STUDIES ON THE FAUNA OF CURAÇAO AND OTHER CARIBBEAN ISLANDS: No. 57.

TENEBRIONID BEETLES OF THE WEST INDIES

by

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with Plates I–VI

The present paper deals with the results of my investigations regarding the tenebrionid beetles of the Antilles, north of Trinidad. For this work, use has been made of the magnificent collections assembled by Dr. P. WAGENAAR HUMMELINCK, of a number of specimens gathered by Dr. H. J. MAC GILLAVRY as a student member of a geological excursion to Cuba that took place in 1933 under the direction of Prof. L. M. R. RUTTEN, and also of materials belonging to several European museums. In particular, I have examined specimens in the British Museum (N.H.); the Natural History Museum at Paris; the Natural History Museum of Amsterdam; the State Museum of Zoology, Munich; the G. Frey Entomological Museum, Munich; and lastly the Museum of Zoology of the University of Turin.

I wish to express my gratitude to all those people who have made the work possible by lending me the materials mentioned above. I also wish to thank Professor R. MALARODA, Director of the Institute of Geology of the University of Turin, for his useful criticism of my geological considerations.

The photographs were taken by Dr. P. WAGENAAR HUMMELINCK, with the technical assistance of Mr. H. VAN KOOTEN, at the Zoological Laboratory of the State University, Utrecht. I am also very much indebted to Dr. HUMMELINCK for having given me the opportunity of carrying out this study, which, in a sense, is a continuation of the work described in my previous papers on tenebrionids of the islands of the Leeward group and Venezuela, issued in the present Series in 1954 and 1959.

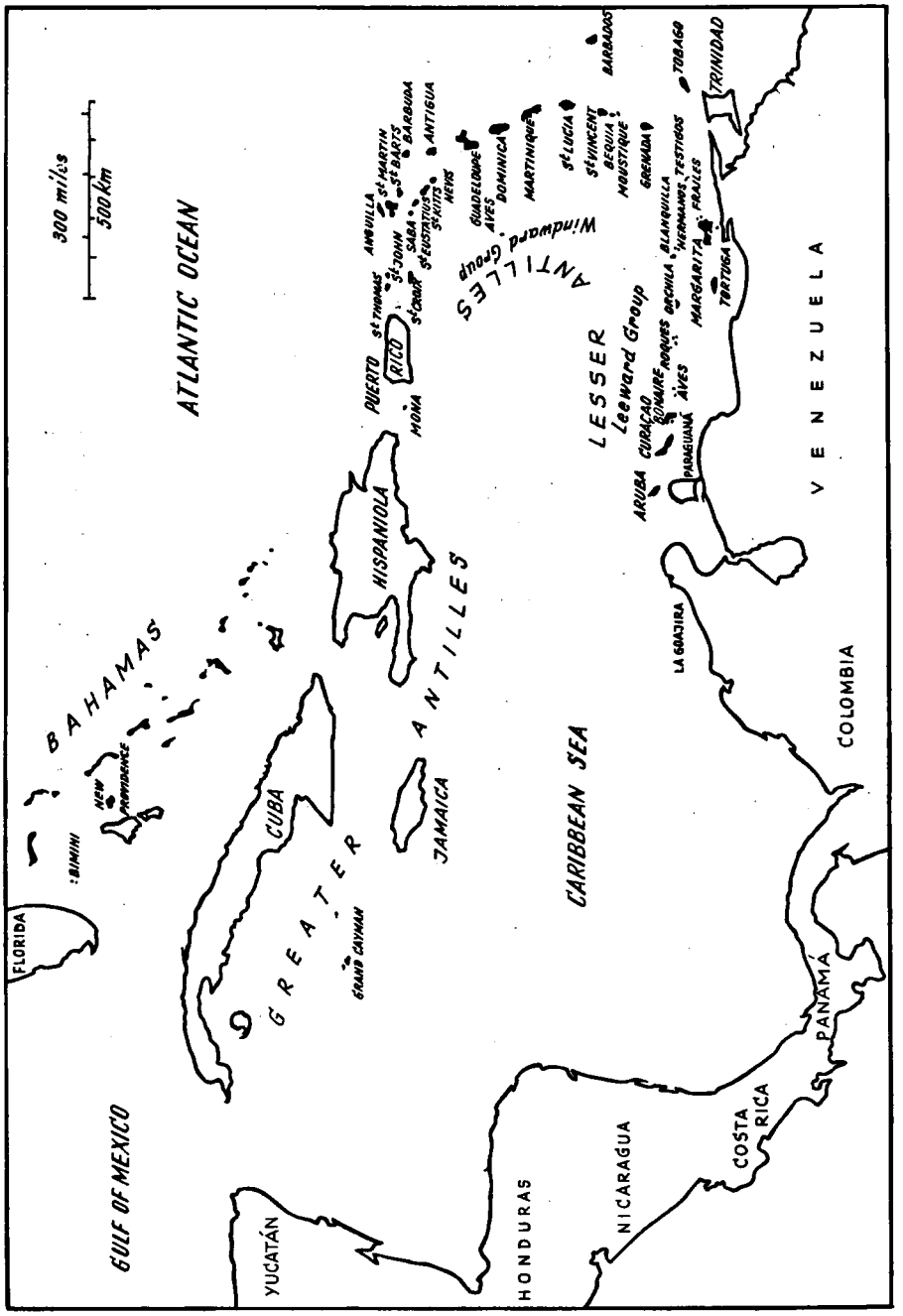

Fig. 48. Localities of the West Indian tenebrionid beetles treated in this paper.

TABLE 1. *Geographical distribution of the Tenebrionidae treated in this paper.*

Species of *Tenebrionidae*	U.S.A.	Central America	Bahamas	Greater Antilles: Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles: St. Thomas	St. John	St. Croix	Anguilla	St. Martin	Tintamarre	Fourche	St. Barts	Saba	St. Eustatius	St. Kitts	Nevis	Barbuda	Antigua	Guadeloupe	Dominica	Aves	Martinique	St. Vincent	Bequia	Moustique	Union	Grenada	Barbados	Tobago	Trinidad	Venez. Islands	Bonaire, Curaçao, Aruba	South American mainland	Plate
Epitragus aurulentus		.			1																												–	*	*	
— spec.					1																																
Trientoma guadeloupensis								*									*		*		*	.									*					II
Platylus dilatatus																*		*																			II
Diastolinus sallei						.														*																	III
— *puncticollis*						.					*						*	*	*		*																III
— *costipennis*						.																															
— *clathratus*										*																											I
— *perforatus*											*											.															I
— *hummelincki* n.								*	*			*												?													III
— *barbudensis* n.																*			*	*																	I
— *barbudensis antiguanus* n.																					*																
— *puncticeps*				?																																	
— *cubanus* n.				–																																	II
Sellio tibidens								*																													IV
— *coarctatus*						.												*																			IV
Opatrinus gemellatus										*								*				.			–	–		–		–				*			
— *pullus*		?		–		.																							*		–	*					
Blapstinus fortis	.	.	*	–			–																															IV
— *cubanus* n.				–																																	IV
— *dominicus* n.										*																											IV
— *haitensis* n.						–																															IV
— *jamaicensis* n.					–		–																														IV
— *punctatus*				–					*																												IV
— *opacus*									*		*			*	*		*	*				.		*													IV
— *buqueti*							–																								*		*		*		
— *simulans barbadensis* n.																														–							II
Phaleria maculipennis n.																	*																–		?		V
— *fulva*																						–		*				.									V
— *angustata*					.	.	–												*			.							.			–	–		–		V
Trachyscelis spec.				–																*																	
Hoplocephala cornigera				–																																	
Iccius cephalotes		.		–																																	
Alphitobius laevigatus				–			.					*				*					*											–		*	–		VI
Hypophloeus rufipes				–			.																														
Zophobas rugipes				–			.			*						*						.												*	*		VI
Nautes spec. *fervidus* aff.		?		–																																	VI
— spec. *asperipennis* aff.				–																																	VI
Strongylium amethystinum				–																																	VI
— spec. *curticorne* aff.		?		–																																	VI

* according to specimens collected by P. WAGENAAR HUMMELINCK – data from other material . data from literature

New localities have been indicated by an exclamation mark.

Dr. HUMMELINCK's material (collector not indicated) and Professor MAC GILLAVRY's specimens have been presented to the Zoological Museum of Amsterdam and the State Museum, Leiden — with the exception of a small number of specimens which are included in the author's private collection.

Dr. HUMMELINCK's 1948/49 localities have been described in the fourth volume of this series; his 1955 localities will be explained in a forthcoming paper.

Additions to my articles on "Tenebrionid beetles of Curaçao, Aruba, Bonaire", etc., in *Studies fauna Curaçao* 5, 1954, and 9, 1959:

Epitragus aurulentus, 9 p. 81. — ARUBA: Eagle Colony, at light, 10. V. 1955 (3 ex.); 10. VIII. 1955 (2 ex.).

Tapinocomus subnudus, 9 p. 82. — BONAIRE: Bolivia, farm, Sta. 557, 15. IV. 1955 (2 ex.). ARUBA: Seroe Colorado, Sta. 254a, 2. V. 1955 (1 ex.); Oranjestad, 1948 (2 ex., A. D. Ringma).

Diastolinus impressicollis, 9 p. 84. — TRINIDAD: *Monos*, Sta. 578, 10. I. 1955 (2 ex.).

Alegoria dilatata, 5 p. 26. — TRINIDAD: St. Augustine, I.C.T.A., Sta. 575, 31. I. 1955 (1 ex.); 575A, 31. I. 1955 (3 ex.).

Anaedus sp. (sp. n. ex gr. *villosus* Cha.), 5 p. 27. — TRINIDAD: St. Augustine, I.C.T.A., Sta. 575, 31. I. 1955 (2 ex.).

Zophobas rugipes, 9 p. 87. — CURAÇAO: Willemstad, I. 1949 (♂). ARUBA: San Nicolas. 15. III. 1951 (♀, J. G. v. d. Bergh); 25. I. 1952 (♀).

Zophobas batavorum, 9 p. 88. — CURAÇAO: Willemstad, I. 1949 (♀).

Alphitobius laevigatus, 5 p. 26. — ARUBA: Eagle Colony, Sta. 562, 11. VIII. 1955 (new for Aruba).

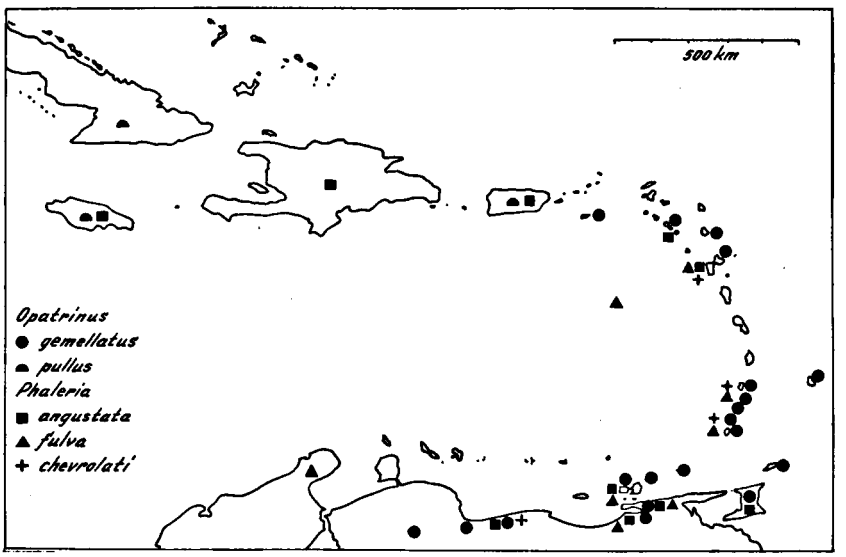

Fig. 49. Distribution of some species of *Opatrinus* and *Phaleria*.

TENTYRIINAE

Epitragus aurulentus Kirsch, 1866

KIRSCH, 1866, p. 189; CHAMPION, 1884, p. 23; MARCUZZI, 1949, p. 334; MARCUZZI, 1954, p. 2; MARCUZZI 1959, p. 81.

JAMAICA: Jamaica, 1919 (many specimens, W. Harris; Brit. Mus.).

Central and South America; Aruba, Curaçao, Margarita, Jamaica.

Epitragus sp. (n. sp.?)

JAMAICA: Jamaica (2 ex.; Brit. Mus.).

Trientoma guadeloupensis Fleutiaux & Sallé, 1889 Plate II 1–3

FLEUTIAUX & SALLÉ, 1889, p. 421.

ANTIGUA: Bats Cave near Nelson's Dockyard, Sta. 592, 13.VII.1955 (1 ex.); Yepton Mill, Sta. 595, 17.VII.1955 (small specimen, pronotum with rounded sides). BARBUDA: Highlands, sinkhole of Darby's Cave, Sta. 600, 10.VII.1955 (7 ex.). ST. KITTS: Top of Brimstone Hill, Sta. 421, 30.VI.1949 (1 ex.); base of Brimstone Hill, Sta. 422, 30.VI.1949 (3 ex.). ST. EUSTATIUS: Northeast of Oranjestad, Sta. 297, 18.III.1937 (1 ex.); Toby Gut, Sta. 423, 14.VII.1949 (2 ex.); base of White Wall, Sta. 424, 6.VII.1949 (3 ex.); top of White Wall, Sta. 425, 6.VII.1949 (4 ex.); Quill above White Wall, Sta. 426, 6.VII.1949 (1 ex.).

