The
Florida Entomologist
Official Organ of the Florida Entomological Society

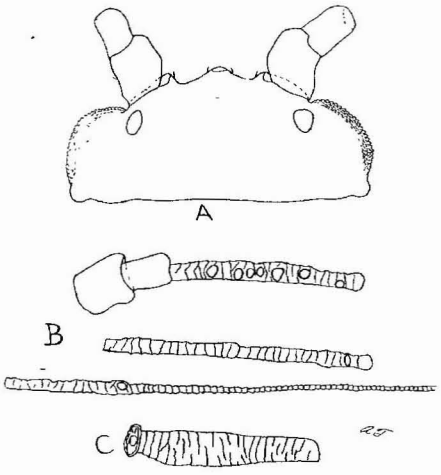
Vol. XII | SPRING NUMBER APRIL, 1928 | No. 1

A NEW APHID FROM POISON IVY
(Rhus radicans L.)

A. N. TISSOT

Carolinaia rhois sp. n.

This species seems to be most closely related to *Carolinaia caricis* Wilson, and *Carolinaia cyperi* Ainslie, but there are characters of structure and color which will readily separate the species. The antennae and and cornicles are dark brown to black, while in *C. caricis* they are dusky yellow. The sixth antennal segment is about three-fourths as long as the third and is considerably less than half as long as the spur while in *C. caricis* the sixth segment is about half as long as the third and slightly shorter than the spur. This species can be separated from *C. cyperi* by the following characters: the sixth antennal segment is as long as or longer than the fourth while in *C. cyperi* the sixth is shorter than the fourth. The third antennal segment bears six to ten sensoria which vary greatly in size and which are arranged in an irregular row along the segment; in *C. cyperi* the third segment has five to seven large sensoria which vary little in size and which are arranged in a more even row.



Winged Female of
Carolinaia rhois sp. n

Explanation of Figures
All drawings made to same scale X.
A. Dorsal view of head.
B. Antenna.
C. Cornicle, dorsal view.

DESCRITION OF ALATE VIVIPAROUS FEMALE

General color very dark green to black. Length of body including the cauda 1.32 m.m. to 1.55 m.m., width of thorax .638 m.m. to .723 m.m. Head normal, about twice as wide as long, without prominent antennal tubercles; eyes rather large, black, with prominent ocular tubercles; head black. Antennae black slightly shorter than the body, six-segmented. Segment III about two thirds as long as spur of VI, rather uneven in diameter with six to ten circular sensoria varying greatly in size and irregularly spaced along the segment in an uneven row. Segments four, five and six base about equal in length, each being about three-fourths as long as segment three. The fourth segment without sensoria, the usual primary sensoria on segments five and six. Segments three to six are very strongly imbricated. Total lengths of the antennae and of the segments in m.m. are as follows: total 1.21 to 1.39; I, .064 to .085; II, .064 in all specimens studied; III, .234 to .255; IV, .148 to .170; V, .146 to .172; VI base, .150 to .168; spur, .383 to .466. Rostrum dusky, rather short, scarcely reaching second coxae. Thorax black, with well developed lobes; prothorax with very small lateral tubercles. Wings hyaline with a greenish-yellow cast, rather large, with normal venation in the fore wings, hind wings with but a single cross vein; veins distinct, greenish yellow in color, stigma dusky. Length of fore wing, 2.34 m.m. to 2.51 m.m. Legs normal, light brown in color except the distal parts of the femora and tibiae which are black, with black tarsi. Abdomen rather broadly oval, very dark green in color. Cornicles dark brown, medium in length, slightly swollen beyond the middle, with a rather marked constriction before the apex, strongly imbricated thruout their length. Length .234 m.m. to .255 m.m. Cauda rather broadly conical, about half as long as the cornicles; concolorous with the abdomen, with a few short, fine, much curved hairs. Anal plate almost triangular in shape with many fine slightly curved hairs.

Host Plant. Taken on the under side of tender leaves of Poison Ivy (*Rhus radicans* L.).

