

Article XXXVI.—DESCRIPTIVE CATALOGUE OF WEST INDIAN
CICINDELINÆ.¹

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PLATE XII.

The material now accumulated in this Museum by the expeditions to Cuba, Santo Domingo, Porto Rico, Jamaica and many islands of the Lesser Antilles, in conjunction with that found in several public and private collections, permits of a fairly complete view of the coleopterous fauna of the West Indies, subject, however, to the difficulties of mounting and identifying thousands of specimens. In the Cicindelinae the interest that these graceful and brightly colored beetles always excite has led to the records being especially copious; and besides, we have had the advantage of access to the remarkable collection of Mr. Edward Doubleday Harris, as well as the aid of the nearly complete bibliography contained in Dr. Walther Horn's work in *Genera Insectorum*. It is gratifying to find that the Museum collections add materially to the published statements regarding the distribution of the described species and even to their number; and, while we recognize the lack of data from many of the smaller islands, which have not been exhaustively studied, we feel that our knowledge of the subfamily enables us to state approximately its history in the West Indies.

The table below indicates a dispersal of the genus *Cicindela* from the United States to Cuba, Porto Rico and Hispaniola, with a decreasing number of species as we proceed southward; accompanied, however, by a dispersal of one species (*suturalis*) in the opposite direction, from South America northward. The southward dispersal apparently ceases at Guadeloupe, the northward reaches Porto Rico; but additional data may alter these statements.

Table of known Distribution of genus Cicindela in the West Indies.

Florida	19	species including 3-fasciata, marginata.
Bahamas	2	" 3-fasciata, marginata.
Grand Cayman	1	" 3-fasciata.
Cuba	7	" boops, olivacea, 3-fasciata, cubana, cardini, viridicollis, marginata.
Porto Rico	3	" boops, 3-fasciata, suturalis.
Hispaniola	3	" boops, 3-fasciata, suturalis.

¹ The following new names are proposed in this paper: viz., *Cicindela cubana* n. sp., *Cicindela cardini* n. sp., *Tetracha carolina* var. *floridana* n. var., *Tetracha sobrina* var. *antiguana* n. var.

St. Thomas	2	species, 3-fasciata, suturalis.
Guadeloupe	3	" 3-fasciata, suturalis, argentata.
Antigua	2	" 3-fasciata, suturalis.
Jamaica	1	" 3-fasciata.
Barbuda	2	" 3-fasciata, suturalis.
Martinique	1	" suturalis.
St. Bartholomew	1	" suturalis.
Grenada	1	" suturalis.
St. Vincent	1	" suturalis.
Barbados	1	" suturalis.

We have also a dubious record of *dorsalis* in Cuba, which, if authentic, would add to the West Indian-Floridian relationship; and an ancient and probably erroneous record of *rufiventris* in Haiti.

It may also be said that the table exhibits, in the comparatively large number of peculiar Cuban species, the same tendency to Antillean individuality that was referred to in our Preliminary List as exemplified by such genera as *Leucocera*, *Exophthalmus* and others not there mentioned, like *Solenoptera* and *Pseudomus*.

The isolated occurrence of *argentata* in Guadeloupe, a species thus far unknown from the islands between Guadeloupe and South America, where it is abundant in many varieties, is interesting and at present, not easily explained.

SYSTEMATIC POSITION OF ANTILLEAN CICINDELINÆ.

According to Dr. Walther Horn's recent work in *Genera Insectorum*, the Cicindelinae constitute a subfamily of the Carabidæ, themselves the principal division of the series Adepaga, the predaceous land beetles; and are capable of subdivision as follows:

Alokoisternal Division.

Tribe Ctenostomini	Madagascar, Tropical America.
" Collyrini	Southern Asia to No. Queensland.

Platysternal Division.

" Mantichorini	Southern Africa.
" Megacephalini	
Subtribe Platychilina	Southern Africa.
" Omina	Pacific Coast and Sonoran Region.
" Megacephalina	
Genus <i>Eucallia</i>	Equador, Columbia.
" <i>Oxychila</i>	Tropical America.
" <i>Chiloxia</i>	Equador, Bolivia, Guiana.

Genus <i>Pseudoxychila</i>	Andes Chain from Costa Rica to Bolivia.
“ <i>Aniaria</i>	Northern South America.
“ <i>Megacephala</i>	Tropical and Temperate Regions.
Tribe Cicindelini	
subtribe Dromicina	Tropical Regions.
“ Theratina	“ “
“ Prothymina	“ “
“ Odontochilina	“ “
“ Cicindelina	Tropical and Temperate Regions.

Of these subdivisions (notwithstanding that many abound in northern South America, reaching even to Trinidad, where four species of *Odontochila* occur) only two, both of which attain the temperate regions, *Megacephalina* and *Cicindelina*, are found in the West Indies. The list of species, so far as known, with their distribution outside the West Indies is as follows:

Tribe Megacephalini.
Subtribe Megacephalina.
Group Tetrachæ.
Genus *Tetracha*.

<i>carolina</i>	U. S. and Antilles.
<i>acutipennis</i>	peculiar to Antilles.
<i>sobrino</i> var. <i>infuscata</i> and var. <i>antiguana</i>	“ “ “

Tribe Cicindelini.
Subtribe Cicindelina.
Genus *Cicindela*.

