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The Coleoptera of the Galapagos Islands

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SAN FRANCISCO

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BY
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Introduction

The Galapagos Islands are on the Equator, about 600 miles from the west coast of South America. According to Alfred Russel Wallace (1880), they "stand upon a deeply submerged bank, the 1,000 fathom line encircling all the more important islands; the largest (Albemarle Island) being about eighty miles long and very irregular shaped, while the four next in importance—Chatham, Indefatigable, James and Narborough Islands—are each about twenty-five to thirty miles long and of a rounded or elongate form. The whole are entirely volcanic and in the western islands there are numerous active volcanoes." They are semiarid, the lowlands having a short wet season, while the highlands catch the fogs and rain clouds and are much moister, and have a later season. The Coleoptera are not very numerous but they are found on all the islands and some are restricted to rather definite environments as the seacoast, the semiarid lowlands, or the moister highlands. The Cicindelidae, Oedemeridae, and certain Tenebrionidae like *Phaleria* prefer the seacoast, while the Tenebrionidae dominate the barren grounds and during the rains certain Carabidae, like *Calosoma howardi* Linell, are fairly numerous and widely distributed. Later on, the highlands have their season when some Carabidae may appear in certain restricted localities. The Tenebrionidae have the greatest number of species and the three genera: *Stomion* Waterhouse, *Pedonoeces* Waterhouse, and *Ammophorus* Waterhouse contain the bulk of these. The first two genera are limited to the Galapagos Islands but *Ammophorus* possesses some mainland species. The Chrysomelidae are not numerous as would be expected in such a barren region but there are a fair number of Cerambycidae and Rhynchophora. There are only a few of the Cossoninae which are so abundant on the Atlantic islands and in Polynesia but that scarcity may be due to the fact that they are, in the main, stem and twig borers and require very intensive collecting. In fact the fauna of the Islands as a whole is probably very much richer than indicated by the collections so far made. Close collecting such as was followed by Wollaston in the Atlantic islands might yield many more species, especially in certain families of small insects.

The coleopterous fauna is definitely related to that of the barren

grounds of western South America especially Ecuador and Peru, and no doubt derived from them at some period long ago. A few species like some of the Cerambycidae are the same as mainland species but these are large, fully winged species which might have arrived in rather recent times. Others, however, though superficially resembling mainland species, appear upon closer examination to be quite distinct. Most of the genera such as in the Carabidae, Elateridae, Tenebrionidae, and Rhynchophora have numerous species showing considerable reduction in the size of the true wings and as a result a modification of their form chiefly in the humeral region, resulting in more rounded shoulders and along with this the development of an elliptical afterbody. With the reduction in size of the flight organs, there is apt to occur an increase in size and a marked change in the body sculpturing. This is especially noticeable in the tenebrionid genera *Stomion* and *Pedonoeces.* This has of course been accentuated by isolation and time. The species supposedly nearest the original home are more generalized, more like the primitive stock, while those most removed are the most modified or divergent. In the characteristic genera: *Stomion*, *Pedonoeces* and *Ammophorus,* most of the species are restricted to definite islands or confined to limited areas on the islands. A few species are widely distributed though generally showing some variation in different areas, while many species are very variable, having many modifications within a given area. The fact that the Islands are volcanic and to a great extent semiarid has been a limiting factor. Only very hardy forms such as the Tenebrionidae could survive and perpetuate themselves in the drier areas. Other forms which have vulnerable larvae could only survive by adapting themselves to the seasons. This is the case with *Calosoma howardii* Linell which being fully winged is widely distributed. It is abundant at times though generally found on the lowlands in the spring when there is sufficient moisture. The higher mountains having more humid conditions, generally have a later productive season. Because of the favorable conditions, they have preserved representatives of many of the Carabidae whose vulnerable larvae could not exist in the drier areas. These areas are more limited in extent and isolated so that the species which are preserved there are apt to show marked divergences and limitations as to populations. This isolation has also enabled many species to become more or less flightless because of degenerative changes in the wings. This has of course increased the isolation of the species. The prominent genus *Calosoma* which will be discussed in detail later on shows these wing modifications to a notable degree.

The fauna of the Galapagos Islands, because of its long isolation,

has acquired certain peculiar features which throw light upon many of the problems of nature. The fauna is limited in extent and most of its species and certain of its genera are confined to the Archipelago. A great deal of divergence is shown in the species, particularly in the larger genera, and most species are restricted to certain islands or even to special areas on the islands. This is not a haphazard distribution either. There is a relationship between the variations of the species and their distribution. This seems to indicate that the modifications which have taken place have been made possible by the gradual isolation of the different species such as could be produced by the breaking up of larger islands into smaller ones, modifications in topography, and climatic changes. This subject will be discussed in more detail later on when certain of the larger or more peculiar genera are examined. The fauna as a whole is related to that of the western portion of South America. There seems to be no extraneous element. It would appear as if a certain portion of western South America was isolated by the subsidence of the intervening area between the Islands and the mainland. This land mass was later broken up into small islands, probably by subsidence subject to extensive volcanic action and desiccation. These factors in time reduced the fauna and accelerated the various divergent modifications. Because of the extensive volcanic action on the Islands and the deep ocean bed between them and the mainland, they have been listed as oceanic islands by Alfred Russel Wallace and others. I do not believe this. I believe that the Islands are continental and that an extensive subsidence of the coastal area of western South America coincided with the elevation of the northern Andes which the geologists believe has occurred in later geological times, has accounted for their isolation.

The first Coleoptera collected in the Galapagos Islands were obtained in 1835, by Charles Darwin, while on the historical *Beagle* Expedition. The collection was small, consisting of twenty-nine species, but it was significant in that the species were peculiar, most of them restricted to the Archipelago and many of them found only on individual islands. The beetles were referred to specialists for study. The first species described was *Calosoma galapageium* Hope, 1837. The remaining specimens were studied by George R. Waterhouse and described in 1845. In his work, Waterhouse remarked upon their peculiarities, especially their distribution. He established two genera which were confined to the Islands. In 1852, the Archipelago was visited by the Swedish frigate, *Eugenie,* and a limited number of specimens collected by the members of its expedition were later submitted to the eminent entomologist Boheman and by him classified (1858–59). In

1875, the British H.M.S. *Petrie* visited the Islands and collected a few insects which were reported on by C. O. Waterhouse, in 1877. In 1887–1888, the United States fisheries steamer *Albatross,* visited the Islands and secured a number of insects. These, twelve in number, were listed by Martin L. Linell and published upon by L. O. Howard in 1889. Later Linell (1898) discussed these in some detail.

The next exploration of the Islands was by the extensive expedition of the California Academy of Sciences, organized in 1905. The party left San Francisco, June 28, 1905, and returned November 29, 1906, spending five months in making the journey to and from the Islands and a year in exploring them. Dr. F. X. Williams who was then a student at Stanford University was the entomologist. He collected extensively and was also assisted by other members of the expedition. As a result, a fairly large collection was made, much the largest ever secured in the Galapagos Islands. In 1907, F. X. Williams made a short report on the insects in which he listed 150 species collected on the Islands. A tiger beetle collected by Williams was described by Dr. Walther Horn (1920) as *Cicindela galapagoensis.* It had been submitted to him for his opinion. These two reports are the only ones in which the Coleoptera secured by the California Academy Expedition have been mentioned so far.

Since the expedition of the California Academy of Sciences, the Galapagos Islands have been visited by various parties and collections of Coleoptera made. The first of these was by the New York Zoological Society and under the direction of William Beebe. The few beetles collected were presented to the American Museum of Natural History and studied by its curator of Coleoptera, Andrew J. Mutchler (1925). Later on, Mutchler (1938) published a supplementary paper which reported on material the Templeton Crocker Expedition to the Pacific Islands in 1925, secured incidentally to its ornithological work. He also included some specimens which Dr. Wolfgang von Hagen had secured on Indefatigable Island in 1935 and 1936 while making a preliminary ecological survey of the Galapagos Islands, and in addition mentioned a few odd specimens which were in various museums. Following the Mutchler papers, Dr. Kenneth G. Blair of the British Museum published two papers (1928 and 1933) containing his studies of some material collected by various expeditions and presented to the British Museum. In 1932, Mr. Templeton Crocker made another expedition to the Galapagos Islands when M. Willows, Jr., collected some Coleoptera These were presented to the California Academy of Sciences. In the lot were five specimens from Chatham Island, April 18, 1932; four from Charles Island, May 15, 1932; four from Indefatigable Island,

May 4, 1932; and one from Albemarle Island, April 28, 1932. In 1936, Howard E. Hinton described *Ataenius arrowi* from a series of specimens in the British Museum which had been collected on James Island by Bateson and previously listed as *Ataenius cribrithorax* Bates. This is the last published reference to the Coleoptera of the Islands.

Soon after the members of the California Academy of Sciences Expedition returned to San Francisco, I took charge of the Coleoptera collected on the Islands, had them mounted and labeled, and proceeded to study them. There were many interruptions, chiefly through lack of time, so the study lagged. Meanwhile I was given the necessary opportunity to visit the British Museum of Natural History, in 1932–1933, and study the Darwin types described by G. R. Waterhouse and others, as well as all other specimens received by the Museum from the Galapagos Islands in more recent years. In this work I was aided by the curators of the Museum: Dr. Arrow, Dr. Blair, and Sir Guy Marshall, in particular. I also received from the authorities of the Museum through the curators, a number of specimens on loan. Later on, I visited the American Museum of Natural History in New York where, through the courtesy of Mr. Andrew Mutchler the curator, I was able to study their material. I now have before me the extensive collection of Galapagos Islands Coleoptera collected by Dr. F. X. Williams and some few additional beetles from one of the Templeton Crocker expeditions as well as paratypes and loaned specimens received through Dr. Blair of the British Museum, and Mr. Mutchler and Dr. Mont Cazier of the American Museum of Natural History. With this material I feel that I will be able to recognize and place most of the species.

I have had assistance from many people and to each and all I wish to give thanks, particularly the staff of the museums mentioned above, the authorities of the California Academy of Sciences, and Dr. F. X. Williams who is now an honorary member of the staff of the Academy and available for questioning. The drawings for the plates which accompany my paper have been made by Miss O. F. Tassart of the British Museum staff and Mrs. Freda Abernathy of the University of California. Miss Tassart did the six figures of *Calosoma* and their wings, including the type of Hope's *Calosoma galapageium*. Mrs. Abernathy made the remaining drawings.

For details of the Academy's expedition, one should consult the very full report by Joseph R. Slevin (1931).

Family **CICINDELIDAE**

But two members of this family have been reported from the Galapagos Islands: *Cincindela galapagoensis* W. Horn, and *Cicindela vonhageni* Mutchler.

Cicindela galapagoensis W. Horn

Plate I, figure 2

Cicindela galapagoensis (Van Dyke *in litt.*) W. Horn, 1915, Genera Insectorum, Fasc. 82, pp. 52, 238, 241, 251, 397, 399, 402; 1920, Archiv. för Zoologi, XIII, no. 11, p. 17.

Cicindela galapagoensis W. Horn, Mutchler, 1925, Zoologica, V, no. 20, pp. 221–222.

Of moderate size, somewhat narrow, the head, prothorax and to a great extent the meso- and metasternal areas aeneo-cupreous, the elytra in great part and the abdomen beneath more or less piceous, the antennae, mouthparts including labrum, legs, margins of the elytra, and discal markings testaceous with the exceptions of the apices of the mandibles, tibiae and tarsal segments which are rufo-piceous and the second antennal segments and apices of third and fourth antennal segments which are piceous. Head transverse, the eyes very prominent, mandibles long, clypeus broad, rather narrow antero-posteriorly and with a small tooth at the middle of the anterior margin; the occipital and frontal area rather finely rugose, somewhat strigose close to the eyes, and glabrous; the genae finely strigose beneath; and the antennae delicate and extending to about middle of elytra. Prothorax subcylindrical, feebly broader than long, slightly more than two-thirds breadth of head, the anterior margin lobed, the posterior feebly bisinuate, the sides narrowly constricted in front, broadly rounded at anterior angles, then almost straight and gradually convergent backwards; the disc with median longitudinal and anterior and posterior transverse impressions well defined, and general surface finely rugose and metallic. Elytra three-sevenths longer than broad, humeri but moderately prominent, sides almost straight, feebly divergent until near apex, then obliquely convergent and at apex transverse with a minute tooth at suture; the disc shallowly but closely and conspicuously punctate-rugose, with a greasy aspect, piceous with the lateral margins and apices broadly testaceous, and three transverse testaceous markings extending inwards from the lateral margin as follows: the stub of the humeral lunule, slightly back of the humerus, a narrow median bar extending half way to suture then continuing backwards after a right-angled turn in a slightly arcuate manner for a short distance, and near

apex the anterior portion of the apical lunule. Undersurface somewhat smooth and finely, sparsely pubescent along sides of body back of head. Legs long and delicate. Length 10 mm., breadth (of elytra) 4 mm.

Type in Dr. Walther Horn's collection on deposit in the Deutsches Entomologisches Institut at Berlin Dahlem. The remainder of the specimens belong to the California Academy of Sciences. Specimens will, however, be deposited in the British Museum of Natural History, U. S. National Museum, and American Museum of Natural History. The two specimens given to Dr. Horn and upon which he based his description belonged to a series of twenty-six specimens, all of which were collected at night, by F. X. Williams, near the shore of Banks' Bay, Albemarle Island, April 10, 1906. The species is fully winged and quite distinct from any known species, though according to Dr. Horn is more or less related to *C. bifasciata*, a species which with its varieties ranges along the west coast of the northern portion of South America, Central America, and North America as far north as middle California, and along the coast of the Gulf of Mexico. It has also been taken on Clipperton Island. The Galapagos Islands specimens were supposedly derived from the primitive *C. bifasciata* stock.

Cicindela vonhageni Mutchler

Cicindela vonhageni Mutchler, 1938, American Museum Novitates, no. 981, May 12, pp. 2–5, pl. 1, fig. 1.

There are no specimens in the material at hand which represent this species.

Family **CARABIDAE**

This family is represented in the Islands by numerous genera and species, some of which are quite conspicuous. They are all confined to the Islands.

Calosoma howardi Linell

Plate I, figure 1

Calasoma galapagoum Hope, Linell, 1889, In Annot. Cat. by L. O. Howard, Proc. U. S. Nat. Mus., XII, p. 191.

Calosoma howardi Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 251.

Calosoma howardi Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 223.

Calosoma howardi Linell, Csiki, 1927, Coleopt. Cat., pars 91, p. 12.

Calosoma galapageium Hope, Breuning, 1927, Koleopt. Rundschau 13, p. 140. *Calosoma howardi* Linell listed as synonym of *C. galapageium* Hope.

Calosoma howardi Linell, Blair, 1933, Ann. and Mag. Nat. Hist., ser. 10, vol. XI, p. 472.

Of moderate size, somewhat robust and slightly elongated; black, the upper surface more or less bright bluish green in color, the propleurae dull blue, antennae, palpi and tarsi somewhat rufous; wings fully developed and functional. Head across eyes two-thirds breadth of prothorax, front obsoletely and sparsely punctured, longitudinally strigose near eyes; eyes prominent; mandibles well developed and coarsely strigose on upper face; antennae reaching to middle third of elytra, basal segments piceous, outer somewhat rufous. Prothorax with breadth one-third greater than length, subcordate, widest in front of middle, sides evenly arcuate in front, obliquely and slightly sinuate behind and margined with a fine bead, base feebly arcuate at middle, sinuate near hind angles which are rectangular; disc moderately convex, not depressed at sides, smooth or obsoletely, finely rugose, median longitudinal impression fine yet distinct; anterior transverse impression obsolete, basal transverse impression broad, shallow and obscurely punctate, basal foveae near hind angles well impressed. Elytra over one-third longer than broad and slightly less than one-third broader than prothorax, humeral area pronounced though rounded, sides slightly arcuate and expanding to posterior third, then evenly rounded to apices; disc moderately convex, striae regular and more or less well impressed throughout, finely and somewhat closely punctured, distinctly so near base and suture, more or less obsoletely towards sides and apex; marginal striae with muricate punctures, intervals of disc convex more depressed and obsoletely transversely rugose towards the sides, the fourth, eighth and twelfth interrupted by numerous small, shallow foveae for their entire length, each fovea with a minute aciculate puncture. Ventral surface smooth, sides of metasternum and first ventral segment with more or less numerous coarse punctures. Posterior trochanter oval, alike in the sexes. Legs black, tibiae finely spinose, the intermediate ones markedly arcuate in the males, almost straight in females, with coarse and dense orange-red pubescence along the exterior groove below the middle and on the inner face near the apex. Length 15–21 mm., width 7.5–10.5 mm.

Male: Anterior tarsi with first three segments strongly dilated and spongy beneath. Intermediate tibiae strongly arcuate, the apex expanded, with dense orange-red pubescence beneath on inner side, and prolonged into a short obtuse spine.

Female: Similar to male but with anterior tarsi undilated and not spongy beneath, the intermediate tibiae straight or but feebly arcuate and without tuft of pubescence near apex nor with apices prolonged as a spine.

Type: No. 1311, U. S. National Museum.

The *Albatross* expedition of 1888, collected two specimens on Duncan Island and twelve on Chatham Island, and in 1888 and 1891 collected seventy-eight on Charles Island; Dr. G. Baur also collected this species on Charles Island. The Harrison Williams Expedition took one specimen on James Island, April 5, and one on South Seymour, April 23. The California Academy collection has a series of eighty-three mounted specimens from its expedition of 1905–1906, and fourteen from the Templeton Crocker Expedition of 1932. The specimens from the Academy's expedition were all collected by F. X. Williams and in the following localities: Chatham Island, January and February 1906; Charles Island, March 1906; Tagus Cove, March 22 and April 20, 1906, and Bank's Bay, April 18 and 19, 1906, both on Albemarle Island. The Academy also has specimens of elytra from Indefatigable Island, picked up November 5–16, 1906; Culpepper, September 25, 1905; and Barrington Island, October 19–24, 1905. The Templeton Crocker Expedition secured five specimens on Chatham Island, April 18–23, 1932; four on Charles Island, May 15, 1932; four on Indefatigable Island, May 4, 1932; and one on Albemarle Island, May 28, 1932.

The species as indicated by the collections is thus to be found on most of the islands, frequents the lowlands during the springtime and disappears during the summer. It is provided with fully developed and functional wings and, according to observers, flies well. Though fairly common and widespread, it was not found by Darwin, probably because his visit was not in the right season. The species as shown by the large series is fairly stable, fresh specimens being brilliant and older specimens somewhat rubbed and duller in appearance. They, however, vary as to size, our smallest specimen (Chatham Island) being but 15 mm. in length, whereas our largest are fully 21 mm. long. The wings of all specimens, large and small, which were examined were found to be fully developed. This species is probably of the primitive stock from which all species of the genus on the Islands have originated. It is a very distinct species, probably most closely related to *C. rufipenne* Dejean of Peru and northern Chile, with which it and the other Galapagos Island species are placed by Csiki in the sub-genus *Camedula* Motschulsky in the "Coleopterorum Catalogus." It is most decidedly not a synonym of *C. galapageium* Hope as indicated by Breuning in his monograph of the genus (1927) as I will show later. It will be noted that my description based on typical specimens differs slightly from that of Linell. I count the sutural interval as the first, therefore make the first broken interval the fourth rather than the third.

Calosoma darwinia Van Dyke, new species

Plate I, figure 3

Somewhat smaller and narrower than *C. howardi,* with the elytra more narrowed towards the base and the humeral area less developed or angulated but more rounded, the upper surface faintly bronzed, the greenish areas more limited to the depressions such as the elytral striae, and the appendages lighter in color, rufous with the femora rufopiceous, and the general body color piceous rather than black, the wings normal size and not functional. Head across eyes slightly more than two-thirds breadth of prothorax; front finely, sparsely punctured and rugose, strigose near eyes; eyes prominent; mandibles well developed and coarsely strigose on upper face; antennae reaching to middle third of elytra. Prothorax with breadth two-fifths greater than length, subcordate, widest in front of middle, sides arcuate, somewhat broadly so in front, more shallowly behind as well as oblique and convergently narrowed posteriorly, base feebly and broadly arcuate at middle, sinuate near hind angles which are rectangular, disc moderately convex, not depressed at sides, median longitudinal depression fine and well impressed, apical and basal transverse impressions more or less obsolete, the general surface somewhat smooth. Elytra considerably more than one-third longer than broad and about one-third broader than prothorax, humeral area rounded and narrowed, the elytra gradually widening to posterior third then evenly rounding to apices; the disc convex, finely and moderately striate with fine, rather close and distinct punctures in the striae, the intervals convex, with the fourth, eighth and twelfth interrupted as in *C. howardi.* Ventral surface smooth, sides of metasternum and first ventral segment with a number of coarse punctures. Legs as in *C. howardi.* Length 17 mm., breadth 12.5 mm.

Holotype, allotype, and numerous designated paratypes from a series of seventy-five mounted specimens in the collection of the California Academy of Sciences. These were all collected at an altitude of 1300 feet, **near Villamil, Albemarle Island,** August 20–September 5, 1906, by F. X. Williams. Paratypes will be sent to the British Museum of Natural History, the American Museum of Natural History, and the U. S. National Museum.

This interesting species is somewhat smaller than *C. howardi,* proportionally narrower, more gracefully moulded, with the humeral area narrower and more obliquely rounded, the color a bronze green, and the true wings much reduced in size, though variable as to degree in different specimens, but in general about two-thirds normal length and thus not functional. This species has no doubt been derived from the

C. howardi stock but it has gradually diverged through time as a result of isolation being restricted to the higher altitudes of Albemarle Island which are amply supplied with moisture throughout the year, thus does not make its appearance until late summer, whereas *C. howardi* apparently generally appears during the early spring when the coastal areas and lower slopes of the islands receive their scanty rainfall. It has thus been isolated both by altitude and time of appearance and to my mind serves as an excellent example of what isolation, no matter how produced, can accomplish in the way of evolution. It, therefore, seems fitting that it should bear the name of Darwin who first received his suggestions as to the factors of evolution in these islands.

Calosoma galapageium Hope

Plate I, figure 6

Calosoma galapageium Hope, 1838, Trans. Ent. Soc. London, II. p. 130.

Calosoma howardi Linell, 1898, Proc. U. S. Nat. Mus., XII, no. 1143, p. 191.

Calosoma linelli Mutchler, 1898, listed as *Calosoma galapageium* Hope by Linell, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 250.

Calosoma galapageium Hope Roeschke, 1900, Ent. Nachr., XXVI, p. 57.

Calosoma galapageium Hope, Csiki, 1927, Coleoptorum Catalogus, pars. 91, p. 12.

Calosoma galapageium Hope, Breuning, Oct. 1927, Koleopt. Rundschau, 13, pp. 140, 149.

This species as indicated by the figure carefully drawn from the type and to scale, is considerably smaller than *C. howardi* and somewhat smaller and much narrower than *C. darwinia*. It is moderately elongated, with much reduced humeri and as a result almost certainly with even more reduced wings than in *C. darwinia* and of course nonfunctional; is black, with appendages rufopiceous, the upper surface more or less virido-cyaneous, especially about posterior prothoracic depressions, in the striae and along the lateral margins. The prothorax is narrower than in *C. darwinia*, the sides posteriorly straight and convergent; the elytral striae are regular but less impressed and the strial punctures somewhat obsolete ("Elytra obsolete striata" *vid.* Hope); the fourth, eighth and twelfth intervals being interrupted in the same manner as in the two preceding species. The undersurface and legs are also similar except that the middle tibiae seem to be less arcuate. Length 16 mm., breadth 7 mm.

Type in British Museum of Natural History and at the time of my visit to the Museum in 1932–1933, was the only specimen known. It was "captured in the central part of one of the islands of the Galapagos Archipelago" (Hope). Recently while examining the duplicate

alcoholic specimens, I found a second and typical specimen of this species. It was collected on the summit of James Island, between December 24, 1905, and January 5, 1906, by F. X. Williams. This establishes the locality of the species, I think, for Darwin camped for several days in the interior of James Island. "October 8th—We arrived at James Island: ——— Mr. Bynoe, myself, and our servants were left here for a week, with provisions and a tent, while the *Beagle* went for water." Several members of the Academy Expedition also remained for several days on this island.

This species, the type of which I examined while at the British Museum, appeared when compared with typical specimens of *C. howardi* and *C. darwinia* to be quite different from either and very different from *C. linelli* with which Linell confused it. It shares with *C. darwinia* and *C. linelli* the abortive wings and like them dwells in the interior of one of the islands and at higher altitudes in the wet belt.

Calosoma linelli Mutchler

Plate I, figure 7

Calosoma linelli Mutchler, 1925, Zoologica, V, p. 221.

Calosoma galapageium Linell *(not* Hope), 1898, Proc. U. S. Nat. Mus., XXI, p. 250.

To the description given by Linell for what he took to be *C. galapageium,* but which was later found to be distinct on comparison by Blair, and later designated as *C. linelli* by Mutchler, I can merely add a few notes. First, I consider the sutural intervals to be the first, the interrupted intervals are thus the fourth, eighth, and twelfth, not the third, seventh, and eleventh. The mandibles are also much more finely strigose. The female has the anterior tarsi not dilated and the middle tibiae almost straight and without the tuft of silken hair at inner apex. The wings in this species are but the merest rudiments, as would be expected.

The specimen upon which Linell based his description and which was later designated as the type of *C. linelli* by Mutchler, is now in the U. S. National Museum. It was collected by Dr. G. Baur on Chatham Island. The California Academy of Sciences has three specimens of the same species, two males and a female, one pair collected at an altitude of 1100 feet, on Chatham Island, February, 1906, by F. X. Williams. The third specimen was also taken on Chatham Island but in January, 1906. One male has been carefully compared with the type by me and found to agree exactly.

This species as shown by the figure and description, is the most

divergent of the Galapagos Islands species of *Calosoma*. It is much smaller than the others, of a bronze color with ferruginous appendages, the upper surface with the sculpturing much reduced or planed off though with the interrupted intervals conspicuous, and the wings reduced to mere rudiments. It should also be noted that it is from Chatham Island, the most isolated of the larger islands, therefore has probably had a longer time in which to be modified.

Scarites galapagoensis Linell

Plate II, figure 1

Scarites galapagoensis LINELL, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, pp. 253–254.

Scarites galapagoensis Linell, MUTCHLER, 1925, Zoologica, V, no. 20, p. 234.

The California Academy of Sciences has seven specimens, all collected on Chatham Island, during July, 1906, by F. X. Williams. They are all slightly smaller than the type, averaging about 20 mm. in length, but are otherwise in agreement. The Academy also has the remains of another specimen, the afterbody, picked up in January, 1906, which is the remains of a much larger specimen, no doubt one fully as large as the type.

Scarites williamsi Van Dyke, new species

Plate II, figure 3

Elongate, parallel, moderately convex above, shining black, antennae, palpi and legs rufopiceous, apterous. Head, excluding mandibles, one-fifth broader than long, occiput smooth, impunctate, front deeply longitudinally bisulcate in front, clypeus emarginate anteriorly and with two tubercles in front, labrum irregularly arcuate in front and with three punctures, the median bisetose and the lateral unisetose, the mandibles prominent, one-fourth length of head, arcuate and acute at apex, bicarinate above, the inner carina narrow and well elevated, nonstriate within; eyes prominent, truncate behind against the equally prominent tempora; antennae extending back to hind angles of prothorax, basal segment longer than three following united, second and third over twice as long as broad, the second a bit shorter, fourth slightly longer than broad, 5–10 subequal and with terminal segment longer, compressed and pubescent; mentum similar to mentum of preceding species but with median carina more pronounced and the foveae on either side deeper and the paragenae much broader. Prothorax slightly wider than head, over two-fifths broader than long, apex broadly and shallowly emarginate and rounded at outer angles so

lateral bead does not reach the arch, sides feebly arcuate and convergent backwards to small dentate hind angles, the base pedunculate at middle and with outer portions almost transverse; the disc smooth, the median and anterior transverse lines distinct, obsoletely transversely strigose on either side of middle. Elytra somewhat shorter than forebody, almost three-eighths longer than broad, much narrower than the prothorax, humeri dentate, sides feebly arcuate, disc with striae well but not deeply impressed and with obsolete yet faintly observable fine punctures, the intervals moderately convex, the wings very rudimentary. The abdomen somewhat finely rugose, otherwise the underside and legs much as in *S. galapagoensis*. Length 18 mm., breadth 5.5 mm.

Holotype and numerous designated paratypes from a series of twenty-one specimens, all collected by F. X. Williams at an altitude of 100–1400 feet, **near Villamil, Albemarle Island,** between August 20 and September 5, 1906. Paratypes will be deposited in the British Museum of Natural History, American Museum of Natural History, and U. S. National Museum.

This species differs in many regards from *S. galapagoensis* but chiefly in having longer and smoother mandibles, a much larger and proportionately wider head, a prothorax much broader than elytra, quite short and with oblique sides, whereas the other is but little broader than long and with almost parallel sides, and elytra subelliptical as compared with the somewhat elongate and subcylindrical elytra in the other, and the striae and intervals less defined, the intervals in this species being but slightly convex whereas subcarinate in the other. There is not much variation as to length among the members of the series but considerable variation as to the breadth of head and prothorax. The smallest specimen is 18 mm. in length but has a head only 3.5 mm. broad and a prothorax but 4.5 mm. broad.

Bembidion galapagoensis (G. R. Waterhouse)

Notaphus galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 23.

Notaphus galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., VI, p. 81.

Notaphus galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus. XXI, no. 1143, p. 255.

Notaphus galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 234.

Type in British Museum of Natural History.

The California Academy of Sciences possesses one specimen from Abingdon Island, somewhat north of James Island. This was collected

by F. X. Williams, under a tree trunk in the damp belt just below the fern belt, at an altitude of 1700 feet, September 18–23, 1906. This specimen was carefully compared with the type in the British Museum of Natural History which had been misplaced and was only located after considerable search. According to my notes, the Abingdon Island specimen is more mature than the James Island specimen, is slightly smaller, proportionately shorter, the elytral striae also deeper forwards and more deeply punctured. The color pattern and other characteristics were the same. It seems to be but a slight variant and seeing that they were both fully winged, the species as a whole could easily be conceived to have a distribution including several islands as is the case with most fully winged beetles of the Archipelago.

Bembidion equatoriale Van Dyke, new species

Rather small, somewhat elongate, slightly convex, black, the antennae, feet and elytra testaceous, the last with a small black spot on the third interval slightly in front of the middle and an irregular black one posteriorly commencing abruptly at the middle and extending backwards as a broad band three sutures wide along the suture almost to the apex and gradually widening posteriorly, also having a narrow transverse bar running from the middle outwards then obliquely backwards to the lateral margin. Head faintly aeneous, smooth and shining, with a minute puncture between the eyes and with deep oblique frontal grooves near the eyes which narrow the front forwards, the head as a whole narrower than the prothorax, the eyes prominent and antennae reaching to just beyond hind margin of prothorax. Prothorax subcordate, distinctly narrower at base than apex, about a third wider than long, apex truncate, sides broadly arcuate in front, sinuate behind, and straight and parallel just before base, hind angles rectangular, the disc convex, the median longitudinal line distinctly impressed, the anterior transverse impression vague, the basal foveae deep and with small, sharply defined carina near hind angles. Elytra oblong-ovate, slightly wider than prothorax, somewhat convex, with striae sharply defined except near apex and finely and closely punctured, the intervals flat, the third with first dorsal puncture one-third distant from base, the second about one-third distant from apex. Beneath black and shining. Length 3.25 mm., breadth 1.5 mm.

Holotype and five paratypes all collected on **Chatham Island,** January, 1906, by F. X. Williams. This species is very close to the common North American *B. versicolor* Leconte and quite different from the preceding species which seems to simulate the North American *B. variegatum* Say.

Tachys beebei Mutchler

Tachys beebei Mutchler, 1925, Zoologica, V, no. 20, pp. 223–224, fig. 42.

Neither of the California Academy of Sciences expeditions secured specimens of this species. A paratype has, however, been presented to the Academy by the American Museum of Natural History.