Locality.—Taken near Old Man's Cave, Hocking County, Ohio, May 31, 1924 by the author.

No apterous forms were found, the colony consisting entirely of winged females and pupae. Described from seven alate viviparous females. Color notes made from living specimens, measurements from specimens mounted in balsam. Cotypes in the author's collection.

This aphid is very interesting from the standpoint of its food plant. Of the three previously described species of this Genus one was taken on a sedge *Carex* sp., another on Nut Grass *(Cyperus esculentus)* and the third on a moss *Polytrichum commune* the present species is thus the first taken on one of the higher broad-leaved plants.

FOUR UNDESCRIBED TINGITIDS FROM UNITED STATES

By CARL J. DRAKE, Ames, Iowa

Corythucha nicholi, n. sp.

Pale tastaceous, the nervures on dorsal portion of hood and tumid elevations of elytra, a small spot on each paranota and median carina, two rows of nervures near base and some nervures near apex of elytra fuscous. Pronotum pale brown, becoming lighter on triangular portion, finely punctate, tricarinate; lateral carinae strongly raised anteriorly, not extending to the hood, each composed of three or four areolae; median carinae strongly raised, a little shorter than hood and more than one half as high, composed of one entire row of large areolae and a few extra areolae at its highest part. Rostral laminae testaceous, the rostrum extending a little beyond the middle of the mesosternum. Antennae slender, testaceous, clothed with bristly hairs. Elytra with the fuscous markings more or less prominent, the outer margin with short, sharp, black-tipped spines along the basal two-thirds. Body beneath black. Legs testaceous, the tips of tarsi fuscous. Wings developed.

Length, 3.53 mm.; width, 1.76 mm.

Holotype, male, and *allotype,* female, Santa Rita Mts., Ariz., June 20, 1926, collected by A. A. Nichol, in Drake collection. *Paratypes,* several specimens, collected with type, and also from Huachuca Mts., Ariz., July 17, 1905, by H. G. Barber, in the collections of Iowa State College, H. G. Barber, A. A. Nichol, and the writer. This species has been confused in collection with *C. arcuata* Say, but differs in having a larger and more strongly inflated hood and the larger and more globose tumid elevations on the elytra. In some specimens the general color is somewhat similar to *C. pallida* O. & D.

Melanorhopala balli, n. sp.

Color and general appearance similar to *M. clavata* Stal, but distinguishable by its much smaller size and shorter legs and antennae. Length, 3.23 mm.; width, 1.17 mm.

Antennae darker and stouter than in *M. clavata* Stal, the third segment slightly curved and slightly enlarged towards tip. Proportional lengths of antennae of female—*(M. balli)* I=17, II=14, III=104, IV=13; *(M. clavata)* I=30, II=16, III=160, IV=30. Legs short, about two-thirds as long as in *M. clavata.* Median spine on head greatly reduced. Discoidal area about three-fifths as long as in *M. clavata,* bounded by a prominent costate nervure.

Holotype, brachypterous female, Fort Collins, Colorado, July 28, 1899, E. D. Ball, in author's collection. In this species the elytra are scarcely longer than the abdomen and jointly rounded behind as in typical brachypterous forms of the genus *Hes-*

perotingis Parshley. Pterygopolymorphisn and sexual dimorphism are marked characteristics of the genus *Melanorhopala* Stal, especially in *M. clavata* Stal.

Hesperotingis floridana, n. sp.

Larger than *H. antennata* Parshley, the third antennal segment longer and considerably more swollen distally. Head ferrugineous, with five spines; median and posterior pair rather short, slender, contiguous with the head; anterior pair short, stout, curved inwardly. Antenniferous tubercles large, broad and prominent. Bucculae contiguous in front. Rostrum long, the apex concealed by "card point" behind intermediate coxae. Antennae very stout, ferrugineous, the distal half blackish; segments I short, slightly longer and stouter than two; III very long, strongly swollen towards apex; IV short, subconical, distinctly narrower at its base than the apex of the third.