Guadeloupe, Antigua!, Barbuda!, St. Kitts!, St. Eustatius!

TENEBRIONINAE

Platylus dilatatus Fabricius 1798, 1801 Plate II 7

MULSANT & REY, 1859, p. 138.

ST. THOMAS: Bolongo Bay, Sta. 621, 17.VI.1955 (♂).

St. Thomas.

Diastolinus sallei Mulsant & Rey, 1859 Plate III 1–3

MULSANT & REY, 1859, p. 144.

ANTIGUA: Near Bat's Cave, east of Nelson's Dockyard, Sta. 591, 13.VII.1955 (8 ex.); Yepton Mill, Sta. 595, 17.VII.1955 (20 ex.); hills near Yepton Mill, Sta. 595A, 17.VII.1955 (♂); Parham Hill, Sta. 593, 14.VII.1955 (♀). Antigua, "F. Bates, 81–19, 1 ex., Brit. Museum". BARBUDA: Sinkhole of Darby's Cave, Highlands, Sta. 600, 10.VII.1955 (25 ex.); north of Codrington Village, Sta. 603, 5.VII.1955 (♀).

Dominica, Antigua!, Barbuda!, Hispaniola.

The species is characterized by the fact that the elytral striae are shallower and have smaller points than in *D. puncticollis*, and that the interstriae are more flattened and have smaller punctures, being in some instances almost unpunctate. Sides of the pronotum variable in shape, as in *D. puncticollis;* the same is true of the colour of the antennae, the apexes of which are constantly ferrugineous or yellowish-red.

Since *Diastolinus sallei* has been collected together with *D. puncticollis* (in Sto. Domingo), it is necessary to consider these forms as two different, sympatric, species, although they are extremely difficult to distinguish.

Three specimens from Barbuda (Sta. 600) are dull-coloured, with a flattened pronotum. I am unable to determine what significance this variety may have.

Diastolinus puncticollis Mulsant & Rey, 1859 Plate III 7–9

MULSANT & REY, 1859, p. 147.

NEVIS: Mosquito Bay, Sta. 415, 28.VI.1949 (3 ex.). ST. KITTS: La Guérite, Sta. 419, 2.VII.1949 (4 ♀); limestone cliff near Brimstone Hill, Sta. 422, 30.VI. 1949 (2 ex.); Timothy Hill, Sta. 604, 20.VII.1955 (3 ex.). ST. EUSTATIUS: East of Oranjestad, Sta. 297, 18.III.1937 (♀); Toby Gut near Quill, Sta. 423, 14.VII.1949 (3 ♂ 4 ♀); Big Gut near White Wall, Sta. 424, 6.VII.1949 (♀); Quill above White Wall, Sta. 426, 6.VII.1949 (6 ex., including 1 dark brown spec.); Quill above Glass Bottle, Sta. 431, 12.VII.1949 (1 ex.). SABA: Road to Bottom, Sta. 298, 18.III.1937 (3 ♂ 2 ♀); Sta. 298A, 19.VII.1949 (3 ex.); 298B, 19.VII.1949 (1 ♂ 2 ♀). ANGUILLA: Near Forest Point, Sta. 482, 18.VI.1949 (6 ex.).

Nevis!, St. Kitts!, St. Eustatius!, Saba!, Anguilla!, Hispaniola.

According to MULSANT & REY, *Diastolinus sallei* should have elytral striae furnished with sparse punctation (about 19 points on stria IV), and interstriae practically without punctation, not very convex, the inner ones particularly flattened. *D. puncticollis* should have elytral striae with more numerous punctures (about 34 on stria IV) and interstriae only superficially punctate and very convex.

Among the specimens collected by Dr. HUMMELINCK I have noticed one form, peculiar to Antigua and Barbuda, with elytral striae which are shallow, slightly punctate, with numerous punctures (about 30 on stria IV), and with flat, almost unpunctate, interstriae. This form I have called *D. sallei*. I have also noticed another form, extending to Nevis, St. Kitts, St. Eustatius, Saba and Anguilla, with deeper striae, clearly punctate, with less numerous points (about 20 on stria IV), and with very convex and distinctly punctate interstriae. This I have called *D. puncticollis*.

All the remaining characters are extremely variable. Sides of pronotum from perfectly and regularly rounded to subparallel, only anteriorly rounded, with hind angles rectangular or slightly sinuate. Antennae gradually lighter in colour towards the apex, *or* only the three apical antennomeres testaceous. Body length from 7.5 to 9.5 mm in ♂♂, and from 8.5 to 9.5 mm in ♀♀. The two species show a further difference which MULSANT & REY failed to notice: *D. sallei* should have a shorter and broader body (W/L ratio, in which W is the width of elytra and L the length of the body, is 0.45), and *D. puncticollis* a longer and slender body (W/L ratio 0.39). — It is no teworthy that the same ratios are obtained from the measurements given by

MULSANT & REY for the two species. — Furthermore, in *D. sallei* (specimens from Antigua and Barbuda) the golden pubescence of the dorsal side of the body is much shorter than in *D. puncticollis*, and scarcely visible.

Diastolinus costipennis Mulsant & Rey, 1859

MULSANT & REY, 1859, p. 149.

MARTINIQUE: Martinique (1 ex., Mus. Munich). ST. KITTS: Frigate Bay, Sta. (677), 20.VII.1955 (1 ex. found dead). HISPANIOLA: Haiti (1 ex., Frey Mus.).

Martinique!, St. Kitts!, Hispaniola.

Diastolinus clathratus Fabricius, 1792 Plate I 1–3

MULSANT & REY, 1859, p. 138.

ST. MARTIN: Old Battery, east of Great Bay, Sta. 461a, 2.VI.1955 (1 ex.). ST. CROIX: Shore at Fair Plain, Sta. 611, 15.VI.1955 (1 ex.); hill slope at Upper Bethlehem, Sta. 612, 14.VI.1955 (5 ex.); Agr. Exp. Sta. at Upper Bethlehem, Sta. 613, 13.VI.1955 (1 ex.); hill at Fredensborg, Sta. 615, 11.VI.1955 (2 ex.); north of the airfield, 11.VI.1955 (8 ex.); St. Croix (♀, Frey Mus.). — UNKNOWN LOCALITY: ♀, Brême collection. Erroneously labelled "Cayenne, Kraatz, Sammlung Rutenberg", ♀, Mus. Munich.

St. Martin!, St. Croix!

Diastolinus perforatus Sahlberg, 1823 Plate I 4–7

MULSANT & REY, 1859, p. 141.

ST. BARTS: Lorient, Sta. 448, 3.VI.1949 (9 ex.); yard in Gustavia, Sta. 449, 5.VI.1949 (10 ex.); south of Public, Sta. 451, 4.VI.1949 (8 ex.). FOURCHE: Sta. 452, 2.VI.1949 (41 ex.); Sta. 453, 2.VI.1949 (brown spec.). ST. MARTIN: Old Battery Hill, west of Great Bay, Sta. 299, 17.III.1937 (8 ex.); Sta. 299B, 29.V. 1949 (2 ex.); Pelican Key, island, Sta. 457, 3.VIII.1949 (27 ex.); Point Blanche, Sta. 458, 17.V.1949 (1 ex.); shore of Great Bay near Point Blanche, Sta. 460, 17.V.1949 (1 ex.); Old Battery, east of Great Bay, Sta. 461, 18.V.1949 (15 ex.); Sta. 461a, 2.VI.1955 (13 ex.); Experiment, east of Great Saltpond, Sta. 465, 25.V.1949 (4 ex.); Agr. Exp. Sta. St. Peter, Cul de Sac, 467a, 29.VI.1955 (♂ ♀); Sta. 468, 24.V.1949 (5 ex.); Cul de Sac bridge, Sta. 469, 24.V.1949 (3 ex.); Sta. 469A, 24.V.1949 (2 ex.); Meschrine Hill near Simson Bay, Sta. 472, 110 m, 27.V.1949 (5 ex.); Lowlands near Flamingo Pond, Sta. 475, 8.VI.1949 (4 ex.); Little Key in Simson Bay lagoon, Sta. 478, 2.VIII.1949 (33 ex.); Point Blanche Bay, Sta. 606, 5.VI.1955 (23); Little Bay Pond, Sta. 609, 4.VI.1955 (2 ex.); Lowlands at Mullet Pond Bay, Sta. 610, 27.VI.1955 (2 ex.); Sta. 468a, 29.VI. 1955 (1 ex.). Sinkhole of Devil's Hole Cave, Sta. 474A, 26.VII.1955 (♂, with pronotum widest slightly anteriorly to the middle. ANGUILLA: Near Saltwell of Forest Point, Sta. 482, 18.VI.1949 (23); near Bedney's Spring at Long Bay, Sta. 483, 18.VI.1949 (2); north of Sandy Ground, Sta. 484, 16.VI.1949 (5 ♂); north of Sandy Ground, Sta. 485, 16.VI.1949 (43 ex.; 1 ♂ & 1 ♀ very convex, slightly shiny; 1 ♀ with pronotum extremely transverse, with rounded sides and widest

in the middle). ST. CROIX: St. Croix "1904–156, Crawford Exped." (1 ex., Brit. Mus.). — UNKNOWN LOCALITY: Erroneously labelled "Venezuela, Doré", coll. Rutenberg (5 ex., Munich Mus.); err. labelled "Columb. Moritz" (1 ex., Frey Mus.); err. labelled "Columb. Moritz" (1 ex., Munich Mus.).

Guadeloupe, St. Barts!, Fourche!, St. Martin!, Anguilla!, St. Croix!.

Diastolinus perforatus is a tremendously variable species, probably still fractionating into several subspecies or populations geographically isolated, such as, for example, the population of Guadeloupe, which is the smallest population yet known to the present writer, or that of St. Martin, which should be the largest, although it is not possible to speak of true geographical subspecies. It must be pointed out that the population living in St. Martin also shows very great variability in the form of the pronotum, which can be trapezoid (almost as in *Diastolinus hummelincki*) or even very broad, with rounded sides and widest almost in the middle. In two specimens from Anguilla, which are small and relatively broad, the pronotum has very rounded sides and is widest at the middle. In conclusion, two specimens from St. Barts and one from Anguilla are very convex, slightly shiny, with the head strongly punctate, the ♂ with the outermost elytral interstriae almost carinate. Nevertheless, the present writer considers at the moment that all specimens belong to *D. perforatus* sensu lato.

The specimens preserved in the State Museum, Munich, belong to two forms, i.e. the specimens erroneously labelled "Columb. Moritz" belong to a narrower, convex form, and those labelled "Venezuela, Doré" to a broader form. But again, in this latter case, some are narrower than the others, so that it is impossible to subdivide *D. perforatus* into a number of geographical subspecies.

Diastolinus hummelincki n. sp. Plate III 4–6

Differs from *D. perforatus* in the very slender legs, including prothoracic tibiae and tarsi of ♂; ovoid shape of the body, more or less as in *D. clathratus;* deeply emarginate clypeus, upper surface flattened (especially that of the pronotum). Pronotum trapezoid, strongly transverse, widest at the base, with the sides gradually narrowing towards the anterior apex; the latter is deeply concave, the posterior apex strongly bisinuate, so that both anterior and posterior angles are strongly developed. Upper surface of pronotum laterally provided with a very fine, but clearly visible, short golden pubescence, which is normally absent in *D. perforatus*. The three last antennal segments are a constant pale yellow, which makes them stand out (still more than in *D. clathratus*) when compared with the preceding segments, which are black like the remaining parts of the body.

ST. JOHN: Chocolate Hole, Sta. 618, 19.VI.1955 (13 ex.; Sta. 618A, 19.VI.1955 (1 ex.); south of Cruz Bay, at light, 18.I.1955 (♀, broad, pronotum strongly transverse, widest at base, but not very flat). ST. THOMAS: Bolongo Bay, Sta. 621, 17.VI.1955 (2 ex.); St. Thomas, "acq. Staudinger, 1933" (2 ex., leg. A. Staerke, Amsterdam Mus.); St. Thomas, "coll. Cl. Müller" (1 ex., Munich Mus.).

The specimens labelled St. Thomas, coll. Müller, of the State Museum, Munich, correspond exactly with the specimens collected by Dr. HUMMELINCK in this island and in St. John.

St. Thomas!, St. John!; Martinique?

The new species of *Diastolinus* is perhaps more closely related to *D. clathratus* than to *perforatus*, and it is allopatric with both of them. It is therefore possible to envisage a geographical speciation, due to — and posterior to — the separation of the various insular entities (St. Croix and St. Martin, on the one side, St. Thomas and St. John, on the other).

The new species should be very similar to, if not identical with, *D. semi-cribratus* Chevrolat (in litt.), which MULSANT & REY have seen and which they describe as follows: "individus ayant le prothorax très faiblement élargi depuis les deux cinquièmes jusqu'aux angles postérieurs, et par conséquence moins parallèle; les élytres plus sensiblement élargies; les intervalles des stries des élytres moins convexes. Peut-être ne sont-ils qu'une variation du *D. perforatus*, dont ils ont tous les autres caractères. Patrie: La Martinique".