Genus **Feronia** Latreille

Three species of this genus have been described from the Galapagos Islands: *F. calathoides* G. R. Waterhouse, *F. galapagoensis* G. R. Waterhouse, and *F. insularis* Boheman. The California Academy of Sciences Expedition secured eight species. Inasmuch as the descriptions of the described species did not designate particular islands and were of such a general nature that they would apply to several species, it was impossible to recognize just which were the described species from among the specimens in our collection until I had the opportunity to study the Waterhouse types in the British Museum of Natural History. These were found to be in good condition so definite determinations could be made for those species. The Boheman type is presumably in Stockholm. I was not able to study it so have been compelled to rely upon the description and thus have only tentatively placed that species. Though the eight known species fall into minor groups which will be indicated in the table, they are all more or less closely related, several very much so. They all belong to the subgenus *Poecilus* Bonelli and are all definitely flightless, possessing but the merest rudiments of wings. Each species is restricted to a single island though a single island may possess two or more species. A moderately close relationship is shown to mainland forms, one in particular being very near *F. peruvianus* Dejean, as will be discussed more in detail later on.

Feronia calathoides G. R. Waterhouse

Plate II, figure 6

Feronia calathoides G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 21.

Feronia calathoides G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Poecilus calathoides G. R. Waterhouse, Gemminger and Harold. Cat. Col., I, 1868, p. 300.

Poecilus calathoides G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 771, p. 252.

Pterostichus calathoides G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 252.

Pterostichus calathoides G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 234.

Oblong-ovate, shining black; antennae, palpi, tibiae, tarsi and hind margin of abdomen rufous, femora rufopiceous. Head triangular, smooth except for a few minute punctures and vague strigae at vertex, eyes moderately prominent, antennae reaching beyond hind angles of prothorax. Prothorax over one-seventh broader than long, base broadly emarginate, apex emarginate, sides almost straight or feebly arcuate to beyond middle then gradually arcuately narrowed forwards, anterior angles rounded and slightly extended forwards, the hind angles right angled but blunt, the side margin a fine bead, the base obscurely margined, the disc feebly convex in front, much flattened behind, the median longitudinal line finely impressed, the anterior and posterior transverse impressions absent, the basal impressions sharply impressed, linear and feebly convergent forwards, a marginal seta one-third distance from apex and another near hind angles. Scutellum broadly triangular. Elytra twice as long as broad, equal to base of prothorax at point of contact, obliquely widening for short distance, then feebly arcuate and gradually narrowing to near apex where more suddenly rounded and sinuate to apex; the disc considerably flattened, the sides somewhat explanate, the striae sharply and deeply impressed and impunctate except the eighth, the intervals feebly convex, the third with three dorsal punctures (one or more sometimes absent), one near third stria a short distance from base, the second at middle and near second stria and the third at apical fourth and also near second stria. Underside smooth and somewhat dull, prosternum not margined behind. Length 11 mm., breadth 4.25 mm.

Type and four other specimens in the British Museum of Natural History, several received in 1845, others later, but presumably all collected by Charles Darwin on the Galapagos Islands.

The California Academy of Sciences has four specimens of this species, all collected by F. X. Williams on Chatham Island, in January, 1906, at a moderate altitude in a damp locality. One of these specimens I carefully compared with the type in the British Museum of Natural History and found it to agree in every regard, thus establishing the exact locality. As stated by G. R. Waterhouse, this species very much resembles *Calathus,* particularly *Calathus cistelloides.*

Feronia waterhousei Van Dyke, new species

Very similar to the preceding, the main differences being that it is proportionally shorter, therefore more broadly elliptical in outline; the prothorax narrower at base, thus more equally quadrate, the sides more evenly arcuate, practically arched from base to apex; and the sides of elytra more definitely and evenly arcuate as well.

Holotype and one slightly injured paratype; the first collected in March, 1906, and the second June 1, 1906, on **Charles Island,** by F. X. Williams. Both were collected in the interior on the mountains.

Feronia insularis Boheman

Feronia insularis Boheman, 1858, Fregatten Eugenies Resa, I, p. 14.
Feronia insularis Boheman, C. Waterhouse, 1877, Proc. Zoo. Soc., p. 82.
Feronia insularis Boheman, Linell, 1899, Proc. U. S. Nat. Mus., XXI, p. 255.
Feronia insularis Boheman, Mutchler, 1925, Zoologica, V, no. 20, p. 234.

Elongate, oblong, shining black; antennae, mouthparts, tibiae and tarsi rufous, the femora rufopiceous. Head moderately elongate, minutely alutaceous above and very finely, sparsely punctate and obscurely strigose at vertex; eyes rather large in circumference but considerably flattened; antennae reaching well beyond hind angles of prothorax. Prothorax less than one-third broader than long, base broadly yet feebly emarginate, apex emarginate, sides almost straight and feebly convergent to beyond middle then gradually arcuate to apex, front angles, rounded and slightly extended forwards, hind angles right but blunt, side margin finely reflexed, basal margin faintly defined outwardly; disc flattened, median longitudinal line finely impressed at middle, anterior transverse impression vaguely defined, basal impressions well marked but not as sharply defined as in *F. calathoides,* and marginal setae one-third distance from apex and near basal angles as usual. Elytra one-third longer than broad, as wide at base as prothorax, gradually arcuately wider for a short distance backwards, almost straight at middle and feebly convergent to posterior third, then more arcuate, narrowed, and strongly sinuate near apex; the disc feebly convex, the striae sharply and distinctly impressed and impunctate, the intervals feebly convex and shining in males, flattened and alutaceous in females, feebly alternately wider in both sexes and with three dorsal punctures, the basal on third stria one-fourth distance from base, the second close to second stria at middle and third also close to second stria one-fourth distance from apex. Undersurface dull and piceous or feebly rufopiceous, the prosternum feebly margined behind. Length 10 mm., breadth 4 mm.

Type, supposedly in Stockholm Museum.

The species that I have tentatively identified as *F. insularis* Boheman is a medium sized black and somewhat narrow species from Albemarle Island. The California Academy of Sciences has fifty-six specimens of this species, all collected by F. X. Williams **near Villamil, Albemarle Island,** between August 20 and September 5, 1906, from beneath moss.

Feronia blairi Van Dyke, new species

Robust, elongate, aeneous or deep bluish black and shining, antennae and palpi rufous, legs and epipleurae rufopiceous. Head smooth except from obsolete strigae and minute punctures on front, frontal impressions marked, the fronto-clypeal suture less distinct, eyes prominent. Prothorax very slightly broader than long (superficially looks longer in type), widest in front of middle, apex broadly emarginate, base feebly emarginate at middle, sides evenly arcuate from apex to slightly back of middle thence almost straight and convergent to subacute and feebly obtuse hind angles, the setiferous punctures present in type but absent in paratypes; disc convex in front, flattened behind, median longitudinal line finely and sharply impressed, transverse impressions obsolete or only faintly indicated in front, basal impressions long, linear and well impressed, the base vaguely margined at sides, flattened between basal impressions and side margins and obsoletely strigose at middle. Elytra about one-third longer than broad, broadest at middle, humeral angles obtuse, sides arcuate from humeri to apical sinuation but feebly so at middle; the disc moderately convex, rather deeply striate, striae impunctate, intervals convex near apex, flattened in front and minutely alutaceous even in males; dorsal punctures three, the first on third interval near third stria just back of base, the second on third interval close to second stria and about the middle, the third also on third interval and near third stria and a little less than a fourth from the apex,the eighth stria with the usual ocellate foveae. Beneth smooth and shining, the apex of prosternum finely margined behind. Length 11.5 mm., breadth 4.25 mm.

Holotype male and two paratypes, the first collected by F. X. Williams on **James Island**, between December 20, 1905, and January 5, 1906. The two paratypes were collected by G. Bateson on James Island, February 20–22, 1925, and were from a series of fourteen specimens in the British Museum of Natural History. The *holotype* is in the collection of the California Academy of Sciences. One paratype of the two which were kindly submitted for comparison by Dr. K. G. Blair, will be returned to the British Museum of Natural History.

This species is much like *F. williamsi* but is absolutely and proportionally more elongate, the prothorax and elytra individually noticeably so, the prothorax also widest well in advance of the middle and with side margins straight behind. It is also very distinct from *E. galapagoensis,* which is likewise found on James Island. Superficially it resembles *F. peruviana* Dejean, a mainland species, but differs by having a narrower pronotum.

Feronia mutchleri Van Dyke, new species

Moderately elongate and narrow, black, shining in males and subopaque in females; the antennae and palpi rufous, the legs and to a slight extent, the epipleurae rufopiceous. Head smooth, alutaceous under good magnification, with faint strigosities and minute punctures on front as well as on clypeus and labrum, the frontal impressions and fronto-clypeal suture well marked, and eyes prominent. Prothorax subquadrate, slightly broader than long, widest in front of middle, apex and base at middle feebly emarginate, sides slightly arcuate from apex to back of middle thence straight and convergent to hind angles which are feebly obtuse and with distinct setiferous punctures, apex but little narrower than base; disc convex in front, flattened behind, median longitudinal line finely and sharply impressed, transverse impressions obsolete, basal impressions long, linear and deep, base finely margined at sides, flattened near hind angles, and vaguely strigose at middle. Elytra slightly less than one-third longer than broad, widest at middle, humeral angles obtuse, sides moderately arcuate from humeri to apical sinuation; the disc moderately convex, striae sharply but not deeply impressed, impunctate, intervals convex near apex, flattened in front, minutely alutaceous in both sexes though more evident in females, shining in males and subopaque in females, dorsal punctures as in preceding species, the eighth striae with usual ocellate foveae. Beneath smooth and shining, the apex of prosternum finely margined. Male, length 10.5 mm., breadth 3.5 mm.; female, length 11 mm.; breadth 4 mm.

Holotype male, allotype female and five paratypes. The first two were collected **near Villamil, Albemarle Island,** in March, 1906, by F. X. Williams. Four of the others were collected at Tagus Cove, Albemarle Island, April 1, 1906, by F. X. Williams and one at Banks Bay, Albemarle Island, April 10, 1906, also by Williams. This species is the smallest found in these islands, in features midway between *F. blairi* and *F. galapagoensis* and having in common with them the prothorax widest in front of middle and the elytra somewhat bulbous at the apex of the declivity, feeble in the first and well marked in the second. Its most distinctive features are the somewhat shining black color, more or less quadrilateral prothorax and small size. It also differs markedly from *F. insularis* and other Albemarle species, which have a somewhat cuneate prothorax, broadest behind, and elytra that are much broader and somewhat cordiform.

Feronia duncani Van Dyke, new species

Plate II, figure 4

Robust, elongate, elliptical and of a deep bluish black color, the antennae and palpi rufous, and the legs rufopiceous. Head smooth except for a series of very minute punctures on front, the frontal impressions deep, the fronto-clypeal suture well marked, eyes prominent. Prothorax subquadrate, slightly broader than long and widest at middle, apex broadly emarginate, base emarginate at middle, sides evenly arcuate, somewhat narrowed towards apex, hind angles somewhat obtuse and blunt; the setae and setiferous punctures generally absent; disc slightly convex in front, flattened behind, median longitudinal line fine and sharply impressed, transverse impressions obsolete, basal impressions deep and linear, one-fourth as long as the prothorax, the base at most with an obscure margin, but finely strigose near center. Elytra about one-third longer than broad, broadest one-fourth back of base, humeral angles subrectangular, sides rather evenly arcuate, gradually narrowed towards apex and slightly sinuate before it; the disc convex, deeply striate, the striae impunctate, intervals rather evenly convex throughout and minutely alutaceous especially in females, the dorsal punctures three, the first on third interval near third stria just back of base, the second on third interval close to second stria and about the middle, the third also on third interval and near third stria and a little less than a fourth from apex, the eighth stria as usual with numerous ocellate punctures. Beneath smooth and shining, the apex of prosternum sharply margined. Length 12 mm., breadth 4.75 mm. (of types).

Holotype male, allotype female and numerous designated paratypes from a series of a hundred and forty-eight specimens collected from beneath moss, in the interior of **Duncan Island** at an altitude of 1280 feet, between the dates of December 1 and 17, 1905, by F. X. Williams. There is some variation in size, the smallest specimen being 10.5 mm. long and the largest 13.5 mm. long.

This species is quite a typical representative of the subgenus *Poecilus* and rather closely related to *Feronia (Poecilus) peruviana* Dejean, and allies from the mainland. It differs, however, in general, by having the striae more deeply impressed and the intervals more convex.

Feronia williamsi Van Dyke, new species

Robust, elongate, elliptical, a faint bluish black color or somewhat aeneous in the female, the antennae and palpi rufous and legs rufo-

piceous. Head smooth except for somewhat obsolete strigae and very minute puncture on front, frontal impressions and fronto-clypeal suture well marked, eyes prominent. Prothorax subquadrate, very slightly broader than long, broadest at middle or sometimes slightly in front of it (female), apex broadly and shallowly emarginate, base feebly emarginate at middle, sides evenly arcuate about equally narrowed toward front and base especially in males, hind angles obtuse and well rounded at apices and with distinct setiferous punctures; disc somewhat convex, flattened behind, median longitudinal line distinct and finely impressed, transverse impressions obsolete, basal impressions linear and well impressed, the base feebly margined at sides and minutely obsoletely strigose at center. Elytra one-third longer than broad, widest at middle, humeral angles obtuse and rounded, sides rather evenly arcuate from humeri to apical sinuation: the disc convex or feebly flattened in front, rather deeply striate, the striae impunctate, intervals convex behind, somewhat flattened in front, shining in males, minutely alutaceous and dull in females, dorsal punctures three, placed as in *F. duncani*, the eighth stria with numerous ocellate foveae as usual. Beneath smooth and shining, the apex of prosternum finely margined. Length 10.5 mm., breadth 4 mm.

Holotype male, allotype female and two male paratypes, the first two collected by F. X. Williams on **Indefatigable Island**, October 25–29, 1905, and January 11–12, 1906, the last two by M. Willows, Jr. of the Templeton Crocker Expedition of 1932, on the same island, May 2, 1932.

This species averages considerably smaller than *F. duncani* but is closely related to it. Its most distinctive characters are the rounded hind angles of prothorax, the more elliptical elytra with elytral intervals somewhat flattened forwards and the distinctive sexual differences both as to color and degree of dullness. This species is perhaps even more closely related to *F. peruviana* Dejean than is *F. duncani*.

Feronia galapagoensis G. R. Waterhouse

Plate II, figure 5

Feronia galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 21.

Feronia galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc. V, p. 82.

Poecilus galapagoensis G. R. Waterhouse, Gemminger and Harold, Cat. Col., I (1868), p. 302.

Platynus galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 252.

Platynus galapagoensis G. R. Waterhouse, Mutchler, 1925. Zoologica, V, no. 20, p. 234.

Narrow, elongate, subparallel, bronzed or aeneous-black, beneath more or less rufopiceous, antennae palpi and legs rufous (the last sometimes piceous), the upper surface shining in the males and more or less alutaceous and dull in the females. Head much longer than broad, somewhat shining except vertex which is minutely punctured and rugose, eyes moderately prominent, antennae extending beyond hind angles of prothorax. Prothorax at least one-sixth broader than long, base shallowly and apex more evidently emarginate, sides rather evenly arcuate from apex to posterior third, thence straight or feebly sinuate and convergent to hind angles which are slightly obtuse, lateral margin finely reflexed from base to apex; disc moderately flattened, median longitudinal line distinct though not reaching either base or apex and anterior and posterior transverse impressions feeble and limited to median area, the basal impressions longitudinally arcuate but not sharply impressed though distinct, the area near hind angles much flattened. Elytra almost twice as long as broad, widest back of middle, with sides feebly arcuate anteriorly, more broadly rounded posteriorly and distinctly sinuate in front of hind angles; the disc flattened, the striae finely and sharply impressed and impunctate, the intervals flattened except toward apex where feebly convex and distinctly alutaceous especially in females; three dorsal foveae, the first on third stria, one-fourth distance from base, the second on second stria, about its middle, and the third also on second stria and one-fourth distance from apex, the ocellate punctures on eighth stria well marked, the sutural area at summit of apical declivity somewhat bullous and the area in front from second to fourth stria more or less depressed. Beneath smooth and shining, the prosternum margined behind. Length 10 mm., breadth 3.75 mm.

This species is proportionally the most elongate and narrow of any of the species from the Islands. The California Academy of Sciences has fourteen specimens from James Island, collected on various dates from December 22, 1905 to January 5, 1906, all by F. X. Williams. One of these was very carefully compared with the type in the British Museum of Natural History, by me, and found to agree exactly. This establishes the exact locality for the species, also proves that it is a true *Feronia,* not a *Platynus* as listed by Linell and Mutchler.

Feronia galapagoensis becki Van Dyke, new subspecies

In the series of twelve specimens possessed by the Academy, there appear to be two quite easily separated forms. Ten specimens are in agreement with the type. They are bronzed and narrow, thus be-

longing to the true form of *F. galopagoensis*. The remaining two specimens, fortunately a pair, have a somewhat bluish bronze color, are more robust and evidently convex, with the sides of the prothorax straight and obliquely convergent behind, not sinuate, with the elytra more elliptical, broader at the middle and with sides evenly arcuate. These two I will designate as the subspecies *F. g. becki*, indicating a holotype and allotype. They were both collected on **James Island**, January 2, 1906, by F. X. Williams, and are named for the leader of the California Academy of Sciences Expedition. These may prove to be a distinct species but I would like to see more specimens as well as secure more field information before saying so. The two forms were apparently collected at the same place and at the same time. They are much alike in most essentials yet readily separated and very different from any species found elsewhere in the Archipelago.

Key to Species of Galapagos Islands Feronia Latreille

1. Prothorax widest posteriorly 2
— Prothorax widest at middle or in front of middle 4
2. Broad, somewhat flattened and elliptical species, with sharply impressed and linear basal prothoracic impressions and more or less flattened elytral intervals 3
— Narrower, more parallel-sided species with distinct but not sharply impressed basal prothoracic impressions and more or less flattened elytral intervals. Albermarle Is. ..... *F. insularis* Boheman
3. Prothorax with sides almost straight from base to anterior third thence evenly arcuate and narrowed forwards. Chatham Is. ..... *F. calathoides* G. R. Waterhouse
— Prothorax with sides straight and parallel to about middle thence feebly arcuately narrowed forwards. Charles Is. ..... *F. waterhousei*, new species
4. Prothorax widest at about the middle, bluish black in color 5
— Prothorax widest in front of middle 6
5. Larger species, 12 mm. or more in length, prothorax but little broader than long, with hind angles angulate and elytral intervals very convex. Duncan Is. ..... *F. duncani*, new species
— Somewhat smaller species, 10 mm. in length, prothorax about a fourth broader than long, with hind angles evidently rounded and elytral intervals more or less flattened on disc. Indefatigable Is. ..... *F. williamsi*, new species
6. Elongate, subdepressed and bronzed or submetallic species with sides of prothorax posteriorly straight or feebly sinuate. James Is. ..... *F. galapagoensis* G. R. Waterhouse
— Broader and more elliptical species, moderately convex and black with sides posteriorly feebly arcuate 7

7. Larger species, 11 mm. in length, bluish black with sides of prothorax rather evenly arcuate throughout. James Is.....*F. blairi*, new species

— Smaller species, 9 mm. in length, shining black with sides of prothorax very feebly arcuate behind or almost straight. Albermarle Is..... .....*F. mutchleri*, new species

Genus **Agonum** Samouelle

As a result of the Expedition of the California Academy of Sciences, we now know that at least three species of the genus *Agonum* are to be found in the Galapagos Islands. In his paper of 1898, Linell listed Waterhouse's *Feronia galapagoensis* as *Platynus galapagoensis.* In the first place, *Platynus* cannot be used. It is not valid as it is a *nomen nudum.* In the second place, the Waterhouse specimen is a true *Feronia* as I have stated before. I examined the type very carefully and compared some James Island specimens with it which proved to be the same. The specimen that Linell had was from Chatham Island. We have two species of *Agonum* from Chatham Island. One of these seems to fit Linell's description. It is most certainly not the same as the *F. galapagoensis* of Waterhouse.

Agonum darwini Van Dyke, new species

Plate II, figures 7, 8

Large, broad and flattened, black, somewhat brownish; antennae, palpi, legs, and undersurface rufous. Head moderately elongated and smooth, frontal impressions well marked, labrum alutaceous and somewhat opaque; eyes prominent, antennae long and delicate and reaching at least three segments beyond front margin of elytra. Prothorax one-fourth wider than long, cuneate, widest at base; base transverse, apex slightly emarginate, sides arcuate from front angles to behind middle thence straight and feebly divergent to hind angles which are rectangular; disc feebly convex in front, broadly flattened towards hind angles, median longitudinal line fine and well impressed, anterior transverse impression distinct but feeble, basal impressions long and lunate and well defined, basal margin fine but rather indistinct, general surface smooth and shining but minutely alutaceous under magnification. Elytra cordate, about one-third longer than broad, widest behind humeri where almost a third wider than base of prothorax, humeri broadly rounded, sides feebly arcuate and gradually narrowed posteriorly, feebly sinuate in front of rounded or blunt apices, the lateral margin narrow and reflexed; disc feebly convex, flattened in front, striae finely and distinctly impressed, impunctate, intervals flat; the dorsal punctures three, the first on third stria at basal fourth, the second on second

stria and near apex, the general surface minutely alutaceous and subopaque. Beneath smooth and shining. Legs long and delicate. Length 12 mm., breadth 5.5 mm.

Males with slightly dilated anterior tarsi and one pair of anal setigerous punctures, the females with two pair of anal setigerous punctures.

Holotype male, allotype female and two female paratypes, all from **Chatham Island** and collected by F. X. Williams, January 1, 1906, the allotype, July, 1906, and both paratypes, January, 1906; one of the female paratypes has the prothorax proportionately narrower than the others. The species as a whole looks very much like some of the large, flattened species of *Calathus*.

Agonum chathami Van Dyke, new species

Plate II, figure 9

Of moderate size, rather broad, flattened, dark brown or feebly rufous, antennae and palpi rufous and legs and under surface dark rufous or rufopiceous. Head somewhat elongate, smooth and shining above, labrum somewhat opaque, frontal impressions distinct, eyes moderately prominent, antennae long and delicate and reaching about three segments back of front margin of elytra. Prothorax less than one-sixth broader than long, widest at middle, base perceptibly arcuate medially, obscurely and finely margined at most, sides rather broadly arcuate from apex to near base but then sinuate, hind angles feebly obtuse; disc somewhat convex, broadly flattened near hind angles, lateral margin fine in front, gradually broader behind and reflexed, median longitudinal line finely and distinctly impressed, anterior transverse impression obscure; basal impressions long, lunate, and well but not sharply impressed, general surface smooth and shining though like head minutely alutaceous under high magnification. Elytra elongate-cordate, somewhat over one-fourth longer than broad, widest one-fourth distance from base and over one-fourth broader than prothorax, humeri broadly rounded, sides at middle feebly arcuate, more evidently so posteriorly and gradually narrowing and feebly sinuate to blunt or slightly rounded apices, the lateral margin narrow and reflexed; disc feebly convex, striae finely and distinctly impressed, impunctate, intervals flat or very feebly convex, the dorsal punctures three and placed as in preceding species but often vague or wanting, the general surface somewhat shining though minutely alutaceous. Beneath smooth and shining. Legs long and delicate. Males, length 12 mm., breadth 4.75 mm.; females, length 12 mm., breadth 5 mm.

Males and females with similar sexual characters to preceding species.

Holotype male, allotype female and numerous designated paratypes from a series of thirty-nine specimens, all collected near **Wreck Bay, Chatham Island**, during February, 1906, by F. X. Williams. The specimens of the series are fairly constant in character, the females as a rule somewhat more robust than the males.

The species in most of its characteristics is somewhat like *A. darwini* but it is in general slightly narrower and with the elytral striae somewhat deeper. The prothorax is, however, very different in shape and proportions and these are diagnostic. This species, I am inclined to believe, was what was described by Linell as *Platynus galapagoensis* G. R. Waterhouse under the impression that it was what G. R. Waterhouse named and characterized as *Feronia galapagoensis* Waterhouse. *Feronia galapagoensis* Waterhouse, is, however, a true *Feronia* as I proved by studying the type in the British Museum of Natural History, and in appearance not at all like what Linell possessed.

Agonum albemarli Van Dyke, new species

Rather small, moderately flattened, rufotestaceous; antennae, labrum, palpi and tarsi testaceous. Head rather elongate, smooth and shining though minutely alutaceous, frontal impressions well defined, eyes prominent, antennae delicate and reaching back of front margin of elytra. Prothorax barely broader than long, widest at middle, base feebly arcuate, apex emarginate, sides slightly arcuate in front, broadly so at middle and straight and obliquely convergent to hind angles which are strongly obtuse and rounded, the lateral margin narrow in front, broader behind and reflexed; disc feebly convex, laterally somewhat deplanate behind near hind angles, median longitudinal line finely impressed, anterior transverse impression very feeble, basal impressions indistinct, the general surface minutely alutaceous. Elytra cordate, slightly more than one-third longer than broad, widest back of humeri and over a third broader than prothorax, humeri broadly rounded, sides feebly sinuate at middle, arcuate posteriorly and gradually narrowed towards the acute apices; disc convex, striae strongly impressed, impunctate, intervals convex, the dorsal punctures three and located as in preceding species, the general surface shining though minutely alutaceous. Beneath smooth and shining. Legs moderately long and delicate. Length 9 mm., breadth 3.5 mm.

Sexual characters as in preceding species.

Holotype, a unique male, collected **near Villamil, Albemarle Island,** October 5, 1905, by F. X. Williams.

This species is probably of the same stock as the two preceding species as indicated by the cordiform elytra and minutely alutaceous integument above, but it is a very different looking insect, being much smaller, lighter in color, with a differently formed prothorax, and with more convex elytra and more deeply impressed striae. It resembles closely certain of its Holarctic relatives which the others do not.

Genus **Selenophorus** Dejean

This is a large and typical Neotropical genus of Carabidae which extends its range north throughout Central America, Mexico, the West Indies, and into the eastern part of the United States. No species are known from the Pacific States. In the Galapagos Islands, three species are to be found, all of which are fully winged. One of these was originally placed in a wrong genus as will be shown later.

Selenophorus galapagoensis G. R. Waterhouse

Selenophorus galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 22.

Selenophorus galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., pp. 77 and 82.

Selenophorus galapagoensis G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mu. XII, no. 771, p. 191.

Selenophorus galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mu., XXI, no. 1143, p. 254.

Selenophorus galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 235.

Elliptical, flattened, dark piceous above with a bronzed lustre; antennae, palpi, and legs testaceous; the front of head, epipleurae, and underside in great part rufous or rufocastaneous. Head robust, but slightly convex above, finely alutaceous, frontal impressions small and illy defined, eyes prominent. Prothorax almost a third broader than long, moderately flattened, base feebly emarginate, apex rather deeply so, sides feebly arcuate in front and gradually convergent from before middle to base, front and hind angles rather broadly rounded, the latter also obtuse; disc alutaceous, less evident and more shining in males, median longitudinal line finely impressed, basal impressions vague and shallow, base finely margined. Elytra over one-third longer than broad, one-third longer than forebody, distinctly broader at base

than prothorax and with humeri well developed, the sides feebly arcuate at middle, more broadly rounded and convergent posteriorly and feebly sinuate before apex; the disc somewhat flattened, minutely alutaceous and distinctly bronzed, especially in males, the striae finely impressed, impunctate, but the second, fifth, seventh and submarginal striae with numerous well impressed foveae, the intervals flat. Beneath smooth and shining. Length 9–10 mm., breadth 3.5–4 mm.

This species is apparently common and widely spread in the Archipelago. The California Academy of Sciences has specimens from Chatham, Charles, Hood, and Gardner islands.

Selenephorus wenmani Van Dyke, new species

Robust, elliptical, moderately convex above, black or dark piceous above, alutaceous and subopaque, beneath rufopiceous. Head very robust, convex above, distinctly alutaceous, frontal impressions small but distinct, the fronto-clypeal suture well impressed and the clypeus also with a transverse impression back of the apex, eyes prominent, outer antennal segments robust, about twice as long as broad. Prothorax a third broader than long, slightly convex above, finely alutaceous, base and apex feebly emarginate, sides feebly arcuate, more narrowed towards base, the hind angles obtuse and well rounded; disc with median longitudinal impression fine, the anterior transverse impression vague, the basal impressions shallow and feebly defined, the basal margin complete and distinct. Elytra one-third longer than broad, but little broader at base than prothorax, the humeri prominent, sides feebly, irregularly arcuate medially, slightly explanate back of middle and sinuate as usual near apex; disc very convex, minutely alutaceous and subopaque, striae finely impressed, impunctate, the second, fifth, and seventh with feebly impressed foveae, the submarginal with well defined foveae as usual, the intervals flat in front, feebly convex on declivity. Beneath smooth and shining. Male, length 8 mm., breadth 3.5 mm.; female, length 10 mm., breadth 4 mm.

Holotype male, allotype female and three paratypes, collected on Wenman Island, October 24, 1906, by F. X. Williams.

This species is the most isolated of the island species. Structurally, it stands midway between *S. galapagoensis* and *S. obscuricornis,* possessing with the former the flattened elytral intervals and with the latter the robust body, piceous and subopaque appearance, robust antennae and more or less obscure elytral foveae.

Selenephorus obscuricornis (G. R. Waterhouse)

Plate II, figure 2

Amblygnathus obscuricornis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 22.

Amblygnathus obscuricornis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., p. 82.

Amblygnathus obscuricornis G. R. Waterhouse, Linell, 1898. Proc. U. S. Nat. Mus., XXI, no. 1143, p. 255.

Amblygnathus obscuricornis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 234.

Selenophorus obscuricornis (G. R. Waterhouse), Blair, 1933, Ann. Mag. Nat. Hist., XI, ser. 10, p. 472.

Robust, very convex, black and piceous; antennae, legs and under surface generally rufopiceous; entire upper surface finely alutaceous and subopaque. Head very robust, quite convex above, frontal impressions small but distinct, the fronto-clypeal and clypeo-labial sutures very sharply marked; eyes prominent, antennae robust with outer segments about twice as long as broad. Prothorax slightly less than a third broader than long, quite convex above, base feebly emarginate, apex more distinctly so, sides evenly arcuate from apex to behind middle thence somewhat straight and convergent to hind angles which are distinct. Very obtuse and rounded at apices; disc with median longitudinal line rather distinct but with transverse impressions vague and basal impressions but feebly defined, the basal margin complete and distinct as usual. Elytra slightly less than one-third longer than broad, somewhat broader at base than prothorax, humeri prominent, sides but feebly arcuate in front, moderately explanate back of middle and rounded and feebly sinuate towards apex; disc very convex, striae deeply impressed, impunctate, the second, fifth and seventh with but vaguely impressed foveae, the submarginal with the foveae distinct as usual, the intervals quite convex and with a suggestion of carinae towards declivity. Beneath smooth and shining. Length 7.5–9 mm., breadth 3.5–4 mm.

This species is the most opaque and robust found in these islands and as such easily separated from the others. It was placed by G. R. Waterhouse in the genus *Amblygnathus* but as indicated by Blair belongs in *Selenophorus*. In the former genus as shown by an examination of the type species *A. cephalotus* Dejean, as well as *A. mexicanus* Bates, the frons is very broad and the sides do not extend forward so as to widely separate the narrowed clypeus from the eyes as is the case in *Selenophorus*. In *S. obscuricornis,* the sides of the clypeus are widely separated from the eyes by the extension forwards of the sides of the

frons and the mandibles are greatly exposed, not concealed to a considerable extent by a wide labrum as they would be in *Amblygnathus*. The California Academy of Sciences collection possesses specimens from Tagus Cove, Iguana Cove, and Villamil, Albemarle Island, all collected by F. X. Williams, at the first locality from March 22–April 20, 1906; at the second from March 17–20, 1906; and at the last from April 24–27, 1906.

KEY TO SPECIES OF GALAPAGOS ISLANDS SELENOPHORUS DEJEAN

1. Much flattened, bronzed above; elytra with flat intervals and second, fifth, and seventh striae with well-marked foveae; the ninth and tenth antennal segments almost three times as long as broad..... *S. galapagoensis* G. R. Waterhouse

— Quite convex, piceous, distinctly alutaceous and subopaque above; the second, fifth and seventh elytral striae with less distinctly marked foveae; the ninth and tenth antennal segments hardly more than two and a half times as long as broad at most..... 2

2. Elytral intervals flattened, the foveae observable; ninth and tenth antennal segments about two times as long as broad..... *S. wenmani*, new species

— Very convex, elytral intervals convex, the foveae more or less obsolete; ninth and tenth antennal segments hardly more than twice as long as broad..... *S. obscuricornis* (G. R. Waterhouse)

Family **DYTISCIDAE**

Copelatus galapagoensis G. R. Waterhouse

Copelatus (?) *galapagoensis* G. R. WATERHOUSE, 1845, Ann. Nat. Hist., XVI, pp. 23–24.