Pronotum strongly swollen, shining, very coarsely pitted, ferrugineous, the collum and margin of triangular process testaceous. Paranota narrow, contiguous with sides of pronotum, uniseriate. Lateral carinae uniseriate, subparallel, a little more raised behind than in front, each composed of single row of very small areolae; median carina also more elevated behind, less elevated in front than lateral ones, areolate behind. Elytra considerably longer than the abdomen, rounded behind, brown, the nerves separating discoidal, sutural and subcostal areas, and some of the nervelets ferrugineous, the areolae pale; costal area uniseriate, some of the transverse nervures thickened and darkened; subcostal area almost entirely biseriate, with two or three extra cells opposite apex of discoidal area; discoidal area extending beyond middle of elytra, bounded by a prominent, strongly costate, irregular nervure, narrowed at apex, with four rows of cells at its widest part, the areolae of discoidal and sutural areas not arranged in very regular rows. Wings a little longer than the abdomen. Body beneath reddish brown. Legs reddish brown, moderately long. Length, 4.23 mm.; width 1.32 mm.

Holotype, macropterous female, East Florida, collected by Ashmead, in U. S. National museum. This species is very distinct from any of its congeners and is probably closely allied to *H. antennata* Parshley.

Hesperotingis mississippiensis, n. sp.

Brown, the antennae, lateral carinae and costate nervures separating discordal, subcostal and sutural areas brownish black. Length, 3.19 mm.; width, 1.13 mm.

Antennae moderately long and stout, dark brown, becoming blackish towards apex, densely clothed with short, recurved hairs; proportional length—I=13, II=18, III=95, IV=22. Rostral channel testaceous, deep, widening posteriorly, open behind, the rostrum extend onto the first venter. Bucculae dark brown, broad, contiguous in front, Orifice very large and prominent. Legs dark brown. Head, spines and antenniferous tubercles dark; anterior pair of spines stout, conical, strongly turned inwardly.

Pronotum coarsely pitted, areolate and testaceous behind; paranota uniseriate, almost contiguous with the dorsal surface of pronotum; collum distinct, slightly elevated in front of median carina; carinae terminating anteriorly at the calli, subparallel. Elytra a little longer than abdomen (brachypterous form), rounded behind, areolae slightly confused, opaque or subopaque; costal area uniseriate, a few of the transverse nervures thicker and blackish, subcostal area mostly biseriate, with a few extra areolae near apex of discoidal area; discoidal area bounded by a prominent dark nerve, widest near middle, there quadriseriate, somewhat narrowed at both apex and base, extending beyond middle of elytra. Wings greatly reduced. Claspers strongly curved in male.

Holotype, brachypterous male, Charleston, Miss., Sept. 10, 1925, collected by H. M. Harris, in author's collection. This species seems to belong to the genus *Hesperotingis,* the antennae are practically straight; the elytra are formed as in brachypterous form of this genus. It is most closely allied to *H. duryi* Drake from Texas, but the reticulations are much more regularly arranged and the antennae are quite different.

MEETINGS OF THE SOCIETY

Nov. 4—The Society met in Science Hall. Prof. Gray spoke of his summer vacation visit to Germany and its educational institutions. His talk was illustrated by several pictures of various laboratories and some of the publications which the Germans use in the distribution of information among the farmers.

Dec. 2—The Society met at 4 P. M. in the rooms of the Department of Entomology of the College of Agriculture. The following men were elected to membership: Prof. C. F. Byers of the Department of Biology, R. A. Knight of the State Plant Board, Mr. Ralph Dickey, Assistant in Entomology in the College of Agriculture, Mr. Monte Moore, graduate student in Entomology, College of Agriculture, Mr. Jack Creighton and R. M. Jones, students in the same department and R. E. Enlow of the Experiment Station. Prof. C. F. Byers gave the paper of the evening on "The Taxonomic Tendencies Occurring in Odonata Nymphs."