<i>3-fasciata</i>	U. S. and Antilles.
<i>marginata</i>	“ “ “
<i>boops</i>	peculiar to Antilles.
<i>olivacea</i>	“ “ “
<i>viridicollis</i>	“ “ “
<i>cardini</i>	“ “ “
<i>cubana</i>	“ “ “
<i>suturalis</i>	South America and Antilles.
<i>argentata</i>	“ “ “ “

This table again exhibits the strong relationship with North America, the more feeble relation with South America, and the development of peculiar Antillean forms. It is noteworthy that the characteristic *Odontochilina*, *Oxychilæ*, etc., of northern South America have not extended beyond Trinidad; while the *Cicindelinae* of the more temperate North American mainland have become established in the Greater Antilles and have there developed several peculiar species. It may be further remarked

that the habits of the most widely distributed species, *C. trifasciata*, make its haunts and larval home those shores whereof portions would be liable to disintegration by waves and storms, so that ocean drift would be more likely to aid in distribution than in most instances.

We are indebted to Mr. Gilbert J. Arrow for a memorandum of the distribution of *Cicindelæ* in the British Museum and to Mr. E. A. Schwarz for aid in examining the specimens in the U. S. National Museum.

Genus *Tetracha* Hope.

The genus *Tetracha* is represented by numerous closely related species in tropical America and extends northward to Washington, D. C.; Cincinnati, O., where it has been noted as numerous under electric lights by Dury; and even to Long Island, N. Y., where a single specimen has been found by Davis. Of the Antillean species: *acutipennis*, most sharply differentiated by its separately pointed elytra, is confined to Cuba and Hispaniola, so far as known; *sobrina* ranges from South America through the Lesser Antilles to Porto Rico, exhibiting differences of color in the various islands; while the third species, *carolina*, widely distributed in the more southern parts of the United States, Mexico and Central America and breaking into many varieties in its extended range, is thus far known only from Cuba and Grand Cayman.

Key to Antillean Species of *Tetracha*.

1. Elytra separately acuminate at apex. *acutipennis*.
Elytra rounded at apex. 2
2. Punctures of elytra coarse, forming transverse rugæ especially in basal half, and muricate; apical lunules broad throughout, enclosing an extension of the dark color which is sub-triangular in outline and pointed at apex. 3
Punctures of elytra finer, scarcely confluent at base, widely separated behind the middle, nowhere muricate; apical lunules usually narrower apically, enclosing an extension of the dark color which is rarely triangular or pointed, but usually broadly rounded at apex. 4
3. Elytra coppery bronze in color, with green reflections, but largely suffused with black in form of letter V. *sobrina*.
Elytra not suffused with black. var. *antiguana*.
Elytra not coppery in color, greenish bronze largely suffused with black. var. *infuscata*.
4. Elytra coppery suffused slightly with black over a small area in front of the lunules. 5
Elytra not coppery but greenish bronze largely suffused with black; femora in part and first three antennal joints dusky. var. *floridana*.
5. Legs and antennæ usually testaceous. *carolina*.
Outer part of hind femora and apex of first three antennal joints usually darker in color. var. *occidentalis*.

***Tetracha acutipennis* Dejean.**

Plate XII, Fig. 1.

(The bibliography and synonymy of this and following species will be found in Genera Insectorum, fasc. 82A, 82B, 82C, where, however, the references from Duval and Gundlach are omitted).

Occurs in Cuba (Gundlach, Coleop. de Cuba, p. 9, 1891; Duval, in Sagra's Hist. Phy. Po. Nat. Cuba, Anim. Artic., 1857, p. 4) and in Hispaniola. At once distinguished by the form of the elytra each of which ends in a short, sharp point, the two together making a triangular incision at the sutural apex. The color is greenish bronze, largely suffused with black, or the dark color may predominate (*cyaneo-nigra* Chaudoir Mss. according to labels on specimens in Harris Coll. received from Staudinger by the late A. Luetgens); the legs, the antennae and the apical lunules are testaceous; the lunules broad, meeting at sutural apex and enclosing a triangular extension of the dark color. The first three joints of the antennae are tipped with fuscous, and the extremities of the hind femora are usually dusky. Length, 11 to 12 mm.

Represented by a specimen identified by Dr. W. Horn and donated by Mr. Edw. D. Harris and by a series from Hispaniola in his collection derived from the Speyer and the Luetgens Coll.

***Tetracha sobrina* Dejean.**

Occurs from Mexico to Colombia and in St. Bartholomew (?).

The head and thorax are coppery with greenish reflection on the front of the former and flanks of the latter; elytra coppery with greenish reflection, broadly suffused with black extending in a V-shaped mark from humeri nearly to apex, apical lunules broad throughout; a broad triangular spot on the disk enclosing the lunule ascending to about the basal third. Length, 14-15 mm.

This species can usually be distinguished from *carolina* by the broad apical lunules with the inner margin but slightly sinuate so that the extension of the dark area is subtriangular, but where this fails, the extremely coarse punctuation of the elytra will be decisive.

There are no specimens of this species in the Museum collection from the West Indies.