Copelatus galapagoensis G. R. Waterhouse, C. WATERHOUSE, 1877, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 255.

Copelatus galapagoensis G. R. Waterhouse, LINELL, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 255.

Copelatus galapagoensis G. R. Waterhouse, MUTCHLER, 1925, Zoologica, V, no. 20, p. 235.

Elliptical, pointed behind, slightly convex, piceous, head, lateral margins of prothorax and elytra (sometimes entire elytra), antennae and legs rufotestaceous. Head obscurely alutaceous and with a series of small supraorbital punctures. Prothorax over two and a half times as broad as long; the disc piceous, obscurely alutaceous, minutely, sparsely punctured, somewhat strigose, most evident towards base and with a transverse row of coarse punctures back of the apex. Elytra eleven-striate (not counting marginal), the first, third, fifth, seventh,

and ninth practically complete, the alternate striae ending some distance before apex, and the eleventh not extending forwards much beyond the middle, the intervals flat, the sutural twice as broad as the others, minutely, sparsely punctured and obscurely alutaceous. Beneath with hind coxae finely, obliquely strigose, the rest of surface smooth and shining. Length 5–6 mm., breadth 2.5–2.75 mm.

This species is a true member of the genus *Copelatus*, having the hind tibiae ciliate even in the type female. Here they are closely adherent to the tibiae, hence overlooked by Waterhouse. The size of the species and type of striation will, I think, readily differentiate this species from any South American mainland species. The California Academy of Sciences has specimens from near Wreck Bay, altitude 800 feet, Chatham Island, July 1906; and Iguana Cove, Albemarle Island, March 1906; all collected by F. X. Williams.

Rhantus signatus (Fabricius)?

A single female from Chatham Island, collected on January 1, 1906, by F. X. Williams, seem to be near *Rhantus signatus* Fabricius, but according to Hugh Leech, "The single female differs from Chilean examples at hand as follows: narrower anteriorly; pronotum depressed laterally just before the side, which are more convex, more strongly and evenly margined; anterior angles of pronotum flattened and broadened, posterior angles more nearly rectangular; meshes of elytral reticulation coarser and more deeply impressed; metasternal wing narrower."

The above-mentioned species may be new but until we obtain more material, especially male specimens, it would be unwise to name it.

Thermonectes basillaris (Harris)

Dytiscus basillaris Harris, 1829, New England Farmer, VIII, p. 1.

Acilius incisus Aube var., 1838, C. Waterhouse, 1877, Proc. Zoo. Soc., V, pp. 79 and 82.

Thermonectes basilaris (Harris), Mutchler, 1925, Zoologica, vol. V, no. 20, pp. 225 and 235.

Thermonectes basilaris var. *intermedius* Crotch, 1873, Trans. Am. Ent. Soc. IV, p. 402.

Acilius laticinctus Leconte, 1852, Ann. Lyc. Nat. Hist., N. Y., V, p. 203.

This well-known species which is found throughout North and Central America as well as in the West Indies, breaks up into a number of varieties or races in the different areas of its distribution. The typical form which is found throughout eastern North America is

characterized by being "convex, regularly ovate, dark testaceous, legs and antennae paler, surface scarcely punctulate, black, head in front and a transverse line on the vertex fulvous; thorax with the sides broadly and narrow discoidal transverse line fulvous; elytra with a sub-basal fascia, the external margin and some vague irrorations also fulvous. L .36–.40 inch." G. Crotch. The variety "*intermedius*" has the "Thorax without the median line, elytra with a humeral vitta and a mere trace of the basal fascia; under surface rufotestaceous, Calif. (Horn)." G. Crotch. The variety "*laticinctus*" Leconte is "Similar to the type, but the elytral margin broader and more distinct." G. Crotch. A fourth form has been taken in the Galapagos Islands which I believe is sufficiently divergent and distinct to merit a name. This I will characterize as:

Thermonectes basillaris galapagoensis Van Dyke, new subspecies

Similar in size and general appearance to typical members of *T. basillaris* from eastern North America, having as a rule the complete median transverse testaceous pronotal band and sub-basal elytral transverse band. The males have the pronotum, and elytra smooth and shining likewise but differ in having the rows of elytral discal punctures generally more pronounced, the lateral testaceous margin of the elytra better defined, and the median piceous area much reduced. The females are even more divergent than the males, having, in addition to the color pattern of the males, the pronotum much more coarsely punctate-strigose, and the elytra with the basal area very coarsely strigose-punctured to beyond the middle and the finer punctures extending almost to the apex. In the more northern phases, the elytral punctures are always much finer and practically confined to the basal half of the elytra. In general the most noticeable feature of the race in both sexes, is the broad lighter colored lateral area.

Holotype female, allotype male and numerous designated paratypes from a series of thirty-one specimens collected in a brackish pool on Charles Island, October 3, 1905, by F. X. Williams.

This beetle was first recorded from the Galapagos Islands, by Charles Waterhouse, his three specimens having been taken on Charles Island by Commander Cookson. The Harrison Williams Galapagos Expedition of 1923 secured a pair from South Seymour Island in April which were studied by Mutchler. The California Academy Expedition of 1905–1906 secured three specimens of Chatham Island, January, 1906, collected by F. X. Williams, seven from Albemarle Island, March 4–14, 1906, in addition to the type series from Charles Island.

Eretes sticticus (Linnaeus)

Dytiscus sticticus Linnaeus, 1767, System. Nat. Ed. 12, p. 666.

Eretes sticticus Linnaeus, Castelnau, 1832, Ann. Ent. Soc. Fr. I, p. 397.

Eunectes occidentalis Erich, C. Waterhouse, 1877, Proc. Zoo. Soc., V, pp. 77 and 82.

Dytiscus sticticus Linnaeus, Sharp, 1882, Sc. Trans. Roy. Dublin Soc., (2) II, p. 699.

Eretes sticticus (Linnaeus), Mutchler, 1925, Zoologica, V, no. 20, p. 235.

This large water beetle, widely distributed throughout the warmer regions of both the Old World and the New World, like the preceding species, possesses powerful wings and can fly long distances. They both can live in brackish waters, therefore have found very little difficulty in passing from one island to the other. I believe that the latter could readily fly from the mainland. This last remark is in keeping with the statement of Sharp that "this species is found in a greater number of islands than any other of the Dytiscidae."

This species was first reported from the Galapagos Islands, by Charles Waterhouse, his six specimens having been collected on Charles Island by Commander Cookson of H. M. S. *Petrel,* in pools among lava rocks. The Harrison Williams Galapagos Expedition of 1923, also secured one specimen on Chatham Island, on April 7, from a small pool among lava rocks. The California Academy of Sciences has specimens from Chatham Island, January 1906, and Charles Island, October 3, 1905, collected by F. X. Williams and also specimens from Chatham Island, April 17, 1932, and Indefatigable Island, May 2, 1932, collected by M. Willows, Jr., of the Templeton Crocker Expedition.

Family **GYRINIDAE**

Gyrinus galapagoensis Van Dyke, new species

Elliptical, moderately convex above, somewhat flattened on elytral disc, aeneous with bluish reflections; the undersurface, metasternum, epipleurae, and anal segments piceous. Head with front slightly and bluntly cariniform at middle, a well-impressed fovea near each eye and surface faintly, irregularly strigose, the median strigae longitudinal while those near the eyes are transverse, fronto-clypeal suture deep, the clypeus strigose, eyes prominent. Prothorax with well-defined transverse impression at middle, a large fovea on each side and the area between that and the margin tumid, the row of punctures near anterior margin obliterated at middle and the general surface irregularly strigose, vague at middle but well marked at

sides. Elytra but slightly longer than broad, moderately convex, sides rather evenly arcuate though feebly sinuate at middle, margins fairly wide and feebly reflexed with minute transverse rugae, apices truncate with small oblique carina near outer angle; the disc with lateral striae only impressed, the strial punctures small, metallic green, and moderately close together, those at the sides more conspicuous, first four and a third intervals smooth, next five alutaceous, but the outer one is shining. Under surface smooth and shining. Males, length 4.75 mm., breadth 2.5 mm.; females, length 5.5 mm., breadth 3 mm.

"Aedeagus of male as long as the lateral lobes, narrowed at apical fifth, thence parallel sided, half as wide as apical width of a paramere, the tip rounded." H. Leech.

Holotype male, allotype female and numerous designated paratypes from a series of twenty-three specimens, collected at an altitude of 1800 feet **near Wreck Bay, Chatham Island**, July 1906, by F. X. Williams.

According to Régimbart's (1902) key, this species belongs near *G. peruvianus* Régimbart, *G. continuus* Régimbart, and *G. aequatorus* Régimbart and is also somewhat suggestive of *G. punctipennis* Régimbart. It is, however, quite distinct from any of these as well as other known species, peculiar features being its reduced convexity, the broad alutaceous sides of the elytra in both sexes, and lateral intervals quite convex, the front of head quite smooth and bifoveate, the pronotal disc rugose and strigose at sides, the elytral strial punctures fine and rather evenly distributed and the elytral apices obliquely truncate and with rounded angles.

Family **HYDROPHILIDAE**

Ochthebius batesoni Blair

Ochthebius batesoni Blair, 1933, Ann. Mag. Nat. Hist., 10, XI, pp. 473–474.

This small species appears to have been found only by the St. George Expedition of 1924.

Tropisternus lateralis (Fabricius)

Hydrophilus lateralis Fabricius, 1775, Syst. Entom., p. 228.

Tropisternus lateralis Fabricius, G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 26.

Tropisternus lateralix Fabricius, C. Waterhouse, 1877, Proc. Zoo. Soc., V, pp. 78, 82.

Tropisternus lateralis Fabricius, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 255.

Tropisternus lateralis Fabricius, Mutchler, 1925, Zoologica, V, no. 20, p. 235.

Tropisternus lateralis Fabricius, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, pp. 472–473.

This common and widespread North and South American species was collected in the Galapagos Islands by Darwin as well as by all later expeditions. Darwin did not indicate the particular island from which he collected his specimens. The first definite record is by Captain Cookson of H. M. S. *Petrel,* for Charles Island. The California Academy of Sciences Expedition of 1905–1906, secured its specimens mainly from near Villamil, Albemarle Island, March, 1906; and the Templeton Crocker Expedition of 1932, its specimens from Albemarle Island, April 28, 1932, and from Chatham Island, April 18, 1932. It is apparently common and widespread in the Archipelago.

Enochrus waterhousei Blair

Enochrus waterhousei Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 473.

The California Academy of Sciences Expedition apparently did not secure this species. We, however, have two specimens of the type series received through the courtesy of the British Museum.

Enochrus obscurus (Sharp)

Philhydrus obscurus Sharp, 1882, Biol. Centr.-Amer., Col. I, 2, p. 69.

Philhydrus – ?, G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 26.

Philhydrus sp., C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Philhydrus species Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 255.

Philhydrus species ?, G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 235.

Enochrus obscurus Sharp, Blair, 1933, Ann. Mag. Nat. Hist., 10, XI, p. 473.

While designating the Galapagos Islands specimens as the above species, Blair (1933) comments in regard to the St. George Expedition material:

"Charles Id., 6 ex.

"The short series agrees better with Sharp's second and smaller example than with the type, but I cannot find that it differs specifically. From *E. waterhousei* [as corrected by Blair, *galapagoensis* printed in error] it differs in having the prosternum simply convex instead of medially carinate and the median elevation of the mesosternum low and obtuse, not elevated into a vertical plate.

"Although C. Waterhouse lists this species under 'Islands not specified,' Darwin's original specimen bears a label 'Charles Id.,' with the no. 3364 on the reverse side."

The material in the California Academy of Sciences collection is from Charles Island, October 3, 1905, and from near Wreck Bay, at an altitude of 1800 feet, Chatham Island, July, 1906, all collected by F. X. Williams. Two of the latter specimens were carefully checked with the type of *E. obscurus* Sharp, by Blair.

Galapagodacnum darwini Blair

Coelostoma darwini Blair, 1933, Ann. Mag. Nat. Hist., 10, XI, pp. 474–475.

Galapagodacnum darwini (Blair), d'Orchymont, 1937, Am. Mag. Nat. Hist., 20, p. 134.

The California Academy of Sciences possesses specimens from Brattle Island, October 30, 1905; Tower Island, September 14, 1906; and Abingdon Island, September 18, 1906; all collected by F. X. Williams. Most of these were taken from rotting and putrid cactus as is generally the case with these beetles.

Family **STAPHYLINIDAE**

Bledius aequatorialis Mutchler

Bledius aequatorialis Mutchler, 1925, Zoologica, V, no. 20, pp. 225–226, 235, text fig. 43.

The two specimens from which Mutchler described this species were collected by the Williams Galapagos Expedition of 1923 and appear to be the only ones of this genus or species which have ever been taken in the Islands. The genus is widespread throughout the warmer parts of the Americas.

Creophilus villosus (Gravenhorst)

Creophilus villosus (Gravenhorst), 1802, Coleopt. Microptera Brunsvicensia, p. 160.

Creophilus sp., G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 24.

Creophilus villosus (Gravenhorst), C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Creophilus villosus (Gravenhorst), Linell, 1898, Proc. U. S. Nat. Mu., XXI, no. 1143, p. 255.

Creophilus villosus (Gravenhorst), Mutchler, 1925, Zoologica, V, no. 20, p. 235.

This species which is widely distributed throughout the Americas, was first reported from the Galapagos Islands as from Chatham Island. The California Academy of Sciences has specimens collected at Villamil, Albemarle Island, April 24, 1906, and August 22, 1906, by F. X. Williams.

Unidentified Staphylinidae

There are specimens of a number of genera of Staphylinidae which the California Academy of Sciences secured from various islands such as James, Abingdon, and Albemarle, but they cannot be determined until we know more about the staphalinid fauna of western South America.

Family **HISTERIDAE**

Subfamily Dendrophilinae

Carcinops galapagoensis Van Dyke, new species

Oblong, oval, moderately convex, black, shining; antennae, palpi, and legs rufopiceous. Head feebly convex, uniformly discretely punctured, the lateral groove complete and well impressed. Prothorax almost twice as wide as long, base feebly arcuate, apex strongly emarginate, sides almost straight and slightly convergent to anterior two-thirds, thence distinctly arcuate and convergent to prominent front angles, the disc finely, discretely punctured, the sides much more coarsely and in general with punctures more widely spaced, the side margin complete and well marked, the front margin fine, the base without margin but with a small fovea in front of the scutellum. Elytra about as broad as long, the striae sharply impressed and finely punctured, the sutural or sixth not reaching base, the fifth represented by punctures near base, the dorsal striae 1–4 complete, the internal subhumeral more or less interrupted towards base, the external subhumeral only reaching three-fourths way towards base, and the marginal striae complete; the intervals flat and very finely sparsely punctured, a deep impression at the inner side of the humeral umbone. Propygidium coarsely, rather sparsely punctured, pygidium finely punctured. Prosternum finely punctured, the lateral grooves deep and somewhat sinuous, the apex fully margined; the metasternum, pleural plates, and abdominal segments rather coarsely irregularly punctured, the marginal mesosternal stria short but well marked and united posteriorly with the bifid metasternal stria which continues posteriorly almost to the hind margin of meta-episternum. The first abdominal sclerite marked laterally with a deep stria extending posteriorly from the hind coxal cavity. Anterior

tibiae broadly dilated in front with two prominent teeth on the outer margin in front and the outer margin finely surulate posteriorly. Middle tibiae somewhat arcuate, moderately dilated and with a prominent spine at the middle of its outer margin. Length 2.5 mm., breadth 1.75 mm.

Holotype and several paratyes from a series of ten specimens collected on Abingdon Island, September 18–23, 1906, by F. X. Williams. Three other specimens from Tower Island, September 14–16, 1906, and four specimens from Indefatigable Island, July 20–24, 1906, likewise collected by F. X. Williams, have been placed with the above as they agree in all regards.

This species seems to belong in the complex with the North American *Cacinops opuntiae* Leconte which differs in having the punctuation of the sides of the pronotum very much coarser, the elytral striae coarser, the sutural and fifth striae reaching the base but only as a series of punctures, the internal subhumeral complete and the external subhumeral only represented by a puncture, the striae as a whole less complete posteriorly, and the middle tibiae almost straight.

Carcinops tenellus (Erichson)

Paramalus tenellus Erichson, 1834, in King, Jahrb. Ins., 1, p. 170.

Carcinops tenellus Erichson, Marseul, 1855, Mon., p. 94, pl. 8, no. 22, fig. 7.

Hister corticalis Leconte, 1851, Ann. Lyc. Nat. Hist., N. Y., V, p. 163.

The California Academy of Sciences has seventy-two specimens collected on James Island, December, 1905, S. Albemarle, August 5–9, 1906, by F. X. Williams, which I cannot separate from specimens of *C. tenellus* from the western part of the United States. Outside of the United States, Colombia and Venezuela are listed as furnishing specimens. No doubt the semiarid coastal regions of western South America will in time be found to harbor this species.

Subfamily Saprininae

Saprinus batesoni Blair

Saprinus batesoni Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, pp. 475–476.

The writer has not studied specimens of this species.

Saprinus modestior Marseul

Saprinus modestior Marseul, 1845, Mon., p. 493, t. 19, f. 110.

The California Academy secured no specimens of *Saprinus batesoni* Blair, but it did get a number of specimens of a species of *Saprinus* which apparently agree with Blair's remarks concerning *Saprinus modestior* as well as Marseul's description.

The California Academy material consists of seven specimens collected on Abingdon Island, November 18–23, 1906, by F. X. Williams.

Family **LYCIDAE**

Calocladon testaceum Gorham

Calocladon testaceum Gorham, 1881, Biol. Central-Amer., Col. III, 2, p. 28, pl. ii, fig. 20.

Calocladon testaceum Gorham, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 476.

A single example recorded by Blair, as taken by Bateson of the St. George Expedition, 1924, on Chatham Island. This is a Central American (Nicaragua) species. I am inclined to believe that the specimen was really collected on the mainland and carried to the islands where it was later mixed with island specimens.

Family **CANTHARIDAE**

Chauliognathus sulphureus C. Waterhouse

Chauliognathus sulphureus C. Waterhouse, 1878, Trans. Ent. Soc. London, p. 331.

Chauliognathus sulphureus C. Waterhouse, Gorham, 1881, Biol. Centr.-Amer., Col. III, 2, p. 73.

Chauliognathus sulphureus C. Waterhouse, Champion, 1914, Ent. Soc. London, p. 154, t. 7, f. 29 et 27a.

Chauliognathus sulphureus C. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 476.

According to Dr. Blair, one example was taken on Chatham Island. This species, like the preceding, is a Central and South American species and was no doubt listed from Chatham Island as the result of an error.

Family **MELYRIDAE**

Ablechrus flavipes C. Waterhouse

Ablechrus darwinii C. Waterhouse, 1877, Proc. Zoo. Soc., p. 81.

Ablechrus flavipes C. Waterhouse, 1877, Proc. Zoo. Soc., p. 79.

Ablechrus flavipes C. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 235.

This species was listed by C. Waterhouse as from James Island

(C. Darwin). In the California Academy of Sciences collection there is a much injured melyrid from Chatham Island, April 15, 1932, collected by the Templeton Crocker Expedition of 1932. It does not seem to fit the above.

Family **CLERIDAE**

But two species of this family have so far been reported from the Islands, one a typical member of the family, and the other the well known, now cosmopolitan *Necrobia rufipes* De Geer.

Pelonium longfieldae Blair

Plate VI, figure 2

Pelonium longfieldae Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, I, pp. 677–678.

The California Academy of Sciences possesses specimens from the following localities: Charles Island, February 1906, 2 specimens; Albemarle Island, April 28, 1932, February 10–17, 1906, 2 specimens; Chatham Island, November 1905, one specimen; and James Island, December 1905, one specimen.

Necrobia rufipes De Geer

Clerus rufipes De Geer, 1775, Mem., V, p. 165, pl. XV, f. 4.

Corynetes rufipes auct., G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 26.

Corynetes rufipes Fabricius, C. Waterhouse, 1877, Proc. Zoo. Soc., p. 81.

Corynetes rufipes De Geer, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 257.

Necrobia rufipes (De Geer), Mutchler, 1925, Zoologica, vol. V, no. 20, p. 235.

This common scavenger beetle is now widely distributed throughout the Galapagos Islands as in most other parts of the world. The fact that the Pacific whaling fleet visited these islands for tortoises and ballast, for many years, perhaps accounts for some of the introduction. The schooner *Academy*, the vessel which transported the California Academy of Sciences Expedition, as the result of bringing home large numbers of dead and only partly cleaned tortoises, was very badly infested with this beetle as well as by its companion scavenger, *Dermestes vulpinus* Fabricius.

Family **OEDEMERIDAE**

This family which has representatives on most islands in tropical seas is credited with having four species of two genera restricted to

the Galapagos Islands. One more will be added in this paper. Many of these breed in the driftwood found along the seashore; they also are attracted to lights.

Oxacis galapagoensis Linell

Oxacis galapagoensis Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, pp. 266–267.

Oxacis galapagoensis Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 235.

Oxacis galapagoensis Linell, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, 1, p. 673.

Blair (1928) records twenty-one specimens as taken by the St. George Expedition of 1924, on James Island, and comments as follows:

"The species is compared by its describer with the N. American *Alloxis dorsalis* Melsheimer, but is much more nearly related to *O. litoralis,* Champion, from Guatemala and Panama, if indeed, it is really distinct from that species. The punctures of the thorax are relatively large and coarse, very much coarser than those of the elytra, the pubescence is consequently scanty and is directed mainly backwards. In *A. dorsalis* the thoracic puncturation is very fine, scarcely coarser than that of the elytra, and the pubescence denser and directed forwards. From *O. litoralis,* which in sculpture is identical, it differs in its slightly broader thorax and in the outer dark area of the elytra being more extensive, frequently uniting with the small scutellar patch and leaving only a narrow sutural band testaceous."

The California Academy of Sciences possesses sixty-five specimens of this species, all collected by F. X. Williams and from the following localities: Albemarle Island, 24 specimens from February to April 1906; 7 specimens Villamil, Albemarle; 24 specimens from Charles Island, October 3, 1905; and one from Hood Island, January, 1906.

Oxacis pilosa Champion

Oxacis pilosa Champion, 1890, Biol. Centr.-Amer., Col. IV, 2, p. 156, pl. VII, fig. 15.

Oxacis pilosa Champion, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, 1, p. 673.

The St. George Expedition of 1924, is the only expedition which has taken the above-named species on the Galapagos Islands. Dr. Blair (1928) who studied the material collected by this expedition, states:

"James Is., 1 ex. (Type-locality, Guatemala).

"Differs from the last species in its more uniform brownish coloration, long, rather shaggy pubescence, which, however, is similarly inclined on the thorax, distinct elytral costae, and in the much greater

distance separating the eyes on the under side of the head. In the present species this distance is about twice the width of the mentum. The tip of the right mandible is concealed; on the left mandible some distance from the apex there is a slight tooth beneath."

Alloxacis seymourensis Mutchler

Alloxacis seymourensis MUTCHLER, 1925, Zoologica, V, no. 20, pp. 226–227.

This species is unknown to the writer.

Alloxacis collenettei Blair

Alloxacis collenettei BLAIR, 1928, Anns. Mag. Nat. Hist., ser. 10, 1, pp. 673–674.

The California Academy of Sciences has twenty-four specimens, collected by F. X. Williams; seven from South Seymour Island, in November 1905; three from Villamil, Albemarle Island, on April 1, 1906; and two from Charles Island on October 3, 1905. The Seymour Island specimens are typical *A. collenetti,* not *A. seymourensis* as might be expected.

Alloxacis hoodi Van Dyke, new species

Small, narrow, uniformly brown above except for very sutural and lateral margins which are somewhat testaceous; uniformly clothed with very short, fine, and well-spaced decumbent pubescent pile, hardly concealing the integment beneath. Head shallowly, densely punctured as usual, and finely and sparsely pubescent; eyes large, prominent, coarsely granular, and widely separated above; antennae extending barely beyond middle of elytra, second segment short, barely more than one-third length of third, the following long and cylindrical, the last feebly constricted at middle, right mandible feebly notched near apex. Prothorax barely longer than broad, widest in front, sides moderately arcuate forward, much narrowed and feebly sinuate in basal half; disc flattened, a broad yet feeble transverse impression in front of middle and a narrow linear transverse impression just in front of basal margin; the surface alutaceous and obscurely punctured. Elytra two and two-thirds longer than broad, almost four times as long as prothorax and slightly broader, with sides parallel, disc somewhat flattened and with sutural and one other costa feebly marked, the inner striae here and there vaguely indicated but the outer entirely obliterated, the general surface minutely alutaceous. Length 6 mm., breadth 1.5 mm.

Holotype, a unique collected on **Hood Island**, April 20, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932.

This small species somewhat resembles the preceding species but is much smaller, of a more uniform brown color, flatter, with the elytral costae less defined, and the pile very much shorter and finer so as to hardly conceal the integument at all.

Family **MORDELLIDAE**

The species mentioned below is the first of the family to be listed from the Galapagos Islands.

Mordellistena galapagoensis Van Dyke, new species

Rather small, piceous; the antennae and front and middle legs to a great extent rufous; the elytra rufo-piceous; the body clothed with closely appressed fulvous pile, that of the elytra somewhat more brilliant or golden yellow than elsewhere and forming a definite color pattern as follows: a narrow sutural vitta, an irregular and elongate triangular patch extending backwards and inwards from the humeri, overlying the rufous area; and an irregular broad patch extending laterally from the base almost to apex, with an oblique portion reaching the apex of the triangular patch and extending somewhat beyond but not quite reaching the sutural vitta; as well as a small apical patch the darker portions being a broad triangular basal area on either side of the scutellum which extends back as a narrow streak on either side of the sutural vitta, widening a bit at middle and greatly expanding at apical third; and two small streaks, an oblique one pointing towards humeri and separating the golden triangular patch from lateral portion and a smaller one at margin on the outer side of this. Head smooth and shining behind, very finely punctured and dull in front. Prothorax slightly broader than long and very finely, obscurely punctured. Elytra somewhat more than twice as long as broad, rather closely and regularly punctured. Hind tibiae with four oblique ridges on outer face near apex, the first tarsal segment with three oblique ridges and the second with two. Length 2.5 mm., breadth 1 mm.

Holotype, collected on **Tower Island**, March 25, 1935, by the Templeton Crocker Expedition of 1935.

The California Academy of Sciences Expedition of 1905–1906, collected three specimens on Albemarle Island, April 24–27, 1906.

F. X. Williams in his notes for January 9, 1906, on James Island, remarks: "Mordellids not rare on (*Erigeron?*) flowers, 2000 feet."

Evidently Mr. Williams was too busy with other duties at the time to permit him to give time to collecting specimens. I could not find specimens in his material from James Island.

Family **MELOIDAE**

Cissites maculata Swederus

Cissites maculata Swederus, 1787, Vetensk Acad. nya Handl., p. 199, pl. VIII, fig. 8.

Cissites maculata Swederus, Mutchler, 1938, Am. Mus. Novitates, no. 981, p. 4.

Mutchler (1938) mentions "One specimen Indefatigable Island, flying within 'Ecological Zone A' at 7:30 P. M., Dr. Wolfgang von Hagen.

"This specimen does not agree in all details with the description of *maculata*. The antennae are piceous at the base, becoming paler and more reddish apically, the apical segment being a pale red. Each elytron has the basal mark as in *maculata* but the two median and two subapical spots are replaced by somewhat broad, more or less jagged-edged bands. Otherwise this specimen is like those of other *C. maculata* in the American Museum Collection."

In confirmation of the above note, I will state that Dr. F. X. Williams of the California Academy of Sciences Expedition, states that he took from March 4–14, 1906, the pseudopupa of what is probably this species, from the nests of the carpenter bee, *Xylocopa*. He also states that on February 17, 1906, he found a *Xylocopa* larva in a cell on an old limb, on Chatham Island, being devoured by a parasitic lava, presumably that of *Cissites maculata* Swedrus. *Cissites maculata* is a very variable species both as to size and color pattern as shown by specimens in the California Academy of Sciences collection from the Canal Zone and from South America.

Family **ELATERIDAE**

Conoderus galapagoensis Van Dyke, new species

Plate VI, figure 4

Rather small, rufocastaneous; antennae, legs, scutellum, and generally the hind angles of prothorax testaceous; the disc of pronotum usually somewhat piceous and the elytra with a triangular scutellar patch and a sutural patch one-third the distance from the apex piceous, the latter generally connected with the scutellar patch by a line along the suture, the mesosternal area also more or less piceous. Head convex,

densely, somewhat coarsely punctured and alutaceous, a feeble longitudinal impression at middle, and with the clypeal margin arcuate; the antennae extending about two segments beyond hind angles of prothorax, the first segment robust, the second small but little longer than broad, the third about one-third longer than second, the third to tenth elongate, feebly serrate and gradually shorter and narrower toward apex, the eleventh elongate with parallel sides. Prothorax somewhat longer than broad, anterior margin feebly bisinuate, dilated in front of hind angles and with sides then gradually converging forwards; the disc convex, feebly flattened at center, densely and somewhat coarsely punctured and alutaceous, the hind angles broadly triangular, directed backwards and with the lateral carina sharply defined and diverging forwards from the side margin, the basal carina lacking. Scutellum convex and finely punctured. Elytra almost twice as long as wide, somewhat flattened on disc, the striae deeply impressed and finely and closely punctured, the intervals flattened apically, more or less convex towards base and finely rugose, the apex conjointly rounded. Beneath rather coarsely and discretely punctured in front, very finely over abdomen. The fourth tarsal segment distinctly lamellate, the lamellae broader than segment and easily seen from above. Length 8 mm., breadth 2.5 mm.

Holotype, collected on **Chatham Island,** January 1906, by F. X. Williams. Numerous paratypes have been designed from a series of thirty-seven specimens from the following localities: Chatham Island, February, 1906, Charles Island, May 15, 1906, and Albemarle Island, March 14–24, 1906.

This species superficially resembles *C. varians* (Steinheil) in color-pattern but it is in general broader, more flattened, more coarsely punctured, the third antennal segment proportionately longer, and presents a greasy red appearance. This species is also variable in its color-pattern like its relatives. One paratype is immaculate, the others all have the basal scutellar maculation and posterior cross-like markings quite evident.

Tribe **Physorhini**

In the tribe Physorhini, there are two genera which have representatives in the Galapagos Islands: *Physorhinus* Eschscholtz and *Anchastus* Leconte. The former is confined to the New World and is characterized by Champion (1894–97) in the Biologia Centrali-Americana as having "the posterior coxal plate enormously developed, the subtriangular median portion being nearly or quite as wide as the

first ventral segment. The sutures between the posternum and propleurae are widely separated for the greater part of their length, rather abruptly converging behind, and channeled in front. The middle coxae are deeply excavated externally for the reception of the base of the middle femora, the upper portion forming a broad plate. The third joint of the antennae is very short. The third joint of the tarsi is strongly lamellate, the fourth joint small. The curious pallid coloration of the whole or part of the head is common to all of the species."

The fundamental characters are to me, the greatly dilated posterior coxal plates, the widely separated sutures between the prosternum and propleurae, and the channelling in front between them and the strongly lamellate third tarsal segment. The pallid head, so characteristic of both North and South American species, is not found in the species from the Galapagos Islands. Including *Anchastus quirsfeldi* Mutchler, which is a true *Physorhinus,* not an *Anchastus,* I have seen seven species of this genus from the Galapagos Islands. They are as follows:

Physorhinus quirsfeldi (Mutchler)

Anchastus quirsfeldi MUTCHLER, 1938, Amer. Mus. Novitates, no. 981, p. 4.