If the new species is the same as CHEVROLAT's *semi-cribratus*, then we are to conclude that it is a widely distributed species, extending from St. John and St. Thomas southward and eastward to Martinique. Naturally, it is not possible to reach any conclusion without making a comparison with the type material (which I have not been able to find so far).

Diastolinus barbudensis n. sp. Plate I 8

Small, dull, glabrous, upper surface with an extremely fine and short, golden, recumbent pubescence. Piceous, anterior margin of clypeus, mouth parts, and antennae ferrugineous; last antennomeres yellowish-red, legs brownish-red, tibiae and tarsi somewhat paler. Head strongly transverse, semicircular, clypeus deeply emarginate, labrum very slightly sclerified, reddish-yellow, scarcely visible from above. Eyes small, not prominent. Punctation small and relatively sparse, asperate, interspaces completely dull. Antennae short, antennal joint VIII as wide as long, IX–X transverse, the remaining joints longer than wide. Mentum very transverse, subcordate; gula densely punctate, only medially is the punctation somewhat less dense; punctation strongly asperate or granulose. Maxillary palpes relatively large, short, securiform. Pronotum strongly transverse, widest at the middle or in the posterior half, sides very slightly and irregularly rounded, sometimes almost straight in the posterior half and then irregularly bent towards the anterior angles, which are pronounced and subacute (type). Anterior margin narrower than the hind one and emarginate, hind margin deeply bisinuate, hind angles bluntly rectangular. Disc slightly convex (♂), sparsely and finely punctate, punctation asperate, interspaces dull. Scutellum extremely small, almost invisible from above. Elytra short, relatively convex (especially in ♀), widest in the two proximal thirds. Elytral striae practically replaced by series of punctures; these are small medially, stronger and almost foveolate towards the sides; on the disc the punctures are asperate and elongate, and quite different, whether examined from above or from the side. Interstriae flat medially, convex laterally, unpunctate. Prosternum densely punctate; the punctation is very irregular as to size and shape, somewhat less dense in the middle, denser and stronger towards the sides, which are wrinkled. Prosternal process not very developed, in profile slightly declivous, though posteriorly brusquely truncate. Meso and metasternum rather densely and strongly punctate, somewhat nitidous. Metasternum medially depressed (♂) and provided with a not very distinct longi-

tudinal median impression. Urosterna rather dull, medially well impressed (♂), very finely and not very densely punctate. Ventral surface of legs, and more especially of femurs, very distinctly though not densely punctate.

Measurements: 4.5–5.0 mm.

BARBUDA: Highlands, sinkhole of Darby's Cave, Sta. 600, 10.VII.1955 (1 ex.); southern part of Goat Island, Sta. 601, 11.VII.1955 (4 ex.); northwest of Codrington Village, Sta. 603, 5.VII.1955 (17 ex.). NEVIS: Near Mosquito Bay, Sta. 415, 28.VI.1949 (1 ex., typus). SABA: road to Bottom, 298B, 19.VII.1949 (3 ♂ 1 ♀).

Barbuda!, Nevis!, Saba!

Diastolinus barbudensis antiguanus n. subsp.

Larger, more convex, elytra wider than the pronotum; the latter is widest in the posterior half, with the sides almost straight up to the middle, then gradually bent towards the anterior angles. Pubescence more abundant, especially on the legs, which are clothed with a dense golden recumbent pubescence. Punctation of the elytra much stronger than in the nominal form.

Length: 5.25 mm (♀).

ANTIGUA: Friars Hill, Sta. 594, 16.VII.1955 (1 ex., typus, in private collection of author); Yepton Mill, Sta. 595, 17.VII.1955 (♂ ♀).

Diastolinus barbudensis probably belongs to the *fuscicornis* Chevr. – *waterhousei* Muls. & Rey group, from which it should be easily distinguished by the absence of elytral striae, unpunctate interstriae, extremely small scutellum and, lastly, by the golden recumbent pubescence of the upper surface. It might possibly belong to a new genus, different from *Diastolinus*.

Diastolinus puncticeps (Mulsant & Rey, 1859)

MULSANT & REY, 1859, p. 180 (*Blapstinus puncticeps*).

CUBA?: specimen from the British Museum (N.H.), labelled as "*Blapstinus puncticeps* Muls. (F.B.) recte F. Chevr. F. Bates, 81–19", without indication of locality.

This British Museum specimen is very probably from Cuba, whence the species has been described, since the type was in the CHEVROLAT collection and the British Museum specimen probably also came from that collection or, at any rate, was seen by MULSANT or another early French author.

The species belongs without a doubt to the genus *Diastolinus*, on account of the absence of wings, completely fused elytra, and the form of the anterior median part of urosternum I.

Diastolinus cubanus n. sp. Plate II 5

Short, very convex, subnitidous, perfectly glabrous; black, with the exception of palpi, tarsi, extremity of tibiae, which are red-ferrugineous, and antennae, which are ferrugineous with the last articles reddish-yellow. Head much the same as in *D. puncticeps*, but punctation still stronger; antennae as in *D. puncticeps*. Pronotum

transverse, widely arcuate at the sides, widest at the base, bent anteriorly only slightly more than posteriorly, very faintly sinuate before the anterior angles; anterior margin almost truncate, hind margin deeply bisinuate; anterior angles subacute, posterior angles rectangular; upper surface densely and very minutely punctate, more especially towards the sides; on the disc and towards the base almost unpunctate. Scutellum very small, triangular. Elytra very convex, short obovate, widest a little beyond the middle, only slightly narrowed posteriorly, at the base as large as the pronotum; striae practically obsolete, some feeble traces being visible, only posteriorly, without any trace of punctation on either striae or interstriae (magnified × 25). Prosternum only slightly wrinkled at the sides, much less than in *D. puncticeps*. Urosterna punctate in the middle, almost unpunctate at the sides; the punctures are uniform on all the urosterna, small and rather scattered; at the sides only few traces of wrinkles are visible.

Length: 5.5 mm.

CUBA: 3 ex. in the British Museum (N.H.), labelled as *Blapstinus n. sp.* in a hand which is possibly that of Chevrolat or another early French author.

Easily distinguishable from all the other species of the genus by the almost total absence of elytral striae.

Sellio tibidens Quensel, 1806 Plate IV 2

MULSANT & REY, 1859, p. 173.

ST. THOMAS: Bolongo Bay, Sta. 621, 17.VI.1955 (5 ex.). HISPANIOLA: S. Domingo, 1 ex., British Museum (N.H.), labelled as "nov. gen., obs. anterior tibiae ♂ armed as in the genus *Sellio*, *Diastolinus sallei* Muls. ♂, Dec. Coll. Sallé", F. Bates 81–19.

'Antilles', St. Thomas!, Hispaniola!. ('Africa' erroneous indication)

Sellio coarctatus Mulsant & Rey, 1859 Plate IV 1

MULSANT & REY, 1859, p. 170.

ST. KITTS: Frigate Bay, salt pond, Sta. 677, 20.VII.1955 (♀, cast ashore). "St. Kitts", British Museum, ♂, J. J. Quelch, 1912–207; to be referred to this species only with some doubt.

St. Kitts!, Hispaniola.

Opatrinus gemellatus Olivier, 1795

MULSANT & REY, 1853, p. 299; MARCUZZI, 1949, p. 341; MARCUZZI, 1954, p. 10, pl. VI 3.

TRINIDAD: Port-of-Spain, heap of garden compost, 28.I.1955 (2 ex.); I.1955 (1 ex.). St. Augustine, I.C.T.A., Sta. 575, 31.I.1955 (18 ex.); 575A, 31.I.1955 (1 ex.). TOBAGO: Store Bay, Sta. 581, 17.I.1955 (8 ex.); south of airport, Sta. 582, 17.I.1955 (15 ex.); 582A, 17.I.1955 (6 ex.); Scarborough, among pieces of rock, 18.I.1955 (4 ex.). GRENADA: Point Salines, Sta. 586, 26.I.1955 (2 ex.); Sta. (586),

28.I.1955 (1 ex.); St. George's, 26.I.1955 (8 ex.). Grenada, Balthazar, (1 ex., leg. H. H. Smith, Brit. Mus.); Grenada (2 ex., Brit. Mus.). GRENADINES: Mustique, (11 ex., leg. H. H. Smith, Brit. Mus.). Union (1 ex., Brit. Mus.). Bequia, (13 ex., leg. H. H. Smith, Brit. Mus.). BARBADOS: 15.VII.1901 (1 ex., Brit. Mus.). ST. VINCENT: (31 ex., leg. H. H. Smith, Brit. Mus.). ST. KITTS: Morne Hills, Sta. 417, 29.VI.1949 (1 ex.); Timothy Hill, Sta. 604, 20.VII.1955 (6 ex.). ST. CROIX: Upper Bethlehem, hill, Sta. 612, 14.VI.1955 (10 ex.); Agr. Exp. Sta., Sta. 613, 13.VI.1955 (1 ex.); Clifton Hill ruins, Sta. 614, 14.VI.1955 (2 ex.); Fredensborg hill, Sta. 615, 11.VI.1955 (3 ex.); Fredensborg, 11.VI.1955 (1 ex.); Canaän, Sta. 617, 22.VI.1955 (4 ex.); Canaän, at light, 22.VI.1955 (3 ex.).

In addition to the localities recorded in my previous papers on American tenebrionid beetles, I am now able to record the following: Cayenne, Brême coll., 5 ex., determined as *"clathratus"*; Colombia, Brême coll., 2 ex. (♂ ♀) leg. Klug, identified as *O. geminatus*. The Colombian ♀ is similar to a ♀ from Caracas preserved in my private collection.

Guianas, Venezuela, Colombia!; Trinidad, Tobago!, Grenada!, Grenadines!, Barbados!, St. Vincent!, Guadeloupe, St. Kitts!, St. Croix!

Opatrinus pullus Sahlberg, 1823

MULSANT & REY, 1853, p. 304 (*anthracinus*); CHAMPION, 1886, p. 123.

PUERTO RICO: Rio Piedras (2 ex., G. N. Wolcott. don.). CUBA: La Movida, 10.III.1933 (1 ex., MacG., Mus. Amsterdam); La Laquita, IV.1933 (1 ex., MacG., Mus. Amsterdam); San Cristóbal, 15.III.1933 (1 ex., MacG., Mus. Amsterdam). — UNKNOWN LOCALITY: 4 ex., Brême coll. *"anthracinus"*, without locality.

In one specimen from Rio Piedras (Puerto Rico) the pronotum is widest in the posterior half, with the sides slightly sinuate before the hind angles, which are slightly acuminate. Upper surface only slightly nitidous, punctation very dense and fine, without any trace of longitudinal median furrow (as in *O. moestus!*). The elytral interstriae are smooth; abdomen normally punctate at the sides. In the other specimen from Puerto Rico the pronotum is slightly nitidous, with a trace of a longitudinal median furrow, and sparser and stronger punctation.

It is not impossible that further studies will show that *O. moestus* is only a variety of *O. anthracinus* M. & R. CHAMPION (1886, p. 123) says that *moestus* is "perhaps a small race of *anthracinus*".

Puerto Rico, Jamaica, Cuba, Central America.

Blapstinus fortis Leconte, 1878 Plate IV 3

CASEY, 1890, p. 429; CHAMPION 1886, p. 126 (*interstitialis* Cha.), 1893, p. 526 (*fortis* Lec.).

CUBA: Pinar del Rio, 16–29.V.1933 (4 ex., MacG., Mus. Amsterdam). NEW PROVIDENCE (Bahamas): Nassau, Sta. 491, 16.VIII.1949 (1 ex.).

According to CHAMPION (1893, p. 526), this form belongs to *B. fortis* s. str., which extends to Texas, Florida, northern, western and central Mexico, Guatemala and Cuba.

Cuba, Bahamas!, Central America?, Southern U.S.A.

Blapstinus cubanus n. sp. Plate IV 4–5

Small, rather shiny, glabrous, upper surface with extremely fine, short and recumbent pubescence, which is visible only in a particular incidence of light. Black, with exception of unguiculi of tarsi and distal part of the last antennal joint, which are reddish-yellow. Head semicircular, with the outline perfectly rounded, clypeus somewhat emarginate, labrum very sclerified, black. Eyes small and not prominent. Punctation moderately fine and dense. Antennae slender, antennal joints VII–X as broad as long, the remainder longer than broad. Mentum small, transverse. Gula medially nitidous, smooth, punctate at the sides. Maxillary palpes rather wide and large, securiform. Pronotum transverse (L/W = 0.65), sides very slightly rounded, almost straight in the posterior half, so that the anterior margin is slightly narrower than the posterior one. Anterior margin feebly emarginate, with the angles very prominent and subacute, hind margin laterally deeply sinuate, with hind angles obtusangular. Disc slightly convex, densely and rather strongly punctate, punctures slightly asperate, interspaces polished. Scutellum small, transversely triangular, punctate. Elytra elongate, posteriorly acuminate, relatively convex, interstriae medially flat, laterally somewhat convex. Elytral striae punctate, the striae impressed only posteriorly, the punctures small towards the base and medially gradually larger towards the apex and sides. Interstriae punctate; punctures small and irregular, dense medially, less dense laterally. Prosternum with punctures distinctly asperate, medially rare but strong, laterally wrinkled. Process posteriorly well developed, in profile brusquely but obliquely truncate. Mesosternum rather densely punctate; laterally the punctation is somewhat asperate and tends to confluence. Metasternum extremely nitidous, slightly impressed (♂), strongly but sparingly punctate; the punctures are slightly asperate medially, distinctly asperate and confluent towards the sides. Urosterna rather dull, densely punctate, the punctation is rather small, asperate, tending to confluence towards the sides, so that the sterna are laterally wrinkled.