Tetracha sobrina var. **infuscata** Mann.

Plate XII, Fig. 2.

Occurs in Hispaniola, St. Thomas, Santa Cruz, Porto Rico, St. Bartholomew. It does not occur in Cuba, according to Gundlach (*l. c.*, p. 10 and *Anales de la Soc. Esp. de Hist. Nat.*, II, p. 290, 1894).

The color of the variety *infuscata* is similar to that of *acutipennis* but the tips of the elytra are almost conjointly rounded. The sculpture of the elytra is the same as of *sobrina* but the apical lunules are narrower. Length, 13-14 mm.

Represented by a specimen from Hispaniola, identified by Dr. W. Horn and donated by Mr. Edw. D. Harris, by specimens from Santa Cruz in Harris Coll., and by specimens in the Museum collection taken at Ensenada, Porto Rico, June, 1915, by Lutz and Mutchler, and at San Juan, Porto Rico, Aug. 2, 1914, by H. G. Barber. These are brighter in color than Hispaniola and Santa Cruz specimens but lack the coppery hue characteristic of var. *antiguana*.

Tetracha sobrina var. **antiguana**, new var.

Head and thorax as in *sobrina*; elytra coppery with greenish reflection but devoid of the black suffusion ascribed by description to *sobrina* and the dark portion enclosing the apical lunule does not ascend as far towards the base of the elytra. Length, 15-16 mm.

Under stones at edge of brackish marsh, St. John, Antigua, June 5, 1911 (R. W. Miner).

Tetracha carolina Linné.

Occurs in Cuba (Duval, *l. c.*, p. 3; Gundlach, *l. c.*, p. 9). On the mainland of America it ranges from Virginia to Nicaragua and, including varieties, even to Peru.

The form occurring in the Carolinas, and therefore probably the form described by Linné, has the legs and antennæ entirely testaceous; the name *carolina* belongs especially to this form but has been extended to include the slightly differentiated forms occurring in the States adjacent to Mexico, in which the femora in part and the tips of the first three antennal joints are sometimes darker in color. Such forms approach the Mexican variety *mexicana* and are perhaps identical therewith. In the West Indian forms similar differences in the color of the legs and antennæ are observed and the

variety *occidentalis* cited below is based thereon. In the Carolinas, however, whence typical *carolina* was described, such differences are unknown and we therefore restrict the name for our present purpose to specimens with entirely testaceous legs and antennæ.

Apart from the color of the legs and antennæ, true *carolina* is of a brilliant metallic green hue with strong coppery reflections on the elytra and but very little suffusion of black in front of the lunules. The latter are broad in front, narrower behind, so that the enclosed extension of dark color is broad, subparallel rather than subtriangular, and rounded at apex. There is much variation in this character and specimens have been seen which could not be distinguished from *sobrina* by this character alone. As stated above, there is a constant difference in the punctuation of the elytra, which in *carolina* is distant, not muricate, and never forms transverse wrinkles. Length, 13-15 mm.

Represented by specimens collected on San Carlos Estate, Guantanamo, Cuba, October, 1913, by Mr. Charles T. Ramsden, in which the dark color of the legs is not at all apparent and the tips of the first three antennal joints are barely fuscous.

***Tetracha carolina* var. *occidentalis* Klug.**

Occurs in Cuba (Duval, *l. c.*, p. 3 and Gundlach, *l. c.*, p. 9) and is probably the common form there, and in Grand Cayman (Harris Coll.).

As intimated above, this variety, though treated as a synonym by Dr. W. Horn in *Genera Insectorum*, is readily distinguished by the dark color of the tips of the first three antennal joints, the darker femora, especially towards the knees, and the greater extent of the area of the elytra suffused by black. The coppery reflections are, however, preserved. Length, 14-15 mm.

While the differences between the Cuban variety and typical *carolina* are confined to the coloration, they are apparently as great as those separating the Mexican varieties and the name for the Cuban variety should be retained as long as that of the Mexican variety is retained to avoid a false implication of climatic influence operating in the one region and not in the other.

Represented in the Harris Collection by specimens from Guantanamo and others without exact locality from Staudinger; also by specimens from Grand Cayman, May, 1911 (Lambert) and in the Museum Collection by specimens from vicinity of Havana, July (Cook); Vinales, Sept. (Lutz and Leng) and Santiago (donated by Mr. E. D. Harris).

***Tetracha carolina* var. *floridana*, n. var.**

Occurs in southern Florida.

In this variety the coppery reflections of the elytra disappear almost entirely, a few specimens showing a bare trace behind the scutellum. The dark color of the legs and antennæ is faintly seen in a few specimens but generally these parts are testaceous as in true *carolina*. The elytra are, however, broadly suffused with black. In punctuation, shape of lunule, size and shape, this form agrees with *carolina*. Length, 14–15 mm.