Through the kindness of the American Museum of Natural History and Dr. Mont Cazier, I have a paratype of this species before me. As stated above, I find that it is a *Physorhinus,* having the posterior coxal plates greatly developed, the sutures between the prosternum and propleurae widely separated and the area between channelled in front, and the third segment of the tarsi strongly lamellate. These are all characters of a typical *Physorhinus.* It, however, lacks the pallid yellow color of the head which is so evident in the mainland species of the genus, but has the head of the same color as the after-body as is the case with most of the island species. I am inclined to believe that this latter character is of less value than what I consider as the fundamental characters.

Physorhinus dichroa Van Dyke, new species

Of fair size, robust, piceous, antennae and legs rufous, sparsely clothed above with fine and somewhat fulvous pile. Head convex, the front coarsely punctured behind, more densely and finely in front, the clypeus feebly arcuate in front, almost transverse and with a narrow, feebly reflexed margin; the antennae stout, extending behind hind angles of prothorax, the basal segment robust, the second and third small, the first transverse, the second slightly longer than broad, fourth to tenth strongly serrate and one and a half to twice as long as broad,

the eleventh elongate. Prothorax somewhat broader than long, apex feebly emarginate, sides almost parallel behind, arcuate and converging forwards, hind angles prominent, pointed backwards, bicarinate, the outer carina fine and close to margin, the inner shorter and divergent, the disc convex, with a shallow median canaliculation towards base, coarsely and densely punctured and feebly alutaceous. Elytra two and a half times as long as broad. Convex, finely striate-punctured, the striae well defined basally, somewhat vague apically, the intervals flat and finely, irregularly punctured, each puncture with a fine hair arising from it. Beneath with the propleurae moderately punctured in front, smooth, shining and feebly punctured behind, mesopleurae and basal abdominal sclerites coarsely and densely punctured, the apical sclerites more finely punctured, the inclined fulvous pile quite evident, especially on abdomen; the sutures between prosternum widely divergent in front, convergent behind but feebly grooved between, the posterior coxal plates well developed, almost as long as the abdominal sclerites are broad; the tarsi with the third segment strongly lamellate, and the fourth segment small as usual. Length 13 mm., breadth 4 mm. The wings are fully developed, probably functional.

This species is characterized by its size, red legs, small second and third antennal segments, broad prothorax and feebly grooved area between the prosternal and propleural sutures.

Holotype, presumably a male, collected on **James Island**, in December 1905, by F. X. Williams. Two paratypes, a male and female were collected at the same time and place.

Physorhinus ruficeps Van Dyke, new species

Of moderate size, robust, piceous; the head, front, and sides of pronotum, antennae, and legs rufous, sparsely clothed with fine, fulvous pile. Head coarsely, densely and somewhat cribrately punctured, the clypeus arcuate in front and with a well-defined narrow and feebly reflexed margin; the antennae robust extending one or two segments beyond hind margin of prothorax, the basal segment stout, second very small and transverse, third feebly triangular and about twice as long as second; fourth to tenth elongate, feebly serrate and gradually longer and narrower towards apex; eleventh segment elongate. Prothorax slightly broader than long, apex feebly emarginate, sides arcuate and convergent forwards, the prothorax thus cuneate in shape, hind angles rather short but well marked and pointed backwards, bicarinate, the outer carina the longer, close to and parallel to the outer margin, the inner short and divergent, the disc convex, the median

longitudinal impression very feebly indicated towards base, densely and coarsely punctured, the punctures somewhat approximate at sides. Elytra more than twice as long as wide, broad, the striae well impressed except apically, finely and closely punctured, the intervals feebly convex basally, irregularly biseriately punctured, each puncture with a fine hair arising from it. Beneath, the propleurae finely and shallowly punctured, the mesopleurae and abdomen more coarsely and densely so and the last ventral segment very finely and densely punctured, the fulvous pile very evident; the sutures between prosternum and propleurae widely divergent in front, convergent behind and the area between markedly sulcate. The posterior coxal plates well developed, almost as long as the abdominal sclerites are broad, the tarsi with the third segment strongly lamellate and the fourth segment small. Length 10 mm., breadth 4 mm.

Holotype, supposedly a male, a unique from **Villamil, Albemarle Island**, collected April 24, 1906, by F. X. Williams.

This species is easily separated by its rufous head and sides of pronotum, the small second antennal segment, much larger third segment and the elongate and narrowed segments from the fourth to tenth. The cuneate prothorax is also characteristic of most of the species in the genus.

Physorhinus hoodi Van Dyke, new species

Medium sized, robust, brown; the clypeal region of head, antennae, and legs rufous; sparsely clothed with short fulvous pile. Head convex, rather coarsely and densely punctured, the clypeus arcuate in front, the margin narrow and feebly reflexed; the antennae extending about one segment beyond hind angles of prothorax, the basal segment robust, the second small and transverse, the third segment somewhat larger, the fourth to tenth segments broader, elongate and feebly serrate. Prothorax as long as broad, apex feebly emarginate, sides arcuate, very gradually convergent forwards, hind angles prominent, projecting backwards, bicarinate, the outer carina fine and close to lateral margin, the inner shorter and divergent. The disc convex, with median longitudinal impression very faint, finely and discretely punctured, more coarsely and densely punctured at sides. Elytra two and two-thirds as long as broad, the striae sharply defined except at sides and apex and finely and closely punctured, the intervals flat behind, feebly convex towards base and finely rugose, and with an irregular double row of minute punctures from which arise the short fulvous hairs. Beneath with the propleurae rather coarsely and densely punctured, the abdo-

men more finely and sparsely punctured; the sutures between prosternum and propleurae widely divergent in front and the area between them sulcate, the posterior coxal plates greatly developed, fully as long as the ventral segments are broad; the tarsi with the third segment lamellate and the fourth minute. Length 10 mm., breadth 3 mm.

Holotype, a unique collected on **Hood Island**, in February, 1906, by F. X. Williams.

This species may be recognized by having the head anteriorly distinctly rufous, the prothorax less cuneate, the body in general quite robust and the elytral intervals somewhat convex basally and distinctly rugose. The hind coxal plates are also more greatly developed than they are in other species.

Physorhinus blairi Van Dyke, new species

Somewhat small, entire upper surface dark brown, antennae and legs castaneous and sparsely clothed with fulvous pile. Head convex, densely and eribrately punctured; the clypeus arcuate in front and the margin feebly reflexed; the antennae rather delicate, extending several segments beyond the base of prothorax in the male type and one segment beyond the hind angles of the prothorax in the female, the basal segment robust, the second segment small and transverse, the third segment slightly longer in the female and about twice as long in the male, the fourth to tenth segments several times as long as broad, feebly serrate and also gradually narrowed towards apex though more robust in males than females, and the eleventh segment elongate. Prothorax as long as broad, somewhat cuneiform, the apex feebly emarginate, sides slightly arcuate and convergent forwards, hind angles prominent, projecting backwards, bicarinate, the outer carina close to the margin, the inner a bit shorter and divergent, the disc convex with the median canaliculation faintly indicated, and finely and rather densely yet discretely punctured above but approximate at the sides. Elytra about two and one-half times as long as broad, convex, striae finely and closely punctured but more or less obliterated apically and at the sides, the intervals flat, very finely and irregularly punctured with a fine hair arising from each puncture. Beneath densely punctured in front, coarsely over the prosternum, finely on the propleurae and finely and discretely over the abdomen except the last segment which is densely punctured; the sutures between the prosternum and propleurae well separated in front but the area between feebly channeled; the posterior coxal plates greatly developed as usual in the

genus, and the tarsi with the third segment lamellate and the fourth very small. Length 10 mm., breadth 3 mm.

Holotype male and allotype female, collected on **James Island,** February 20–22, 1925, by G. Bateson. The male type will be returned to the British Museum of Natural History.

This species is one of the smaller species of the genus, averaging 10 mm. in length and is more or less uniformly of a dark brown color above, with densely punctured head, elytra with the striae to a great extent obliterated posteriorly and the third antennal segment longer in the male than in the female. The lack of a pronounced channel between the prosternal and propleural sutures suggests an approach towards *Anchastus* but the greatly developed hind coxal plates indicates that it is a *Physorhinus.*

Physorhinus batesoni Van Dyke, new species

This small species has all of the essential characters of the genus: the dilated hind coxal plates, the divergent sutures between the prosternum and propleurae with the area between grooved, and the lamellate third tarsal segment and small fourth segment which it shares with *Anchastus.* It is closely related to *P. blairi* having the head densely punctured though not as cribrately, the second and third antennal segments both small and the elytral striae only well defined in the basal two-thirds. It is, however, smaller, 8 mm. long by 2.5 mm. broad, rufopiceous above and rufous beneath, the scutellum fulvous, with the pronotum moderately but discretely punctured on the disc rather coarsely at the sides in front and more finely towards the base and the median longitudinal impression lacking.

Holotype, a unique, collected on **Albemarle Island,** in 1925, by G. Bateson. It will be returned to the British Museum of Natural History from which institution it was borrowed.

Physorhinus chathami Van Dyke, new species

This species is of the same size as *P. blairi,* and of the same general brown color except that the scutellum and front of head are somewhat rufous. It differs by having the area between the prosternal and propleural sutures distinctly channeled, the punctuation of head and pronotum less coarse, the hind angles of prothorax more acute and the elytra with the striae sharply impressed, finely and closely punctured, and not entirely obliterated apically, and the striae quite definitely rugose towards the base. It also has the second and third antennal

segments both small, the third a bit the larger, and the hind coxal plates very large.

Holotype, a unique, collected on **Chatham Island**, January, 1906, by F. X. Williams.

Key to Species of Galapagos Islands Physorhinus Eschscholtz

1. Second antennal segment alone small, the third at least one-half length of fourth; larger species, 12 mm. or more in length 2
— Second and third antennal segments both small except in female of *P. blairi* where it is about one-half length of fourth 3
2. Black with antennae and legs alone rufous; third antennal segment fully one-half length of fourth; Indefatigable Island ..... *P. quirsfeldi* (Mutchler)
— Dark brown with antennae, legs, head, anterior margin of pronotum and scutellum rufous; third antennal segment fully one-half length of fourth; Villamil, Albemarle Island ..... *P. ruficeps*, new species
3. Larger species, over 12 mm. in length, both second and third antennal segments small, black with antennae and legs rufous, outer segments of antennae strongly serrate; James Island ..... *P. dichroa*, new species
— Smaller species, 10 mm. or less in length 4
4. Antennae, legs, front of head and scutellum rufous, body dark brown; Hood Island ..... *P. hoodi*, new species
— Body above unicolorous 5
5. Body above rufocastaneous, beneath castaneous; 8 mm. in length. Albemarle Island ..... *P. batesoni*, new species
— Body above dark brown, beneath somewhat lighter; 10 mm. in length .. 6
6. Antennal segments two and three both small; area between prosternal and propleural sutures definitely channeled in front. Chatham Island ..... *P. chathami* Van Dyke
— Antennal segment two small and three at least twice its length in male, two and three both small in female; area between prosternal and propleurae feebly grooved or flattened in front; James Island ..... *P. blairi*, new species

Anchastus LeConte

In the Biologia Centrali-Americana, Champion states that "The species here referred to *Anchastus* agree in the following particulars: Front separated from the anterior margin of the head by a rounded or subangular ridge, which is sometimes obliterated in the middle; the sutures between the prosternum and propleurae narrowly separated, channeled or not in front; posterior coxal plates abruptly and subquadrangularly widened inwards, in some species acutely triangularly

dilated near the middle; third tarsal joint rather broadly lamellate beneath, the following small."

Anchastus galapagoensis (Waterhouse) is listed as from the Galapagos Islands but under the generic name *Physorhinus*. Champion in the Biologia Centrali-Americana states that the supposed type in the British Museum is a true *Anchastus*. Candeze describes *A. galapagoensis* as a *Physorhinus*. Whether a Candeze specimen ever found its way to the British Museum is a question. It is not there now as I carefully looked for it. I am following Junk's Coleopterorum Catalogue in listing the species of both Waterhouse and Candeze.

Anchastus galapagoensis (Waterhouse)

Physorhinus galapagoensis WATERHOUSE, 1845, Ann. Nat. Hist., XVI, p. 25.
Physorhinus galapagoensis Waterhouse, CANDEZE, 1859. Mon. II, p. 394.
Anchastus galapagoensis Waterhouse, CHAMPION, 1895, Biol. Centr.-Amer. Col., III, p. 385.

I have not repeated the supplementary remarks of either Waterhouse or Candeze. It was not stated from what island the Waterhouse type came and no specimens of *Anchastus* that answer to the descriptions given above have been taken since. The following description is of a species that I consider different.

Anchastus williamsi Van Dyke, new species

Of moderate size, brown above; the antennae, legs, and underside more or less rufous; the head and pronotum clothed with short, semierect fulvous pile; the elytra with similar pile but more closely appressed. Head convex, coarsely and densely punctured, the clypeus feebly angulate in front, the margin distinctly defined and somewhat reflexed; the antennae about reaching the hind prothoracic angles, the first segment robust, the second small and but little longer than broad, the third to tenth elongate, feebly serrate and gradually broader towards apex; eleventh segment fusiform. Prothorax slightly longer than broad, somewhat cuneate in shape, the apex feebly emarginate, the sides quite straight, convergent forwards to the slightly rounded front angles, hind angles sharp and prominent, feebly divergent, the single carina well defined and slightly divergent from the carinate side margin; the disc convex, with a faint median longitudinal impression near base, densely punctured, the punctures somewhat coarser at sides as usual. Elytra more than twice as long as wide, the striae fine and well impressed, the strial punctures distinct and close together, the intervals finely rugose. Beneath rather coarsely and

densely punctured in front, the abdomen more finely and sparsely punctured; the prosternal and propleural sutures feebly diverging in front, the area between closed in front and the sulcus feebly indicated; the posterior coxal plates but moderately developed, about one-half as long as the abdominal sclerites are broad; the tarsi with the third segment provided with a moderately prominent lamella and the fourth segment very small as usual. Length 8 mm., breadth 2.5 mm.

Holotype, apparently a female, a unique collected on **Indefatigable Island**, January 1906, by F. X. Williams.

This species is a true *Anchastus* as defined by the characteristics of the prosternal sutures and the hind coxal plates and tarsi. This species differs from *Anchastus galapagoensis* Waterhouse as defined in the description by not having the anterior portion of the head pallid and the third antennal segment as long as the fourth not small like the second as stated by both Waterhouse and Candeze for *A. galapagoensis.*

Heterocrepidius puberulus Boheman

Heterocrepidius puberulus Boheman, 1858, Fregatten Eugenies Resa, I, p. 66.

The California Academy of Sciences possesses no specimen which fits the description of this species. Apparently it has not been taken since the voyage of the *Eugenie.*

Aeolus fuscatus Steinhal

Aeolus fuscatus Steinhal, 1875, Col. Hefte XIV, p. 125.

Aeolus fuscatus Steinhal, Mutchler, 1938, Am. Mus. Novitates, no. 981, pp. 4–5.

The California Academy of Sciences possesses no specimen of this species. Mutchler had two. His comments are as follows: "One specimen from Charles Island and one from Indefatigable Island 'Ecological Zone C.' The latter, collected by Dr. Wolfgang von Hagen, may be the above species, but the identification is more or less doubtful. They are 6–6.5 mm. in length. The thorax and elytra are reddish brown, but the thoracic angles and margins of the elytra are not paler, the hind angles of the thorax are slightly divergent, the carina is somewhat distinct and extends some distance beyond the base of the thorax. The head and pronotum are quite finely and somewhat densely punctate. The pubescence on the head and pronotum is quite sparse, especially on the disk. The striae of the elytra are well marked and the intervals are flat, the pubescence (probably rubbed) is somewhat more sparse on the disk than at the sides and apex in the Charles Island specimen, but in the other it is more uniform. The body beneath is similar in

color to the upper surface; closely punctate and with short sparse pubescence. Legs pubescent and slightly paler.

"Described from one specimen collected at Nare, Colombia. I have been unable to find any record of this species being recognized since 1875 when the original description appeared."

Grammophorus galapagoensis Van Dyke, new species

Short, robust, black; the front of head, hind prothoracic angles, antennae and legs ferruginous and sparsely clothed with gray pile. Head feebly convex, densely and rather coarsely punctured, clypeal margin distinct and arcuate; antennae not reaching hind angles of prothorax, first segment elongate, robust and bowed, the second segment small, but little longer than broad, the third about as long as broad and subcylindrical, the fourth to tenth elongate and serrate and gradually shorter towards apex, the eleventh segment fusiform. Prothorax two-fifths longer than broad, very convex, densely coarsely punctured, with but the faintest impression towards base of the median longitudinal impression, the apex feebly emarginate, the sides straight and parallel behind, rounded and slightly convergent in front, the base transverse at middle, the hind angles prominent, triangular and directed backwards, the carinae well marked. Elytra two-fifths longer than broad, convex, humeral area obliquely rounded, sides feebly arcuate and gradually convergent to apex, the striae well impressed and rather coarsely and closely punctured; intervals flat and finely rugose. Beneath densely and coarsely punctured in front, the abdomen more finely punctured, pubescent, the last abdominal segment densely clothed with fulvous pile. Legs moderately long and delicate. The true wings are much reduced in size and nonfunctional. Length 9 mm., breadth 3 mm.

Holotype, supposedly a female, collected on **Duncan Island**, September 17, 1905, by F. X. Williams.

A second specimen of *Grammophorus galapagoensis,* from Indefatigable Island, November 17–19, 1905, F. X. Williams collector, has been found in the Academy duplicates.

This stubby, elliptical-shaped species, because of its size and general appearance can be readily separated from the mainland, fully winged species. It is apparently most closely related to the Chilean *Grammophora minor* Schwarz but lacks the black legs, canaliculate pronotum, and very acute hind prothoracic angles of the latter. While showing marked degenerative modifications as a result of its insular life, *G. galapagoensis* yet retains all of the fundamental generic characteristics.

Coptostethus williamsi Mutchler

Coptostethus williamsi Mutchler, 1925, Zoologica, vol. V, no. 20, pp. 227-228. text fig. 227.

In the collection of the California Academy of Sciences, there is a series of a hundred and nine specimens of this species collected on Abingdon Island, in September 1906, and Bindloe Island, September 16, 1906, by F. X. Williams.

Family **BUPRESTIDAE**

Chrysobothris williamsi Van Dyke, new species

Plate VI, figure 6

Small, moderately convex, smooth and shining, cupreous, the elytra with three transverse bluish green bands placed as follows: on each elytron, a subbasal spot running from near suture to humeral umbone, broad and triangular and in basal depression and not reaching base, suture or lateral margin; a second or submedian band, chevron-like, commencing near the suture, extending backwards to about the middle of the elytron, thence forward toward the humeral umbone; and a third band, placed midway between the submedian band and the apex, rather short and extending from a short carina at the outer side of the suture towards the lateral margin. In addition there is a short longitudinal green line in the apical region, which runs obliquely to the apex. The upper surface is rather densely punctured especially on the pronotum and in the green areas of the elytra. Head with the occiput broad between the eyes and with a fine median longitudinal carina; the front moderately convex above, flattened or feebly concave below and with an irregular transverse carina separating the two areas, rather densely and coarsely punctured, especially beneath the transverse carina, and with short and depressed white pile arising from the punctures; the clypeus broadly, triangularly emarginate in front; the antennae rather short and bronzed, the segments four to ten serrate and of about equal width. The prothorax broader than long, the sides almost straight and parallel, feebly narrowed behind, the disc moderately convex, without median sulcus or callosities and feebly strigose towards base. The elytra about twice as long as wide, with the base of each elytron extending forwards in a triangular manner, with a deep impression to the outer side of the scutellum, a feeble impression at about the middle, the suture carinate apically and a short carina parallel and to the outer side of the sutural and extending from the middle to the apex but diverging in an arcuate manner apically. The front fe-

mora with a prominent tooth, and the tibiae without apical dilatation. Beneath bronzed and shining, the prosternum densely, coarsely punctured, the abdomen rather sparsely punctured at the middle, densely and finely at the sides and finely pubescent, the segments feebly flattened in front, without posterior median sulcus or lateral callosities, the apical segment with a truncate emargination. Length 6 mm., breadth 3 mm.

Holotype male, from **Chatham Island,** February, 1906, collected by F. X. Williams from the hat of a companion.

Besides the holotype, three other specimens have been found, two from Tagus Cove, Albemarle Island, March 17, 1906, and one from Duncan Island, December 1–17, 1905, all collected by F. X. Williams.

This species is rather closely related to *Chrysobothris viridiimpressa* Laporte and Gory from Colombia. It was compared with a specimen in the British Museum of Natural History and found to differ as follows: the clypeus of *C. williamsi* more deeply incised in front, the front less coarsely punctured, the interocular space as broad as width of eyes, narrower than width in *C. viridiimpressa,* the pronotum with punctures more numerous in *C. williamsi,* also the side margin somewhat angulate in front beneath, also uniformly bronzed, whereas there is a shining green area along the entire center and more coarsely punctured surface in general in *C. viridiimpressa.* The last ventral in the male also has a shallow longitudinal sulcus and the apex with a semilunar emargination flanked with two sharp teeth. The elytral markings were also slightly different in two species, *C. viridiimpressa* having the basal green bar very markedly bilobed posteriorly, the median bar almost transverse and with two small spots, one on either side of the suture in front.

Mastogenius galapagoensis Van Dyke, new species

Small, black, smooth, and shining. Head convex, without median impression, sparsely and rather coarsely punctured; antennae short, reaching but little beyond the middle of prothorax, second segment robust, third segment small, fourth elongate, fifth to eighth slightly serrate, the terminal cuneate prothorax wider than long, widest about middle, sides feebly arcuate, apex feebly emarginate and very narrowly margined, base emarginate and distinctly margined; the disc convex and rather coarsely punctured, the punctures well separated. Elytra about two and one-half times as long as prothorax, somewhat narrower, with sides straight and parallel in basal two-thirds, feebly arcuate and convergent to apex; the disc convex, coarsely and deeply

punctured, the punctures well spaced and somewhat larger than on the prothorax, a transverse carina at the base of each elytron and a well marked transverse impression immediately behind and the suture feebly carinate towards base. Pro-, meso-, and metasternum rather coarsely punctured, the abdomen a bit more finely and shallowly punctured; a distinct linear sulcus at the inner margin of the eyes and along the inner margin of the propleurae in which the antennae rest when in repose; and the posterior margin of hind coxal plate sinuate. Length 2 mm., breadth 1 mm.

Holotype, a unique male collected on **Gardner Island** near Hood Island, April 22, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932.

This species is fully as small as our smallest specimens of *Mastogenius subcyaneous* (Leconte), more robust and more coarsely and discretely punctured. Our other species: *M. puncticollis* Schaeffer and *M. robustus* Schaeffer are larger, more parallel and more densely punctured. I have not seen either *M. impressipennis* Fall or any of the South American species but do not believe that it could be one of them.

Mastogenius cuneaticollis Van Dyke, new species

This species is considerably larger than the preceding, the prothorax is decidedly wider than long, widest slightly behind the apex, thence with sides almost straight and somewhat convergent towards the base, the pronotum rather densely punctured and scabrous, the prosternum densely and coarsely punctured, and the body generally more elongate and parallel than in the preceding and also aeneous and shining. Length of holotype, 2 mm., breadth 1 mm.; of paratype, length 4 mm., and breadth 1.5 mm.

Holotype, apparently a female, collected at **Fossil Cove, Indefatigable Island**, December 17–19, 1905, by F. X. Williams. A second specimen which I am placing with the above as a paratype, is considerably larger, otherwise similar, and was collected on James Island, January 5, 1906, by F. X. Williams. This species lacks the well defined sulcus on the propleurae.

Other Buprestidae

In addition to the three species of Buprestidae mentioned above, there are probably others in the Islands. Dr. F. X. Williams states in his notes that he found buprestids actively running on the trunks of a slender-leafed croton, on April 20, 1905, at Tagus Cove, Albemarle Island. It was a hot day and they were very active. Apparently none

was secured. On Duncan Island, on August 14, 1906, an elytron was found in the stomach of a lizard, also several dead croton twigs seemed to show the work of buprestids.

Family **DERMESTIDAE**

Dermestes carnivorus Fabricius

Dermestes carnivorus Fabricius, 1775, Syst. Ent., p. 55.

Dermestes carnivorus Fabricius, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 256.

Dermestes carnivorus Fabricius, Mutchler, 1925, Zoologica, vol. V, no. 20, p. 236.

Dermestes carnivorus Fabricius, Hinton, 1945, Monogr. Beetles Assoc. with Stored Products, British Mus. Nat. Hist., vol. I, pp. 285–287.

One specimen of this species was collected on Chatham Island by the Albatross Expedition of 1891, according to Linell. None was taken since until Mr. F. X. Williams, of the California Academy of Sciences Expedition of 1905–1906, secured a second specimen near Cape Rose, South Albemarle Island, on April 25, 1906, on the carcass of a steer. According to Hinton, the species is found in North and South America, Europe, and India, and according to Fauvel (1889), it is indigenous to America.

Dermestes maculatus De Geer

Dermestes maculatus De Geer, 1774, Mem. Ins., 4, p. 223.

Dermestes vulpinus Fabricius, 1781, Spec. Ins., 1, p. 64.

Dermestes vulpinus of authors, G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 26.

Dermestes vulpinus Fabricius, C. Waterhouse, 1877, Proc. Zoo. Soc., p. 81.

Dermestes vulpinus Fabricius, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, O. 256.

Dermestes vulpinus Fabricius, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Dermestes maculatus De Geer, Lepesme, 1939, Bull. Ent. Soc. France, 44, p. 192.

Dermestes maculatus De Geer, Barber, 1942, Bull. Brooklyn Ent. Soc. XXXVII, p. 176.

Dermestes maculatus De Geer, Hinton, 1945, Monogr. Beetles Assoc. with Stored Products, British Mus. Nat. Hist., vol. I, pp. 261–268.

This species is widely distributed in the Archipelago, to be found on practically all of the islands, especially where cattle have been slaughtered or animals died. The schooner *Academy* which carried the members of the California Academy of Sciences Expedition to and

from the Islands was badly infested with these beetles as the result of carrying a large number of tortoise skeletons on the homeward journey. Charles Darwin was the first to secure specimens from the Islands.

Family **OSTOMIDAE**

Temnochila galapagoensis Mutchler

Temnochila galapagoensis Mutchler, 1938, Am. Mus. Novitates, no. 981, pp. 5–7, fig. 4.

Moderate in size and elongate as usual, rufous with more or less of a greenish bronze color above, head and pronotum somewhat dull, obscurely alutaceous and the elytra shining. Head with median impressed longitudinal line in front and somewhat regularly punctured with moderate sized, shallow punctures which are from two to several times their own diameter apart; antennae rufous. Prothorax one-fifth broader than long, apex a broad lobe, front angles slightly projecting forward, sides irregularly arcuate and somewhat sinuous especially at middle and before base and gradually narrowed posteriorly, the base one-fifth narrower than apex, somewhat arcuate and like the sides and anterior angles distinctly margined; disc moderately convex and with punctures quite coarse medially but finer towards sides, and rather regularly and well spaced as on the head. Elytra almost twice as long as wide and about three times as long as prothorax, emarginate at base, with well defined beadlike basal margin, humeral angles prominent and right angled but rounded at apices, sides subparallel and apex rounded as usual; disc with striae poorly defined and with strial punctures hardly distinguishable from those of the interstriae though the latter are often somewhat smaller and both striae and interstrial series are quite regular in serial arrangement and at the individual punctures somewhat close together. Beneath prosternum sparsely and finely punctured in front, distinctly margined posteriorly, the margin laterally connected with the apices of the epimera; metasternum and first ventral segment minutely and sparsely punctured, the remaining ventral segments more coarsely and densely punctured. Length 15–17 mm., breadth 6 mm.

"Male. Sub-mental area with a somewhat large projecting armature. The fifth and sixth abdominal segments broadly impressed, concave. Female. Sub-mental area smooth, abdominal segments convex." Mutchler.

This somewhat olive green species, I place in Sharp's (1891, p. 393) Group B, in which the prosternum is margined posteriorly and the

margin laterally joins the apices of the epimera. Of the three species included in the group by Sharp, it resembles somewhat both *T. chalcea* Kirsch, and *T. quadricollis* Reitter, the former the most. In these two, the sides of the prothorax are quite parallel and the anterior or humeral angle of the elytra sharply rectangular, whereas in *T. galapagoensis* the sides of the prothorax arcuately diverge forwards and the anterior angles of the elytra are rounded. In *T. chalcea* and *T. quadricollis,* the prothorax is also about as long as broad while in *T. galapagoensis* it is much broader than long. The prosternal punctures in the last are also much finer than in *T. chalcea. Temnochila galapagoensis* is also a much less metallic species, the others being brilliantly metallic.

I have before me, twenty specimens of this species: thirteen from James Island, December 22, 1905, four from Albemarle Island, September 30, 1906, all collected by F. X. Williams, and three from Indefatigable Island, one collected in January 1906, by F. X. Williams and a paratype from the American Museum, collected October 20, 1935, by W. Von Hagen.

Tenebroides sp. ?

A single specimen from Villamil, South Albemarle Island, collected August 20, 1906, by F. X. Williams, which bears some resemblance to the North American *Tenebroides semicylindrica* (Horn) is before me. In the absence of more material, I feel that it is unwise to describe this as new.

Family **NITIDULIDAE**

Stelidota insularis Van Dyke, new species

Small, elliptical, testaceous, with basal portion of head, disc of pronotum and disc of elytra piceous. Head with occiput very finely, sparsely punctured and distinctly separated from the front by a fine, slightly elevated, transverse interocular line, the front more coarsely punctured and finely and sparsely pubescent, clypeus convex and finely punctured, the clypeus and mouthparts castaneous; eyes prominent, antennae castaneous. Prothorax transverse, almost twice as broad as long, with front margin straight and hind margin feebly sinuate, sides gradually arcuate and divergent backwards from the obtuse front angles to about the middle, then almost straight and parallel to base, the hind angles somewhat acute and projecting backwards to a slight degree, the side margin complete and fine; disc with rather large, well separated and but feebly impressed variolate punctures and sparsely and finely pilose, the sides not explanate. Scutellum broad, transversely

impressed near base and finely punctured. Elytra about one-fourth longer than broad, piceous with a broad and irregular testaceous base, the lateral margin testaceous, large, and somewhat elliptical, transverse macules near the summit of the declivity testaceous, the apical area also somewhat testaceous, elsewhere piceous; striae finely, feebly impressed and each, as also the center of the rather broad, flat intervals, with a row of very small, short somewhat inclined and closely placed setae, those of the intervals somewhat the longer, the general surface smooth and shining. Beneath, the legs and sides of body finely pubescent, the punctuation shallow. Hind tibia in males straight. Length 2.5 mm., breadth 1.5 mm.

Holotype and nine paratypes, the holotype and three paratypes collected on **Indefatigable Island**, November 9 and 15, 1905, the others collected on Chatham Island in February 1906, all by F. X. Williams.

This species seems to be distinct from all described species, being perhaps closest to the Central American *Stelidota championi* Sharp. Its distinctive characteristics are its color pattern, type of pronotal sculpturing, sides of prothorax less flattened behind than in *S. championi* and other Central American species, nonexplanate side margins of prothorax and straight hind tibiae in males.

Haptonchus luteolus (Erichson)

Epuraea luteola Erichson, 1843, *in* Germar Zeitschr. f. d. Ent., IV, p. 272. The extensive bibliography is not introduced.

Five specimens were found in the collection: four from Banks Bay, Albemarle Island, April 10–17, 1906, and one from Villamil, Albemarle Island, August 20, 1906, all collected by F. X. Williams. Inasmuch as settlements were in the neighborhood, it is probable that this common cosmopolitan species was introduced.

Family **CUCUJIDAE**

Silvanus tropicalis Van Dyke, new species

Small, elongate, subparallel, head and prothorax rufotestaceous, rest of body castaneous. Head evenly convex, coarsely cribrately punctured, each puncture with a minute and backwardly inclined seta; eyes coarsely granular and prominent; antennae of moderate length, reaching about middle of prothorax and suddenly clavate, segments four to seven slightly longer than wide and of about equal length, eighth triangular and feebly transverse; segments of club transverse, the tenth

barely twice as wide as long; all segments well separated. Prothorax about one-fourth longer than broad, apex arcuate, base constricted and lobed, apical angles in the form of small lobes transversely projecting and with margins minutely serrate; disc moderately convex, impressed towards base, and coarsely, cribrately punctured and with minute, inclined setae as on head. Elytra about twice as long as wide with rounded humeri, sides subparallel and evenly rounded to apex; disc moderately convex, with striae regular, hardly impressed but with coarse, closely placed punctures, intervals flat, each with a row of minute, inclined setae. Beneath coarsely, shallowly punctured throughout and finely, somewhat sparsely pubescent. Length 2.75 mm., breadth 1 mm.