H. E. BRATLEY, Sec'y.

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Official Organ of The Florida Entomological Society, Gainesville, Florida.

J. R. WATSON ..... *Editor*
WILMON NEWELL ..... *Associate Editor*
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Issued once every three months. Free to all members of the Society.

Subscription price to non-members is $1.00 per year in advance; 35 cents per copy.

PARASITES APPRECIABLY DELAYING THE MULTIPLICATION OF THE CITRUS APHID

The citrus aphid, *Aphis spiraecola* Patch, is again very scarce this spring. At present writing its numbers are so few that it does not seem at all probable that it can increase with sufficient rapidity to do any appreciable amount of harm.

The reason for the comparative scarcity of aphis this year is due chiefly to the character of the weather during the winter. Because of the extreme drought of the fall and early winter, there was very little new growth suitable for the aphids, consequently very few aphids; then the freezes of January, by cutting off what little new growth there was, dealt them another very hard blow.

Mr. Thompson who is in charge of the citrus aphid work at the Citrus Substation at Lake Alfred has observed that even the few aphids that did go thru the winter are not increasing in numbers as rapidly as during the same season of previous years. His breeding cages show as many young per female being produced as is usual during this season of the year. But a comparison of the number of predaceous enemies of the aphids as compared with their number a year ago shows the reason for the slow multiplication of aphids. In connection with the aphid work at Lake Alfred, a weekly record is kept of the proportion of predators to aphids. The comparison of this year's record with last year's shows the predators are three times as abundant this year as they were last.

These predators are chiefly ladybeetles and the larvae of syrphus flies. The most abundant species of ladybeetles in

aphid colonies is the Blood-red Ladybeetle which eats an average of 90 aphids per day. The young of this beetle eat from 40 to 70 per day according to age. As this ladybeetle has a generation every month, the possibilities for rapid multiplication are great. Syrphus flies on the other hand eat aphids only in the larval stage; but for their size they are very voracious. One of them was found to eat 513 aphids during her larval life of ten days. In spite, however, of the voracious appetites of these predators and their rapid multiplication (short life history), they are not able to stop an infestation of aphids when the condition of the foliage, as in the early spring, is favorable. But our experience this year has shown their great value in holding down the aphids and preventing an infestation when conditions are not especially favorable for aphids.

TWO UNDESCRIBED WATER-STRIDERS FROM GRENADA (Hemiptera)

By C. J. DRAKE and HALBERT M. HARRIS, Ames, Iowa

Trepobates comitialis n. sp.

Similar to *T. inermis* Esaki in form but slightly larger and more robust. Color markings somewhat variable.

Apterous male: Antennae dark brown, segment I distinctly curved, its basal half yellowish; proportion of segments, 62:34:37:43. Rostrum reaching distinctly beyond anterior coxae, yellowish, a triangular spot at the base and the distal half piceous. Pronotum depressed on the disc, a broad median stripe and two broad lateral stripes (connected along anterior margin) black. Mesonotum with the prominent yellowish markings somewhat variable, the posterior margin faintly emarginate. Anterior legs stout, the femora strongly curved and distinctly constricted before the apex; dark brown, the basal portion, a ring at apex of femora, and an apical band on tibia yellowish. Intermediate legs brown, the femora with a stripe above and the entire undersurface yellowish. Posterior legs dark brown, the femora tinged with yellowish toward the base. Abdomen brown, its apical segment yellow. Connexivum with a small yellow spot on each segment. Venter yellowish, the sides brown; last segment slightly emarginate and nearly as long as the preceding two. Length, 3.6 mm.; width, 1.38 mm.

Apterous female: Longer and stouter than male; color markings about as there, the yellowish markings more prominent. Antennal proportion, 55:33:36:42. Anterior femora much slenderer than in male, in greater part yellowish. Connexivum without long hairs, the apex not produced outward. Length, 4 mm.; width, 1.18 mm.