Represented by the type in A. M. N. H. Coll. from Everglade, Fla., June, 1912, collected by the sons of Mr. Geo. W. Storter and donated by

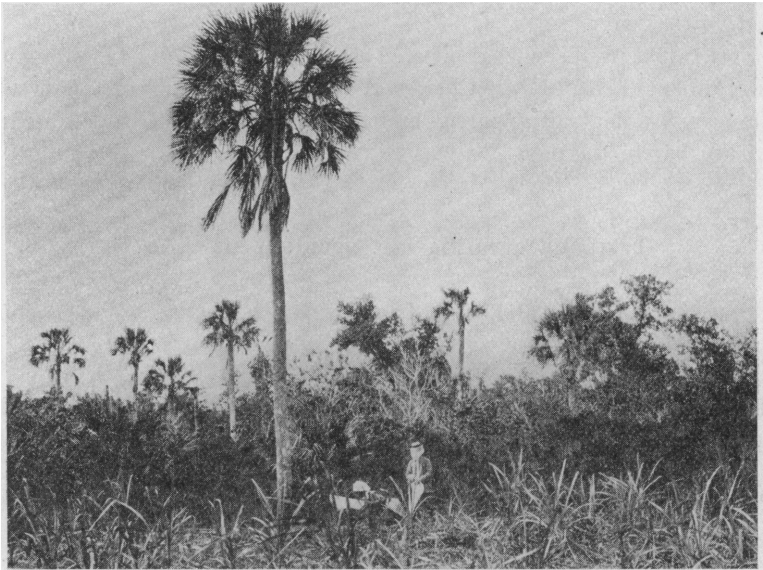


Fig. 1. Vicinity of Everglade, Fla. *Tetracha floridana* was taken here, but in open spots not shown in the photograph.

Mr. Wm. T. Davis, in whose collection and those of Messrs. Harris and Leng are other examples.

Specimens of this insect were sent by Mr. Harris to Dr. W. Horn and returned as var. *chevrolatii* under which name it appeared in "Carabidæ of Florida." It resembles *chevrolatii* in the dark color of the elytra, but differs in the paler color of the legs and antennæ, in its smaller size, and in the form of the apical lunules, which are less sinuate internally. *Chevro-*

latii being described from Yucatan, a false idea of distribution is involved in announcing its occurrence in Florida, and, slight as the differences are, we feel that for accurate representation of distribution, a name is required for the south Florida insect, which differs from the already described forms of *carolina* as much as they differ between themselves.

It may be noted that we have no dates for any species of *Tetracha* earlier than May. As Mr. Davis failed to find any species of the genus at Everglade during his visit to that locality, and his collector found *floridana* abundantly after his departure, there seems good reason to regard the genus as somewhat restricted in season.

Genus *Cicindela* Linné.¹

Most of the species of *Cicindela* are insistent upon an environment peculiarly adapted to the inherited habits of their race and often become thereby restricted in their range to isolated areas of suitable character. The sea beaches, the mud flats adjoining them, inland sandy paths and open fields partly overgrown, each have their habitués the world over. We have endeavored, by inserting photographs of their haunts, to show the preferences of some of the West Indian species.

Synoptic Table of Antillean Species of Cicindela.

- | | |
|---|----------------------|
| 1. Elytra similar in both sexes, not emarginate near apex in either sex; mandibles toothed laterally but not beneath; sides of the head not pubescent | 2 |
| Elytra dissimilar in sexes, emarginate near apex; mandibles toothed beneath as well as laterally; sides of head pubescent. (Elliptoptera Dokturoh.) | |
| | <i>marginata.</i> |
| 2. Four front trochanters with erect setæ; markings normal | 3 |
| Two front trochanters with; two middle trochanters without, erect setæ; markings normal | 6 |
| Trochanters without setæ, elytra each marked with a whitish submarginal vitta. | |
| | <i>cardini.</i> |
| 3. Femora with hooked hairs | 5 |
| Femora without hooked hairs | 4 |
| 4. Elytral markings connected by white marginal stripe | <i>boops.</i> |
| Elytral markings all separate | <i>olivacea.</i> |
| 5. Elytra dark greenish bronze with normal markings except middle band is tortuous | <i>trifasciata.</i> |
| Elytra white with bronze markings | <i>suturalis.</i> |
| 6. Elytra with subsutural row of large foveæ | <i>cubana.</i> |
| Elytra without subsutural row of large foveæ | 7 |
| 7. Thorax brilliantly green | <i>viridicollis.</i> |
| Thorax not green; elytral markings all separate | <i>argentata.</i> |

¹ For bibliography and synonymy of the various species, see Genera Insectorum, fasc. 82c.

Boops and *olivacea* are in Horn's section VIII, *trifasciata* and *suturalis* in his section X, *viridicollis*, *argentata*, *cubana* in his section XVIII though *cubana* was unknown to him, and *marginata* in his section XXVI. *Cardini* does not enter any of his sections.

***Cicindela marginata* Fabricius.**

Brownish bronze or olivaceous. Head clothed with short decumbent hairs, sparse on the front and apex, dense on the sides below the eyes. Thorax feebly rounded at the sides, sparsely covered with short decumbent hairs. Elytra densely punctured; markings consisting of a basal dot, an uninterrupted marginal band, an oblique humeral lunule (hooked at the top), a somewhat confused tortuous middle band, an apical lunule inflected on both ends. Body beneath green-bronze, sides hairy. Legs green-bronze; hind trochanters red. Length, 11–12 mm.

Occurs in Florida, Bahamas and Cuba. In the United States it extends as far north as Maine, always on marshy sea coasts.