Holotype and three paratypes from **Indefatigable Island,** collected July 20–24, 1906, by F. X. Williams.

This species has been carefully checked with all the species in the collection of the British Museum of Natural History and with the literature and seems to differ from all known species. It is near *S. bidentatus* and its relatives but differs by having the anterior prothoracic angles in the form of rounded, transverse tubercles or lobes, not acute spines obliquely or forwardly projecting; and by having the sides of the prothorax serrate, a character seemingly lacking in all other species.

Family **MONOTOMIDAE**

Bactridium insularis Van Dyke, new species

Small, narrow and elongate; rufopiceous, with antennae, legs, base, and sides of elytra testaceous. Head moderately convex, regularly, sparsely punctured; eyes rather coarsely granular and somewhat prominent; antennae reaching to base of head and with club of three segments abruptly formed. Prothorax about as long as wide, apex and base truncate, sides straight and feebly converging posteriorly to obtuse hind angles thence oblique to base; disc regularly and sparsely punctured except for median longitudinal area. Scutellum smooth. Elytra about two and a half times as long as broad and twice as long as prothorax, with sides slightly flaring at middle and apex truncate; disc flat with striae not defined but strial punctures coarse, close together, and regularly arranged in rows. Beneath rather coarsely, sparsely punctured in front, more finely and closely on abdomen. Length 2 mm., breadth .6 mm.

Holotype and one paratype, collected on **Indefatigable Island,** November 9–15, 1905, by F. X. Williams.

This species seems to be closest to *B. adustum* Reitter but has a proportionally longer and narrower prothorax. It is in fact a much more delicate species, generally narrower and more elongate. than any of the other species.

Family **COLYDIIDAE**

Bitoma exarata (Pascoe)

Coniophaea exarata Pascoe, 1866, Jour. Ent. II, p. 91, t. 5, fig. 8.

Bitoma exarata (Pascoe), Sharp, Sept. 1891, Biol. Centr.-Amer. Coleopt., Vol. II, Pt. 1, P. 458, t. 14, fig. 19.

Fifteen specimens of what I consider to be the above-mentioned species were collected at Villamil, South Albemarle Island, August 20, 1906, by F. X. Williams. It was first described as collected by Bates in the Amazon Valley, and later listed by Sharp as having been taken in Guatemala by Champion. The specimens agree with Sharp's description. However, they differ from his illustration in several ways. There are short, broad groups of scales (instead of elongate, parallel-sided groups) along the elytral costae; the pronotal costae are sharp, with a line of single golden hairs along the crest, but are not surmounted by rounded groups of scales.

Although Sharp saw the dorsum of Pascoe's type, he did not remount it, and presumed Pascoe to have described the ventral surface erroneously. Pascoe's type was from Ega (now Tefé), Brazil, across the Andes from and some 1050 miles east of Guayaquil, Ecuador. He described the underside as "rugosely punctured, the abdominal segments with a row of longitudinal elevated lines at the base," and the first abdominal segment as longer than usual in the group. None of these statements fit the beetles from Villamil.

Family **LANGURIIDAE**

Comptocarpus longicollis Motschulsky

Comptocarpus longicollis Motschulsky, Schrenk' Reisen Annurl., II (2), p. 244.

Comptocarpus longicollis Motschulsky, Gorham, 1887, Biol. Centr.-Amer. Col. VII, p. 6, pl. i, figs. 1–2.

Comptocarpus longicollis Motschulsky, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 476.

This Central and South American species is mentioned by Blair, as from Chatham Island, one example, and as stated by him, "(perhaps introduced)."

Family **COCCINELLIDAE**

Scymnus galapagoensis G. R. Waterhouse

Scymnus galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 41.

Scymnus galapagoensis Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 256.

Scymnus galapagoensis Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Scymnus galapagoensis G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 476.

Dr. Blair in 1933, lists three examples from Narborough Island, beaten from mangroves (Collenette), and the California Academy of Sciences has one specimen collected on Indefatigable Island, October 25–28, 1905, by F. X. Williams.

Cycloneda sanguinea (Linnaeus)

Numerous specimens of this widely distributed species have been collected in the Islands by various expeditions. Mutchler mentions eight collected by the Templeton Crocker Expedition on Indefatigable Island. The California Academy of Sciences has specimens collected on Charles Island, Clarion Island, and Tower Island.

Olla abdominalis (Say)

Eight specimens of this common North American species were mentioned by Mutchler as having been collected by Dr. Wolfgang von Hagen on Indefatigable Island, "ecological Zone C," November 5, 1935.

Adalia galapagoensis Van Dyke, new species

Hemispherical, head and pronotum in greater part and entire undersurface black, the elytra testaceous with various black spots and lines, and the tibiae and tarsi rufous. Head with a median triangular black area, widest in front, flanked by testaceous lines, the clypeus also testaceous. Pronotum with an irregular, somewhat hour-glass-shaped median black area, widest at base, and a large round black, eyelike spot at the center of the pallid sides, the surface finely, rather densely but discretely punctured and minutely alutaceous. The elytra testaceous with the suture very finely margined with black, a black spot near the base, another behind and a bit to the outside of it, one or more irregular black marks near the suture at about the middle and an irregular black line laterally, the surface finely and rather densely

punctured and also vaguely alutaceous and shining. The femora in great part piceous and the epipleurae entirely testaceous. Length 4 mm., breadth 3.25 mm.

Holotype and twenty-one paratypes, collected on **Charles Island,** at 1000-foot altitude, May 15, 1906, by F. X. Williams; one other specimen from Albemarle Island, 500-foot altitude, collected by J. R. Slevin was also taken.

The markings vary considerably. I have selected as the holotype a specimen which has what I consider as the normal markings. The head may be entirely testaceous, the median black pronotal area may not reach the front margin but divide in a V-like manner or even unite with the eyelike spots at the side, and the elytral markings may be entirely absent or enlarged and connected with each other.

This insect does not seem to agree with any species mentioned by Gorham in the Biologia Centrali-Americana nor with *Adalia deficiens* Mulsant, the only other South American species, a species listed as from Chile and Montevideo.

Psyllobora bisigma Van Dyke, new species

Small, testaceous, the mesosternum black and the upper surface ornamented with black markings as follows: the pronotum with a pair of spots at about the center and two spots slightly posterior and more widely separated; and the elytra with a black humeral spot, four elongated spots near the suture, two a little back of the scutellum and two closer together and back of these, these often united to form two elongated patches, one on either side of the suture, and two obliquely placed S-shaped blotches, on the posterior portion of each elytron, the paired markings on each side often united. The elytra rather densely punctured and alutaceous and the pronotum more finely, sparsely and shallowly punctured. Length 2 mm., breadth 1.5 mm.

Holotype and nineteen paratypes collected on **Abemarle Island,** 600-foot altitude in August 1906, by F. X. Williams. There is a slight variation in size in the series and some slight modification in the markings, but the general pattern is fairly stable. They were all collected in the yellow flowers of a leguminous plant.

Family **ALLECULIDAE**

But four species of this family have been reported from the Galapagos Islands. One of these, *Cteisa pedinoides* Mäklin, I believe was really collected at Panama and mixed with the specimens taken in the

Islands, as was evidently the case with a number of other truly Central and South American species listed by Blair as collected by the St. George Expedition of 1924.

Lobopoda galapagoensis Linell

Allecula? Howard, 1889, Proc. U. S. Nat. Mus., XII, p. 191.

Lobopoda galapagoensis Linell, 1898, Proc. M. S. Nat. Mus., XXI, p. 266.

Lobopoda galapagoensis Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Lobopoda galapagoensis Linell, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, 1, p. 680.

The California Academy of Sciences has twenty-three specimens collected on Charles Island, at 1000-foot altitude, May 15 and 26, 1906, by F. X. Williams.

Allecula galapagoensis Van Dyke, new species

Of moderate size, graceful in form, with long and delicate antennae and legs, rufopiceous, antennae and legs testaceous, glabrous except for sparse and fulvous pile on labrum, antennae, legs and last ventral segment. Head moderately finely and densely punctured, strongly and transversely impressed behind eyes and to a lesser degree at fronto-clypeal union, front flattened, clypeus transverse and distinctly separated in front and behind by well defined sutures, prominent supra-antennal ridges which are quite smooth near eyes, the labrum rather densely pilose; eyes large and prominent, reniform, coarsely faceted, and separated above by a breadth equal to that of the clypeus; antennae filiform, about reaching middle of elytra, segments 3–11 elongate, the third and fourth segments subequal and about four times as long as broad, the following gradually shorter, and the last four a bit more robust and feebly clavate. Prothorax about a fifth broader than long, apex truncate, base slightly lobed, both with well defined yet narrow margins, sides rather widely arcuate but narrowed towards apex; disc very convex, rapidly declivous laterally, densely punctured, and with a very vague median longitudinal impression. Scutellum semilunar, alutaceous, and finely, vaguely punctured. Elytra almost twice as long as broad and about three times as long as prothorax, broadly ovate, sides sinuate before middle, and broadly arcuate from a little in front of middle to apex; disc very convex, all striae finely but well impressed, the scutellar reaching halfway to middle, strial punctures coarse and well impressed in basal half and much finer on apical half, the intervals quite convex, especially near base and at sides and with very shallow and vague punctures irregularly disposed. Beneath rather coarsely

punctured and rugose in front and alutaceous and very finely punctured behind. The true wings are somewhat reduced in size, therefore not functional. Length 9.5 mm., breadth 4 mm.

Holotype female and three paratypes, the first collected on **Indefatigable Island,** in November, 1905, by F. X. Williams, the others on James Island, in December, 1905, also by F. X. Williams.

This species is in perfect accord with the generic description as defined by Champion in the "Biologia Centrali-Americana," and very distinct from any species mentioned by him or noted in the large British Museum of Natural History collection of the literature. It is apparently a more graceful species than usual, with the elytra more narrowed in front and generally cordate, because no doubt of the partial reduction in the size of the wings and resulting atrophy of the supporting structures.

Allecula insularis Van Dyke, new species

Rather small, somewhat elongate, brown, elytra somewhat rufous; head, prothorax and underside very finely, sparsely pilose; the elytra clothed with coarser and denser fulvous pile. Head coarsely densely punctured, front flattened, a transverse impression in front of eyes; supra-antennal ridge prominent; eyes reniform, prominent and coarsely faceted and separated above by a width equal to the breadth of the clypeus; antennae filiform (broken). Prothorax almost one-third broader than long, apex transverse, base very feebly arcuate and about a third wider than apex, both base and apex finely margined, sides almost straight and parallel at basal half, evenly arcuate and convergent forwards to apex; disc moderately convex, gradually declivous laterally, and rather coarsely and densely punctured. Elytra twice as long as broad and almost four times as long as prothorax, base a fourth wider than prothorax, sides almost straight and parallel from humeri to posterior third, thence arcuate and convergent to apex; disc moderately convex, striae finely impressed and finely and closely punctured, the punctures much finer on apical half, intervals feebly convex, alutaceous, finely and irregularly punctured with fine semierect fulvous hairs arising from them. Beneath coarsely punctured and rugose in front, alutaceous and finely and sparsely punctured behind. Legs of moderate length. Apparently fully winged. Length 6 mm., breadth 2.25 mm.

Holotype, collected on **Indefatigable Island,** May 7, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932. Three

other specimens collected on Albemarle Island, two on April 24–27, 1906, and one on Cowley Mt., August 9–13, 1906, by F. X. Williams, have been associated with the type.

Cteisa pedinoides Mäklin

Cteisa pedinoides (Dejean) Mäklin, Act. Soc. Fenn., X, p. 681.

Cteisa pedinoides Mäklin, Champion, 1888, Biol. Centr.-Amer. Zoo. Insecta. IV, 1, p. 465, pl. XXI, fig. 13.

Cteisa pedinoides Mäklin, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 481.

One specimen recorded by Blair as from Chatham Island. This was supposedly collected by the St. George Expedition of 1924, but as above stated I believe that it was really taken on the mainland and mixed with island specimens.

Family **TENEBRIONIDAE**

The family Tenebrionidae is well represented in the Islands. Two of the larger genera, *Stomion* Waterhouse and *Pedonoeces* Waterhouse, are confined to them, and a third genus, *Ammophorus* Gúerin-Méneville, has the greater number of its species restricted to them, the others including one from Panama, several from the west coast of South America, and one from the Island of Oahu of the Hawaiian Islands, undoubtedly introduced within historic times. These three genera with species on practically every one of the islands, and mostly distinct and often showing a great deal of variation, have presented us with one of the most interesting groups for the study of such problems as variation, evolution and isolation; other genera with a limited number of species are also represented, including several more or less cosmopolitan.

Genus **Stomion** G. R. Waterhouse

Stomion G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 27–29.

The genus *Stomion* is now considered to belong to the subfamily Tentyriinae and the tribe Eurymetopini, the greater proportion of the members of the latter being Californian.

At the time G. R. Waterhouse established the genus, he described three species: *S. galapagoensis*, *S. helopoides*, and *S. laevigatum*, the first of which should be considered as the genotype. In 1898, Linell described three more: *S. carinatipenne*, *S. piceum*, and *S. bauri*. The first two have been considered by Blair as but synonyms or at most

slight variants of *S. galapagoensis,* he having paratypes in his hands to compare with Waterhouse's types. Linell's *S. bauri,* placed questionably as a synonym of *S. laevigatum* Waterhouse by Blair, I am inclined to believe is without doubt such. Specimens from Albemarle Island, the type locality for *S. bauri,* cannot be separated from typical specimens of *S. laevigatum* from James Island, compared with the type in the British Museum of Natural History. What Linell took to be *S. laevigatum* was described by Blair as *S. linelli,* being quite different in structure though superficially resembling the former.

In the museum of the California Academy of Sciences which contains the large series collected by the Academy's Expedition of 1905-06 as well as that secured by the Templeton Crocker Expedition of 1932, representatives of all described species are present. Selected specimens of these I have compared, with the assistance of Dr. Blair, with the types in the British Museum of Natural History, during 1932 and 1933. In addition to the above, there are specimens of five other species, two the most divergent of the genus and the others forming a more or less related group somewhat similar to *S. galapagoensis.* These will be described in the following pages.

When the species are considered in relation to their distribution, certain very interesting and significant facts are brought out. The two most divergent species: *S. rugosum* and *S. longicornis* are found, the first on Abingdon and Bindloe, two moderate-sized and closely associated islands, to the north of the main group; and the second, on Hood Island, the most southeastern of the group. The first is a lone tenant as far as the genus goes, of the island, but *S. galapagoensis* is to be found in association with *S. longicornis.* The somewhat elongate group with pronounced sulcate elytra including *S. cribricollis, S. obesum,* and *S. longulum,* has the first species restricted to Wenman and Culpepper, two small islands somewhat isolated and to the northwest of the main group; the second species confined to Duncan and Brattle islands, two minor islands situated in the channel between the large island of Indefatigable and the southern part of Albemarle; while the last is to be found on both these large islands. *Stomion helopoides* has been found on Chatham Island as well as on the small island of Tower, far to the north of it, Barrington, somewhat to the west and Gardner, near Charles, to the southwest of it, in what might be called, an eastern group of islands. The best known species, *S. galapagoensis,* is found on Chatham, Hood, and Charles as well as on the small islands of Champion near Charles, and Gardner, also near Charles, a southern group. Of the two species of the smooth group, *S. laevigatum* is found on James Island, on the northern part of Albe-

marle as well as on Cowley Island, a very small island near the eastern coast of the above, a north central location; while *S. linelli* is restricted to Indefatigable and the small islands of South Seymour close to its northeastern extremity, a central location. Other peculiarities will be mentioned while discussing the individual species.

Stomion galapagoensis G. R. Waterhouse

Plate III, figure 1

Stomion galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., pp. 29–30.

Stomion galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, pp. 79 and 82.

Stomion galapagoensis G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 77, p. 192.

Stomion galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 262.

Stomion galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, pp. 228, 236.

Stomion galapagoensis G. R. Waterhouse, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, 1, p. 672.

Stomion galapagoensis G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, pp. 477–478.

Stomion carinipenne Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 262.

Stomion carinipenne Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Stomion carinatipenne Linell, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 477.

Stomion piceum Linell, 1898, Proc. U. S. Nat. Mus., XXI, No. 1143, pp. 262–263.

Stomion piceum Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Stomion piceum Linell, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 477.

Large, robust, dull black, antennae, legs and undersurface varying from rufopiceous to piceous. Head broad, flattened or shallowly excavated in front, coarsely and rather closely punctured, the arcuate impression at sides of clypeus well marked; antennae almost reaching hind angles of prothorax, third segment long, almost as long as fourth and fifth together; intermediate segments hardly more than twice as long as broad, the three terminal segments forming a loose club, triangular and longer than broad. Prothorax transverse, over a fourth broader than long, base bisinuate with broad median lobe, apex deeply emarginate, generally broadest at base and with sides arcuate and gradually convergent forwards, the hind angles rectangular and the front angles somewhat acute and prominent, lateral and basal margins fine and complete, extending to sides of front; disc evenly convex,

rather coarsely and somewhat closely punctured, the punctures, however, well spaced and generally finer towards sides and base. Scutellum small and transverse. Elytra one-fourth longer than broad, slightly wider at base than prothorax, broadest at middle, humeri subangular, sides evenly and moderately arcuate from base to beyond middle then rather abruptly oblique and convergent to apex; disc very convex, the general surface otherwise variable though always with the intervals more or less convex or even carinate, the intervals also generally much broader than striae or sulci, the striae well impressed and with coarse, rounded, well-spaced punctures regularly arranged, the intervals finely and often obscurely punctured, the punctures generally in an irregular double series. Beneath with all thoracic sclerites very coarsely, somewhat variolately punctured, the abdomen finely and sparsely punctured. Legs rather long and more or less coarsely, closely punctured. Length 9–11 mm., breadth 4.5–6 mm.

This species has been previously reported from most of the southeastern islands such as Charles (Linell and Blair), Chatham (Linell, Mutchler, Blair), and South Seymour (Mutchler). The California Academy of Sciences has numerous specimens from Charles and Chatham as well as from Hood and the small islands, Champion and Gardner, near Charles. It is apparently quite common and likewise very variable. The usual form such as is generally to be found on Charles and Chatham is piceous or rufopiceous in color, with the elytral intervals moderately convex and the striae and the strial punctures well impressed. *Stomion piceum* Linell is merely a phase with the intervals less convex and *S. carinipenne* Linell, one with them feebly carinate. Both of these were placed as synonyms of *S. galapagoensis* by Blair (1933) and properly so. The specimens from Gardner and Champion islands have the elytral intervals more convex than usual while those from Hood Island are the most divergent of all, having the pronotal punctures somewhat coarser and the elytral intervals decidedly carinate, especially posteriorly. This last approaches the following, a peculiar form resident in the northeastern part of Hood, so distinct in many ways that I am going to describe it as a subspecies. It may even prove to be a good species.

Stomion galapagoensis punctipennis Van Dyke, new subspecies

Similar in size and general form to *S. galapagoensis* especially to the more carinate phase which is to be found on Hood Island. Its distinctive features are that it is more shining, its prothorax slightly narrower at the base, therefore widest a short distance in front of base,

the pronotum more coarsely and closely punctured, in places almost cribrate, the elytra with the strial punctures very coarse and sharply impressed, the intervals carinate behind but almost flattened in front, and quite coarsely irregularly punctured, the punctures being sharply impressed and but slightly smaller in size than those of the pronotum; the undersurface also more distinctly punctured than the usual specimens of *S. galapagoensis*.

Holotype and paratypes from a small series of specimens collected on the northeastern part of **Hood Island**, during February, 1906, by F. X. Williams.

The characters that seem to isolate this form are the narrowed prothorax and strong punctuation of pronotum and elytral intervals. If it were not for the fact that some of the more typical examples of *S. galapagoensis* approached it in this last regard, I would consider it to be a very distinct species. It is easily recognized.

Stomion helopoides G. R. Waterhouse

Plate III, figure 2

Stomion helopoides G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 30.

Stomion helopoides G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Stomion helopoides G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 77, p. 192.

Stomion helopoides G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 263.

Stomion helopoides G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Stomion helopoides G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 477–478.

Medium sized, robust, black to rufopiceous, legs, antennae and undersurface rufous. Head broad, feebly excavated in front; coarsely, closely, somewhat cribrately punctured, with shallow fovea on front and the arcuate impressions at sides of clypeus very distinct; antennae extending slightly behind middle of prothorax, the segments about as in preceding species. Prothorax three-eighths broader than long, base bisinuate, median lobe feeble, apex moderately emarginate, widest slightly behind middle and with sides evenly rounded though more convergent in front, hind angles obtuse and front angles right angled, the marginal bead as in preceding species; disc evenly convex and moderately coarsely, somewhat closely punctured, the general surface minutely alutaceous. Scutellum small and transverse. Elytra two-sevenths longer than broad, wider at base than base of prothorax,

humeri obtusely rounded, sides gradually arcuate and narrowed to apex; disc very convex, the strial punctures large and regularly arranged but striae vaguely impressed at most, intervals flat or feebly convex and with an irregular double row of moderate-sized punctures, about one-half size of strial punctures. Beneath with prosternum and meso- and metathoracic sclerites coarsely and sparsely punctured, the propleurae vaguely punctured, and the abdomen finely and sparsely punctured. Legs moderately long and more or less coarsely punctured as usual. Length 8.5–9 mm., breadth 4–4.75 mm.

The locality for the Darwin specimens was not given. The specimens in the California Academy of Sciences were collected on Chatham, Charles, Hood, Tower, and Gardner near Charles. A Chatham Island specimen, compared with the type, agrees with it in every regard. The Tower and Gardner specimens are slightly divergent. The main characteristic features of this species are its rather even contour with punctuation very distinct, both of striae and intervals as well as pronotum. As indicated in the original description and in its name, it bears a great resemblance to certain species of *Helops*. Along the southern California coast and on the adjacent islands, there are a number of small, robust, sand dune inhabiting species of *Helops* such as *H. bachei* Le Conte, *H. blaisdelli* Casey, and so forth, which closely resemble this beetle.

Stomion obesum Van Dyke, new species

Moderate in size, stocky, very convex, dull black or piceous, with antennae, legs, and undersurface rufopiceous. Head broad, slightly concave in front; coarsely, closely and somewhat strigosely punctured, the arcuate impression at sides of clypeus distinct; antennae not quite reaching hind angles of prothorax and with segments about as in preceding species. Prothorax a third wider than long, base bisinuate with median lobe distinct, apex shallowly emarginate, broadest at base in typical forms or behind middle in variants, sides rather evenly arcuate and gradually convergent from base to apex, sometimes feebly sinuate in front of apical angles, basal angles right and apical angles somewhat acute and projecting, the marginal bead as usual; disc very convex, suddenly declivous to basal margin, minutely alutaceous and rather coarsely and closely punctured over entire surface, in places somewhat aciculate. Scutellum small and transverse. Elytra a third longer than broad, widest at middle, slightly broader at base than prothorax, sides evenly arcuate to beyond middle thence almost straight and convergent to rather acute apex; disc very convex, striae well impressed, rather finely and regularly punctured, intervals subcarinate throughout in

typical specimens, but feebly subcarinate and even only convex behind in divergent forms and very finely, irregularly yet distinctly punctured. Beneath, thoracic sclerites coarsely punctured, the abdomen much more finely and sparsely punctured in front, more closely behind. Legs of moderate length and rather coarsely punctured. Length 8 mm., breadth 4.25 mm.

Holotype and two paratypes from **Duncan Island,** collected June 14–15, 1906, by F. X. Williams. With this species, I have associated as weak varieties seven specimens from Brattle Island, collected October 30, 1905, by F. X. Williams and a small series from Barrington Island, collected October 19–24, 1905, also by F. X. Williams. The specimens from Brattle Island have the pronotal punctures somewhat finer and the elytral intervals less carinate in front; and the Barrington specimens have the intervals much broader and more evenly convex, almost flat in front, and the body as a whole noticeably broader.

This species is in general smaller than the smallest *S. galapagoensis* but with both prothorax and elytra much more convex. The dull and somewhat sericeous appearance and gibbous prothorax most readily separate this species.

Stomion cribricollis Van Dyke, new species

Plate III, figure 3

Elongate elliptical, moderate in size, dull black above or with forebody feebly shining, underside rufopiceous and antennae and legs bright red. Head rather broad; coarsely, closely, cribrately punctured; flattened or feebly concave in front and with arcuate impressions at sides of clypeus well marked; antennae almost reaching hind angles of prothorax and with segmental proportions as usual. Prothorax subquadrate, only about one-seventh broader than long, base bisinuate with the median lobe moderate in size, apex slightly emarginate, hind angles right angled, front angles acute, sides slightly arcuate in basal half or even sinuate before hind angles and a bit more rounded and slightly convergent forwards, the marginal bead as usual, disc moderately convex and coarsely and closely as well as more or less cribrately punctured. Scutellum very small and transverse. Elytra about a third longer than broad, slightly broader at base than prothorax, sides rather evenly arcuate to beyond middle, thence suddenly convergent to acute apex; disc very convex, striae deeply impressed forming sulci, finely and regularly punctured, intervals carinate, more narrowly and sharply so on declivity with exception of sutural which are flattened, more or less transversely rugose and

feebly interrupted, and irregularly punctured with minute setae arising from the punctures. Beneath, the thoracic sclerites coarsely and in most cases closely punctured, the abdomen finely and sparsely punctured in front and more coarsely and closely on last two segments. Legs rather delicate and finely and sparsely punctured. Length 8 mm., breadth 4 mm.

Holotype male, allotype female and numerous designated paratypes from a series of twenty-nine specimens collected on **Wenman Island,** September 24, 1906, by F. X. Williams. There is also a series of twenty specimens collected on the adjacent Culpepper Island, September 25, 1906, by F. X. Williams, which do not differ in any appreciable manner from the preceding hence are associated with them.

The species stands out from its fellows because of its narrow, elongate body with sharply pointed elytra; dull, opaque appearance; coarse, cribrately punctured pronotum; carinate and finely punctured elytra; and clear red legs. Though it should be associated with *S. obesum* and *S. longulum* because of its general facies and carinate elytra, its other characters mark it as a most distinct species.

Stomion longulum Van Dyke, new species

Plate III, figure 4

Elongate, subcylindrical, feebly shining, black with antennae and legs and also undersurface generally more or less rufopiceous. Head broad, flattened, or feebly concave in front; coarsely, rather closely punctured and with arcuate impressions at sides of clypeus but moderately well defined; the antennae reaching but little behind middle of prothorax. Prothorax about one-sixth broader than long, widest at middle, base bisinuate with median lobe moderately well defined, apex slightly and evenly emarginate, sides rather evenly arcuate, slightly more narrowed in front than behind; disc evenly convex, distinctly but not coarsely and rather closely punctured, the surface minutely alutaceous, the marginal bead sharply defined at base, elsewhere as usual. Elytra three-tenths longer than broad, very slightly broader at base than base of prothorax, sides feebly and evenly arcuate to beyond the middle, thence convergent to apex; disc moderately convex, striae deeply impressed forming sulci, strial punctures obsolete, intervals very convex, subcarinate and narrowed behind and with punctures very fine or more or less obsolete. Beneath very coarsely and closely punctured in front, finely and sparsely behind. Legs of moderate length and rather coarsely punctured. Length 8 mm., breadth 3.5 mm.

Holotype and nine paratypes, collected on **Indefatigable Island,** May 5–7, 1932, by M. Willow, Jr., of the Templeton Crocker Expedition of 1932, and on October 25–28, 1905, by F. X. Williams. I have also associated with the above a series of over a hundred specimens collected near Villamil, Albemarle Island, March 4–14, 1906, by F. X. Williams, which are not appreciably different from them.

This species is one of the smallest of the genus and proportionally the narrowest and most elongate. It belongs in association with *S. cribricollis* and *S. obesum* but differs by having in addition to the above-mentioned features, much finer pronotal punctures and a practical absence of elytral punctuation. In this last regard, it simulates *S. laevigatum* and *S. linelli* but differs greatly by having the elytra sulcate. From *S. bauri* Linell which is also to be found on Albemarle Island and which both Blair and I have suppressed as a synonym of *S. laevigatum*, it differs by its marked sulcate and subcarinate elytra, practically smooth in *S. laevigatum*. The California Academy of Sciences has specimens of both *S. laevigatum* and *S. longulum* from Albemarle Island.

Stomion laevigatum G. R. Waterhouse

Plate III, figure 5

Stomion laevigatum G. R. Waterhouse, 1845, Ann. Nat. Hist., p. 30.

Stomion laevigatum G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Stomion laevigatum G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, pp. 228, 236.

Stomion laevigatum G. R. Waterhouse, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, 1, p. 672.

Stomion laevigatum G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, pp. 477–478.

Stomion bauri Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 263.

Stomion bauri Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Stomion bauri Linell, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 477.

Rather small, black, feebly shining, antennae legs and undersurface rufopiceous. Head broad, feebly excavated in front, rather coarsely and somewhat closely punctured on front, more finely and closely along front margin, impressions at sides of clypeus well marked, general surface alutaceous; antennae extending to posterior third of prothorax. Prothorax one-third broader than long, widest at middle, base bisinuate and with median lobe broad but feeble, apex distinctly emarginate, sides feebly arcuate from base to beyond middle and thence almost straight and convergent to apex, hind angles right angled, front acute

and prominent; disc convex, rather dull, minutely alutaceous and very finely and somewhat indistinctly as well as sparsely punctured, the marginal bead well marked. Scutellum small and transverse. Elytra over a fifth longer than broad, subcordate, widest at posterior third, humeral angles prominent but blunt, sides feebly arcuate and gradually wider to posterior third, then convergent to acute apex; disc moderately convex, almost smooth, the striae being but obscurely impressed, the strial punctures very fine, sometimes imperceptible, and the intervals in general but vaguely elevated though sometimes feebly convex posteriorly. Beneath coarsely, closely punctured in front, minutely punctured behind or impunctate except on last segment. Legs somewhat coarsely punctured. Length 6–8 mm., breadth 3–4 mm.

The locality for the type was not given by G. R. Waterhouse. Blair, however, cites Charles and James Islands. Linell described *S. bauri* as from Albemarle Island. The California Academy of Sciences has specimens from James Island, several of which were compared with the type and found to agree absolutely, from Cowley Island near Albemarle and from Tagus Cove, Albemarle Island. The James Island specimens were collected from December 21, 1905, to January 5, 1906, the Cowley Island, August 9–13, 1906, and the Tagus Cove specimens, April 1906, all by F. X. Williams. In addition M. Willows, Jr., of the Templeton Crocker Expedition collected specimens at Tagus Cove, May 25, 1932. In all we have a series of over twenty specimens.

This species was misunderstood by Linell. As explained by Blair, it was thought to be undescribed and so called *S. bauri,* and the other smooth species considered to be *S. laevigatum.* The latter was later described by Blair as *S. linelli.* The two species are both quite smooth, standing out distinctly as a result from the other members of the genus, but each is distinct from the other as shown by Blair, by the proportions of the body.

Stomion linelli Blair

Plate III, figure 6

Stomion linelli Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 478.
Stomion laevigatum Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 263.

Of moderate size, robust, black, feebly shining; antennae, legs and undersurface somewhat rufo-piceous. Head broad, feebly excavated in front; coarsely, rather closely punctured; impressions at sides of clypeus well defined; antennae about reaching posterior third of prothorax. Prothorax slightly over one-third wider than long, broadest at base, base bisinuate, median lobe broad and conspicuous, apex broadly

emarginate, sides feebly and evenly arcuate from base and gradually convergent forwards, sometimes feebly sinuate just before apex, hind angles right angled or feebly obtuse, front angles acute and prominent, disc very convex, finely and closely punctured, minutely alutaceous and with marginal bead as usual. Scutellum small and transverse. Elytra one-fifth longer than broad, ovate, widest behind middle, sides evenly arcuate to posterior third thence rapidly convergent to apex; disc very convex, striae and strial punctures vaguely impressed, intervals flat and minutely and vaguely punctured at most. Beneath coarsely, closely punctured in front but with punctures less sharply defined than usual, behind finely and sparsely punctured. Legs rather coarsely punctured. Length 7–8 mm., breadth 4–4.5 mm.