Macropterous form (female): Pronotum long, rounded behind; black, a short median stripe in front, a broad stripe on each side and the entire posterior margin yellowish. Hemelytra broken off near base. Wings extending a little beyond the abdomen, smoky brown.

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Apterous female: Longer and stouter than male; color markings about as there, the yellowish markings more prominent. Antennal proportion, 55:33:36:42. Anterior femora much slenderer than in male, in greater part yellowish. Connexivum without long hairs, the apex not produced outward. Length, 4 mm.; width, 1.18 mm.

Macropterous form (female): Pronotum long, rounded behind; black, a short median stripe in front, a broad stripe on each side and the entire posterior margin yellowish. Hemelytra broken off near base. Wings extending a little beyond the abdomen, smoky brown.

Holotype, male; *allotype,* female; and *morphotype,* winged female, Grenada, West Indies, Aug. 31, 1891, H. E. Summers, collector, in collection of Iowa State College. *Paratypes,* taken with type, in collections of Iowa State College and the authors. Notes at hand state that the specimens were taken near the mouth of the river on brackish water, about one mile north of St. Georges', Leeward coast. This species and *T. inermis* Esaki, specimens of which are at hand from Grenada (Summers' collection), were listed by Uhler (Proc. Zool. Soc. Lond., 1894, XV, p. 213) as *T. pictus* Uhl. *T. comitialis,* n. sp. resembles *T. inermis* Esaki but is slightly larger and more robust and the males lack the longer hairs clothing the intermediate femora and tibiae.

Microvelia summersi, n. sp.

Winged form: Very short, broad, robust, scarcely more than twice as long as broad; clothed with short velvety pile; brown, a transverse spot on front of pronotum yellowish; hemelytra pale brown, becoming paler on basal half. Head short, broad, inserted in pronotum to eyes, the median indented glabrous line distinct. Antennae brown, not reaching beyond humeri of pronotum, segment I stout, slightly curved, enlarged towards apex; II slenderer, thickest beyond the middle; III slenderest; IV stout, thickest before the middle, tapering distally; the proportional lengths of segments, I:II:III:IV—9:6:7:13. Eyes large and prominent. Rostrum reaching beyond anterior coxae. Pronotum coarsely pitted, subtruncate at the apex, the humeri prominent, the median length three-fifths of the width thru humeri (34:55). Hemelytra slightly narrower than abdomen, the veins not prominent. Body beneath dark. Legs short, pale brown, the apices of tibae and tarsi lighter. Length, 1.43 mm.; width, .61 mm.

Holotype, winged female, and *allotype,* winged male, Grenada, West Indes, 1891, collected by H. E. Summers, in the Summers' collection at Iowa State College. *Paratypes,* six females, taken with types, in collection of Iowa State College and the authors. The wingless form is unknown. This unique little species is named in honor of Professor H. E. Summers, formerly of Iowa State College, who was much interested in aquatic Hemiptera and who made large collections in the United States and West Indies. The very short and robust form and the antennal characters serve to separate *M. summersi* from its congeners. It is perhaps most closely related to *M. marginata* Uhler, but is darker in color, and much shorter.

Trepobates trepidus Drake and Harris

Proc. Biol. Soc. Wash., XLI, 1928, p. 27.

In the original description the authors erroneously state that the rostrum extends beyond intermediate coxae, instead of anterior coxae. In all of the known species of the genus *Trepobates* the rostrum but slightly surpasses the anterior coxae.

THE SCARABAEIDAE OF FLORIDA

By W. S. BLATCHLEY
Dunedin, Florida

(Continued from page 62, Vol. XI)

Genus III. CHOERIDIUM SERVILLE

This and the next five genera form the tribe Coprini distinguished by having the apical halves of middle and hind tibiae gradually thickened, thus unfitting them for rolling balls of dung, though some form balls which they bury on the spot. The males usually have the head or thorax, or both, armed with a horn or tubercle. In *Choeridium* the labial palpi are 3-jointed; head and thorax unarmed; front coxae transverse, not prominent. They are small, shining brown or bronzed Hister-like beetles.