***Cicindela cardini*, n. sp.**

Plate XII, Fig. 3.

Elongate, green, with a white vitta on each elytron, legs and mouth parts yellowish. Labrum yellow, narrower at apex than at base, as long as broad, feebly unidentate in front and with a few submarginal setæ. Mandibles yellowish, becoming piceous at the extremities. Tarsi yellow, setæ darker at extremities. Antennæ piceous except four basal joints which are yellowish. Head, except the labrum, brilliant shining metallic green, finely strigose between the eyes and on the occiput where the strigæ become wavy and transverse, almost glabrous, a few white setæ between the eyes and on the genæ; eyes very prominent, yellowish. Pronotum brilliant shining metallic bluish green, almost glabrous, bearing only about ten white hairs on each side; surface transversely strigose, the strigæ interrupted by a fine but deep median channel, which is connected with subapical and subbasal transverse furrows in which the blue reflection is more apparent; flanks of thorax pure green, densely punctulate, with six obsolete striae and about as many white setæ. Elytra bluish green, not shining except feebly at margins, very finely densely punctulate without granules or foveæ, sides parallel, apex rounded with the sutural margin prolonged into a sharp little spine and the apical margin finely crenulate. A whitish vitta on each elytron involves the humerus and runs near and parallel to the external margin becoming confluent with an apical lunule; it is of nearly uniform width and is slightly but abruptly expanded at two-thirds its length. Beneath the color is metallic green, somewhat rufescent on ventral segments which are copiously clothed with decumbent white hairs at sides; the side pieces of the meta- and mesosternum are also hairy. The coxæ are prominent and clothed with decumbent hairs on one side but it is difficult to discover any hairs on the trochanters. The legs are dark

yellowish, the tips of the femora, of the tibiae and tarsi darker; the legs bear numerous erect white bristles. Length, ♂, 8.5 mm., ♀, 10 mm.

Described from two specimens ♂ ♀ (7356*a* and *b*) in the U. S. Nat. Museum, received from Patricio Cardin of the Agr. Sta. at Santiago de la Vegas, and labelled as having been collected by José Cabrera, at Contorro, Province of Havana, on August 18, 1910. This species, which is dedicated to Mr. Cardin at the suggestion of Mr. E. A. Schwarz, differs remarkably in its pattern of maculation from all other Antillean species.

***Cicindela boops* Dejean.**

Plate XII, Fig. 4.

Subcylindrical, greenish and coppery, bronzed above; elytra punctate lateral margin (subinterrupted in front and dentate within) an abbreviated

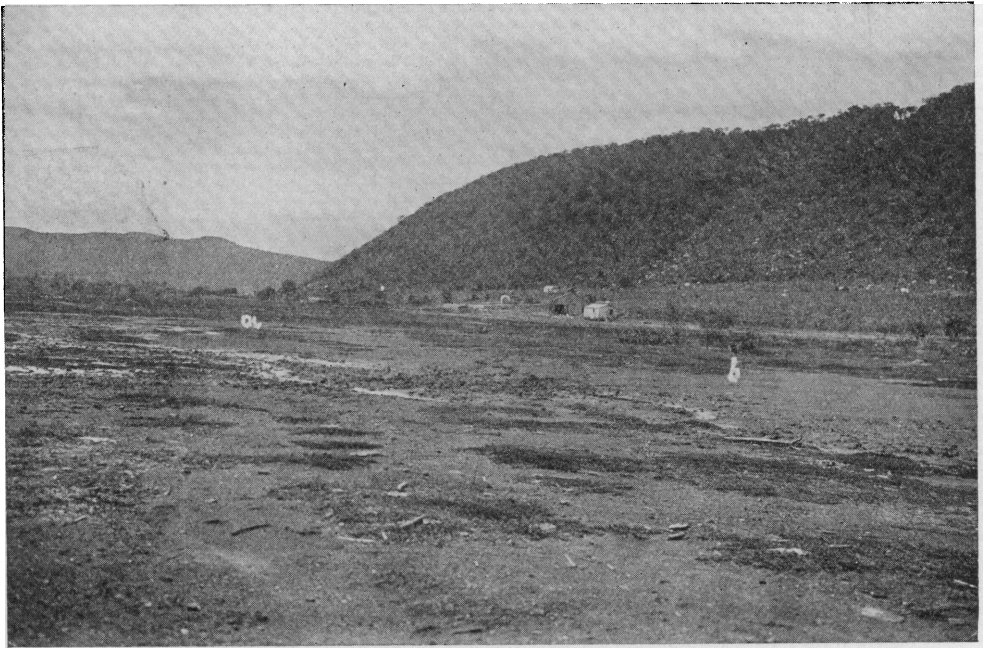


Fig. 2. Alkali flat at Santa Rita, Porto Rico.

(*a*) Low muddy section. *Cicindela boops* was found in this part.

(*b*) Higher and sandy portion. In this section *Tetracha sobrina* var. *infuscata* was found under dung and débris. *Cicindela trifasciata* was found alongside a small brook. Farther back the ground was somewhat higher, cacti grew in profusion and no *Cicindelæ* were found there.

and subtransverse fascia at middle and a lunule at apex, white; anus testaceous. In our series considerable variation in the extent of the white markings is shown, almost complete obliteration thereof being the extreme. Length, 10.5 to 14.0 mm.