Length: 4.5 mm.

CUBA: Hormiguero, 10–28.II.1933 (7 ex.); Consuelo-Esperanza, 20.II.1933 (1 ex.); La Campana, 16.II.1933 (1 ex.); Camaguey, 21.IV.–5.V.1933 (4 ex.); Manicaragua, Minas Ricas, 12.III.1933 (1 ex.); Pinar del Rio, 16–29.V.1933 (cotype); San Diego de los Baños, 29.V–11.VI.1933 (1 ex.); San Cristóbal, 11–29.VI.1933 (4 ex.); Puerto Esperanza, 29.VI–6.VII.1933 (1 ex.); Guane, 6–10.VII.1933 (9 ex.) — all collected by H. J. Mac Gillavry, Museum of Amsterdam. "Antilles, Cuba, Fry Coll. 1905. 100 *B. punctatissimus* Chevr." (1 ex., Brit. Mus.). Cuba, "misit Schaschl, 25 oct. 1858, ex coll. Bertolini, *B. punctatissimus* Pallas?" (♂, type, Mus. Nat. Hist. Trieste).

Somewhat similar to *B. dominicus*, from which it is easily distinguished by its greater lustre, more slender antennae, pronotum with sides more distinctly rounded and less prominent angles, stronger and more dense punctation of pronotum, smaller punctation of elytral striae.

Blapstinus dominicus n. sp. Plate IV 6–7

Small, subnitidous, glabrous; only the upper surface has an extremely fine, short and recumbent pubescence. Black; tarsi, mouth parts and distal half of the last antennal joint brownish-ferrugineous. Head irregularly semicircular, with the sides angulose, clypeus very slightly emarginate, separated from the frons proper by a transverse depression. Eyes not prominent. Punctation very fine and rather dense, asperate, interspaces subnitidous. Antennae rather incrassate, short, antennal joints V–VII practically as long as wide, VIII–X transverse (type, ♂), the remainder longer than wide. Mentum small, ovate; gula medially smooth, laterally very densely punctate, punctation strong and asperate. Maxillary palpes small, subtriangular. Pronotum transverse (L/W = 0.64), sides slightly rounded, towards the hind angles subsinuate, anterior margin deeply sinuate, only slightly narrower than posterior margin, with the angles acute and well pronounced; hind margin sinuate like the anterior one, with the angles rectangular. Disc rather flat, moderately punctate, punctures not very large, asperate, interspaces subnitidous, reticulate. Scutellum very small, triangular, minutely punctate. Elytra elongate, posteriorly only slightly acuminate, rather flat, interstriae on the disc almost flat; elytral striae punctate, striae deeply impressed, especially caudally, the punctures rather strong and very close. Interstriae punctate, punctures small, not dense, and with a tendency to linear disposition. Prosternum with punctation asperate, strong but not very close, wrinkled at the sides. Process slightly developed, posteriorly rather blunt. Mesosternum very densely but finely punctate, wrinkled towards the sides. Metasternum nitidous, almost flat, provided with a longitudinal, linear impression which is only slightly evident; punctation rather scanty but strong, asperate, only slightly tending to confluence towards the sides. Urosterna subnitidous, medially well impressed (♂), punctation rather dense but very fine, gradually finer towards the apex; sides wrinkled.

Length: 4.5 (♂)–5.25 (♀) mm.

St Croix: Fredensborg hill, Sta. 615, 11.VI.1955 (1 ex.). Hispaniola: Sto. Domingo, "*B. punctatissimus* Chevr." and "*B. quadraticollis* Chevr." (nom. nuda!) (2 ex., Munich Mus.); "Sto Domingo, F. Bates 81–19" (♂), "Antilles S. Dom.° Fry coll. 1905. 100," (♂), "B. punctatissimus Chevr. S° Domingo" (3 ex., Brit. Mus.); "Hayti, Parish, 1899, Sharp coll. 1905–313" (♀, Brit. Mus.); Haiti, Moca, leg. Flli Ciferri, VIII. 1927 (3 ex. incl. type), and 1930 (1 ex., coll. of author).

St. Croix!, Hispaniola.

Blapstinus haitensis n. sp. Plate IV 8

Small, slightly convex, relatively elongate, rather dull, clothed with a rather dense, golden, recumbent pubescence. Reddish-brown (type, ♂) or dark brownish (cotype, ♀). Palpes, antennae and legs ferrugineous. Head semi-circular, clypeus deeply emarginate, labrum slightly sclerified, reddish-yellow. Eyes not prominent, small. Punctation moderately fine and scanty, punctures of slightly different size. Antennae short and rather incrassate, antennomeres IV and V slightly longer than wide, VI–VII as long as wide, VIII–X transverse. Mentum cordate; gula densely and rather strongly punctate, only an extremely narrow median surface, smooth. Maxillary palpes small, securiform. Pronotum strongly transverse (L/W = 0.56), gradually narrowed from base towards apex, sides only slightly rounded, somewhat

bent at 2/3 from the base, anterior margin feebly emarginate, with the angles slightly pronounced, hind margin distinctly bisinuate, hind angles rectangular. Disc flat, slightly punctate, punctures very small and asperate, interspaces dull. Scutellum very large and transverse, flat, minutely but densely punctate. Elytra slightly elongate, ovoid, posteriorly not very acuminate, nor very convex. Interstriae almost flat. Elytral striae punctate, the striae slightly impressed in the anterior part, more strongly towards the apex; the punctures are very small medially, distinctly stronger laterally. Interstriae very minutely punctate. Prosternum (like meso- and metasternum) almost smooth, subnitidous, punctation extremely fine, though rather dense, only slightly tending to confluence towards the sides. Prosternal process practically absent, in profile almost rounded. Metasternum medially impressed (♂), with a very distinct longitudinal linear impression. Urosterna only slightly impressed (♂), punctation very fine and not very close; the sides are wrinkled.

Length: 4.5 (♀)–5.0 (♂) mm.

HISPANIOLA: Haiti, Santiago, 1930 (type, leg. Flli. Ciferri, ♂, in coll. of author, and cotype); "Antilles, S. Dom.°, Fry Coll., 1905.100" (1 ex., Brit. Mus.).

Vaguely similar to *B. buqueti*, from which it is easily distinguished by the shorter antennae, smaller punctures of upper surface, and form of pronotum.

Blapstinus jamaicensis n. sp. Plate IV 9

Medium-sized, subnitidous, piceous, mouth parts and legs ferrugineous, antennae yellow-ferrugineous, upper surface clothed with a very fine and short, golden, recumbent pubescence. Slightly convex, elongate-ovoid, narrowed anteriorly more or less as posteriorly. Head semicircular but anteriorly somewhat prolonged, clypeus very deeply emarginate, labrum slightly sclerified, reddish. Eyes rather big but not prominent. Punctation rather fine and dense, distributed regularly over the entire upper surface with the exception of a narrow longitudinal median line, which is smooth and shining. Antennae rather short, antennal joint VIII as wide as long, IX–X transverse, the remainder longer than wide. Mentum rather large and cordate; gula punctate. Maxillary palpes small, elongate. Pronotum transverse (L/W = 0.60), gradually narrowing from the base towards the apex, with sides almost straight, slightly bent at 2/3 from the base. Anterior margin evidently emarginate, with the angles slightly pronounced and subacute, hind margin evidently bisinuate, hind angles subacute. Disc very flat, slightly and feebly punctate, punctures asperate, interspaces polished. Scutellum strongly transverse, slightly punctate. Elytra elongate, posteriorly not very acuminate, relatively flat, interstriae medially and anteriorly flat, posteriorly and laterally convex. Elytral striae punctate the striae well impressed, especially caudally, the punctures small on the innermost striae, strong and transverse on the lateral ones. Interstriae punctate, but punctures extremely fine and irregular. Prosternum densely punctate, the punctation rather small, tending to confluence at the sides, which are wrinkled. Process rather small, in profile not very distinctly truncate. Mesosternum densely but finely punctate. Metasternum well impressed medially, provided with a very evident longitudinal linear impression (♂); rather finely and densely punctate, the punctures asperate, towards the sides only slightly tending to confluence. Urosterna strongly impressed (♂), subnitidous (like the metasternum); the punctation on the first urosternum is very similar to that of the metasternum, gradually finer and more dense towards the

apex. All the under surface is clothed with a golden, rather long, recumbent pubescence. Legs: anterior tibiae and femurs very strongly swollen, the tibiae brusquely widened at the middle of the inner surface (♂); all the tibiae denticulate on the inner surface.

Length: 4.5 mm.

JAMAICA: Kingston, Sammlung Gebien, Frey Museum (♂ type, ♀? cotype).

Very different from all the other species of *Blapstinus* known to me, on account of its greatly swollen anterior tibiae and femora (♂). It is possible that *B. jamaicensis* belongs to a new genus.

Blapstinus punctatus Fabricius, 1792 Plate IV 10

MULSANT & REY, 1859, p. 187.

ST. JOHN: Chocolate Hole, Sta. 618, 19.VI.1955 (♂, ♀). ST. THOMAS: (1 ex., Frey coll.); St. Thomas (1 ex., acq. Staudinger, 1933, leg. A. Staercke, Amsterdam Mus.). PUERTO RICO: (2 ex., Munich Mus.); Guanica, 1.XII.1914, "*B. punctatus?* det. K. G. Blair" (1 ex., Brit. Mus., pres. Imp. Bur. Ent., 1923–454); "*B. punctatus?* det. K. G. Blair" (1 ex., Brit. Mus.). CUBA: (1 ex., Munich Mus.).

St. John!, St. Thomas, Puerto Rico, Cuba.

Blapstinus opacus Mulsant & Rey, 1859 Plate IV 11–12

MULSANT & REY, 1859, p. 186.

ISLOTE AVES (west of Dominica): Sta. 411, 12.V.1949 (8 ex.). ST. KITTS: La Guérite, Sta. 419, 2.VII.1949 (1 ex.). ST. EUSTATIUS: East of Oranjestad, Sta. 297, 18.III.1937 (19 ex.). FOURCHE (west of St. Barts): Sta. 453, 2.VI.1949 (1 ex.). TINTAMARRE (northeast of St. Martin): Sta. 454, 20.VI.1949 (2 ex.). ANGUILLA: Forest Point, Sta. 482, 18.VI.1949 (4 ex.). ST. JOHN: Chocolate Hole, Sta. 618, 19.VI.1955 (6 ex.).

Islote Aves! (W of Dominica), Guadeloupe, St. Kitts!, St. Eustatius!, Fourche!, Tintamarre!, Anguilla!, St. John!

Blapstinus buqueti Champion, 1885

MARCUZZI, 1954, p. 12, Plate V 1–3; MARCUZZI, 1959, p. 84.

TOBAGO: South of airport, Sta. 582, 17.I.1955 (4 ex.).

Central America, Colombia to French Guiana; Aruba, Curaçao, Bonaire, Margarita, Tobago!

Blapstinus simulans barbadensis n. subsp. Plate II 6

Different from *B. simulans simulans* MARCUZZI (1954, p. 15, Pl. IV 4) from Isla de Caribe (Ven., Sucre) in that the elytral striae are deeper and have stronger punctation; the punctation of the pronotum is stronger; and the scutellar stria is more evident.

BARBADOS: Without indications (7 ex., Brit. Mus.).

More detailed researches, based on more abundant material obtained from throughout the entire eastern Caribbean basin, might eventually demonstrate the present form to be a genuine species. However that may be, it is extremely close to *B. simulans*.

B. simulans barbadensis is presumably an extreme outpost towards the Atlantic of a continental group of species (*B. brunnipes* group) which have no connection at all with the true Antillean species of *Blapstinus*.

Phaleria maculipennis n. sp. Plate V 5–10

MARCUZZI, 1954, p. 25 (*Phaleria* sp.).

Long, subovoid, with extremely variable colour. Head rather dull, finely punctate, the punctation more visible on the vertex. Pronotum with sides slightly narrowed towards the apex, thence distinctly rounded at the anterior angles, so that the pronotum is almost campanulate. Upper surface of the pronotum shiny and completely smooth. Elytra long, widest slightly beyond the middle; upper surface rather flat, striae anteriorly shallow, interstriae flat on the anterior, medial part of the elytra, more convex posteriorly. Upper surface smooth and shiny, like that of the pronotum. Anterior tibiae very strongly dilated in a triangle. Ventral surface shiny, ferrugineous; metasternum with an extremely fine punctation, urosterna rather densely punctate; ventral surface of tibiae 2 and 3 (meso and metathoracic) granulate, towards the posterior margin spinulose.