10. (13057). **C. histeroides** (Web.).

Length 6-7 mm. Above bronzed and strongly shining; hind angles of thorax more strongly rounded, their margin distinct, reflexed; punctures of head, thorax and elytral striae very evident.

Enterprise (Dietz); South Jacksonville and Lakeland, May, Sept. (Dav.); Gainesville (Ag. & P. B. colls.). Not included in Schwarz' list, or by Leng from Florida in his "Catalogue."

*11. (13058). **C. lecontei** Harold.

Length 5-6 mm. Dark brown, strongly shining; hind angles more broadly rounded, their margin very narrow, scarcely reflexed; punctures of head and thorax very faint; of elytral striae obsolete.

Evidently the common species throughout the State. Recorded by Schwarz from seven stations, including St. Augustine and Key West. Gainesville, "occasionally at light in May" (Doz.). Dunedin, March 29, in dry cow dung; at porch light, June 15, July 15 and Sept. 20 (Bl.).

Genus IV. PINOTUS Erichson

Very large black species having the front of head parabolic; clypeus of male with a blunt horn; thorax not transversely carinate beneath; elytra each 7-striate.

*12. (13059). **P. carolinus** (L.).

Length 20-28 mm.

Occurs sparingly throughout the State, usually taken at light. Suwanee Springs (Sloss.); Lakeland and Punta Gorda, November (Dav.); Lake City and Gainesville (Ag. Coll.). Gainesville, "Most abundant during June" (Doz.). Dunedin, scarce, at light only, April (Bl.).

Genus V. COPRIS Geoffroy

Medium sized black species having the front of head semicircular, clypeus (except in No. 16) emarginate; thorax transversely carinate each side beneath; elytra each with eight striae; front coxae short, prominent; front legs with tarsi, all tarsal claws distinct.

13. (13061). **C. gopheri** Hubbard, 1894, 310.

Length 7.5-10 mm. Black, strongly shining; head and thorax minutely, sparsely punctate; head of male with a short, stout median horn; elytral intervals smooth.

Lives in the burrows of the "gopher turtle," or Florida land tortoise, *Xerobates polyphemus* (Daudin). Described from Crescent City. Lake Worth, Enterprise, Sanford, Lake Mary and Clearwater (Sz. Ms). Known only from Florida.

*14. (13062). **C. minutus** (Drury).

Length 8-11 mm. Black, feebly shining; clypeus densely punctured at sides, nearly smooth at middle; vertex of male with a short, slender horn.

Occurs in dry horse and cow dung throughout the year; also at light or beneath logs and stones. Frequent in northern half of the State, south to Lake Worth (Ham.) and Dunedin and Sarasota (Bl.). Probably throughout the State; many records.

15. (13065). **C. tullius** Oliv.

Length 13-18 mm. Black, opaque; clypeus notched, densely punctate throughout; elytral intervals closely, minutely punctate. Vertex of male with an obtuse horn; of female with a tubercle. Crest of thorax with three tubercles, the median one bifid.

Though Schwarz lists *C. anaglypticus* Say (a synonym of *tullius) as* "common," and later (Ms.) includes it from St. Augustine and Chulota, it is not recorded elsewhere except by Dozier, who mentions one specimen as taken by Watson at Gainesville. Probably most if not all of the Florida records belong to the next species.

*16. (13066). **C. inemarginatus** Blatch., 1918, 54; 1919, 31.

Length 11.5-15 mm. Black, feebly shining; clypeus shorter, less punctate, more granulate than in *tullius,* its front margin entire; elytral intervals wholly smooth. Vertex of both sexes with a short horn or tubercle; thorax unarmed.

Dunedin, Jan. 20, two beneath dead turtle; a dozen others at porch light, June and July. Gainesville (Schff.); LaGrange, Sept. 10 and Lakeland, May 7 (Dav.); Port Orange (Dury); Enterprise (U. S. Nat. Mus.).