Occurs in Cuba, Hispaniola and Porto Rico.

Represented by specimens collected at Santa Rita, Porto Rico, by Prof. Henry E. Crampton and A. J. Mutchler. Gundlach (*Coleop. de Cuba*, p. 11, 1891)¹ records it from Cardenas, Cuba.

***Cicindela olivacea* Chaudoir.**

Elongate, convex, cribrately punctate, olivaceous above, white beneath; labrum and markings of elytra consisting of a simple humeral lunule, an apical lunule angulate in front, a middle band arcuate towards middle, and a marginal spot behind and beneath the band, all ivory white; middle of the body longitudinally smooth, coppery green; anus yellow. Length, 11.0 to 11.5 mm.

Occurs only in Cuba. Gundlach says he found this species on the coast near Havana. It has not been found in our expeditions.

***Cicindela trifasciata* Fabricius.**

Dark greenish bronze; elytra with lateral white margin sinuate, with hooked apical and humeral lunule and a tortuous S-shaped middle band. Length, 12.0 mm.

Occurs in Florida, Bahamas, Cuba, Grand Cayman, Hispaniola, Porto Rico, St. Thomas, Jamaica, Barbuda, Antigua and Guadeloupe, so far as known and possibly in many of the smaller islands. On the Atlantic Coast it extends northward to North Carolina (Southern Pines, Manee) also along the Gulf Coast and southward to southern Mexico and in a very slightly modified form it reappears on the Pacific Coast.

It is represented by numerous examples in the Museum Collections and the Harris Collection.

¹ This work appeared at intervals as supplements to the *Anales Acad. Cien. Med. Fis. Nat. of Havana* under the general title "Contribucion a Entomologia Cubana"; and was also published in book form in three volumes: I, 1881, Lepidoptera; II, 1886, Hymenoptera, Neuroptera, Orthoptera; III, 1891, Coleoptera. See Ramsden, *Ent. News*, XXVI, 1915, p. 259.

***Cicindela suturalis* Fabricius.**

Plate XII, Fig. 5.

Head and thorax bronze green; sides and flanks of thorax sparsely covered with white pile; an elongate, triangular, sutural mark covering one-half of the basal portion of each elytron and extending, on both sides of the suture, to a little more than one-half way to the apex; the edges of the triangular mark are more or less irregular, and the apex is sometimes expanded so as to constitute a narrow, transverse fascia. In addition, some specimens show a more or less distinct arcuate dark line surrounding



Fig. 3. Beach at Samana Bay, Santo Domingo, about three-eighths of a mile west of Sanchez. *Cicindela trifasciata* was collected at this place by Mr. F. E. Watson.

the transverse fascia, the lines of each elytron often joined at the suture between the fascia and the apex of the elytra. Body beneath green, sides with white pile. Length, 8.5 to 10 mm.

Occurs in Hispaniola, Porto Rico, St. Thomas, St. Bartholomew, Barbuda, Antigua, Guadeloupe, Martinique, Barbados, St. Vincent and Grenada, so far as known; also in Venezuela, Amazon region, Colombia in South America. Gundlach (*Anales de la Soc. Esp. de Hist. Nat.*, II, p. 290, 1894) states that it does not occur in Cuba; we have no Cuban records and it does not reach the United States.

Collected by Dr. F. E. Lutz at St. John, Antigua, on June 15, 1911.

We have seen specimens also in Harris Collection from St. Thomas, from Calais Beach, Barbados, and from Brazil.

***Cicindela suturalis* var. *hebræa* Klug.**

Plate XII, Fig. 6.

Head, thorax and underside same as in typical form. Elytra bronze green with an uninterrupted marginal band, dilated and nearly covering the entire apical portion where it is bidentate on the inner side; basal lunule hooked and a tortuous S-shaped middle band. Length, 7.25 to 8.5 mm.

Collected at Puerto Plata, St. Domingo, May 8, and July 6, 1915, by Mr. F. E. Watson and at Añasco, P. R., June 21, 1915, by Lutz and Mutchler. We have seen specimens also in the Harris Collection from Añasco, Porto Rico, Sept. 1, 1913, and from Colombia and Brazil.

Mr. J. Purves (Ann. Soc. Ent. Belg., XVII, p. 120) says that *hebræa* and *suturalis* occur on the sea beach all around Antigua and male *suturalis* was often seen in copulation with female *hebræa*. Our records from that island do not support this statement, for *suturalis* and *trifasciata* but not *hebræa* were found there by Dr. Lutz and *hebræa* and *trifasciata* (not *suturalis*) in Porto Rico by Lutz and Mutchler and again in St. Domingo by Mr. Watson. In all our collections *hebræa* and *suturalis* have never been found together. *C. trifasciata* has, however, been found in each locality running on the same beach, sometimes a little further back from the sea. In this connection the similarity in the genitalia, as shown by our illustrations (Plate XII, Figs. 9 and 10) indicates the possibility of such copulation between diverse species and indeed such has been noted by Davis (Ent. News, 1903, p. 270) and by Johnson (Journ. N. Y. Ent. Soc., II, 1894, p. 142).