Length from 4.5 to 5.5 mm; width from 2.0 to 2.5 mm.

MARGARITA: Margarita island, 12.I.1948 (♂, type, Marcuzzi, in author's coll.); Puerto Fermin, on the beach, III.1948 (many spec., Marcuzzi, author's coll.). ST. EUSTATIUS: Concordia Bay, Sta. 433, 8.VII.1949 (15 ex.).

Margarita!, St. Eustatius!; 'Cayenne'?

Identical with "*P. maculipennis* Latr." of the Brême collection, which should be a nomen nudum. Similar to *Phaleria* of the *dytiscoides* group, but has a shiny, convex pronotum with the sides rounded only in the anterior half in almost every case, whereas in *P. dytiscoides* the sides are regularly rounded throughout. Nevertheless, it must be noted that in some specimens from Margarita (MARCUZZI, 1954) the sides of the pronotum are regularly rounded, as in *P. dytiscoides*.

The new species differs from *P. chevrolati* in having a wider, campanulate pronotum, shallower punctation of the head, shallower elytral striae, more dilated anterior tibiae; and from *P. angustata* in having a less convex upper surface, well developed anterior angles of pronotum (in *angustata* evanescent), shallower elytral striae and more flattened interstriae.

It seems to belong to a group of *Phaleria* characteristic of the Caribbean area, well differentiated from *P. fulva*, which is characterized by the presence of a fringe of hairs on the epipleurae, as in the European group of *P. cadaverina* F.

Phaleria fulva Fleutiaux & Sallé, 1889 Plate V 1–2

FLEUTIAUX & SALLÉ, 1889, p. 423; CHAMPION, 1896, p. 10; MARCUZZI, 1954, p. 25 (*Phaleria* cfr. *fulva*).

ISLOTE AVES (west of Dominica): Sta. 411, 12.V.1949 (9 ex.). Furthermore I have seen some specimens from GUADELOUPE in the Paris Museum.

Guadeloupe, Aves!, Mustique, Grenada.

Phaleria angustata Chevrolat, 1878 Plate V 3–4

CHEVROLAT, 1878, p. ccxlviii; WOLCOTT, 1936, p. 234; MARCUZZI, 1954, p. 25.

TRINIDAD: Toco (many spec., sent by E. MacCallan, I.C.T.A.). NEVIS: Fort Charles, Sta. 413, 28.VI.1949 (2 ex.). PUERTO RICO: (many spec. sent by G. N. Wolcott, Agr. Exp. Sta.).

Venezuela (Sucre, Dto. Federal); Margarita, Trinidad, Guadeloupe, Nevis!, Puerto Rico, Hispaniola, Jamaica.

Trachyscelis sp.

BARBUDA: Martello Tower beach, 8.VII.1955 (5 ex.).

Very similar to *T. aphodioides*, but scutellum completely smooth, without any trace of scutellar stria. These cannot be specimens of *T. flavipes* Melsh., on account of the colour of the legs which are brownish-red instead of yellowish (cf. HORN, 1870, p. 377). They may possibly be of the species found in Puerto Rico which BLAIR determined as (?) *flavipes* Melsh. (cf. WOLCOTT, 1936, p. 234).

Hoplocephala cornigera Fabricius, 1781

LAPORTE & BRULLÉ, 1831, p. 342.

CUBA: Manicaragua, Minas Ricas, on Polyporaceae, 12.III.1933 (11 ♂, 10 ♀); Camaguey, 21.IV–5.V.1933 (♀); Guane — Teneria, 7.VII.1933 (7 ♂, 4 ♀), all collected by H. J. Mac Gillavry). S. Vicente, VI.1948 (specimens in Frey collection).

In the specimens collected by Mac Gillavry the punctation is a little stronger than in those of S. Vicente, but otherwise they are quite identical.

Endemic to Cuba.

Iccius cephalotus Champion, 1886

CHAMPION, 1886, p. 148.

CUBA: Pinar del Rio, 16–19.V.1933 (♂, MacG.).

Mexico, Guatemala; Cuba!

Alphitobius laevigatus Fabricius, 1781 Plate VI 4–5

SEIDLITZ, 1898, p. 606; MARCUZZI, 1949, p. 349; MARCUZZI, 1954, p. 26.

ANTIGUA: Bats Cave near Nelson's Dockyard, Sta. 592, 13.VII.1955 (11 ex.). SABA: Bat Hole, Sta. 446, 19.VII.1949 (7 ex.). ST. MARTIN: Devil's Hole, Sta. 474, 4.VIII.1949 (2 ex.); Sta. 474a, 26.VII.1955 (6 ex.); 21.XI–7.XII.1956 (6 ex., leg. R. H. Cobben, Wageningen). CUBA: Sta. Clara, 15.III–21.IV.1933 (1 ex., MacG.).

Aruba!, Curaçao, Antigua, Saba!, St. Martin!, Puerto Rico, Cuba!; cosmopolitan.

Hypophloeus rufipes Fabricius, 1801

CHAMPION, 1886, p. 171.

CUBA: Forest region near Cacarajicara, 20–22.VI.1933 (1 ex., MacG.).

From Mexico to Brazil (Rio de Janeiro); Puerto Rico, Cuba!

Zophobas rugipes Kirsch, 1866 Plate VI 2, 7

KRAATZ, 1880, p. 130; MARCUZZI, 1959, p. 87, 89, fig. 87.

SABA: Bottom, 20.VII.1949, in house (♂); Windwardside, XII.1956 (♂, leg. R. H. Cobben, Wageningen). ST. MARTIN: St. Peter, Cul de Sac, Sta. 467a, 29.VI. 1955 (♂); Cul de Sac bridge, Sta. 469A, 24.V.1949 (♂). ST. CROIX: Clifton Hill ruins, Sta. 614, 14.VI.1955 (44 ♂, 32 ♀). CUBA: Santa Cruz de los Pinos, 8.II.1933 (♂); Pinar del Rio, 16–29.V.1933 (♂, ♀); San Diego de los Baños, 29.V.–11.VI. 1933 (♀), all collected by H. J. Mac Gillavry.

From Mexico to Brazil; Aruba, Curaçao, Guadeloupe, Saba!, St. Martin!, St. Croix!, Puerto Rico, Cuba!

Nautes sp., cfr. **fervidus** Pascoe, 1866 Plate VI 6

ALLARD, 1876, p. 6.

CUBA: La Mayarie, 8 km from the coast, 13.VI.1933 (1 ex., MacG.).

So far, *N. fervidus* is known only from Central America.

Nautes sp., cfr. **asperipennis** Allard, 1894 Plate VI 8

ALLARD, 1894, p. 259.

CUBA: Hormiguero, 10–18.II.1933 (1 ex., MacG.).

Nautes asperipennis is endemic to Cuba.

Strongylium amethystinum Guérin, 1838 Plate VI 3

MÄKLIN, 1864, p. 163.

CUBA: Forest region near Cacarajicara, 20–22.VI.1933 (1 ex., MacG.).

Compared with a specimen from the GEBIEN collection: MAC GILLAVRY's specimen is smaller, with the punctation of the elytra less coarse and shallower; with a narrower pronotum, which is widest in the middle (whereas the GEBIEN specimen is widest slightly beyond the middle); and with the base practically as wide as the apex (in the GEBIEN specimen wider than the apex). The antennae are slender; the articles twice as long as wide.

Strongylium amethystinum is endemic to Cuba.

Strongylium sp., cfr. **curticorne** Champion, 1888 Plate VI 1

CHAMPION, 1888, p. 369.

CUBA: Puerto de Golpe — Marco Vasquez, 18.V.1933 (1 ex., MacG.).

So far *S. curticorne* is known only from Mexico.

ZOOGEOGRAPHICAL REMARKS

on the Tenebrionid Fauna of the Antilles north of Trinidad

At present, 53 species of the Tenebrionidae 'Melasomes' are known from the Antillean islands north of Trinidad, 41 of which are endemic species (i.e. 77.3% of the total number). Of these, 21 are exclusive to one single island, and one species is endemic to an insular group (Grenadines) (cf. Table 2).

The results of an examination of the analytical data are given below (cf. Table 3).

Endemic tribes: 1 (*Trientomini*).

Endemic genera: 6, of which 3 are exclusive to a single island, 1 to an insular group.

Genera which also extend along the coast of South America, south of the Caribbean Sea: 1 (*Diastolinus*) (cf. Fig. 52).

Genera which extend to the region of the Caribbean Sea as a whole and to the Gulf of Mexico: *Schoenicus*, *Branchus* and perhaps *Meralius*.

Genera which extend up to Lower California: 1 (*Dacoderus*) (cf. Fig. 52).

Genera exclusive to the Lesser Antilles: 1 (*Ctesicles*), which, together with the endemic species of *Epitragus* and *Schoenicus*, bears witness to the presence of an active centre of endemism (cf. Fig. 52).

Genera exclusive to the Greater Antilles: *Meralius* (whose presence in South America is very doubtful), *Platylus*, *Cenophorus* and *Sellio* (cf. Fig. 52).

Genera common to the eastern and western parts of the Antilles: 8; present only in the eastern part, 3; present only in the western part, 7.

Endemic genera common to the two parts: 1; present only in the eastern part, 1; only in the western part, 4.

From this it could be assumed that the Greater Antilles have existed for a longer time than the Lesser Antilles, and that the different islands have been separated for a period which was sufficiently long to allow speciation up to the formation of endemic genera and tribes.

Species common to the eastern and western islands: 7, of which 5 are endemics (71.4%); species present only in the eastern islands: 19, of which nearly 11 are endemics (57.8%); species present only in the western portion: 27, of which 25 are endemics (92.5%). From this it could be assumed that the Greater and Lesser Antilles are faunistically well differentiated, the western limit for the eastern species being St. Croix, and the eastern limit for the western species St. Thomas.

Opatrinus gemellatus is an example of those species of South American origin which have entered (and colonized) the Lesser Antilles. *Opatrinus pullus* is an example of those species of Central American origin which have entered the Greater Antilles without meeting the former species (cf. Fig. 49).

Blapstinus punctatus and *B. opacus* (cf. Fig. 50) are closely related species, the origin of which must be attributed to the separation of two insular groups — probably in recent times. *Diastolinus sallei* and *D. puncticollis* are very closely related — perhaps 'sibling' — but sympatric species. On the other hand, *Diastolinus perforatus*, *D. hummelincki* and *D. clavatus* are closely related but probably allopatric species (cf. Fig. 50).

The regular diffusion of the various representatives of the halophilous genus *Phaleria*, similar to that of xerophilous — or at any rate not halophilous — species (cf. Fig. 49), is highly interesting, and shows that this highly specialized ecological

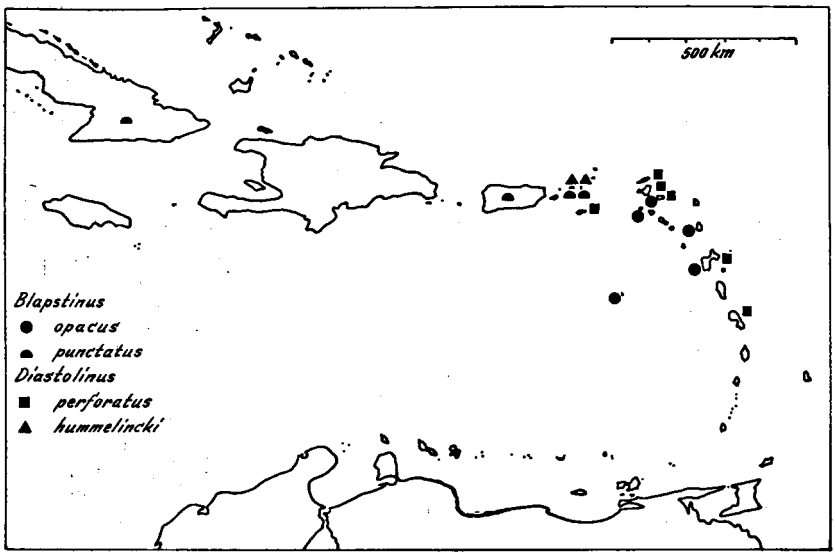

Fig. 50. Distribution of some species of *Blapstinus* and *Diastolinus*.

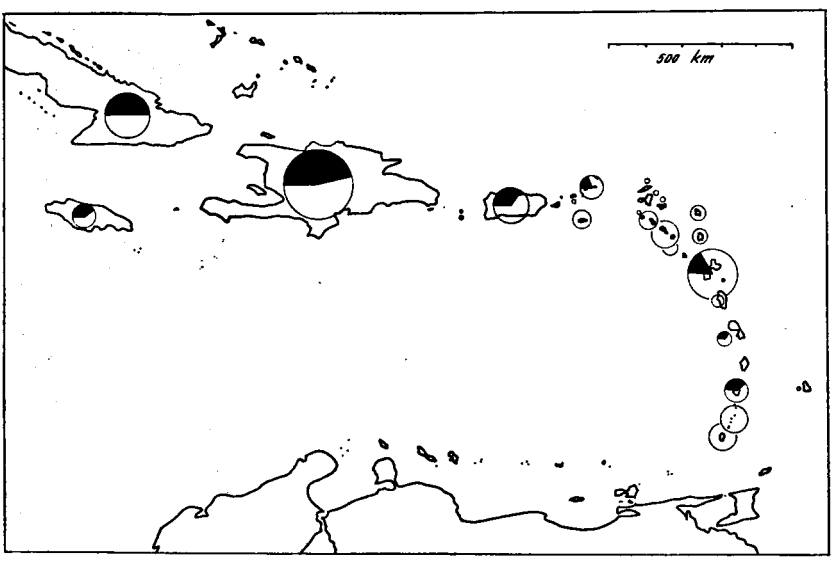

Fig. 51. Graphic representation of the number of species (entire circle) and of endemics (black portion of circle) of each island.