Genus VI. PHANÆUS MacLeay

Large or medium bronzed, green or bluish Coprinids, having the basal joint of antennal club hollowed out to receive the others; clypeus (in Florida species) entire; front tarsi of male absent, tarsal claws wanting. Vertex of male usually with a long horn; of female with a short tubercle.

17. (13071). **P. difformis** Lec.

Length 19-20 mm. Color variable, thorax green and elytra blue or thorax cupreus and elytra green; thorax with hind angles broadly rounded, side margins serrate in front of middle. Elytra in this and No. 18 coarsely and densely rugose-punctate, intervals flat or costate.

Enterprise (C. & L.), Naples, in Slosson Coll., (Leng). A Texan species, apparently very rare in Florida.

*18. (13072). **P. carnifex** (L.).

Length 14-22 mm. Color variable, usually with thorax cupreus and elytra green or bluish; thorax densely, finely rugose, hind angles obtuse, margins entire.

"Common" (Sz.); Lake City and Gainesville (Ag. and P. B. Colls.); Enterprise (Dietz). Punta Gorda, Nov.; LaGrange, June, Sept.; Parish, Oct. (Dav.). Ormond, Sarasota and Istokpoga, Feb.-April (Bl.). My Florida specimens are larger than those from Indiana, with thorax green, not coppery and elytra bluish-black. One blue-black Davis specimen from Punta Gorda, and one from Chokoloskee mentioned by Schaeffer (Ms.) as a "*var.*", are probably the same. Occurs mainly beneath human excrement.

*19. (13074). **P. igneus** MacL.

Length 16-20 mm. Thorax rugose, green or coppery; elytra green, the intervals convex, finely and sparsely punctate. Thorax of males with an obtuse tubercle near each humeral angle.

Common on horse and cow dung in northern half of State, south to Dunedin and Sarasota.

*19a. (13074a). **P. igneus nigrocyaneus** MacL.

A bluish-black color variety occurring commonly with the typical form.

Genus VII. ONTHOPHAGUS Latreille

Small black, bronzed-black or brownish species having the labial palpi 2-jointed; front coxae large, conical, protuberant; antennae 9-jointed; scutellum invisible; tarsal claws distinct. In species 20-24 inclusive, the males and females, differ in the armature of the vertex or thorax, or both.

20. (13077). **O. polyphemi** Hubbard, 1894, 311.

Length 5.5-6.7 mm. Black, shining, antennae and legs piceous; elytral intervals each with two rows of small punctures. Male with vertex and thorax without horns, the latter suddenly declivous in front.

Originally described from Crescent City, where it was found in numbers with *Copris gopheri* in the burrows of the gopher turtle. Lake Worth (Ham.); Enterprise (C. & L.); Sanford and Lake Mary (Sz. Ms.); LaGrange (Dav.); Funiak and Clearwater (Fall). The range in the State is probably coextensive with that of its tortoise host.

*21. (13080). **O. hecate** Panz.

Length 6.5-9 mm. Black, opaque, thorax finely granulate; elytral intervals each with two rows of fine punctures. Male with thorax protuberant in front, often with a long bifid process.

Common in dry cow dung or carrion throughout the State.

22. (13082). **O. orpheus** Panz.

Length 4-6 mm. Metallic green or bronzed. Male without clypeal horns, the thoracic process prolonged, deeply forked, the forks divergent; female with a short, broad truncate protuberant, median process.

Enterprise (Sz.); Crescent City (Sz. Ms.).

23. (13084). **O. janus** Panz.

Length 5-7 mm. Head and thorax metallic green or bronze, elytra piceous with metallic tinge. Male with two slender clypeal horns and thorax with a short, broad prefrontal median projection.

St. Augustine and Tallahassee (Sz. Ms.). Gainesville, Dec. 5 (P. B. Coll.).

*24. (13085). **O. nigrescens** Blatch., 1916, 94.