This species is listed by Blair as follows: "Eden Id., 3 ex. (Bateson); Indefatigable Id., 3 ex. (Collenette); Tower Is. (1 ex. det. by Linell [corrected by Blair to Mutchler] as *laevigatum* Waterh.). Also in the California Academy Collection." The California Academy of Sciences specimens were collected on S. Seymour Island, 2 specimens, November 22, 1905, by F. X. Williams and on Indefatigable Island, November 17–19, 1905, by F. X. Williams. On the latter island a series of over forty specimens was collected. One of these Blair has designated as a *paratype*.

This species is somewhat smooth like *S. laevigatum* and could only be confused with that species as it was by Linell. As stated by Blair, it "resembles *S. laevigatum* in sculpture but of much broader build, widening gradually from in front to the posterior third of the elytra. In *laevigatum* the thorax is but little wider at the base than at the apex, and the elytra widest about the middle, giving the insect a more elongate, subparallel form rather than the ovate form of *linelli*." This species is in shape also much like *S. obesum* but lacks the dull appearance and sulcate elytra.

Stomion longicornis Van Dyke, new species

Plate III, figure 7

Large, robust, smooth and shining, minutely and sparsely pilose especially on head; elytral declivity and undersurface black with antennae, legs and undersurface rufopiceous; the antennae and legs long and delicate. Head broad, broadly excavated in front, sparsely pilose, rather coarsely and closely and also more or less aciculately punctured, the arcuate impressions at sides of clypeus broad; antennae long and delicate, extending to hind margins of prothorax. Prothorax fully a third broader than long, widest at middle, base slightly bisinuate with median lobe broad though feebly developed,

apex evenly arcuate, sides evenly arcuate from base to apex but more narrowed anteriorly, hind angles slightly obtuse, front angles fairly acute; disc moderately convex, rather coarsely and closely and also more or less aciculately punctured, very shining and very sparsely pilose in front, marginal bead as usual. Scutellum small and semilunar in shape. Elytra one-fifth longer than broad, widest at middle, sides strongly arcuate, suddenly convergent to apex; disc very convex, striae feebly impressed but with rather coarse and closely placed as well as very distinctly impressed strial punctures; intervals broad, flat or feebly convex at most, minutely and irregularly punctured, each interstrial puncture with a short and very fine hair arising from it. Beneath very coarsely and closely and also shallowly punctured in front, rather finely and sparsely punctured on abdomen, and minutely and sparsely pilose. Legs long and delicate, rather finely punctured, the femora with pronounced lobes at the apex beneath. Length 8 mm., breadth 4 mm.

Holotype male and several designated paratypes from a series of fourteen specimens collected on **Hood Island,** February, 1906, by F. X. Williams. Some of the specimens are much larger than the type.

This species is one of the most divergent of the species of *Stomion,* its long antennae and legs, robust body, large and transverse prothorax, very shining surface, and distinctive type of sculpturing readily separate it. The strigose punctuation of the pronotum is pronounced and the lobes at the outer part of the femora are more prominent than in any other species. It is in general appearance more like some of the genera of the Helopini than like its own relatives. Its characters are, however, those of *Stomion.*

Stomion rugosum Van Dyke, new species

Plate III, figure 8

Of moderate size, robust, very convex, black with rufous antennae and legs, very rugose above and opaque. Head broad, flattened, coarsely and closely and also cribrately punctured, somewhat rugose, with arcuate impressions at sides of clypeus moderately well defined; antennae rather short, extending only to middle of prothorax. Prothorax over a third broader than long, widest at base, base bisinuate, median lobe moderately developed, apex shallowly emarginate, sides evenly arcuate and gradually convergent from base to apex, feebly sinuate just before at times; disc convex, very coarsely and closely as well as cribrately punctured and rugose, the marginal bead evident but more poorly defined than usual.

Scutellum small and transverse. Elytra a third longer than broad, slightly wider at middle, sides evenly though but moderately arcuate to beyond the middle thence rather suddenly convergent to acute apex; disc very convex, striae deeply impressed forming sulci, rather coarsely and regularly punctured; intervals prominent, carinate, finely irregularly punctured and transversely rugose. Beneath very coarsely, closely punctured in front and almost as coarsely and closely punctured behind. Legs also quite coarsely punctured. Length 9 mm., breadth 4.5 mm.

Holotype and a series of designated paratypes from eighty specimens collected on **Abingdon Island,** during September 1906, by F. X. Williams.

This is a most distinct species, standing out from among the other species of the genus because of its opaqueness, markedly rugose upper surface and very coarse abdominal punctuation.

Key to Species of Genus Stomion G. R. Waterhouse

1. Pronotum finely or moderately coarsely punctured, punctures distinctly separated though often approximate 2
— Pronotum with punctures coarse and anastomosing, entire upper surface very rugose and opaque ..... *S. rugosus*, new species
2. Large, robust, prothorax very transverse, over one-third broader than long, punctures at least moderately coarse and well spaced, strial punctures of elytra coarse and regular 3
— Of moderate or small size, 9 mm. or less in length, generally narrow and somewhat elongate; prothorax more equally quadrate and more numerously punctured; strial punctures of elytra fine or more or less obliterated 6
3. Dull, intermediate antennal segments barely twice as long as broad, pronotal punctures somewhat coarse, round and well separated on disc, punctures of elytral intervals moderately coarse 4
— Very shining, antennae long, intermediate segments more than twice as long as broad, pronotal punctures fine, close together on disc and somewhat aciculate, punctures of elytral intervals fine but distinct and very numerous ..... *S. longicornis*, new species
4. Prothorax widest posteriorly or at most slightly narrowed before base; elytral striae well impressed, generally more or less sulcate and with punctures large and regularly arranged 5
— Prothorax widest behind middle, distinctly narrowed toward base; elytral striae but feebly impressed at most, intervals broader than striae, not elevated, and with punctures near base almost as large as those of striae; general surface smoother and more shining than the two following species ..... *S. helopoides* G. R. Waterhouse

5. Dull, prothoracic punctures but moderately coarse; punctures of elytral intervals fine, contrasting greatly in size with those of striae.....*S. galapagoensis* G. R. Waterhouse

— Somewhat shining, prothoracic punctures very coarse, sides of prothorax always arcuate and somewhat narrowed towards base; punctures of elytral striae very coarse and of intervals also quite coarse especially at base.....*S. g. punctipennis*, new subspecies

6. General surface smooth and even, without elevated intervals or carinae; punctures of pronotum fine, of elytra generally obliterated or very fine and vague..... 9

— General surface markedly sculptured, elytral carinae prominent, at least on declivity; punctures of pronotum coarse or moderately distinct, of elytra evident at least in striae..... 7

7. Pronotal punctures coarse, strial punctures very evident, those of intervals or carinae distinct, fine and numerous; general surface subopaque, legs red..... 8

— Pronotal punctures numerous and but moderately coarse, strial punctures obscure, those of intervals or carinae very fine or more or less obscure; general surface feebly shining, legs rufopiceous to black.....*S. longulum*, new species

8. Head and pronotum coarsely, approximately punctured; prothorax broadest at base and moderately convex; elytra elongate cordate, the sulci as broad as intervals, the punctures of both about equally distinct.....*S. cribricollis*, new species

— Head and pronotum coarsely, densely, but not approximately punctured; prothorax broadest behind middle, very convex, elytra subcordate, sulci narrower than intervals and with punctures of latter very fine, much smaller than those of striae; surface somewhat sericeous.....*S. obesum*, new species

9. Narrower, more oblong; prothorax widest behind middle, sides rounded.....*S. laevigatum* G. R. Waterhouse

— Broader, more ovate; prothorax widest at base, arcuately narrowed to front.....*S. linelli* Blair

Genus **Parepitragus** Casey

Parepitragus Casey, 1907, Proc. Wash. Acad. Sc., IX, p. 578.

This genus was separated by Casey from the extensive American genus *Epitragus*.

Parepitragus fuscipes (Latreille)

Epitragus fuscipes Latreille, 1833, Humb. et. Bonpl. Voy. II, p. 64, t. 34, fig. 5.

Of moderate size, elongate, dark piceous; elytra, antennae and legs rufopiceous; sub-glabrous, the upper surface sparsely clothed with very minute hair, the undersurface a bit more evidently pilose. Head feebly convex, moderately punctured, the epistoma more finely and densely punctured and feebly produced at the middle with truncate

apex; eyes convex, prominent, coarsely faceted with sharply defined supraorbital ridge in front; antennae with outer segments hardly broader than those in front and extending to hind angles of prothorax. Prothorax over one-third broader than long, apex transverse with front angles obtuse, not projecting, base bisinuate with well defined median lobe, sides very feebly arcuate from base to beyond middle thence more rounded and convergent to apex, hind angles sharply rectangular; disc moderately convex, evidently but not closely punctured, a bit denser laterally, a very feeble median longitudinal impression in front and well marked basal impressions between middle and hind angles. Scutellum small, rounded. Elytra three-eighths longer than broad and two and two-thirds longer than prothorax and about a fourth broader at base than prothorax, sides almost straight to posterior third thence arcuate to apex; disc convex, striato-punctate, the punctures coarse and well spaced basally and rapidly finer towards apex, intervals feebly convex and finely and irregularly punctured, the sutural interval depressed towards apex, and the entire apical area dull and opaque in contrast to the shining basal portion. Beneath more or less densely punctured especially on abdomen. All tarsi with tufts of long dense pubescence beneath. Length 12 mm., breadth 4.75 mm.

This species has not been previously recorded from the Galapagos Islands. The single specimen from which the description was drawn was collected on Chatham Island, April 18, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932. It was carefully compared with specimens of *P. fuscipes* in the British Museum of Natural History collection and found to agree perfectly. This species which was described as from the United States of Colombia, is listed in the Junk Catalogus Coleopterorum by Hans Gebien as in the genus *Epitragus* where it was originally placed. Dr. Blair, in rearranging the British Museum species, placed it in Casey's genus *Parepitragus*. It most certainly possesses the essential characters used by Casey in defining his genus such as the produced epistoma, convex, prominent and coarsely faceted eyes, with distinct supraorbital ridge, the prothorax truncate anteriorly with front angles obtuse and not prominent, and the tarsi with tufts of long dense pubescence beneath.

Genus **Ammophorus** Gúerin-Méneville

Ammophorus Gúerin-Méneville, 1830, Voyage Coquille, Ent., II, p. 94, pl. 4, fig. 4.

Ammophorus Gúerin-Méneville, Solier, 1838, Anns. Soc. Ent. Fr., VIII, pp. 34–40, pl. 2, fig. 1–5.

Selenomma Solier, Dejean, Cat., ed, 2, p. 183.

The genus *Ammophorus* is well defined by Solier. It belongs in the tribe Scaurini and is supposedly most closely related to the three California genera: *Eulabis* Eschscholtz, *Epantius* Leconte and *Apsena* Leconte, which have been monographed by Blaisdell (1932). It is significant that all of these genera are confined to the western coast of the Americas and the adjacent islands, *Ammophorus* to South America, and the others to North America. No close relatives or intermediates are to be found in intermediate territory.

Amnophorus, though based upon a mainland South American species, *A. peruvianus,* Gúerin-Méneville, the genus is extensively represented in the Galapagos Islands and as characteristic a coleopterous genus of the Archipelago as are *Stomion* and *Pedonoeces,* which are restricted to it. Five good species have been described to date from the South American continent: *A. peruvianus* Gúerin-Méneville in 1834, from Peru; *A. costatus* Gúcrin-Méneville in 1834, from Peru; *A. rubripes* Solier in 1838, from Peru, also listed from Chile; *A. spinolae* Solier in 1838, from Peru; and *A. denticollis* Boheman in 1858, from Panama. Boheman also described *A. insularis* in 1858, from Hawaii (Sandwich Islands). This last also occurs in the Galapagos Islands and I am confident was carried from there to the Hawaiian Islands within historic times, probably in the gravel ballast, by whalers. It is definitely known that these regularly visited the Galapagos Islands for cargoes of tortoises for food, and later visited the Hawaiian Islands, to try out their catch of whale blubber. Its present distribution in the latter Archipelago is extremely local, near Waikiki on the outskirts of Honolulu. This locality is also close to the old whaling anchorage region. Another interesting fact in this connection is that *Ammophorus insularis* Boheman was not recovered in the Hawaiian Islands until quite recently. Neither Blackburn nor Perkins, who collected extensively in the Islands, found it.

The described Galapagos Island species are *A. galapagoensis, A. bifoveatus,* and *A. obscurus,* all described in 1845 by G. R. Waterhouse from material collected by Charles Darwin; *A. cookoni* C. Waterhouse, described in 1877; and *A. caroli* Linell which is an undoubted synonym of the preceding, described in 1898. The California Academy of Sciences has a very large series of specimens from the Galapagos Islands, collected in the 1905–1906 Expedition of the Academy and the Templeton Crocker Expedition of 1932. Among these are representatives of all described species from the Islands as well as a number of species which I consider as new and which will be described in this paper. The Waterhouse types are in the British Museum of Natural History. These have been critically studied and specimens from our own series care-

fully compared with them. I also have a large series of *A. insularis* Boheman from the Hawaiian Islands, most of which were collected by myself and four of the South American mainland species, three of the latter kindly presented by the British Museum through Dr. Blair. One of these being undescribed, will be defined in this paper. Inasmuch as many of the species are quite variable, are in fact in process of modification, certain individuals of one species often approach quite closely those of other species. These are often hard to separate but typical specimens of all good species are quite distinct.

Ammophorus galapagoensis G. R. Waterhouse

Plate IV, figure 1

Ammophorus galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 30–31.

Ammophorus galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Ammophorus galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 263.

Ammophorus galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Moderately small, compact, shining, nigropiceous with mouthparts and legs rufopiceous or rufous. Head with front feebly concave, finely and rather closely punctured in front, more coarsely punctured and strigose behind; antennae cylindrical, slightly wider outwards, third segment transverse. Prothorax about one-fifth wider than long, widest in front of middle, apex broadly emarginate, base feebly arcuate, sides broadly rounded, gradually narrowed behind and sinuate to well defined rectangular hind angles and abruptly sinuate in front before the prominent and feebly acute front angles; disc evenly convex, finely and rather closely punctured and more or less conspicuously rugose. Elytra twice as long as prothorax, one-fourth longer than broad, transverse at base, with prominent and acute humeral spines at outer portion of basal margin, sides abruptly sinuate behind spines but feebly arcuate at middle and gradually and evenly rounded at apex; disc moderately evenly convex, deeply and regularly sulcate, strial punctures round and shallowly impressed at bottom of sulci; the intervals narrow, carinate, prominent, feebly sinuous and with minute, sparsely placed punctures on summits. Beneath, the prothorax coarsely and sparsely punctured and opaque, the afterbody shining and coarsely and moderately closely punctured except last ventral segment which is rather finely punctured. Legs robust, fore tibiae considerably wider outwardly and with edge

regularly margined with closely placed, short setae. Length 6 mm., breadth 2.5–6 mm.

Type, collected by Charles Darwin, in the British Museum of Natural History.

Ammophorus galapagoensis subpunctatus Van Dyke, new subspecies

Plate IV, figure 2

Similar to above but smaller, with the pronotal punctures fine and sparse though regularly placed, the general surface alutaceous and the median and lateral discal impressions evident though faint. Elytral strial punctures distinct but less clearly defined than in the typical species. Length 5.5 mm., breadth 2.4 mm.

Holotype and several paratypes from a series of nine specimens collected by F. X. Williams near **Wreck Bay, Chatham Island,** in October 1905.

Ammophorus galapagoensis laevis Van Dyke, new subspecies

Plate IV, figure 3

Still smaller than the preceding subspecies, with the prothorax narrower, the pronotum smooth and shining, the surface, however, finely alutaceous and with very minute punctures. The elytra have the intervals less elevated and sharp and the strial punctures more or less obsolete. Length 5 mm., breadth 2.25 mm.

Holotype and six paratypes collected by F. X. Williams near **Wreck Bay, Chatham Island,** in July 1906.

The typical form of *A. galapagoensis* is represented in the collection of the California Academy of Sciences by a series of eight specimens collected near Wreck Bay, Chatham Island, in October, 1905, by F. X. Williams. These were taken in the same region as were the subspecies and many of them at the same time. Though the three forms are morphologically distinct and readily separated, there are intergrades which show that they are but variants of one species. The species as a whole is quite readily recognized by its small and compact form, shining appearance, type of pronotal punctuation, mostly fine though strigose also in typical form, elytra very transverse at base, with prominent humeral angles and shallowly impressed strial punctures as well as by having antennae that are more cylindrical than usual and with the third segment definitely transverse, a character peculiar to the species among island species and only approached by *A. costatus* among the mainland species where the segment is about as long as broad.

Ammophorus simplex Van Dyke, new species

Small, compact, dull, black with mouthparts, antennae, and legs rufous. Head obscurely alutaceous, transversely impressed at frontoclypeal union; clypeus finely, sparsely, roughly punctured; front flattened, coarsely but shallowly and moderately closely punctured; antennae almost reaching hind angles of prothorax, subcylindrical, third segment as long as broad. Prothorax about one-fifth broader than long, widest at middle, apex shallowly emarginate, base feebly arcuate, sides arcuate from apex to posterior fourth, somewhat straight at middle, suddenly narrowed and sinuate to the distinct rectangular hind angles, the front angles slightly obtuse, rounded at apices and not delimited by constrictions from apex or sides; disc feebly shining, minutely alutaceous, rather evenly convex, finely and sparsely but sharply punctured, with well marked triangular impression near base at middle, and vague lateral impressions. Elytra twice as long as prothorax and one-fourth longer than broad, subtransverse at base, humeral spines small, sides but moderately arcuate, almost parallel and evenly rounded to apex; disc somewhat flattened at middle, evenly convex at sides; striae shallowly impressed with punctures of moderate size, regular, somewhat close and deeply impressed, intervals feebly elevated, convex, not at all carinated and with sutural as prominent as rest and punctures very fine and obscure. Beneath with prothorax coarsely punctured, the abdomen rather finely and sparsely punctured and shining, the last ventral segment very finely and closely punctured. Legs robust, fore tibiae considerably expanded outwardly and with short spines irregularly placed along outer margin. Length 6.75 mm., breadth 3 mm.

Holotype and three paratypes, collected near **Wreck Bay, Chatham Island**, during January, 1906, by F. X. Williams.

This small species is one of the most distinct of the genus. It is the only one that has the striae shallowly impressed and the intervals but moderately elevated and evenly convex, not in the least degree carinate.

Ammophorus insularis Boheman

Plate IV, figure 8

Ammophorus insularis Boheman, 1858, Fregatten Eugenies Resa, I, p. 89.

Rather large, somewhat flattened, subopaque, black or piceous with rufous mouthparts, legs and undersurface. Head with front convex and very coarsely and deeply as well as closely punctured, clypeus finely punctured, granulate and alutaceous; antennae gradually wider outwardly, feebly compressed, and with third segment per-

ceptibly longer than broad and almost as long as the two following segments united. Prothorax one-fourth broader than long, widest at middle, apex deeply emarginate, base broadly arcuate, feebly sinuate near hind angles, sides well rounded, narrowed posteriorly and sinuate to well marked rectangular hind angles, and continuously arcuate forwards to prominent rectangular front angles; the disc somewhat flattened with a triangular impression at middle near base and shallow impressions on either side, and coarsely, closely and somewhat cribrately punctured, especially at sides. Elytra twice as long as prothorax and three-tenths longer than broad, suddenly narrowed at base, humeri well rounded and with minute spines, sides feebly arcuate, gradually rounded to apex; disc somewhat flattened, moderately sulcate, the strial punctures round, deeply and closely placed, intervals prominent, moderately carinate and with a row of small but distinct punctures along crest. Beneath shining, coarsely and closely punctured in front, less coarsely and more widely punctured behind, the last ventral segment with finer and closer punctures. Legs moderately robust, proportionally longer than in preceding species, front tibiae arcuate, gradually wider outwardly and sparsely margined on outer side with short setae. Length 8–9 mm., breadth 3.5 mm. (Boheman gives the length as 5 mm. but most specimens in a very large series from the type locality, the Hawaiian Islands, as well as specimens from Chatham Island, average much larger.)

Type, presumably in Swedish National Museum at Stockholm.

This species on the average is much the largest of the genus. Its characteristic features aside from size are the discrete type of pronotal punctuation, moderate degree of elytral sulcation with the strial punctures round and deeply impressed, the four prothoracic angles well marked and the humeral spines minute.

There is a specimen in the British Museum of Natural History from Boheman, presumably from the original type series, which I examined. I have also studied a large series from the Hawaiian Islands, considerably over a hundred, most of which I collected myself near Waikiki, Oahu, during January 1–16, 1923. The California Academy of Sciences also has a series of eighty specimens that were collected near Wreck Bay, Chatham Island in the Galapagos Islands on various dates during October 1905, and January and February 1906, by F. X. Williams. These latter specimens cannot be separated from those collected in the Hawaiian Islands. There is also a small series, five specimens, collected near Villamil and Iguana Cove, South Albemarle Island, in March, 1906, by F. X. Williams, which differ but slightly

from the preceding as for instance in having the elytra less elongate, more broadly rounded at sides and apex, with the intervals less pronounced and the hind angles of prothorax in one or two specimens somewhat acute. These I consider but slight variants, not worthy of a distinctive name, but showing a tendency towards instability. It is my belief in view of the fact that the Hawaiian colony is small, localized near Waikiki beach on the outskirts of Honolulu and near the site of the old whaling station, that the colony owes its existence to the whaling industry. It is a known fact that the whalers during the nineteenth century, perhaps earlier, frequently visited the Galapagos Islands and there secured a cargo of the giant tortoises which they used for food on their various cruises. They also, no doubt, at times shovelled some of the gravel, containing either larvae or adult beetles, from near the shore or perhaps from Wreck Bay itself on Chatham Island, into their vessels for ballast, later to be dumped overboard to make room for the casks of whale oil which were tried out on the adjacent Hawaiian mainland. The larvae and beetles readily floated to the shore and established themselves. The first specimens in Hawaii, were those taken by the collectors of the Swedish frigate *Eugenie* and described in 1858 by Boheman as from "Insula Oahu (Honolulu)." It is surprising that no specimens of the species were collected by Blackburn or Perkins and more surprising that neither listed the species in their comprehensive works dealing with the Hawaiian Coleoptera fauna seeing that it had been definitely stated to be from these islands. Its first recovery since the time of the *Eugenie*, was on April 5, 1920, when Horace Sharp of Honolulu took a number of specimens in Kaimuki and gave them to Mr. Otto Swezey who referred them to me. I had long expected that some one would find them so was not surprised. In the winter of 1923, I had the satisfaction of collecting a large series, myself, near Waikiki.

Ammophorus blairi Van Dyke, new species

Rather small, dull black with piceous or rufopiceous legs. Head obscurely alutaceous, transversely impressed at fronto-clypeal union, clypeus finely granulate, front flattened, coarsely and rather closely punctured; antennae about reaching posterior fourth of prothorax, somewhat compressed, third segment at least a fifth longer than broad. Prothorax more than a fifth wider than long, widest in front of middle, apex bisinuate, distinctly arcuate at middle, base feebly and broadly arcuate, sides feebly arcuate from front angles and gradually narrowed posteriorly to hind angles, at times a bit sinuate back of front angles which are acute, prominent and extend forwards, and suddenly sinuate before hind angles which are small yet rectangular; disc dull,

obscurely alutaceous, coarsely and rather closely yet discretely punctured, feebly longitudinally impressed at middle and with well marked elliptical impressions on either side. Elytra opaque, twice as long as prothorax and one-fourth longer than broad, with humeri well rounded yet with minute spines, sides very slightly arcuate, almost straight, and well rounded at apex; disc convex, feebly flattened suturally, strial impressions moderately sulcate with coarse and round and rather closely impressed punctures, the intervals moderately and equally elevated, subcarinate yet blunt at apices and finely yet distinctly and irregularly biseriately punctured. Beneath coarsely punctured in front, abdomen rather finely and sparsely punctured and shining, the last ventral segment as usual very finely and closely punctured. Legs robust, front tibiae much expanded in front and outwardly margined with short spines. Length 7 mm., breadth 2.8 mm.

Holotype, male, allotype female, and numerous designated paratypes from a series of 100 specimens, all from **38 miles north of Olmos, Peru,** March 19, 1951 (dry thorn forest), collected by E. S. Ross and A. E. Michelbacher. The following additional specimens, all from the coastal region of northwestern Peru, have been studied: Four, 15 kilometers south of Chiclayo, March 18, 1951 (desert, old loma); forty-one, 22 miles north of Casma, March 24, 1951; two, Eten; one, Payta. The Eten and Payta specimens were loaned for study by Dr. K. G. Blair of the British Museum.

This species belongs in the series with rather coarse, discrete pronotal punctures and equally elevated elytral intervals, including besides it: *A. insularis, A. rubripes,* and *A. peruvianus.* It differs from the first two of these by having black or piceous legs in contrast to the rufous legs of the others; in addition from *A. insularis* by its smaller size, proportionally shorter elytra, more opaque appearance, and less acutely elevated elytral intervals; from *A. rubripes* by the coarser punctuation of both front and pronotum, a proportionally broader prothorax and much smaller humeral spine; and from *A. peruvianus* by its narrower prothorax, less pronounced pronotal punctuation, smaller hind angles to prothorax, and less elevated elytral intervals.

Ammophorus antennatus Van Dyke, new species

Of moderate size, somewhat elongate, subopaque, dark piceous, mouthparts and legs rufous. Head coarsely, deeply, reticulately punctured, with a transverse impression separating front from clypeus, the latter finely, closely punctured; antennae very robust, subcylindrical, basal segments coarsely, rather deeply punctured, third seg-

ment as long as broad, segments 9–10 very narrow, 3 to 4 times as broad as long. Prothorax very little broader than long, widest in front of middle, apex bisinuate with median portion broadly arcuate, base also bisinuate with feeble median lobe, sides arcuate from base of front angles to base of hind angles and gradually narrowed towards base, front angles acute and prominent, projecting well forwards and but feebly constricted at base, hind angles small, acute and divergent; disc convex, rather finely yet deeply, closely and reticulately punctured, with median longitudinal, lateral and generally several shallow minor longitudinal impressions. Elytra, dull, alutaceous, almost twice as long as prothorax and one-fourth longer than broad, with rather small humeral spines, sides feebly arcuate, broadly rounded at apex; disc deeply regularly sulcate, strial punctures round, deeply impressed at bottom of sulci, intervals regular, narrow and sharply carinate, the sutural but little if at all elevated. Beneath coarsely, closely, reticulately punctured except for head and last ventral segment, the latter more finely and closely punctured. Legs as usual. Length 7 mm., breadth 3.25 mm.

Holotype and ten paratypes, collected on **Barrington Island,** October 1906, by F. X. Williams.

The distinctive characteristics of this species are its dull appearance, narrow prothorax, rather fine yet deep, close, reticulate type of pronotal punctuation and irregular longitudinal impressions, its robust and grossly punctured antennae and very coarsely, closely punctured frontal segments of abdomen. These peculiarities should enable it to be readily separated. The second Barrington species, placed with *A. bifoveatus* is of course widely divergent.

Ammophorus cooksoni Charles Waterhouse

Plate IV, figure 4

Ammophorus cooksoni C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., V, pp. 80, 82, fig.

Ammophorus cooksoni C. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Ammophorus cooksoni C. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 478.

Ammophorus caroli Linell, 1892, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 264.

Of moderate size, subopaque, black, with antennae, mouthparts and legs dull rufous. Head more or less flattened above, the frontoclypeal suture obliterated and the transverse impression here very feeble; front coarsely, reticulately punctured and obscurely strigose; clypeal punctuation gradually finer; antennae about reaching pos-

terior fourth of prothorax, robust, subcylindrical, third segment slightly longer than broad. Prothorax almost a third wider than long, widest in front of middle, apex bisinuate, base almost transverse, sides gradually arcuate from apex to posterior fourth, thence sinuate and narrowed to acute, prominent and divergent hind angles, the front angles feebly acute and prominent and without basal constrictions; disc opaque, coarsely and deeply punctured and with the punctures irregular and anastomosing over much of the surface, the intervals also feebly strigose at times, the impressions feebly marked at most. Elytra almost two and a half times as long as prothorax and two-fifths longer than wide, subtransverse at base, humeral spines acute and well marked, sides almost parallel and apex well rounded; disc moderately convex, striae deeply impressed forming sulci and with punctures coarse and deep and more or less expanded into quadrilateral impressions filling the entire sulcus; the intervals well elevated, narrow, and sharply carinated, feebly sinuous, and with a few minute punctures at summits, the sutural intervals but little elevated. Beneath coarsely punctured both front and back, the abdomen shining and last ventral segment with punctures somewhat finer and closer than usual. Legs robust, fore tibiae expanded in front, outwardly margined with short setae as usual. Length (average) 8mm., breadth 3.25 mm.

The California Academy of Sciences possesses over fifty mounted specimens from Charles Island, the type locality for this species, taken during May, 1906 and October, 1905 by F. X. Williams, as well as five or six specimens labeled as from Chatham Island. Besides this series there are twenty-three specimens from the small Brattle Island, taken October, 1905, by F. X. Williams. These I place as but a weak race at the most. They are in general a bit smaller and narrower, with prothoracic and humeral angles smaller, the prothorax with the front angles somewhat constricted at their bases, the sides irregular and the disc with the lateral impressions more evident, the elytra also with the intervals more irregularly sinuous. All of the modifications seem to be the result of stunting, the race being in fact but a stunted variety.

The species, *A. cooksoni*, is very well marked, its robustness, markedly punctured and roughened pronotum, and deeply sulcate and quadrately punctured elytra enabling it to be readily recognized. Linell was not acquainted with the paper by Charles Waterhouse, hence redescribed a species which had been definitely described and figured before. This species simulates the preceding but has a broader prothorax, sharper hind prothorax angles and generally more pronounced type of sculpturing.

Ammophorus obscurus G. R. Waterhouse

Plate IV, figure 5

Ammophorus obscurus G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 32.

Ammophorus obscurus G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., V, p. 82.

Ammophorus obscurus G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 264.

Ammophorus obscurus G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Ammophorus obscurus G. R. Waterhouse, Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, I, p. 672.

Rather small, compact, dull sericeous, black or piceous with rufopiceous antennae, mouthparts and legs. Head flattened and coarsely, reticulately punctured, two shallow impressions at fronto-clypeal union, clypeus finely punctured; antennae subcylindrical, third segment just perceptibly longer than broad. Prothorax a fifth broader than long (in normal individuals, in abnormal individuals as in the type, almost as long as broad), widest in front of middle, apex bisinuate, base almost transverse, sides arcuate, feebly narrowed posteriorly and sinuate before front and hind angles, angles all prominent, the front acute and hind rectangular; disc coarsely and reticulately punctured, often with rugae and generally with median basal and lateral impressions. Elytra about two and a quarter times as long as prothorax and less than twice as long as wide, base subtransverse with humeral spines generally small and acute, sides feebly arcuate, broadly rounded posteriorly and almost straight and convergent to apex; disc moderately convex, deeply sulcate, the strial punctures coarse and rounded or transverse, the intervals well elevated and carinate and also irregularly sinuous, the sutural generally flat though at times distinctly elevated, the minute punctures at the summits sparse. Beneath, coarsely punctured in front, shining behind and with punctures more widely spaced, the last ventral segment with fine punctuation. Legs robust, fore tibiae dilated in front and with outer margin fringed with short setae. Length 6–7 mm., breadth 2.5–3 mm.