***Cicindela suturalis* var. *guadeloupensis* F. and S.**

Fleutiaux's notes on the Guadeloupe form, which we have not seen, are as follows: Variety almost black; punctuation of elytra more serrate than in the type; white markings narrow as in the specimens from Colombia, while in specimens from other parts of Antilles, from Brazil and Cayenne, they are wider and extend so as to invade almost the whole surface of the elytra (v. *suturalis* Fab.). What seems remarkable is that this variety, constant and confined to Guadeloupe, is always darker than the type and at the same time less brilliant; it is just the contrary with *trifasciata*.

We regard the supposition of the identity of *guadeloupensis*, described

from Guadeloupe, with *nocturna*, described from South America, as questionable but our inability at present to inspect M. Fleutiaux's type prevents further investigation.

***Cicindela viridicollis* Dejean.**

Plate XII, Fig. 7.

Subcylindrical, head and thorax green shining, elytra brown bronze with a humeral white dot and another behind the base, a recurved middle band and apical lunule subinterrupted, base of antennæ, femora and tibiæ pale testaceous, shining bronze. Length, 7 to 8 mm.



Fig. 4. Locality at Baños San Vicente, Cuba, where *Cicindela viridicollis* was found along the path.

Occurs only in Cuba. Our expedition to Cuba in September, 1913, found this species at two localities in Piñar del Rio province, Baños San Vicente and Cerro de Cabras, running along paths through grassy fields. It flies weakly and, while flying, the brilliant green head and thorax are so conspicuous as to suggest a small bee rather than a *Cicindela*. There are also specimens in Harris Collection taken by Prof. H. F. Wickham near

Havana; and in the Museum collection taken by Mr. Barnum Brown in Santa Clara province.

***Cicindela argentata* var. *pallipes* F. and S.**

The name given to the Guadeloupe insect is treated as a synonym by Dr. Walther Horn. It is known to us only by Fleutiaux's figure and description which may be translated as follows: This variety is distinguished by the dark color of the head and thorax, by the apex of elytra less shortly rounded and by the yellow legs and first antennal joint.

At 500 ft. elevation in fields of red soil.

Occurs only in Guadeloupe. The species as a whole extends from Argentine to Sonora.

***Cicindela cubana*, n. sp.**

Plate XII, Fig. 8.

Similar in size and form to *C. viridicollis*. Coppery bronze in color with a sub-sutural row of large bluish green foveæ and smaller foveolæ scattered over the elytra; dark blue and coppery patches intermingled on the head. The white markings on the elytra consist of a marginal stripe strongly dilated at the middle, more feebly behind the humerus, and narrowly separated (not separated in one male) from the apical lunule, and also of two small discal dots, one at about one-fourth from base, the other at about three-fourths from base, or where the terminus of the middle band would be if complete. The middle band is represented in the dilation of the marginal stripe at middle and by its very short and narrow prolongation towards the posterior discal dot. The color beneath is bluish metallic, except the thorax, which is coppery, and the legs, mouth parts and anus, which are testaceous; the legs faintly metallic; the last joint of the palpi dark. The labrum is very long, white, strongly arcuately narrowed to apex, where it is feebly bisinuate emarginate, with a small acute tooth at middle of the emargination; it is glabrous but bears a few submarginal setæ. The head is glabrous, except for five or six decumbent setæ on the genæ and two erect setæ beside each eye; it is deeply strigose between the eyes; the scape of the antennæ bears a single seta, and the succeeding joints also a few. The pronotum is coarsely punctured with a feeble transverse arrangement of the sculpturing; decumbent white setæ are copious at sides but lacking broadly at middle, where there is a well defined narrow median channel connected with anteapical and antebasal transverse channels. The elytra are densely punctulate, serrulate at margin in apical fourth and the apex of each is prolonged into a short spine. The pubescence beneath is white and fairly dense on sides of abdomen and flanks of body and thorax. The legs also have erect distant setæ. Length, ♂, 6 mm.; ♀, 7.5 mm.

Four specimens were found by Dr. Frank E. Lutz and his companions on sandy paths through the sparse low pines 12.5 kilometres south of Piñar del Rio, Cuba, in September, 1913. The character of the region is shown by accompanying photograph.

This species resembles most *C. viridicollis* and has the setal characters of that species but differs in the labrum, which in *viridicollis* is shorter, truncate and not dentate at apex; in the sculpture of the pronotum, which in *viridicollis* is distinctly transversely strigose; as well as in the color and markings, which in *viridicollis* include a conspicuously metallic green head and thorax and a complete middle band.