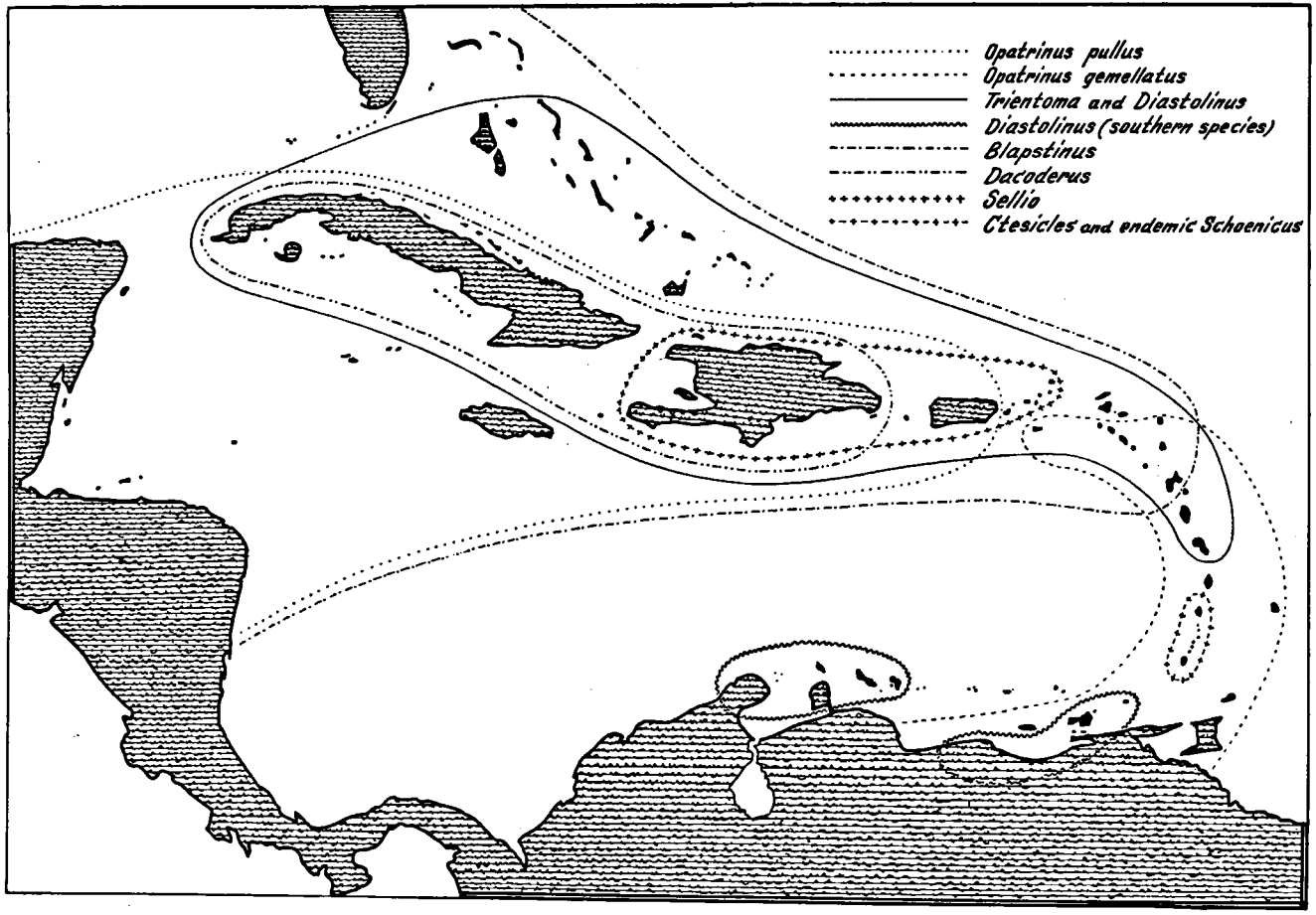

Fig. 52. Main patterns of distribution of tenebrionid beetles in the West Indies showing centres of speciation in both Greater and Lesser Antilles. — Note the similarity of these patterns of distribution to that of the mammals, as established by ALLEN (p. 192).

TABLE 2. *Geographical distribution of Caribbean Tenebrionidae Melasomes.*

Species of *Tenebrionidae Melasomes*	U.S.A.	Central America	Bahamas	Greater Antilles: Cuba	Jamaica	Hispaniola	Mona	Puerto Rico	Lesser Antilles: St. Thomas	St. John	St. Croix	Anguilla	St. Martin, Tint.	St. Barts, Four.	Saba	St. Eustatius	St. Kitts	Nevis	Barbuda	Antigua	Guadeloupe	Dominica	Aves	Martinique	St. Vincent	Bequia	Moustique	Union	Grenada	Barbados	Tobago	Trinidad	Venez. Islands	Bonaire, Curaçao, Aruba	South American mainland
Epitragus aurulentus		×			×																											×		×
— *jamaicensis*					×																														
Schoenicus antillarum																											×								
— *brunneus*																												×							
Trientoma guadeloupensis																×					×														
— *laevis*						×											×		×																
— *martinicensis*																				×				×											
— *rugifrons*						×																													
— *ryticephala*						×																													
— *sallei*						×																													
— *varvasi*				×				×																											
— *wickhami*	?		×																																
Meralius echinatus				×																															
Rhypasma haitianum						×																													
Dacoderus dominicensis				×		×																													
Branchus woodi			×																																
Platylus dilatatus									×																										
Diastolinus puncticollis						×									×	×	×																		
— *sallei*						×																×													
— *costipennis*						×						×					×																		
— *perforatus*											×	×	×	×					×	×				×											
— *hummelinchi*									×	×																									
— *clathratus*							×				×													?											
— *clavatus*								×					×																						
— *fuscicornis*									×	×				×																					
— *waterhousei*															×			×	×	×															
— *barbudensis*																					×														
— *puncticeps*				?																															
— *cubanus*				×																															
Sellio coarctatus						×											×																		
— *tibidens*						×			×																										
Opatrinus gemellatus											×						×				×				×	×		×							×
— *pullus*		×		×	×			×																			×		×						
Cenophorus viduus						×																													
Ctesicles insularis																									×										
— *maritimus*																											×								
Blapstinus fortis	×	?	×	×																								×							
— *opacus*												×	×			×	×				×		×												
— *punctatus*				×				×	×	×	×			×																					
— *simulans*					×			×										×																	
— *buqueti*																														×					
— *striatulus*								?																							×				×
— *dominicus*						×					×																								
— *jamaicensis*					×																														
— *haitensis*						×																													
— *cubanus*				×																															
— *'waterhousei'*																					×														
Ammodonus ciliatus																									×										
— *tropicus*																					×														
Phaleria angustata					×	×		×										×			×											×			×
— *fulva*																					×		×					×							
— *chevrolati*																					×							×							
— *guadeloupensis*																					×														
— *variabilis*								×																											
— *maculipennis*																×																			?
Trachyscelis aphodioides																					×														
Crypticus undatus																											×		×						

TABLE 3. *Geographical distribution of Caribbean Tenebrionidae.*

Genera	U.S.A.	Central America	Bahamas	*Greater Antilles* Cuba	Jamaica	Hispaniola, Mona	Puerto Rico	*Lesser Antilles* Windward Group St. Thomas, St. John	St. Croix	Anguilla, St. Martin	St. Barts, Fourche	Saba	St. Eustatius	St. Kitts, Nevis	Barbuda	Antigua	Guadeloupe	Dominica	Islote Aves	Martinique	St. Vincent	Bequia, Moustique, Union	Grenada	Barbados	Tobago	Trinidad	*Lesser Antilles* Leeward Group Testigos, Frailes	Margarita, Coche, Cubagua	Hermanos, Blanquilla	Orchila	Roques	Aves	Bonaire, Klein Bonaire	Curaçao, Klein Curaçao	Aruba	South America	Eurasia, Africa	Australia incl. Pacific
Epitragus		×			×																															
Ecnomosternum																																					
Tapinocomus																																					
Stictoderia																																					
Schoenicus	×	×												×																							
Trientoma			×																																		
Meralius																																					
Rhypasma						?																															
Dacoderus																																					
Branchus			×																																		
Platylus																																					
Diastolinus																																					
Opatrinus																																					
Ulus																																					
Cenophorus																																					
Ctesicles																																					
Blapstinus																																					
Sellio																																					
Austrocaribius																																					
Hummelinckia																																					
Trichoton																																					
Ammodonus																																					
Trichotoides																																					
Trachyscelis																																					
Phaleria																																					
Platydema																																					
Uloma																																					
Crypticus																																					
Hoplocephala																																					
Iccius																																					
Tribolium																																					
Alegoria																																					
Alphitobius																																					
Ulosonia																																					
Hypophloeus																																					
Zophobas																																					
Isicerdes																																					
Phymatestes																																					
Anaedus																																					
Pyanissia																																					
Nautes																																					
Strongylium																																					

category also presents the same pattern of distribution as has been found for the most obviously terrestrial organisms, such as xerophilous tenebrionids.

The endemic genera are restricted to islands such as Puerto Rico, which emerged nearly 20 million years ago [1]. Endemic species are known even from islands such as Jamaica, which emerged 10 million years ago. It is even possible to observe a certain relationship between the number of endemic genera or species on a given island and its age, as can be seen from the table.[2]

Island	*Age — millions of years*	*Number of endemic species*	*Number of endemic genera*
Hispaniola	Upper Oligocene — 30	8	3
Cuba	Middle Miocene — 20	6	1
Puerto Rico	Middle Miocene — 20	4	2
Jamaica	Upper Miocene — 10	2	—

Since the West Indies very likely correspond to a submarine cordillera, the play of connections and separations must have been quite complex and probably recurrent. Furthermore, in all the islands separated by channels of sea water not deeper than 200 m, there must have been some repeated faunistic interchanges during the Pleistocene, owing to glacial eustatism.

The soundest part of our knowledge of the geological history of the West Indies is that relating to the sedimentary rocks (mostly calcareous rocks) of Cuba, Jamaica, Hispaniola and Puerto Rico, the age of which has been placed between Lower Eocene and Pliocene. In the case of these islands very detailed information is available concerning emersion, submersion, eruptive activity and tectonic movements.

The depths of the sea channels which separate the different islands or insular groups are well known, and are as follows: Cuba-Jamaica, from 4,000 to a maximum of 6,270 m (Bartlett trench); Cuba-Hispaniola, from a minimum of 2,000 to a maximum of nearly 4,000 m (Windward Passage); Hispaniola-Puerto Rico, 1,000 m (Mona Passage); Puerto Rico-Virgin Islands (including St. Thomas), shallow, scarcely reaching 500 m; Virgin Islands-St. Croix, 4,570 m (Virgin trench). It is noteworthy that St. Croix is separated from the Lesser Antilles by a much shallower depth. The Windward Group (or the Lesser Antilles proper) extending from Anguilla to Grenada, are separated from each other by shallow depths, with the exception of the St. Lucia Channel. The latter channel divides the southern Antilles (the "Windward Islands", extending from St. Lucia to Grenada) from the northern portion, extending from Martinique to Anguilla. It is noteworthy that Barbados is separated from the Antilles proper by a trench reaching 2,730 m in depth.

According to RUTTEN, during the Cretaceous time a mountain range—represented now by a series of islands — included most of the Antilles and extended outside the arc of the Lesser Antilles. Very probably there were some interinsular connections and connections between the islands and the mainland, such as Jamaica-Honduras

[1] For the dating of the geological periods I have followed KNOPF's chronology, as found in JEPSEN et al.

[2] In this table I have assigned *Sellio*, *Diastolinus* and *Trientoma* to the genera belonging to Hispaniola, although they are not exclusive to it, because they can be assumed to have originated in that island (whose age is well confirmed by the recent researches in stratigraphy) and thereafter to have spread eastwards and westwards. *Platylus* is considered to belong to Puerto Rican fauna, since it can be envisaged as originating there (for the same reason as above) and afterwards spreading towards St. Thomas.

and Bonaire-South America. Before the Pliocene, the two Americas were now and again united; since the Pliocene they have been constantly united. During the Lower Eocene — before the Oligocene transgression — and again after the Miocene orogenesis (the marine expansion actually reached a maximum before the Miocene orogenesis), there were land masses in the West Indies which were larger than those existing at present time. During the Eocene several parts of the Greater Antilles were emergent, but during the Lower Oligocene the entire territory was submerged; little by little it re-emerged, from Lower Miocene onwards, up to Pliocene. Nevertheless, according to BUTTERLIN (1953), Puerto Rico was partially emergent even during the Middle Oligocene transgression.