This species is a most variable one, some specimens being quite depauperized. The type in the British Museum is such a specimen with the prothorax narrower than normal. Specimens which I found to agree with it in all essential characters were always from Albemarle Island, therefore I believe that this island, presumably near Banks Bay where Darwin landed, is the type locality. The most variable characters are as regards the proportions, the pronotal sculpturing, the

front angles of prothorax which may have or lack the constrictions at base, and the sutural intervals which may be either flat as mentioned by Waterhouse or feebly elevated as in the more robust specimens. The California Academy of Sciences has a large series of specimens collected by F. X. Williams: 65 from Albemarle Island listed as follows, 46 from Villamil, October, 1905 and March, 1906, 5 from Iguana Cove, March, 1906, and 14 from Cowley Mountain, August, 1906. In addition there is a series of 46 specimens from Indefatigable Island, collected November, 1905, and three specimens from Duncan Island, collected December, 1905, which I place as varieties. These all have the dull sericeous appearance, the generally flattened sutural intervals, small humeral spines and more or less characteristic pronotal sculpturing of the species. The Indefatigable Island specimens generally have the pronotal sculpturing much finer, with the surface irregularly longitudinally wrinkled and the alutaceous areas more pronounced, while the Duncan Island specimens have the pronotal sculpturing more coarse than usual. The Linell citation of *A. obscurus* was questioned by Blair according to Mutchler but I am inclined to accept it for Albemarle Island is the home of that species and not *A. bifoveatus*. Eden Island (St. George Expedition) is cited on the authority of Blair.

Ammophorus denticollis Boheman

Ammophorus denticollis Boheman, 1858, Fregatten Eugenies Resa, I, p. 89.

This species was described by Boheman as having been collected at Panama. I am inclined to doubt this locality and for many reasons. In the first place it does not belong to the group to which the other mainland South American species do, being in fact close to several of those from the Galapagos Islands. The general distribution of the barren ground beetles of South America is as a rule more or less limited. The proven distribution of *Ammophorus* is northern Chile, Peru, and the Galapagos Islands, the Hawaiian Islands species, *A. insularis,* having been carried there through the agency of man as I have stated previously. Panama is within the moist tropics, far removed from the arid regions. *Ammophorus denticollis* Boheman has not been collected in Panama since the original was taken as far as I have learned. Other species listed from Panama by Boheman as *Pedonoeces (Tessaromma) lugubris* Boheman, have since been proven to belong to the fauna of the Galapagos Islands, a proof that many of the species submitted to Boheman had wrong locality labels attached

to them. When the type of *Ammophorus denticollis* Boheman, is compared with Galapagos Island species, I believe it will be found to agree with one of the species.

Ammophorus bifoveatus G. R. Waterhouse

Plate IV, figure 6

Ammophorus bifoveatus G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 31–32.

Ammophorus bifoveatus G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 81.

Ammophorus bifoveatus G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 77, p. 192.

Ammophorus bifoveatus G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Rather small, dull, piceous, tarsi rufopiceous. Head coarsely, shallowly punctured, clypeus more finely punctured; antennae subcylindrical, third segment about as broad as long. Prothorax about one-fourth broader than long, widest in front of middle, apex emarginate or feebly bisinuate, base transverse, sides arcuate and narrowed from base of front angles to hind angles, front and hind angles small and acute and generally constricted at their bases; disc somewhat convex, finely but not closely punctured, with numerous irregular longitudinal rugue and faint median basal and well defined lateral impressions. Elytra two and a quarter times as long as prothorax and two-sevenths longer than broad, narrowed at base, with humeral spines acute and distinct, sides feebly arcuate, broadly rounded at apex; disc convex, deeply sulcate, punctures rounded and well impressed, without markedly transverse rugae, the intervals including the sutural are well elevated, regular and carinate. Beneath coarsely and irregularly punctured in front, abdomen shining and more sparsely and less coarsely punctured, the last abdominal segment finely punctured. Legs stout, fore tibiae but moderately dilated outwardly and finely margined with very short setae on outer margin. Length 5.5–6 mm., breadth 2.5–2.75 mm.

The type locality is James Island. The California Academy has eighty-seven specimens collected on December 25, 1905, and in January, 1906 by F. X. Williams. They show some variation in size and considerable difference in pronotal sculpturing, the punctures varying from small and sparse to moderately coarse and rather dense and the rugae may be very prominent or hardly evident. The same applies to the lateral impressions. In one small specimen, the pronotum is smooth and shining, with punctures fine and sparse though with rugae evident

and all three impressions very marked. The California Academy of Sciences also has seventy-nine specimens, taken on Charles Island in October, 1906 and on May 15, 1906 by F. X. Williams. These are a bit larger than the more typical specimens from James Island, with rufous legs, pronotal sculpturing nearer that of *A. obscurus* though with rugae yet better defined with the elytral sculpturing absolutely like that of *A. bifoveatus,* not of *A. obscurus.* These I would consider but a weak race. Besides these there are nine specimens collected on Barrington Island in October, 1905, by F. X. Williams, which seem sufficiently distinct to warrant being classed as a subspecies. This race I will define as follows:

Ammophorus bifoveatus barringtoni Van Dyke, new subspecies

Larger and more generally elongate than typical members of *A. bifoveatus;* piceous, with antennae, mouthparts and legs rufous; prothorax proportionally longer, but one-fifth broader than long, with sides more feebly and irregularly arcuate, the angles more prominent, the disc more convex and the rugae more numerous and pronounced; the elytra more elongate, with sulci deep, strial punctures coarse and more transverse, the intervals more elevated and narrower though the sutural interval is but little elevated; and the underside as usual in the species. Length 7 mm., breadth 3 mm.

Holotype and eight paratypes, collected on **Barrington Island,** in October 1905, by F. X. Williams.

This subspecies though having the forebody similar to that of *A. b. bifoveatus,* has the afterbody much more like that of *A. cooksoni.* It is no doubt not derived from either but is an offshoot from the parent stock from which both are derived, though retaining a dominance of the characters which are most characteristic of *A. bifoveatus.* For that reason, I prefer to associate it with that species rather than have it stand alone as a distinct species. From *A. antennatus* with which it has been found associated in the field, it differs widely, by being more shining, having a different type of pronotal sculpturing, smaller and more normal antennae, and by lacking the very gross and close punctuation of the forepart of the abdomen.

Ammophorus abingdoni Van Dyke, new species

Plate IV, figure 7

Of moderate size, somewhat elongate, dull, piceous with antennae, mouthparts, and legs rufous. Head with coarse punctures, longitudinally rugose, without transverse impressions in front, the clypeus

finely and sparsely punctate in front, antennae slightly compressed, third segment much longer than broad, segments 8–10 hardly twice as broad as long. Prothorax about one-fifth wider than long, apex deeply emarginate, base bisinuate and with feeble lobe at middle, sides more or less irregularly sinuous, front angles prominent, acute, not constricted at base and extending well forwards, hind angles small, very acute and divergent; disc convex, coarsely punctured but with punctures anastomosing to form irregular longitudinal carinae. Elytra twice as long as prothorax, and one-third longer than broad, with small acute humeral spines, with sides almost straight or very feebly arcuate and diverging from base to posterior third, thence broadly rounded to apex; disc deeply sulcate, punctures round or somewhat transverse and well impressed, the intervals narrow and carinate and slightly sinuous, the sutural interval but feebly elevated. Beneath coarsely and closely punctured, last ventral segment finely and rather closely punctured. Legs more delicate than usual, especially the tibiae which are but little widened distally. Length 6.5 mm., breadth 2.75 mm.

Holotype and numerous designated paratypes from a series of sixty-nine specimens collected on **Abingdon Island**, September 18–26, 1906, by F. X. Williams.

This very distinct species is readily recognized by its peculiar type of pronotal sculpturing, somewhat delicate antennae, rather long and delicate legs, and coarse punctuation of front ventral segments. In this last peculiarity, it somewhat resembles *A. antennatus* but its other characters are widely divergent.

Key to Species of Genus Ammophorus Güerin-Méneville

1. Third antennal segment transverse, evidently broader than long..... 2
— Third antennal segment longer than broad..... 3
2. Pronotum varying from finely punctate and finely strigose to more or less smooth and alutaceous with fine or minute punctures; elytral intervals equally elevated.....*A. galapagoensis* G. R. Waterhouse
— Pronotum irregularly punctured, more dense at front and back and sides; elytral intervals alternately elevated, strial punctures large. Peru.....*A. costatus* Güerin-Méneville
3. Pronotum discretely punctured, punctures anastomosing to a slight degree at most..... 4
— Pronotum coarsely punctured, rugose, striate or with punctures more or less irregularly anastomosing..... 9
4. Elytral intervals alternately elevated; strial punctures small or obsolete,

intervals finely granulate, humeral spine prominent; general appearance somewhat shining, legs rufous. Peru.....*A. spinolae* Solier

— Elytral intervals equally elevated..... 5

5. Pronotum more or less coarsely, closely punctured; elytra with intervals well elevated, subcarinate and rather finely yet distinctly punctured.... 6

— Pronotum quite small and alutaceous with punctures fine and widely spaced; elytra with intervals more or less convex but feebly elevated; the fine punctures obsolete.....*A. simplex*, new species

6. Smaller species, 7 mm. or less in length, hind angles of prothorax small; elytral intervals blunt at apices, sutural intervals flat..... 7

— Larger species, 8 mm. or more in length, hind angles of prothorax rectangular and rather distinct; elytra with small humeral spine, distinctly elevated sutural interval and with others prominent and subcarinate..... .....*A. insularis* Boheman

7. Body black or piceous, legs rufous..... 8

— Entire body including legs black or piceous, frontal punctures coarser than pronotal; elytra quite rounded at base, humeral spine, intervals moderately subcarinate, strial punctures shallowly impressed. Peru..... .....*A. blairi*, new species

8. Pronotum but little wider than long, moderately and shallowly punctured, posterior angles small; elytra only moderately sulcate, the intervals quite convex, the striae and strial punctures sharply impressed; punctures of occiput and pronotum quite similar. Peru....*A. rubripes* Solier

— Prothorax definitely transverse, densely punctured, hind angles prominent; elytra profoundly sulcate, and with strial punctures well impressed, the intervals distinctly elevated and very finely punctured..... .....*A. peruvianus* Gúerin-Méneville

9. Pronotum rugose-reticulate and deeply punctured, not striate; strial punctures of elytra large, more or less irregular and generally transverse..... 10

— Pronotum more or less striate and with longitudinal rugae and finely or somewhat coarsely punctured..... 12

10. Prothorax almost as long as broad, pronotum rather finely yet deeply, closely and reticulately punctured and with numerous irregular longitudinal impressions; antennae very robust, the basal segments very coarsely, deeply punctured, segments 9–10 very short and transverse, three to four times as broad as long; elytra dull black, alutaceous..... .....*A. antennatus*, new species

— Prothorax strongly transverse, with longitudinal impression at middle of pronotum, otherwise evenly transversely convex; antennae not more robust than usual, basal segments shallowly or more finely punctured, segments 9–10 less narrow, not three times as broad as long..... 11

11. Head and pronotum very coarsely punctured, punctures more or less anastomosing, and reticulate, front angles rectangular, prominent, generally not constricted at base, hind angles small; elytral punctures very gross and transverse strigae separating them somewhat carinate, humeral spines small; legs bright rufous.....*A. cooksoni* C. Waterhouse

— Head and pronotum but moderately coarsely punctured, punctures close, somewhat anastomosing and reticulate, front angles acute, constricted at base, hind angles small and acute; elytra dull and alutaceous, strial punctures more shallowly impressed and with the transverse rugae separating them less elevated and not carinate, humeral spines very small; legs piceous or rufopiceous.....*A. obscurus* G. R. Waterhouse

12. Pronotum coarsely, rugosely punctured, longitudinally striate, all angles small and acute; elytra profoundly punctured, humeral spines small; legs black, tarsi piceous. Panama.....*A. denticollis* Boheman

— Head and pronotum more finely punctured and with longitudinal rugae, hind angles of prothorax acute..... 13

13. Prothorax much broader than long, pronotum rather finely, not densely punctured and with irregular longitudinal rugae; elytra transverse at base and with intervals quite straight.....*A. bifoveatus* G. R. Waterhouse

— Prothorax almost as long as broad, pronotum with obscure punctures but with coarse, irregular, longitudinal rugae; elytra somewhat elliptical, narrowed and rounded towards base, intervals sinuous.....*A. abingdoni*, new species

Genus **Pedonoeces** G. R. Waterhouse

Pedonoeces G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 32–35.
Tessaromma Boheman, 1858, Fregatten Eugenies Resa, I, p. 91.

Like the genus *Stomion* which was also proposed by G. R. Waterhouse, the genus *Pedonoeces* is confined in the distribution of its species to the Galapagos Islands.

Though many of the species of *Pedonoeces* are quite distinct, the genus as a whole is a very weak one. As indicated by Waterhouse, the main difference between it and *Blapstinus* is the fact that its members are wingless and the elytra soldered together. The more highly specialized species such as were studied by Waterhouse are of course absolutely without wings but some of the more generalized ones such as have been collected in recent times have fairly large though functionless wings. Many species of *Blapstinus* are also flightless and many have only the merest rudiments of wings. The two genera thus grade one into the other, proving that *Pedonoeces* is little more than a subgenus of the more widely spread *Blapstinus*. For convenience, I will treat *Pedonoeces* as a distinct unit and include all of the Galapagos Pedininae in it, leaving the settlement of its generic status until such times as the tribe can be reviewed as a whole. In the Galapagos Islands, the species vary from such generalized forms as *P. wenmani* which have rudimentary wings, and cannot be satisfactorily separated from mainland species of *Blapstinus*, to such highly specialized forms as

P. lugubris which look very unlike any of the more typical forms of *Blapstinus.*

The genus *Blapstinus* is a large one found throughout North America, the West Indies, and western and southern South America. It is very richly developed in the southwestern part of the United States, particularly California, and may be equally well developed in western South America. In the Galapagos Islands, there are three well marked groups of *Pedonoeces: the "pubescens"* group, the *"galapagoensis"* group, and the *"lugubris"* group. The members of the first group are what I called generalized species, such species as have rudimentary wings and are in appearance but little different from typical forms of *Blapstinus.* The members of this group are *P. wenmani, P. culpepperi, P. pubescens, P. blairi, P. caudatus,* and *P. uniformis* and are to be found in the most northern islands as well as the more southern ones. A boundary line drawn to encompass them would, as indicated in the map, take in all islands of the north, east and south, the outer boundary group. No species of *Pedonoeces* have been taken on Abingdon, Bindloe, or Tower islands but if any such are ever taken I believe they will belong to this group. The *"galapagoensis"* group includes *P. bauri, P. galapagoensis, P. morio, P. duncani, P. costatus,* and *P. williamsi.* They are to be found on the innermost group of islands: James, Indefatigable, Duncan, and Charles. If the species, *P. spatulatus* and *P. barrington,* which are somewhat divergent, be included, Barrington and Hood islands would have to be listed. The most highly specialized *"lugubris"* group includes *P. lugubris, P. opacus,* and *P. nigrinus.* Its distribution is more transverse, centralized in Indefatigable Island but also represented to the west in Jervis, South Albemarle, and Hood islands. The species *P. duncani,* which I have included in the preceding group on account of the evident strial punctures, might almost equally well be placed in the *"lugubris"* group, thus would properly round out the distribution. A study of the distribution shows that it is not haphazard but orderly and in line with what one would expect as the primitive Galapagos land mass was broken up into the present group of islands.

Pedonoeces wenmani Van Dyke, new species

Plate V, figure 1

Small, elliptical, rufopiceous, upper surface moderately and evenly convex and sparsely clothed with golden pubescence. Head moderately and deeply punctured, clypeus shallowly emarginate; antennae not reaching hind angles of prothorax, third segment not equal

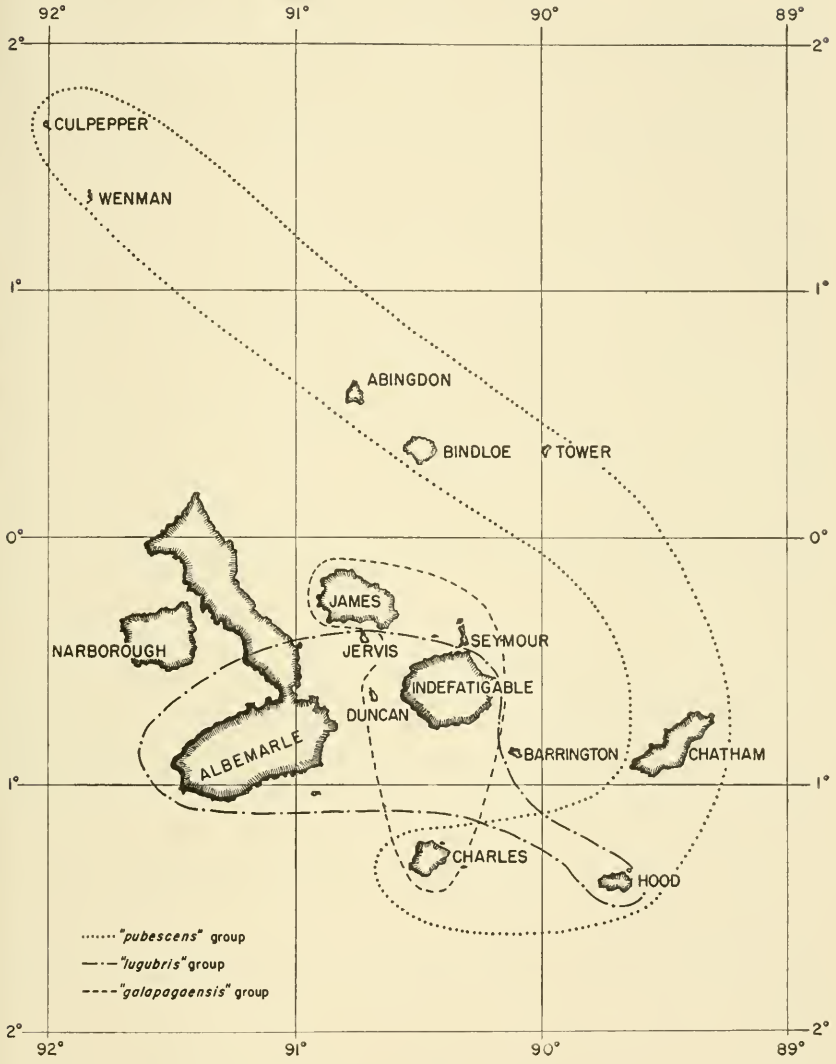

FIGURE 1

Map of the Galapagos Islands, showing the distribution of the three groups of species of the genus *Pedonoeces*.

to fourth and fifth combined, outer segments gradually clavate, 8–10 transverse. Prothorax more than one-fourth broader than long, apex feebly and base strongly bisinuate, sides almost straight and parallel in basal half, evenly rounded to apex in front; disc densely punctured with a faint indication of longitudinal striation in some specimens. Scutellum faintly punctured. Elytra two-sevenths longer than broad and about three times as long as prothorax, sides parallel for basal two-thirds, thence gradually rounded to apex; disc with striae finely yet sharply impressed and with small and somewhat close strial punctures, intervals flat and irregularly punctured, the punctures almost as large as those of striae. Beneath coarsely and closely punctured in front, more finely and discretely so behind. Males with but slight flattening of abdomen and more widely dilated front tarsi, otherwise not different from females. Length 4.5–5 mm., breadth 2.25 mm., wings present but rudimentary.

Holotype and numerous designated paratypes from a series of fifty-eight specimens collected September 24, 1905, on **Wenman Island**, by F. X. Williams.

This species is one of the most generalized of the genus and hardly distinguishable from the smaller species of *Blapstinus*. It is but little larger than the next which is the smallest in the islands.

Pedonoeces culpepperi Van Dyke, new species

Similar to preceding but smaller, lighter in color, somewhat more evidently pilose, antennae less robust, the tenth segment alone transverse, the elytral striae broader and strial punctures coarser and the punctures of intervals much smaller than those of striae. Length 4.5 mm., breadth 2 mm., wing two-thirds of normal length.

Holotype and four paratypes, collected on **Culpepper Island**, October 25, 1905.

This is our smallest species, very close to the preceding yet definitely distinct.

Pedonoeces pubescens G. R. Waterhouse

Plate V, figure 7

Pedonoeces pubescens G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 36.

Pedonoeces pubescens G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., V, p. 82.

Pedonoeces pubescens G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 266.

Pedonoeces pubescens G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Pedonoeces pubescens G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 479.

Rather small, elliptical rufopiceous, dorsal surface evenly convex, finely alutaceous and sparsely clothed with fine golden pile, sometimes vittate on elytra. Head finely and sparsely punctured, clypeus semicircularly emarginate in front; antennae not reaching hind margin of prothorax; third segment considerably shorter than fourth and fifth combined, outer segments gradually clavate, tenth transverse. Prothorax over one-fourth broader than long, apex emarginate, base transverse, sides evenly arcuate, disc finely and sparsely punctured. Scutellum minutely punctured at apex. Elytra over one-third longer than broad and almost three times as long as prothorax, sides feebly arcuate in basal two-thirds and evenly rounded to apex; disc with striae finely impressed and strial punctures rather coarse and closely placed, the intervals feebly but evidently convex especially at sides and minutely as well as somewhat obscurely punctured. Beneath obscurely rugose in front, rather finely and sparsely punctured behind. Males with front ventral segments somewhat concave but not showing distinctive femoral or tibial characters. Length 5 mm., breadth 2.5 mm.

Type locality Chatham Island. The California Academy of Sciences has five specimens from this island, one of which was carefully checked with the type. They were collected October 14, 1905 and January, 1906, by F. X. Williams. This species is slightly larger than either of the preceding species, with much finer pronotal punctures and deeper elytral striae.

Pedonoeces blairi Van Dyke, new species

Moderate sized, elongate, rufopiceous, disc somewhat flattened and clothed with very short pile, semierect on elytra. Head densely and rather coarsely punctured, transversely impressed in front of eyes, clypeus angulately emarginate; antennae reaching posterior third of prothorax, third segment elongate but shorter than two following united, gradually clavate from fifth segment, the tenth transverse. Prothorax two-ninths broader than long, apex broadly and deeply emarginate, base bisinuate, sides almost straight and feebly divergent from base to well beyond middle, thence rounded to apex; disc rather coarsely and densely punctured. Scutellum finely punctured. Elytra three-eighths longer than broad and about two and a half

times as long as prothorax, sides very feebly arcuate and convergent to apex; disc with striae well impressed, finely and closely punctured, intervals convex and irregularly punctured with minute punctures. Beneath coarsely and longitudinally rugose in front and rather coarsely punctured behind. Males with front ventral segments concave at middle but without peculiar femora or tibiae. Length 6–6.5 mm., breadth 2.25–2.50 mm.

Holotype and numerous designated paratypes from a series of sixty-three specimens, collected on **Charles Island,** October 3, 1905, by F. X. Williams.

The species is slightly larger and much more elongate than *P. pubescens,* with head and pronotal punctures coarser and denser, elytral striae deeper, intervals convex and pile of elytra semierect but not noticed except under magnification.

Pedonoeces caudatus Van Dyke, new species

Plate V, figure 2

Narrow, elongate, rufopiceous, disc somewhat depressed and sparsely clothed with short and fulvous pile, obliquely inclined on elytra. Head moderately finely punctured, punctures well spaced and finer in front, a transverse impression in front of eyes, clypeus broadly and shallowly emarginate; antennae almost reaching hind margin of prothorax, third segment slightly shorter than two following united, gradually clavate from seventh segment and all longer than broad. Prothorax one-third broader than long, apex broadly emarginate, base bisinuate, sides more or less straight and parallel to apical third, thence arcuate and narrowed to apex; disc rather coarsely, densely punctured. Scutellum finely punctured. Elytra almost twice as long as broad and about three times as long as prothorax, sides evenly arcuate from base to narrowed and prolonged apex in female; disc as in *P. blairi* except that pile is more inclined. Beneath somewhat rugose in front and rather finely punctured behind. Males with front ventral segments flattened and with dense patches of erect silky pile at middle of front and middle thighs behind. Front and middle tarsi also more dilated than usual. Length 6–7 mm., breadth 2–3 mm.

Holotype male, allotype female and numerous designated paratypes from a series of twenty-two specimens, collected on **Hood Island,** September 24–30, 1905 and February 1–14, 1906.

Superficially this species looks much like a large, more elongate, and in the female caudate specimen of the preceding species. It, how-

ever, has several positive characters of its own such as a different type of clypeal emargination, broader and more parallel-sided prothorax, and strikingly different sexual characters. There is considerable variation in size and shape, the females having the apex of the elytra not only prolonged but somewhat narrowed as well. It is wingless.

Pedonoeces apicalis Van Dyke, new species

Somewhat similar in size and general appearance to the preceding species, *P. caudatus,* but duller, the prothorax somewhat broader, two-fifths broader than long, the pronotum more finely and densely punctured, the punctures approximate over much of the area, the general surface alutaceous, the lateral margins very narrow, much less conspicuous than in the other species; the elytra with the striae more finely and shallowly punctured and the intervals with the punctures less sharply defined. Length 7 mm., breadth 3 mm.

Holotype, a unique female, slightly immature, rufous in color instead of piceous, collected on **Tower Island**, September 14, 1905, by F. X. Williams. This female specimen has the apex of the elytra slightly extended and the sutural intervals conspicuously elevated at the sutural angle as in the females of *P. caudatus,* and divergent. It is most readily separated from *P. caudatus* by the broader prothorax, more densely punctured pronotum, and more finely margined sides of pronotum.

Pedonoeces uniformis Van Dyke, new species

Of moderate size, elongate, elliptical, rufopiceous, and finely and sparsely pubescent, the pile very short and semierect on elytra. Head rather densely punctured, a transverse impression in front of the eyes, clypeus triangularly emarginate; antennae not reaching hind margin of prothorax, third segment about three-fourths length of two following united, gradually clavate from sixth segment, tenth transverse. Prothorax one-fourth broader than long, apex broadly emarginate, base bisinuate, sides feebly arcuate, slightly narrowed in front; disc rather coarsely, densely punctured. Scutellum finely punctured. Elytra two-sevenths longer than broad and almost two and a half times as long as prothorax, widest behind the middle, sides feebly arcuate and gradually narrowed and rounded to apex; disc with striae sharply and deeply impressed and coarsely as well as closely and crenulately punctured. Beneath coarsely and rugosely punctured in front, somewhat coarsely and densely punctured behind. Length 5 mm., breadth 2.25 mm.

Holotype, a unique collected near **Wreck Bay, Chatham Island,** in October 1906, by F. X. Williams.

This species is somewhat similar and suggestive of *P. blairi* but it has a narrower prothorax and coarser pronotal punctures, the elytral striae more deeply and somewhat more widely and very much more coarsely punctured, and the intervals more narrowly and distinctly elevated. It is in a way a species intermediate between the members of the *"pubescens"* group and those of the *"galapagoensis"* group.

Pedonoeces bauri Linell

Plate V, figure 3

Pedonoeces bauri Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 265.
Pedonoeces bauri Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

Rather large, elongate, elliptical, rufopiceous, alutaceous, glabrous except for a few short hairs above eyes and at sides and apex of elytra. Head finely, somewhat sparsely punctured, clypeus emarginate at middle; antennae rather slender, not reaching hind margin of prothorax, third segment almost one-fourth shorter than the two following united, gradually clavate from sixth segment with tenth alone transverse. Prothorax almost one-third broader than long, apex broadly emarginate, base bisinuate, sides feebly arcuate behind, more rounded and narrowed towards apex, disc convex yet somewhat flattened at middle, finely and quite distantly punctured. Scutellum minutely punctured near hind margin. Elytra two-fifths longer than wide and less than twice as long as prothorax, sides very feebly arcuate to posterior third thence more rounded and narrowed to apex; disc convex, but somewhat depressed near suture, striae deeply and broadly impressed and rather coarsely but not closely punctured; intervals convex and well elevated, especially on declivity, and minutely, sparsely punctured. Beneath rugose in front, finely and sparsely punctured behind. Males differing only by having front ventral segments concave and fore tarsi dilated as usual. Length 6–8 mm., width 2.5–3.25 mm.

The type locality is Chatham Island. The California Academy of Sciences has seventy-six specimens, collected in October, 1905, by F. X. Williams. They show considerable variation in size, proportionate length, in size of strial punctures and degree of elevation of intervals, particularly on declivity.

This species is the first of the robust group and is characterized in particular by the rather broad strial impressions of the elytra, coarse punctures, and well elevated convex intervals. Its closest ally is *P. galapagoensis* which has a proportionally longer, narrower prothorax

with sides sinuate basally, somewhat coarser and deeper discal punctures and more shining surface. Its elytra are also more spatulate, with more sulcate and more coarsely punctured striae and narrow and somewhat costate intervals as well as more coarsely punctured ventral segments and definite male sexual differences.

Pedonoeces galapagoensis G. R. Waterhouse

Plate V, figure 4

Pedonoeces galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 35.

Pedonoeces galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., V, p. 82.

Pedonoeces galapagoensis G. R. Waterhouse, Linell, 1898, U. S. Nat. Mus., XXI, p. 265.

Pedonoeces galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 236.

Pedonoeces galapagoensis G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 479.

Somewhat elongate, robust, rufopiceous, more or less glabrous and shining. Head rather coarsely and somewhat irregularly and densely punctured, transverse impression in front of eyes, clypeus emarginate; antennae not reaching hind margin of prothorax, third segment as long as two following united, clavate from eighth segment and with tenth definitely transverse. Prothorax over one-fifth broader than long, widest in front of middle, apex broadly emarginate, base bisinuate, sides sinuate near base, arcuate forwards to beyond middle thence rounded and narrowed to apex, hind angles rectangular and with fovea at inner side; disc convex, densely and somewhat coarsely punctured, punctures often elongate. Scutellum finely punctured. Elytra spatulate, about one-fourth longer than broad and over twice as long as prothorax, sides arcuate, gradually wider to posterior third, thence evenly rounded to apex; disc convex, striae broadly and deeply impressed and both coarsely and more or less closely punctured, intervals narrow; well elevated and somewhat costate, especially posteriorly, also more or less alternately unequally elevated on declivity, and minutely punctured. Beneath coarsely rugose in front and rather coarsely, somewhat closely punctured behind. Males with anterior ventral segments slightly concave, a deep circular impression on last ventral segment, and patches of erect and golden pile on inner face of all femora in addition to the usual dilated tarsi. Length 7 mm., breadth 3.25 mm.

Type locality James Island. The California Academy of Sciences has eight specimens collected there, January 1–4, 1906, by F. X. Wil-

liams. This species is, as has been stated, most closely related to *P. bauri* but readily separated by the characters given. The only other species that might be compared with it are *P. costatus* and *P. morio*. *Pedonoeces costatus* has the pronotum striate as the result of longitudinal anastomosing of coarse, close punctures and the elytra, though spatulate, with the intervals unequally elevated throughout the carinate. It also is from James Island. *Pedonoeces morio* from Indefatigable Island is more convex, blacker, subopaque, with the elytral sulci more angulately impressed and the punctures somewhat obsolete, and the intervals decidedly carinate.

Pedonoeces spatulatus Van Dyke, new species

Plate V, figure 5

Narrow, elongate, flattened, rufopiceous, sparsely clothed with minute and closely appressed pile. Head coarsely and densely punctured, transverse impression in front of eyes, clypeus moderately emarginate; antennae almost reaching hind margins of prothorax, third segment about as long as two following united, clavate from eighth segment, tenth segment transverse. Prothorax about one-fourth broader than long, apex broadly emarginate, base trisinuate; sides almost straight and parallel in basal half, arcuate and gradually narrowed to apex; disc feebly convex, coarsely and densely punctured, hind angles acute. Scutellum finely punctured. Elytra spatulate, widest behind middle, three-eighths longer than broad and over twice as long as prothorax, sides feebly arcuate and gradually wider until behind middle thence convergent to rather acute and produced apex; disc with striae well impressed, finely and closely punctured, intervals wider than striae, the odd more elevated than the even and somewhat more evidently though obtusely carinate and all minutely punctured. Beneath coarsely punctured and rugose in front and finely and sparsely punctured behind. Males with anterior sternites shallowly concave and last ventral segment broadly impressed and with a posterior semicircular carina, the front tarsi dilated as usual. Length 6 mm., breadth 2.5 mm.

Holotype, allotype, and seven paratypes collected on **Hood Island**, February 1 and 4, 1906, by F. X. Williams. With this species, I have associated a single specimen from Gardner Island near Hood, collected in October 1905, by F. X. Williams.

This flat species is in general facies more like *P. caudatus* and should really follow it except for the fact that the elytral intervals are somewhat carinate; they are also more irregularly elevated. It is quite a distinct species.