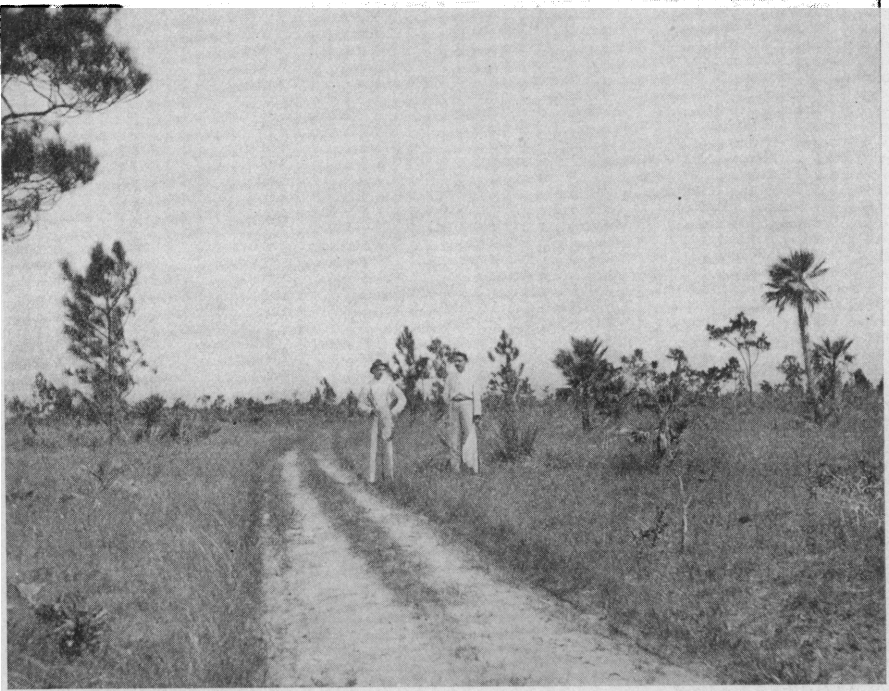


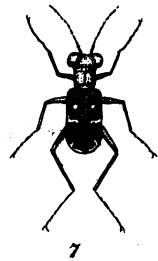
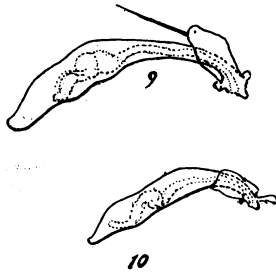
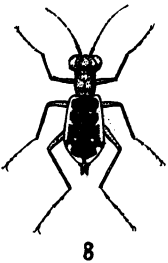
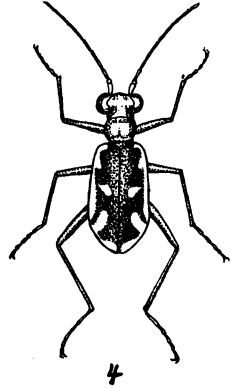
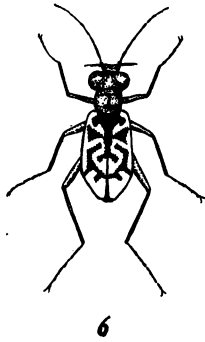
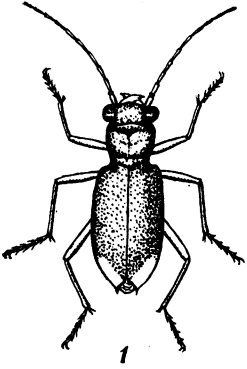
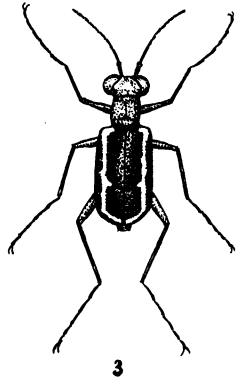
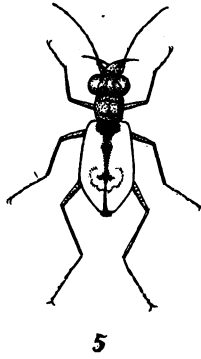
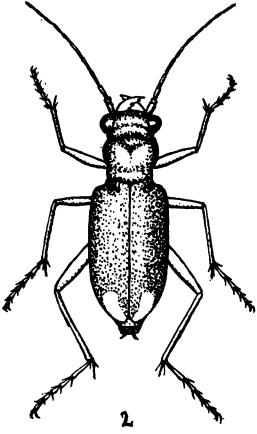
Fig. 5. Locality 12½ kilometres south of Piñar del Rio, Cuba, on the road to Coloma, where *Cicindela cubana* was found by Dr. Lutz.

In addition to the species enumerated above there are in the Museum collection eight specimens of *Cicindela dorsalis* var. *venusta* bearing the label "Santiago de Cuba." These specimens were purchased from a dealer, from whom no further information can be obtained. There is good reason to expect this species to occur in Cuba, but in view of Gundlach having failed to find it there, and the possibility of error in the labelling of our specimens, we do not at present include the species in the West Indian list.

EXPLANATION OF PLATE XII.

- Fig. 1. *Tetracha acutipennis* Dejean.
" 2. " *sobrina* var. *infuscata* Mann.
" 3. *Cicindela cardini*, n. sp.
" 4. " *boops* Dejean.
" 5. " *suturalis* Fabricius.
" 6. " *suturalis* var. *hebræa* Klug.
" 7. " *viridicollis* Dejean.
" 8. " *cubana*, n. sp.
" 9. Male genital tube of *C. trifasciata*.
" 10. " " " " *C. suturalis* var. *hebræa*.

Figures 1-8 are enlarged two diameters; Figs. 9 and 10, about nine diameters.



WEST INDIAN CICINDELINÆ.