Length 5-6 mm. Uniformly black or dark piceous-brown, strongly shining. Male without clypeal notch or ridges but with two long, slender horns; female with two prominent clypeal ridges, the upper one and also the prefrontal process of thorax ending each side in a short tubercle.

Described from Dunedin, where it occurs frequently, November to April, in decaying fleshy fungi and at carrion traps.

*25. (13086). **O. pennsylvanicus** Harold.

Length 3.5-5 mm. Black or brownish-black; tibiae and tarsi reddish-brown; head and thorax unarmed; clypeus entire, the lower ridge present only in female.

Schwarz listed this only from Tampa as rare, but it is now known from many stations. At hand from Sanford, Sarasota, Dunedin and Palmdale. It occurs mainly in cow dung.

*26. (——). **O. alutaceus** Blatch., 1919, 31.

Length 4-4.5 mm. Black, alutaceous, feebly shining. Clypeus of male emarginate, without ridges or horns; thorax with an obtuse median pro-

jection, coarsely and shallowly punctate; elytral intervals each with two rows of aciculate hair-bearing punctures.

Dunedin, type taken on wing, Jan. 7; another beaten from oak, Jan. 31.

*27. (13090). **O. tuberculifrons** Harold.

Length 3.5-5 mm. Dark brown or piceous, elytra usually with paler spots along basal and apical margins; clypeus with front feebly triangularly notched and upper ridge represented by two tubercles; thorax alike in the sexes.

Common throughout the State, occurring in cow dung and decaying fungi.

Genus VIII. ONITICELLUS Serville

The members of this genus differ from those of *Onthophagus* in having the antennae 8-jointed and scutellum distinct.

28. (13096). **O. cubiensis** Cast.

A Cuban species recorded by Schwarz (Ms.) as having been taken at Key West by Morrison.

Subfamily APHODIINAE

Small oblong, or subcylindrical convex species, living for the most part in dung and having the clypeus dilated to cover the mouth parts; antennae 9-jointed, club 3-jointed; elytra striate, covering the pygidium; abdomen with six ventrals; hind tibiae with two spurs; tarsi with distinct claws.

KEY TO TRIBES OF FLORIDA APHODIINAE

a. Head punctured or slightly rugose; sides of thorax without transverse grooves or impressions.

b. Outer apical angle of hind tibiae obtuse.
Genus IX. Tribe APHODIINI.

bb. Outer apical angle of hind tibiae prolonged as a spine.
Genera X and XI. Tribe EUPARIINI.

aa. Head roughly granulate or verrucose; thorax, in Florida species, with either transverse grooves or impressed near front angles.
Genera XII-XIV. Tribe PSAMMOBIINI.

Genus IX. APHODIUS Illiger

The members of this large genus possess the characters above mentioned and have the head usually punctured or slightly rugose, scutellum in the Florida species (except *hamatus)* not more than one-eighth the length of elytral suture; elytra simply striate, the first five striae not reaching the apical margin, intervals never carinate; front tibiae with outer margin strongly toothed. They live in and burrow beneath carrion or dung, are

on the wing by myriads in early spring and are sometimes attracted by thousands to the electric lights of cities.

29. (13109). **A. hamatus** Say.

Length 6-9 mm. Piceous or black, elytra often with paler suture and margins; scutellum nearly or fully one-fourth the length of elytral suture.

According to Leng (Ms.) the *A. concavus* Say, recorded by Schwarz (Ms.) from Crescent City, is *hamatus*. No other record from the State, the distribution being for the most part much farther north.

30. (13115). **A. crassulus** Horn, 1870, 118.

Length 4.5-5 mm. Form short, robust; black, shining; clypeus emarginate, the angles of notch forming two acute teeth; mesosternum not carinate between the coxae; thorax in this and species 31 with a distinct basal marginal line; apex of hind tibiae in this and species 31-33 fimbriate with short equal spines.

Types from "Georgia and Florida." Lake City, Oct. 28 (Ag. Coll.). No other records.

(To be continued)