks and St. Petersburg. These are of the light colored form taken by me in Jamaica.

339. **Chlorotettix viridia** VanDuzee.

I found this species at all places where I worked. It was especially abundant at St. Petersburg and Sevenoaks.

340. **Chlorotettix rugicollis** Ball.

This species was taken at most places where I worked but it was more local being confined mostly to the damp well shaded spots where there was a rich growth of vegetation. The immature are sometimes of a clear sanguineous but when fully developed they are deep green with the crimson band on the anterior margin of the head well marked.

341. **Chlorotettix necopina** VanDuzee.

Not uncommon at Crescent City, Sanford, Sevenoaks and Clearwater.

342. **Chlorotettix galbanata** VanDuzee.

Ft. Myers; one pair only.

343. **Chlorotettix minima** Baker.

I took one female at Estero. This tropical species was described from Brazilian material but I have taken it in Jamaica. The southern end of Florida may probably be its most northerly range. Like the preceding and following species it has the head produced and subangulate before.

344. **Chlorotettix tunicata** Ball.

Taken at Sanford, St. Petersburg, Clearwater and Estero.

Tribe Jassini.

345. **Jassus olitorius** Say.

Common everywhere in Florida. These southern specimens are of a clear rufous brown, in the females darker with a light vitta indicated at the base of the apical areoles. They

have a very different aspect from our dark colored northern specimens but I can find no structural character on which to separate them.

346. **Paracœlidia tuberculata** Baker.

At Sevenoaks I took one large female over 6 mm. in length. This species bears a strong resemblance to *Neocœlidia lineata* but the colors are paler, the vertex is a little more pointed and the clypeus is strongly tuberculate; which latter character will at once distinguish it from any allied form known to me.

Subfamily Cicadullinæ.

347. **Cicadula 6-notata** Fallén.

Sanford and Ft. Myers; two examples.

348. **Balclutha impicta** VanDuzee.

Crescent City; two examples.

349. **Eugnathodus abdominalis** VanDuzee.

Sanford, Clearwater and Ft. Myers; occasional.

Subfamily Typhlocybinæ.

350. **Empoasca mali** LaBaron.

Crescent City, Sanford, Ft. Myers, Estero. As taken in Florida this species is a little larger than the next.

351. **Empoasca flavescens** Fabricius.

Crescent City and Estero. Prof. Gillette separates this species from the preceding by its having but three pale spots on the anterior margin of the pronotum.

352. **Eupteryx flavoscuta** Gillette.

Sanford and Sevenoaks; two examples. These are of the form having the upper surface deep smoky black with the vertex before and the costal margin broadly yellowish.

353. **Typhlocyba comes** Say.

Crescent City, Sevenoaks and Estero. The typical form of this species was taken occasionally on grape vines at these localities.

354. **Typhlocyba rubricata** n. sp.

Aspect of *Dicraneura* but with typical *Typhlocyba* venation and pertaining to that section of the genus named *Zyginiu* by Fieber. Color pale yellowish becoming fulvous on the abdomen and more obscure on the vertex and scutellum; pronotum and elytra dark dull sanguineous, the former becoming paler anteriorly and brighter red along either side, the latter with

the broad costal margin almost to the base yellow and the apex infuscated. Wings smoky hyaline with fuscous nervures. Tergum blackish becoming sanguineous toward the margin.

Vertex long, little shorter than the pronotum, strongly but roundedly angled at apex, base deeply concavely arcuated. Last ventral segment of the female narrow, triangularly produced. Length $2\frac{1}{2}$ mm.

Described from 15 females taken at Crescent City. This species is very distinct from any described form known to me. It is allied in color to *coccinea* Fitch but it does not pertain to that section of the genus named *Empoa* by Dr. Fitch.

NEW GENERA

Idioderma, p. 207 *Neoslossonia*, p. 218

NEW SPECIES

<i>Loxa florida</i> , p. 156	<i>Stobæra 4-pustulata</i> , p. 200
<i>Jalysus perclavatus</i> , 163	<i>Liburnia basivitta</i> , 202
<i>Belonochilus Koreschanus</i> , 165	<i>Liburnia circumcincta</i> , 203
<i>Cymus bellus</i> 167	<i>Ceresa aculeata</i> , 205
<i>Ischnodemus rufipes</i> , 167	<i>Idioderma virescens</i> , 208
<i>Ischnodemus badius</i> , 168	<i>Idioderma varia</i> , 208
<i>Ischnodemus lobatus</i> , 169	<i>Agallia deleta</i> , 210
<i>Ptochiomera antennata</i> , 172	<i>Hecalus apicalis</i> 217
<i>Cyrcoptus Reinecke</i> , 185	<i>Neoslossonia atra</i> , 218
<i>Myndus enotatus</i> , 188	<i>Lonatura bicolor</i> , 221
<i>Myndus lunatus</i> 189	<i>Eutettix Bartschi</i> , 223
<i>Myndus pusillus</i> , 190	<i>Eutettix nitens</i> , 223
<i>Cenchrea fulva</i> , 195	<i>Scaphoideus albonotatus</i> , 226
<i>Phyllodinus nitens</i> , 198	<i>Typhlocyba rubricata</i> , 229
<i>Stobæra affinis</i> , 199	

New specific name.

Cixius dorsivittatus n. n. for *Cixius dorsalis* VanD. p. 188

Recapitulation.

Number of genera listed in this paper, 203.
 Number of species and varieties listed in this paper, 354.
 Number of new genera described in this paper, 2.
 Number of new species described in this paper, 29.

*****US Copyright Notice*****

No further reproduction or distribution of this copy is permitted by electronic transmission or any other means.

The user should review the copyright notice on the following scanned image(s) contained in the original work from which this electronic copy was made.

Section 108: United States Copyright Law

The copyright law of the United States [Title 17, United States Code] governs the making of photocopies or other reproductions of copyrighted materials

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the reproduction is not to be used for any purpose other than private study, scholarship, or research. If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that use may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law. No further reproduction and distribution of this copy is permitted by transmission or any other means.