As far as the Lesser Antilles are concerned, according to DALMUS it was in the Middle Eocene that the volcanic arc which gave rise to them made its appearance. RUTTEN does not find any qualitative contradiction — from either the tectonic or the stratigraphic viewpoint — between the Lesser and Greater Antilles. As we have seen, the fauna of the West Indies is partially composed of elements common to the two portions of the Antillean arc, and hence the results of my observations on the tenebrionid fauna agree completely with the best accredited geological data.

ALLEN says that the Greater and Lesser Antilles were united for a period, and that animals were able to reach the territory both from the south and from the north, and then spread in the two opposite directions. The species of the Greater Antilles are nevertheless of northern origin, those of the Lesser Antilles of southern origin. According to ALLEN, the two faunas met in the north-easternmost corner of the Antillean arc.

As regards the boundary between the Lesser and Greater Antilles, and the epoch of their separation, my observations on the tenebrionid fauna would indicate that St. John and St. Thomas belong to the Greater Antilles, St. Croix to the Lesser, since a greater number of eastern elements reached St. Croix, and a greater number of western elements reached St. Thomas. ALLEN, working from data on mammal distribution, likewise comes to the conclusion that the Virgin Islands, together with St. Thomas, belong to the Greater Antilles, whereas St. Croix belongs to the Lesser Antilles.

Lastly, the problem of the fragmentation of the Antilles has been studied by ALLEN on the grounds of the distribution of living and extinct mammals, and by MERTENS on the basis of herpetological fauna. More recently, the geologists have also turned their attention to the problem: according to MITCHELL, Jamaica and Cayman separated during early Pliocene; Cuba in Lower Pliocene; Hispaniola in Middle Pliocene; Puerto Rico and the Virgin Islands at the end of Pliocene; St. Croix, lastly, during Pleistocene or Holocene. Study of the distribution of the Antillean tenebrionid beetles as a whole has produced results rather in harmony with the main results obtained by geologists.

CONCLUSIONS

The distribution of Antillean tenebrionids is due to active diffusion of these animals, with no instance of passive transport, not even within the winged, halophile genera such as, for instance, the genus *Phaleria*.

There is a relatively close relationship between the number of genera, or species, endemic to a given insular entity, and the age of that entity. In general, endemic genera are confined to islands which are 20 million years old or older, endemic species are limited to islands which emerged no more than 10 million years ago; and finally, subspecies are to be found only on insular entities separated by sea channels which are not deeper than 200 m and have been united even during the Pleistocene, as a consequence of glacial eustatism.

The boundary between the Greater and Lesser Antilles is situated between St. Thomas and St. Croix; it corresponds to the Virgin Islands trench.

Besides this primary faunistic division, there is a secondary one, situated between the French Antilles (whose southern limit is Martinique) and the "Windward Islands" of the British Antilles (whose northern limit is St. Lucia). This boundary corresponds to the St. Lucia Channel. Examples of faunistic elements whose distribution is limited to the south by the St. Lucia Channel are *Trientoma* and the Antillean species of the genus *Diastolinus*. A species whose distribution is limited to the north by the Virgin Islands trench, is *Opatrinus gemellatus*. Both these territorial discontinuities were probably subject to alternating emersions and submersions, so that at different times southern elements have been able to go northwards up to the Virgin Islands trench, and northern elements have been able to go southwards as far as the St. Lucia Channel.

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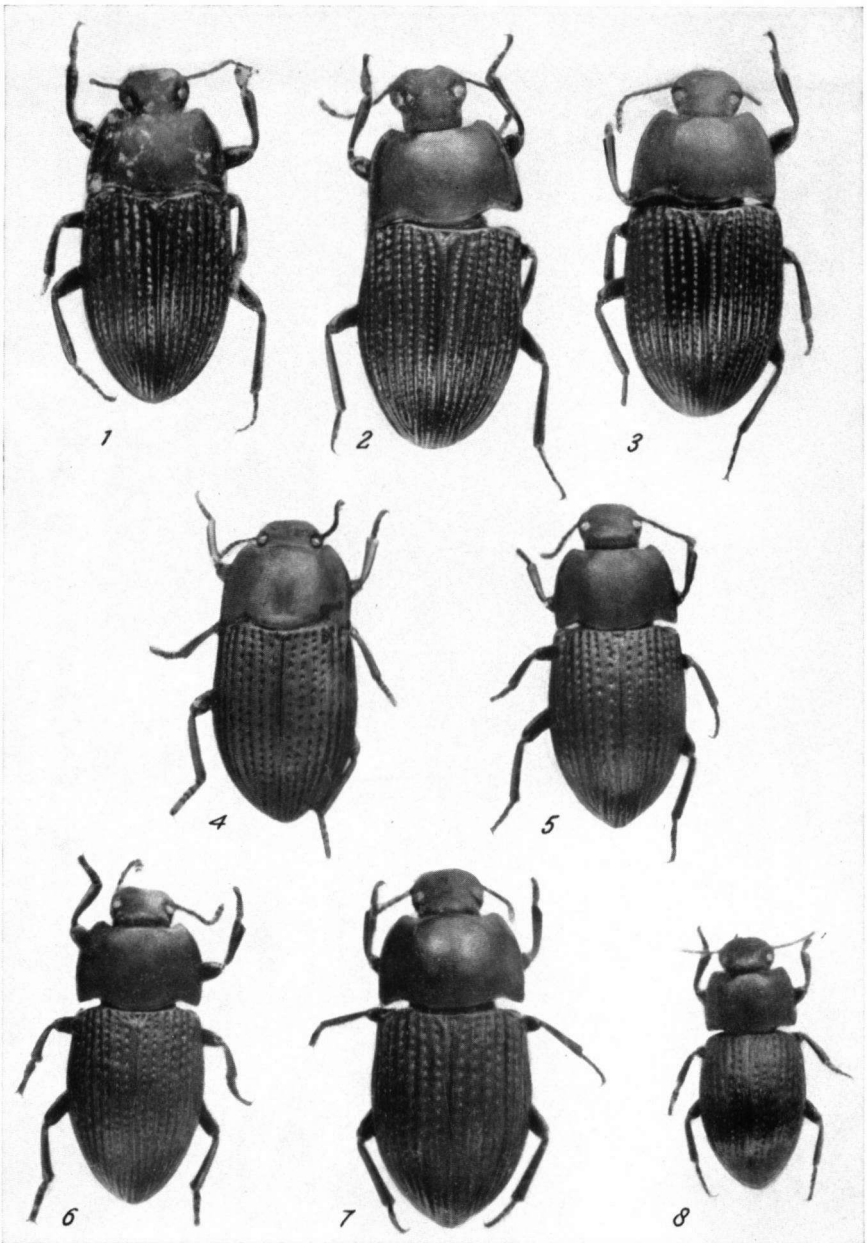
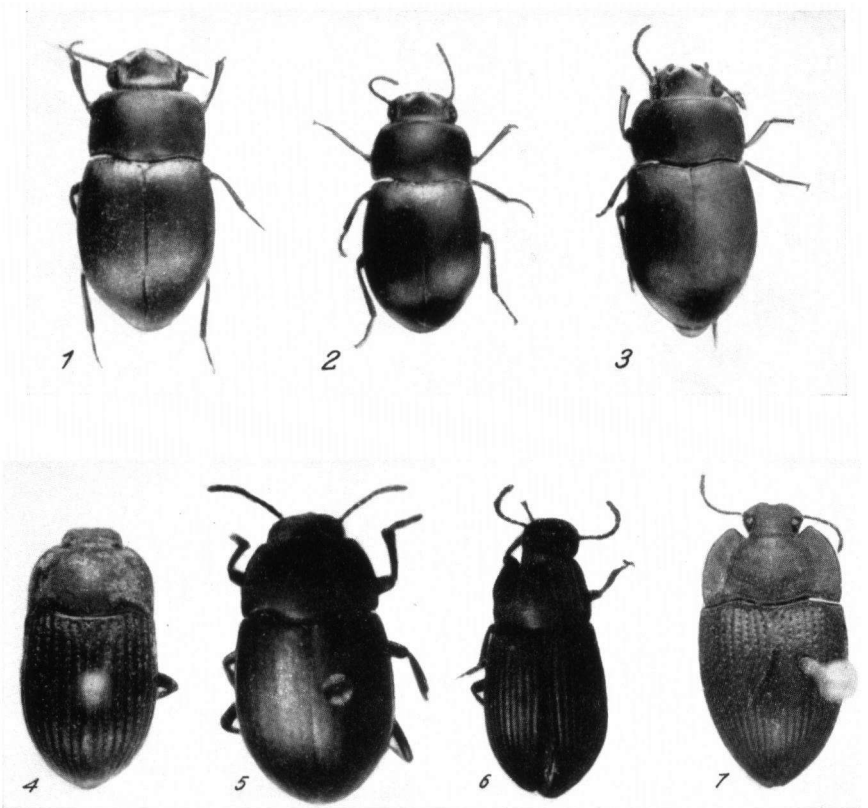
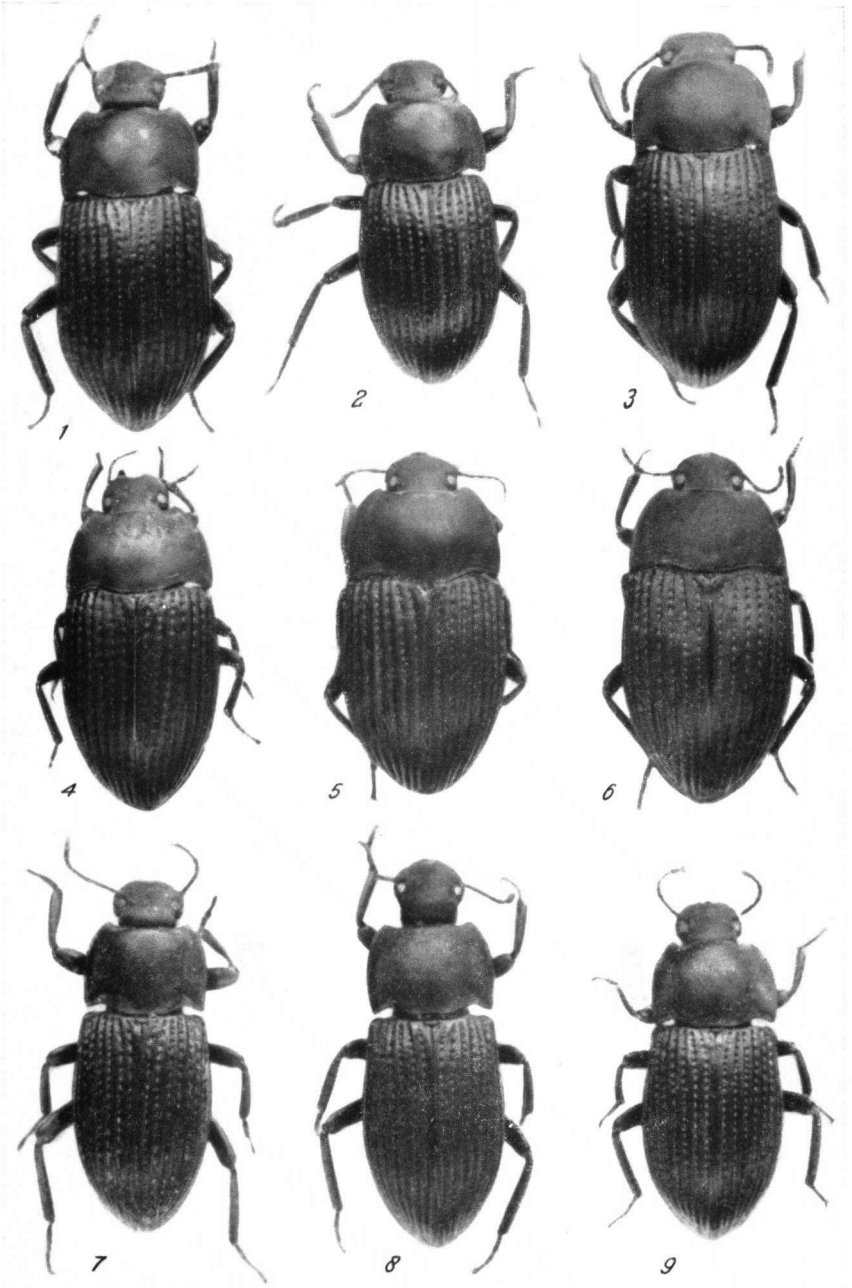


I. 1–3 *Diastolinus clathratus* Fab. from St. Croix (1, airfield; 3, sta. 612, ♂) and St. Martin (2, sta. 461a). 4–7 *Diastolinus perforatus* Sahl. from Fourche (4, sta. 453, a single brown specimen ♀; 5, sta. 452, ♂), St. Martin (6, sta. 457, ♂) and Anguilla (7, sta. 482). 8 *Diastolinus barbudensis* n. sp. from Nevis (sta. 415, ♂, type). — 1–7, × 4¾; 8 × 5¾.

PLATE II

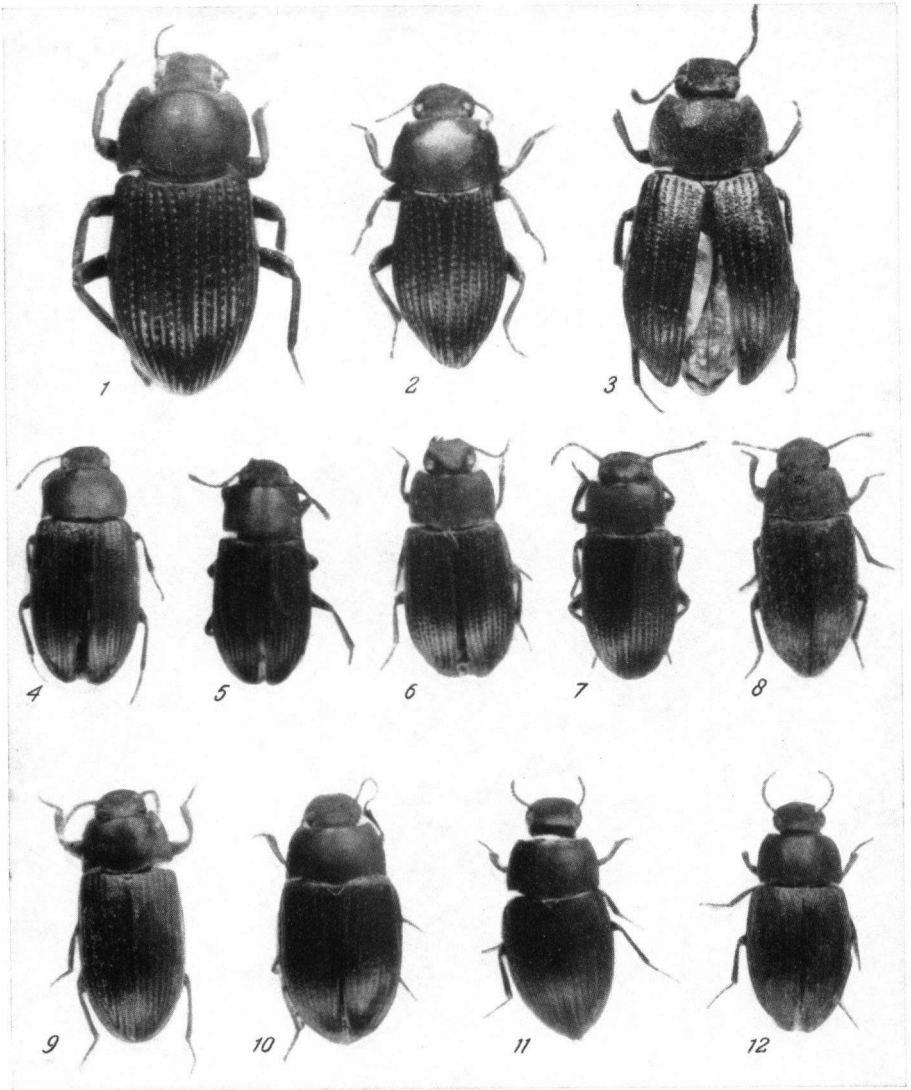


II. 1–3 *Trientoma guadeloupensis* Fl. & S. from St. Eustatius (1, sta. 423; 2, sta. 424) and Barbuda (3, sta. 600). 4 *Diastolinus clavatus* from Mona Island (Museum G. Frey, München). 5 *Diastolinus cubanus* n. sp. from Cuba (type). 6 *Blapstinus simulans barbadensis* n. subsp. from Barbados (type). 7 *Platylus dilatatus* Fab. from St. Thomas (sta. 621, ♂). — 1–3, × $4\frac{3}{4}$.

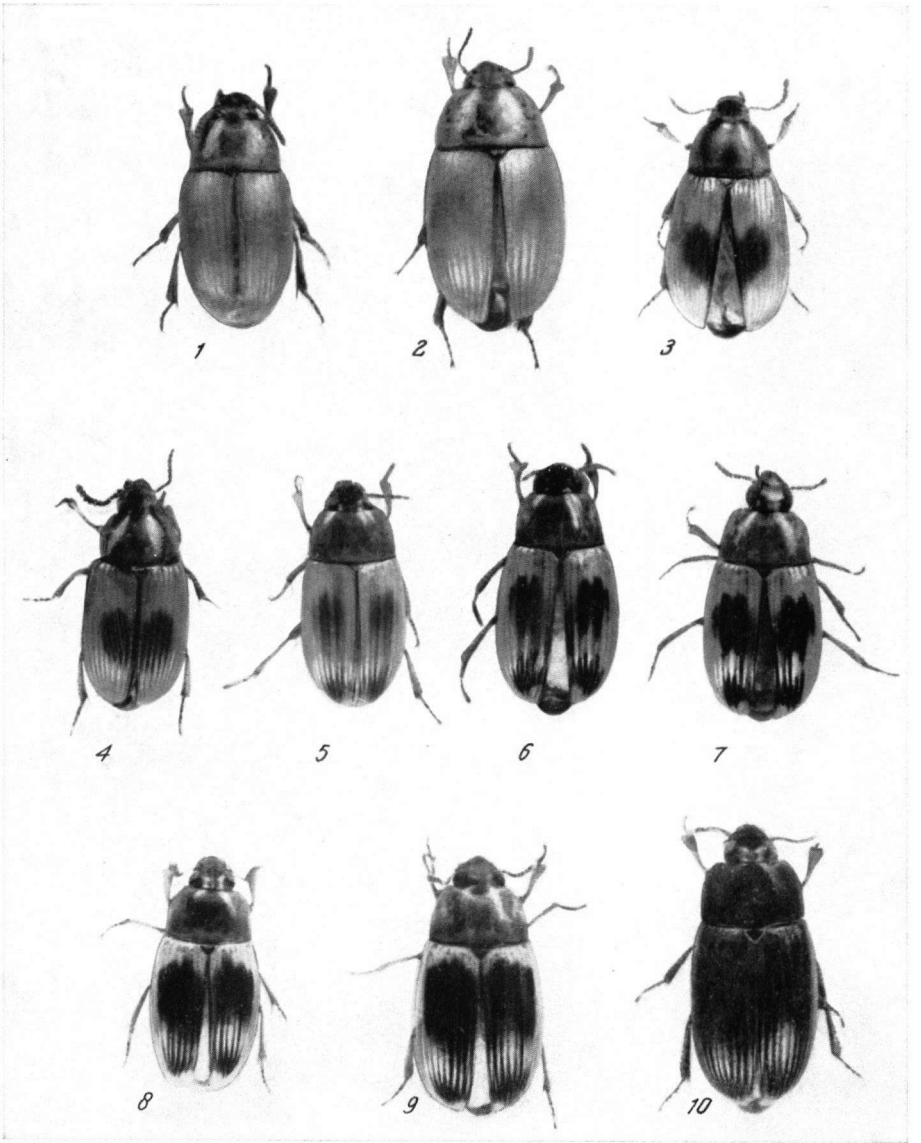


III. 1–3 *Diastolinus sallei* M. & R. from Antigua (1, sta. 593, ♀; 2, sta. 595, ♂) and Barbuda (3, sta. 600, ♀). 4–6 *Diastolinus hummelincki* n. sp. from St. John (4–5, sta. 618, ♀) and St. Thomas (6, sta. 621, ♂). 7–9 *Diastolinus puncticollis* M. & R. from St. Eustatius (7, sta. 426, ♂; 8, sta. 424, ♀) and St. Kitts (9, sta. 419, ♂). — × 4¾.

PLATE IV

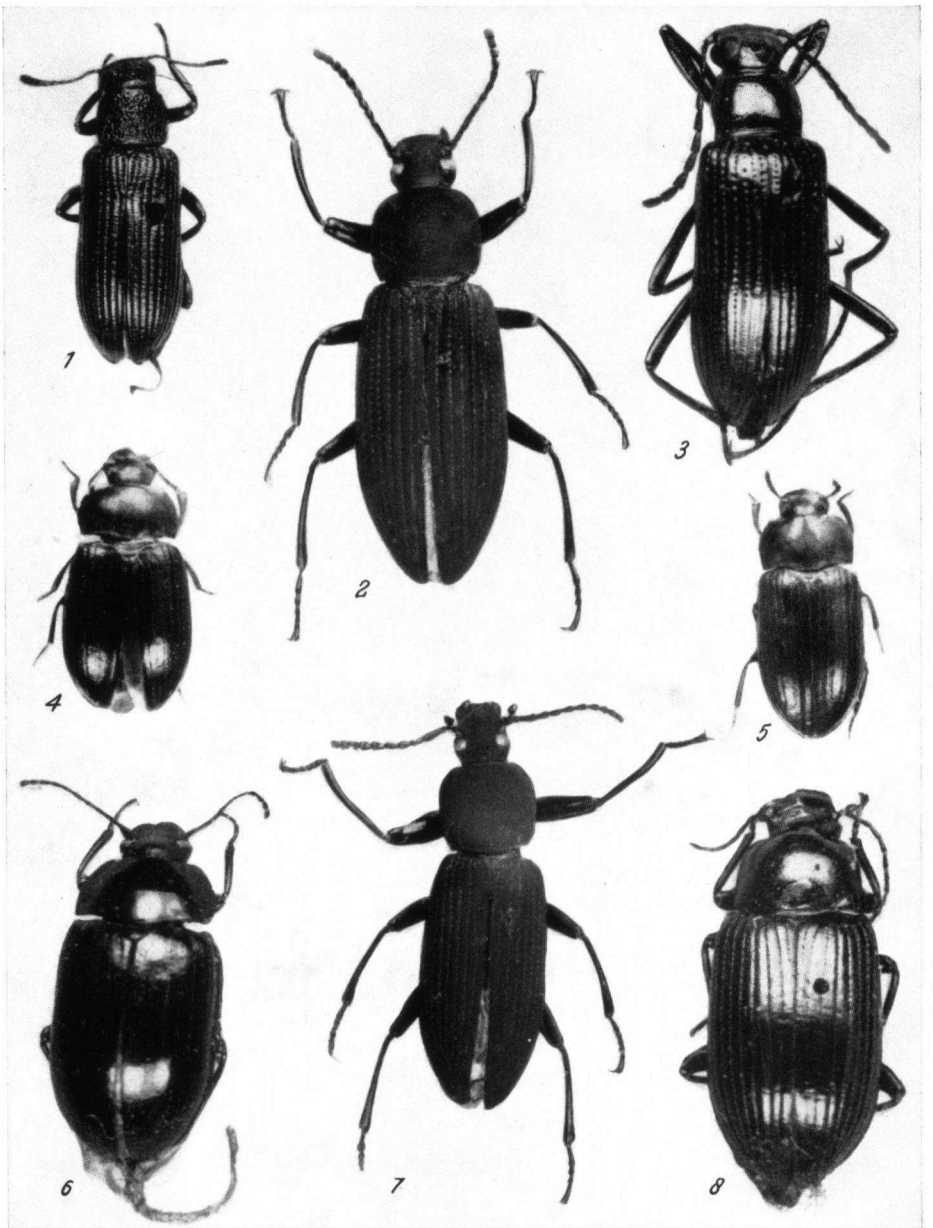


IV. 1 *Sellio coarctatus* M. & R. from St. Kitts (sta. 677, ♀). 2 *Sellio tibidens* Quens from St. Thomas (sta. 621). 3 *Blapstinus fortis* Lec. from New Providence (sta. 491, ♀). 4–5 *Blapstinus cubanus* n. sp. from Cuba (4, San Cristóbal; 5, Pinar del Río, cotype). 6–7 *Blapstinus dominicus* n. sp. from St. Croix (6, sta. 615, ♂) and Hispaniola (7, Haiti, Moca, ♂, type). 8 *Blapstinus haitensis* n. sp. from Hispaniola (Haiti, Santiago, ♀, cotype). 9 *Blapstinus jamaicensis* n. sp. from Jamaica (Kingston, ♀?, cotype). 10 *Blapstinus punctatus* Fab. from St. John (sta. 618, ♀). 11–12 *Blapstinus opacus* M. & R. from Islote Aves (sta. 411, ♂). — 1–3, × $4\frac{3}{4}$; 4–12, × 6.



V. 1–2 *Phaleria fulva* Fl. & S. from Islote Aves (sta. 411). 3–4 *Phaleria angustata* Chevr. from Nevis (sta. 413). 5–10 *Phaleria maculipennis* n. sp. from St. Eustatius (sta. 433). — × 6½.

PLATE VI



VI. 1 *Strongylium* sp., near *curticorne* Champ. from Cuba (Puerto de Golpe). 3 *Strongylium amethystinum* Guér. from Cuba (Cacarajicara). 2 and 7 *Zophobas rugipes* Kirsch from St. Croix (sta. 614, ♀ and ♂). 4–5 *Alphitobius laevigatus* Fab. from Antigua (sta. 592). 6 *Nautes* sp., near *fervidus* Pas. from Cuba (La Mayarie). 8 *Nautes* sp., near *asperipennis* All. from Cuba (Hormiguero). — 2, × 2½; 4–5, × 7; 7, × 2⅓.