Pedonoeces barringtoni Van Dyke, new species

Plate V, figure 9

Elongate, parallel sided, more or less flattened, coarsely sculptured, subopaque; rufopiceous, with antennae, mouthparts, and legs rufous. Head coarsely and also closely and reticulately punctured, transverse impression in front of eyes, clypeus shallowly emarginate, antennae extending to posterior third of prothorax, third segment almost equal in length to the two following united, gradually clavate from the ninth segment and without any transverse segments. Prothorax one-fourth broader than long, apex emarginate, base bisinuate, sides almost parallel posteriorly and rounded to apex; disc coarsely, closely, reticulately punctured. Scutellum finely, closely punctured. Elytra twice as long as broad and almost three times as long as prothorax, sides almost straight and feebly narrowing to posterior third thence arcuate and convergent to apex; disc with striae broadly impressed and with flat bottoms in which the punctures are coarsely, closely, and shallowly impressed, the intervals narrow, about one-third width of striae and acutely carinate. Beneath coarsely and shallowly punctured in front, less coarsely but equally shallowly punctured behind and dull and rugose. Front ventral segments concave at middle and last ventral segment broadly impressed. Length 5 mm., breadth 2.25 mm.

Holotype, a unique male, collected on **Barrington Island,** October 19–24, 1905.

This very distinct species, should in a way follow the members of the *"pubescens"* group but the coarse sculpturing and acutely carinate elytral intervals in spite of its flatness and parallel form throw it nearer the members of the *"lugubris"* group.

Pedonoeces morio (Boheman)

Tessaromma morio Boheman, 1858, Fregatten Eugenies Resa, I, p. 92.

Pedonoeces morio (Boheman), C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Pedonoeces morio (Boheman), Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 265.

Pedonoeces morio (Boheman), Mutchler, 1925, Zoologica, V, no. 20, p. 237.

Pedonoeces morio (Boheman), Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 479.

Moderate size, robust, black or dark piceous, convex, glabrous above, Head finely and rather sparsely punctured, transverse impression in front of eyes, clypeus acutely emarginate; antennae almost reaching hind margin of prothorax, third segment shorter than two

following united, clavate from seventh segment, tenth segment transverse. Prothorax almost two-fifths broader than long, apex broadly emarginate, base bisinuate, sides straight and parallel for basal half, convergent and feebly arcuate to apex, hind angles subacute and slightly extended backwards; disc very convex, finely and rather densely punctured and with head markedly alutaceous and opaque. Scutellum finely, sparsely punctured. Elytra very convex, alutaceous, two-fifths longer than broad and over two and a half times as long as prothorax, sides feebly arcuate, more rounded and convergent to apex; disc deeply and acutely sulcate, with fine yet evident and well spaced punctures, intervals broad, carinate and with summits finely punctured. Beneath, coarsely and shallowly punctured in front, rather coarsely and discretely punctured behind and longitudinally rugose. Males with front ventral segments concave, last ventral segment flattened apically and a small sparse patch of yellow pile on undersurface of middle and hind femora. Length 7 mm., breadth 3 mm.

Boheman gives no particular island for his specimens. Blair lists one from James Island. The specimens in the California Academy of Sciences Collection which fit the description are five specimens from Indefatigable Island, collected May 5, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition. These vary somewhat in size, most being a bit larger than the length given by Boheman, 5½ mm.

This opaque species with distinctly sulcate elytra, punctured striae and carinate intervals should be confused with no others. In *P. costatus,* the pronotum is coarsely sculptured, with somewhat strigose punctures, and elytral intervals unequally elevated. In *P. lugubris* and those species which are associated with it, the elytral sulci are impunctate.

Pedonoeces batesoni Blair

Pedonoeces batesoni Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 479.

I have no specimens of this species before me.

Pedonoeces duncani Van Dyke, new species

Very similar to *P. morio* in shape and general appearance but somewhat more elongate and less convex. Head coarsely and densely yet shallowly punctured and rugose, transverse impression in front of eyes vague, clypeal emargination acute. Prothorax two-fifths broader than long, apex broadly and somewhat shallowly emarginate, base markedly

bisinuate, sides straight and feebly divergent from base to beyond middle and thence arcuate and narrowed to apex; disc coarsely, closely punctured with most punctures longitudinally anastomosing producing an irregular striate appearance. Elytra three-eighths longer than broad, acutely sulcate with strial punctures fine but well impressed and close, the intervals of equal width to sulci and raised and carinate. Beneath coarsely punctate and rugose in front, more distinctly and discretely punctured behind.

Holotype, a mature piceous specimen, 6 mm. long and 2.5 mm. wide, probably a male, a paratype of the same size but immature and two larger mature specimens, 7 mm. long by 3 mm. wide, presumably females, collected on **Duncan Island**, the first two August 14, 1906, and the others December 1–17, 1905, by F. X. Williams.

This species belongs near *P. morio* as shown by its general appearance and elytral sculpturing but its more flattened upper surface and grossly punctured head and pronotum readily separate it.

Pedonoeces costatus G. R. Waterhouse

Plate V, figure 6

Pedonoeces costatus G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 35.

Pedonoeces costatus G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 265.

Pedonoeces costatus G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

Pedonoeces costatus G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 479.

Moderate in size, robust, black or piceous with antennae, mouthparts and legs rufous, quite convex above, and glabrous. Head coarsely and closely punctured, more finely so in front and behind, alutaceous, transversely impressed in front of eyes, clypeus broadly emarginate; antennae about reaching posterior third of prothorax, third segment fully as long as two following united, clavate from eighth segment, ninth and tenth segments transverse. Prothorax about one-fifth broader than long, quite convex, apex broadly emarginate, base bisinuate, sides feebly arcuate from base to middle thence more gradually rounded and narrowed to apex, hind angles broad and acute and projecting backwards; disc irregularly longitudinally striate and punctate. Scutellum finely punctured. Elytra over one-fourth longer than broad, and fully twice as long as prothorax, somewhat spatulate in shape, humeri rounded, sides arcuate and well rounded to apex; disc very convex, sulci broad and deep, the strial punctures well rounded as well as well spaced

and well impressed, intervals narrowly carinate, the third, fifth, and seventh considerably more elevated than others, general surface alutaceous. Beneath coarsely and densely punctured in front, more sparsely and more finely so towards apex of abdomen, and entire abdomen quite alutaceous. Males with front ventral segments broadly concave, the last ventral segment broadly excavated, the second and third femora with dense patches of yellow pile beneath and the first less distinctly pubescent. The females with last ventral segment deeply impressed. Lengths 6–7 mm., breadth 2.5–3 mm.

James Island is the type locality. The California Academy of Sciences has numerous specimens from there, all collected by F. X. Williams on January 1–4, 1906. It is a well defined species because of its striate pronotum and elytra with alternately elevated costae and well defined strial punctures. It is only closely approached by the next species.

Pedonoeces williamsi Van Dyke, new species

Of moderate size, elliptical, robust, rufous (probably immature), very convex above and glabrous. Head very coarsely and closely and also cribrately punctured, transversely impressed in front of eyes, clypeus bilobed in front; antennae extending well back of middle of prothorax, third segment as long as two following united, gradually clavate outwards, ninth and tenth segments transverse. Prothorax fully two-fifths broader than long, apex broadly emarginate, base broadly lobed at middle, sides almost straight and feebly diverging from base to middle and thence arcuate and gradually narrowed towards apex, hind angles almost rectangular; disc very convex, feebly longitudinally impressed at middle with well marked fovea in front of scutellum and coarsely as well as closely and cribrately punctured with tendency of punctures near middle to longitudinally anastomose. Scutellum with a few obscure punctures. Elytra one-fourth longer than broad and over twice as long as prothorax, sides feebly arcuate from base to posterior third, thence more rounded and rapidly narrowing to apex; disc very convex, sulci broad and deep, the strial punctures rather close and round and moderately impressed, intervals narrowly costate with the third and fifth and seventh somewhat more elevated than the others, the general surface shining yet with sulci alutaceous. Beneath very coarsely and umbilicately punctured in front and rather coarsely and somewhat closely punctured behind and smooth and shining. Length 6 mm., breadth 2.5 mm.

Holotype, a unique collected on **Indefatigable Island**, October 25–28, 1905, by F. X. Williams.

This species somewhat resembles the preceding but its elliptical shape, very coarse punctuation on the upper surface and beneath and the sharp carinae of all intervals should separate it. The specimen appears to be slightly immature to judge from the color.

Pedonoeces lugubris (Boheman)

Plate V, figure 8

Tessaromma lagubris Boheman, 1858, Fregatten Eugenies Resa, I, p. 91. Tafl. 1, fig. 5.

Pedonoeces lugubris Boheman, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, pp. 479–480.

Large to moderate size, robust, somewhat elongate, dull black, with depressed and minute hair scattered over the head and prothorax and to a lesser extent the elytra; antennae rufous and legs rufopiceous. Head alutaceous, rather finely and discretely punctured, transversely impressed in front of eyes, clypeus broadly emarginate in front; antennae extending beyond middle of prothorax, third segment as long as two following united, four other segments gradually enlarged to form a loose club with the eighth and ninth segments triangular and the tenth and eleventh segments transverse. Prothorax a little less than one-third broader than long, apex broadly emarginate with anterior angles obtusely projecting, base bisinuate with broad median lobe, hind angles acute and moderately projecting backwards, sides broadly and evenly arcuate from base to apex, feebly narrowed to front; disc moderately convex, very feebly longitudinally impressed at middle, alutaceous and finely punctured. Elytra somewhat spatulate, almost two-fifths longer than broad, twice as long as prothorax and distinctly narrower at base than base of prothorax, sides feebly arcuate, gradually wider to beyond middle thence evenly rounded to apices, disc convex though somewhat flattened medially, sulci broad and deep, the strial punctures sparse and fine and also obscure, intervals narrowly carinate and equally elevated, and more or less evidently punctured at apices with minute punctures, the general surface dull and alutaceous as are the head and pronotum. Beneath dull, coarsely, closely, umbilicately punctured and rugose in front, less coarsely punctured behind as far as last abdominal segment which is still more finely punctured. Males much smaller than females with front femora dilated and anterior tibiae broadly and triangularly dentate within at middle and with a few short spines in front of dentation, the abdomen longitudinally impressed at middle, and last segment broadly and deeply impressed and rounded at apex; females with

all tibiae normal, the abdomen not impressed in front and last ventral segment impressed only near apex and with latter somewhat blunt. Males, length 6.5 mm., breadth 2.5 mm., females 8–10 mm. length by an average of 3 mm. wide.

The specimen so well illustrated by Boheman was evidently a large-sized female. The species was also listed by Boheman as from Panama but according to Blair was probably so listed in error, the real locality being one of the Galapagos Islands. Blair listed nine specimens from Eden Island, a small island near Indefatigable, and one from Indefatigable. The California Academy has two specimens from Indefatigable Island, including one fully as large as that figured by Boheman, one collected on Abingdon Island, September 8–23, 1906, and a large series, eighty specimens of average size, from various places in Albemarle Island: Villamil, Iguana Cove and Bank's Bay and a series of nine much smaller specimens, 5 mm. in length, from Albemarle Island, collected in March and April, 1906. With these smaller specimens I have associated one from Hood Island, collected September 24–30, 1905, not appreciably distinguishable. All of the above were collected by F. X. Williams except the largest female from Indefatigable which was collected May 4, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition.

This sooty black species is a very distinct one and apparently only approached by two species, possibly offshoots isolated each on one of the smaller islands, *P. duncani* on Duncan Island and *P. opacus* on Jervis Island.

Pedonoeces opacus Van Dyke, new species

Similar in general appearance to the above but both sexes are of about the same size as the males of *P. lugubris*, the differentiating features being that the punctuation of the head in *P. opacus* is coarse and much denser; that of the pronotum very much coarser, approximate, and somewhat aciculate; the hind margin of prothorax less deeply emarginate near angles thus reducing the prominence of the middle lobe and the extent to which the angles themselves project backwards; the carinae of the elytra less sharply carinate and more evidently and irregularly crenulate at apices, and the general surface duller and in general less evidently alutaceous. In the males, the front femora are dilated and angularly arcuate along the outer margin as in *P. lugubris* but in the front tibiae are normal; there is also often a tuft of pile on the posterior face of the middle femora near the base which seems to be absent in the other. Male, length 6 mm., breadth 2.5 mm., female, length 6.5 mm., breadth 3 mm.

Holotype male, allotype female and two paratypes, male and female, all collected on **Jarvis Island,** December 18–20, 1905.

The coarser sculpturing of head and pronotum, less sinuation of hind margins of prothorax, less sharply defined elytral carinae, and generally duller appearance should place this species apart from *P. lugubris.*

Key to Species of Genus Pedonoeces G. R. Waterhouse

1. Elytral intervals flat or feebly elevated at most, striae fine and shallow; sparsely pilose; rather small and with rudimentary wings 2
— Elytral intervals well elevated, convex or carinate, striae deeply impressed or sulcate 4
2. Pronotal punctures very fine and well separated, elytral striae quite distinct and rather coarsely, closely punctured; general surface alutaceous and finely, sparsely pubescent ..... *P. pubescens* G. R. Waterhouse
— Pronotal punctures rather coarse, deep and close, elytral striae finely impressed and rather finely punctured; general surface more uniformly pubescent 3
3. Strial punctures variable but those of intervals almost as evident as those of striae ..... *P. wenmani,* new species
— Strial punctures distinct and close, those of intervals very fine, elytra more or less shining ..... *P. culpepperi,* new species
4. Elytral intervals merely convex, not sharply carinate 5
— Elytral intervals evidently carinate 10
5. The intervals but moderately elevated and convex, striae and strial punctures fine, general surface more or less pilose under magn 6
— The intervals well elevated but convex or blunt at apices, striae broad and deep, punctures coarse 8
6. Prothorax two-ninths broader than long, sides somewhat arcuate, strial punctures of elytra fine and interstrial punctures very fine but distinct, elytral apex normal ..... *R. blairi,* new species
— Elytral apex prolonged or caudate in female 7
7. Prothorax one-third broader than long, pronotum densely punctured but with punctures not contiguous, the lateral margins very distinct, rather broad, strial punctures of elytra rather coarse. Hood Island ..... *P. caudatus,* new species
— Prothorax two-fifths broader than long, pronotum densely punctured and punctures more or less contiguous, the lateral margins fine, strial punctures of elytra fine and shallowly impressed. Tower Island ..... *P. apicalis,* new species
8. Pronotum somewhat coarsely, closely punctured, strial punctures approxi-

mate, intervals very finely punctured, surface minutely pubescent..... *P. uniformis*, new species

— Pronotum very finely, not closely punctured, strial punctures coarse and well spaced, surface glabrous..... 9

9. Prothorax one-third broader than long, punctures fine, surface dull and alutaceous, sides more or less straight and parallel behind; elytra with sides parallel in front, intervals rather unequally elevated and always well rounded at summits; male femora simple..... *P. bauri* Linell

— Prothorax less than one-third broader than long, punctures fine but deep, surface shining, sides sinuate behind, elytra subspatulate, intervals equally elevated and subcarinate; male femora with patches of erect golden pile..... *P. galapagoensis*, G. R. Waterhouse

10. Elytral sulci distinctly punctured..... 11

— Elytral sulci without distinct punctures..... 17

11. Somewhat flattened, narrow and elongate species, pronotum rather coarsely, very densely punctured..... 12

— More or less elliptical and conspicuously convex species..... 13

12. Shining, pronotal punctures dense and sharply impressed, elytral intervals unequally elevated..... *P. spatulatus*, new species

— Subopaque, pronotal punctures close but variolate, elytral intervals equally elevated..... *P. barringtoni*, new species

13. Pronotum alutaceous and rather finely not closely punctured; elytral intervals equally elevated in front..... 14

— Pronotum coarsely sculptured, the punctures large and more or less anastomosing..... 15

14. Strial punctures fine, sulci and intervals obtuse angulated..... *P. batesoni* Blair

— Strial punctures coarse, sulci broad and deep with narrow intervals..... *P. morio* (Boheman)

15. Elytral intervals equally and sharply elevated and carinate..... *P. duncani*, new species

— Elytral intervals unequally elevated..... 16

16. Pronotum somewhat strigose as result of longitudinal anastomosing of punctures, punctures of head discrete; abdominal punctures rather fine..... *P. costatus* G. R. Waterhouse

— Pronotum and head very coarsely punctured, punctures somewhat confluent but pronotum strigose, abdominal punctures coarse and close..... *P. williamsi*, new species

17. Sooty, black species, pronotum very finely and closely punctured, hind angles somewhat acute, elytral costae sharply and smoothly defined, abdomen shallowly punctured and rugose, females often quite large..... *P. lugubris* (Boheman)

— Dull black, opaque, the pronotal punctures coarse, contiguous and longitudinally anastomosing so as to give a strigose appearance; abdomen somewhat discretely punctured..... *P. opacus*, new species

Phaleria manicata Boheman

Plate VI, figure 1

Phaleria manicata Boheman, 1858, Fregatten Eugenies Resa, I, p. 92.
Phaleria manicata Boheman, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.
Phaleria manicata Boheman, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 266.
Phaleria manicata Boheman, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

Robust, ovate, somewhat convex, testaceous with variable black markings, upper surface smooth and alutaceous, and lateral margins of prothorax and elytra densely fimbriated with long yellowish pile. Head very finely, sparsely punctured and transversely impressed in front of eyes. Prothorax over one-third broader than long, apex broadly emarginate, base somewhat sinuate with feeble median lobe, sides almost straight and parallel or feebly sinuate at basal half and moderately arcuate and narrowed forwards, the disc finely and sparsely punctured and with a short longitudinal impression in front of scutellum and small fovea between impression and lateral angles. Elytra one-fifth longer than wide and three times as long and one-fourth broader at middle than prothorax, sides feebly arcuate from base to posterior third and then gradually rounded to apex, disc with striae well impressed, intervals convex and finely and sparsely punctured. Beneath unicolorous testaceous, smooth, finely alutaceous and very minutely and sparsely punctured. The feet robust as usual in genus, femora punctured and setaceous, tibia broadly dilated outwardly, the apex lobed on outer side, coarsely punctured, more or less setose and densely set with short stubby spines. Length 7 mm., breadth 4 mm.

This robust species is quite variable in color and color pattern, ranging from almost entirely testaceous above to almost entirely black, the lateral margins alone being testaceous. The usual color pattern is for the pronotum to be margined with black at apex and have a broad band at base; the elytra to have a broad transverse band near base, which is continued backwards two intervals wide, along the suture to near the middle where it becomes greatly expanded, often covering most of the disc, then narrowed to a sutural vitta as it approaches the apex.

Boheman's specimens are cited as coming from the Galapagos Islands without indicating any particular island. The California Academy of Sciences has a series of twenty-six more or less maculate specimens from Banks Bay, Albemarle Island, collected April 10–17, 1906, by F. X. Williams. This series I consider to be typical. Besides these, we have mounted a series of sixty-seven specimens of a prae-

tically immaculate phase from a series of several hundred specimens from Hood Island, collected during January and February, 1906, by F. X. Williams and a set of twelve smaller specimens with a small fuscous blotch at the middle of the elytra, four from Barrington Island, October 19–24, 1905, one from Charles Island, October 3, 1905, and six from Albemarle Island, March, 1906. These I consider but color phases of *P. manicata*. The genus is a wide spread one with representatives along the seacoasts of the continents of both the Old and New World.

Gnathocerus cornutus (Fabricius)

Trogosita cornuta Fabricius, 1798, Supplem. Entomologica Syst., Hafnia, p. 51.

Gnathocerus cornuta (Fabricius), Thunberg, 1814, Beshr. p. t. nya ins. sl. Gnathocerus etc., Vetensk. Acad. Handl. p. 47.

Gnathocerus cornutus (Fabricius), Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 266.

Gnathocerus cornutus (Fabricius), Mutchler, 1925, Zoologica, V, no. 20, p. 237.

This cosmopolitan grain beetle which has an extensive bibliography of which I have given only the essential items, was first collected in the Galapagos Islands on Albemarle Island by Dr. B. Baur and recorded by Linell. Two specimens were also taken on Albemarle Island by F. X. Williams, in March 1906, three on James Island, January 5, 1906, and seven at Villamil, S. Albemarle, August 20, 1906. At the last location there is a permanent settlement so it is not surprising to find this cosmopolitan grain beetle there.

Alphitobius laevigatus (Fabricius)

Carabus laevigatus Fabricius, 1781, Species Insect., I, p. 304.

Helops piceus Olivier, 1792, Encycl. Method. Insect., VII, p. 50.

Alphitobius picipes Stephens, 1832, Ill. Brit. Mandib., V, p. 11.

This beetle, now widely distributed throughout the world by commerce, common in the Hawaiian Islands, was collected on Charles Island, May 23, 1906, by F. X. Williams. Eleven specimens were taken.

Rhacius costipennis Blair

Plate VI, figure 3

Rhacius costipennis Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 480.

This species has been but recently described and will not be considered further here.

The California Academy of Sciences possesses one specimen collected on Indefatigable Island, May 5, 1932, by M. Willows, Jr., of the Templeton Crocker 1932 Expedition. This specimen was carefully compared with the type by Dr. Blair and labeled as the same. The undersurface is bright rufous, contrasting strongly with the upper surface. There are but three described species in the genus.

Genus **Prateus** Le Conte

Prateus LeConte, 1862, Class. Col. N. Amer. (Smith. Contr.), p. 238; 1866, New Spec. N. Amer. Col. (Smith. Contr.), p. 131.

Lorelus Sharp, 1876, Entom. Mo. Mag., 13, pp. 76–77.

The type of *Proteus* is *P. fusculus* Le Conte, from the middle and southern states of the United States; the type of *Lorelus* Sharp is *L. priscus* Sharp from New Zealand. According to Champion in notes in the British Museum of Natural History Collection, they are congeneric. Besides *P. fusculus* Le Conte, originally described from Texas, the genus contains numerous species described under *Lorelus* from Central and South America, New Zealand, and there are in the British Museum of Natural History collection, many undescribed species from southern Asia, Africa, and elsewhere. The general facies of these small members of the Tenebrionidae is that of the larger Cryptophagidae.

Prateus dentatus Van Dyke, new species

Small, moderately elongate, more or less flattened, rufopiceous above, humeri lighter, the legs and underside rufocastaneous. Head rather coarsely and closely punctured, punctures almost contiguous in front, finely alutaceous, with feeble transverse impression in front of eyes; antennae almost reaching hind angles of prothorax, gradually and feebly clavate, third segment fully twice as long as second, fourth but little longer than broad, the fifth to tenth gradually more transverse and broader; eyes moderately convex, coarsely faceted, transverse, widest above and truncate posteriorly. Prothorax about a fourth wider than long, apex broadly emarginate and about one-fifth wider than base, base broadly lobed, the hind angles right and prominent; sides margined, feebly divergent from base almost to middle, thence arcuate and gradually rounded to apex and provided with four well marked denticles, two just behind middle, one-half way from middle to apex and the fourth between this and apex; the disc feebly convex, coarsely and closely punctured and with slight antescutellar impression and finely alutaceous. Scutellum moderate in size, transverse and feebly punctured. Elytra about twice as long

as broad and three times as long as prothorax, humeri rounded but almost rectangular, the sides gradually yet very feebly divergent from base to posterior third and thence evenly rounded to acute apices, the lateral margin well defined; disc somewhat flattened, coarsely and closely punctured, very sparsely and finely pilose, the individual fulvous hairs arising from the punctures, the humeral umbones prominent and without evidence of striae. Beneath coarsely and closely punctured in front and subopaque, more finely and distinctly punctured behind and shining, and with very sparse and minute fulvous pubescence. Length 4 mm., breadth 1.5 mm.

Holotype, a unique collected on **Indefatigable Island**, July 20–24, 1906, by F. X. Williams.

This small yet interesting species upon comparison with the extensive series in the British Museum of Natural History Collection was found to differ from all by having the sides of the prothorax more broadly rounded, the margins dentate, and the third segment of the antennae about twice as long as the second.

Family **ANOBIIDAE**

The California Academy of Sciences Expedition secured but two species of this family. The St. George Expedition of 1891, collected four species, two at light and the others from the herbage and rotting wood. These were described by Dr. Blair.

Trichodesma denticollis Blair

Trichodesma denticollis Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, vol. i, p. 675.

This species is not represented in the collection of the California Academy of Sciences.

Thaptor galapagoensis Blair

Thaptor galapagoensis Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, vol. i, p. 676.

The California Academy of Sciences possesses one specimen collected at Academy Bay, Indefatigable Island, in January, between 18–22, 1906, by F. X. Williams.

Eupactus georgicus Blair

Eupactus georgicus Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, vol. i, p. 676.

The California Academy has one specimen from Indefatigable Island, collected in November 17–19, 1905, by F. X. Williams that is possibly this species.

Eupactus alutaceus Blair

Eupactus alutaceus Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, vol. i, p. 677.

This species is not represented in the collection of the California Academy of Sciences.

Family **BOSTRICHIDAE**

Tetrapriocera longicornis (Olivier)

Apate longicornis Olivier, 1795, Ent. IV, nr. 77, p. 15, t. 3, f. 18.

Tetrapriocera schwarzi Horn, 1878, Proc. Am. Phil. Soc., XVII, p. 545, f.

Tetrapriocera longicornis Olivier, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 256.

Tetrapriocera longicornis Olivier, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

Linell makes the following remarks concerning this species: "One example taken on Indefatigable Island by the Albatross Expedition in 1888. The species is distributed from southern Florida and West Indies to Central and South America." Mutchler in 1925 refers to this note but adds no new information. In the California Academy of Sciences Collection, is one specimen collected on Duncan Island, on December 1, 1906, by F. X. Williams. This specimen, I checked with a specimen of *Tetrapriocera tridens* Lesne *(not* Fabricius), a synonym of *I. longicornis* (Olivier), and found it to agree perfectly. It is also in agreement with three specimens labeled "*longicornis*" which we have from Florida.

Micrapate scabratus (Erichson)

Rhizopertha scabrata Erichson, 1847, Wiegm. Arch. fur. Naturg., XIII, 1, p. 87.

Bostrychulus scabratus (Erichson), Lesne, 1898, Ann. Soc. Ent. Fr., LXVII, pp. 596, 612, f. 221.

Micrapate scabrata (Erichson), Lesne, 1938, Junk and Schenkling Coleopt. Cat., pars. 161, p. 46.

A single specimen from Chatham Island, collected May 23–29, 1906, by F. X. Williams, was compared in the British Museum of Natural History, with a specimen determined by Lesne as *Micrapate scrabatus* (Erichson) and found to agree perfectly. This is a widespread species, being listed from Peru, Bolivia, and Chile.

Amphicerus cornutus galapaganus Lesne

Amphicerus cornutus galapaganus Lesne, 1910, Bull. Mus. Paris, pp. 184–186.

Apate species G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 36.

Amphicerus punctipennis LeConte, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 256.

Amphicerus cornutus galapaganum Lesne, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

This insect was first cited by G. R. Waterhouse in 1845, from Darwin species. Later these same specimens were studied by Lesne and pronounced a subspecies. The species "*cornutus*" is widely distributed throughout North and South America. The weak subspecies is supposedly confined to the Galapagos Islands.

In the material collected in the Islands during 1905–1906 by the California Academy Expedition, there is a series of seventy specimens, collected on the following islands: Hood, February, 1906; Abingdon, September, 1906; Wenman, September 24, 1906; Duncan, December, 1905; Albemarle, April 30, 1906; and Indefatigable, January 11–22, 1906. The specimens from Hood and Indefatigable are the largest. The series is quite uniform as to sculpturing and general appearance.

When compared with typical specimens *Amphicerus cornutus* (Pallas) of which we have one hundred and twenty-eight from various places in southern California, Arizona, Texas, Utah, Florida, Lower California, western Mexico, and Hawaii, members of the subspecies appear to be smoother, more shining, with the granulations over the basal portion of the pronotum less pronounced and the elytral sculpturing less rugose and the punctuation less coarse and better spaced.

Family **SCARABAEIDAE**

This important family is but poorly represented in the Galapagos Archipelago, probably because of the general aridity of much of the region.

Copris lugubris Boheman

Copris lugubris Boheman, 1858, Fregatten Eugenies Resa, I, p. 42.

Copris lugubris Boheman, C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., V, p. 82.

Copris lugubris Boheman, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 258.

Copris lugubris Boheman, Mutchler, 1925, Zoologica, V, no. 20, p. 237.

This species has not been collected subsequent to the voyage of the *Eugenie* in 1858. It may possibly never have been taken on the Galapagos Islands, for many of the species cited by Boheman were no doubt given erroneous localities through the carelessness of the collectors as has been frequently pointed out.

Ataenius arrowi Hinton

Ataenius arrowi Hinton, 1936, Ann. Mag. Nat. Hist., ser. 10, 17, pp. 414–416, f. 1–4.

Ataenius cribrithorax Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 476.

The California Academy of Sciences has eleven specimens of this species: two from Tagus Cove, Albemarle Island, March 22, 1905, F. X. Williams, collector; two from Indefatigable Island, May 5, 1932, M. Willows, Jr., of the Templeton Crocker Expedition, collector; seven from Abingdon Island, September 18–23, 1906. This species is very close to *A. cribrothorax*. One of my Albemarle specimens has evident though reduced rugae at the sides of the head in front.

Ataenius scutellaris Harold

This beetle which is found in Mexico and the West Indies and extends well into South America, is characterized in the main by having the head coarsely punctured towards the base and gradually more finely so forwards and with the punctures fading out medially towards the front; with the pronotum convex and rather coarsely and densely punctured towards the sides and more finely towards the center; the scutellum sulcate and with a median longitudinal carina; and the elytra quite convex, with the humeral angles rectangular and toothed, the striae deeply impressed or sulcate, and somewhat obscurely punctured and the intervals greatly elevated, with an irregular row of punctures on either side and the median portion more or less carinated especially towards the sides.

The California Academy of Sciences has a series of fifty-two specimens, fifteen collected on Charles Island, April 30, 1906, twenty-four from Abingdon Island, September 8–23, 1906, one from Albemarle Island, April 24–27, 1906, and twelve from Chatham Island, January 1906, all by F. X. Williams.

Trox suberosus Fabricius

Trox suberosus Fabricius, 1775, Systema Entom., p. 31.

Trox suberosus Fabricius, Mutchler, 1925, Zoologica, V, no. 20, pp. 229, 238.

This rather large and common species of eastern North America which has been recorded from Central and South America as well as the West Indies and the Cape Verde Islands, was first reported from the Galapagos Islands by Mutchler, his single specimen having been taken on Tower Island, April 28, 1923, by the Harrison Williams Galapagos Expedition of the New York Zoological Society. The California

Academy of Sciences has twenty-one specimens: seven collected on James Island in December, 1905; one from Albemarle Island, in April 1906; three from Charles Island in April, 1906; two from Chatham Island, February, 1906; one from Hood Island, April 22, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932; one from Abingdon Island, September 18–23, 1906; and five from Villamil, S. Albemarle Island, March 4–14, 1906, as well as two from Cowley Mountain, Albemarle, August 9–13, 1905, the majority collected by F. X. Williams. This species has well developed wings, hence the wide distribution in the Islands could be accounted for.

Trox seymourensis Mutchler

Plate VI, figure 8

Trox seymourensis Mutchler, 1925, Zoologica, V, no. 20, pp. 229–230, 238.

In the California Academy of Sciences collection there are fifty-six specimens, most of which were collected at Villamil, S. Albemarle, August 20, 1906, by F. X. Williams, but there is one simply labeled "Albemarle Island, April 1906," another "Cowley Mt., Albemarle Island, July, 1906," and a well-worn elytron from Abingdon Island, picked up September 18–23, 1906. This species has well developed wings. The abundance of specimens from Villamil can be accounted for by the fact that there was a settlement there and some slaughtering carried on. Our Cowley Mountain specimen was carefully compared with Mutchler's type, both by Mr. Mutchler and myself, and found to be typical.

Trox galapagoensis Van Dyke, new species

Plate VI, figure 7

Oblong, black, more or less covered with an earthen-colored indument. Head feebly convex, prolonged in front to an obtuse angle, slightly depressed at apex, sides also strongly angulate, the margins fimbriated and surface irregularly studded with short setae. Prothorax two-fifths broader than long, apex broadly lobed at middle and with the angles prominent and projecting well forward, the base broadly arcuate, sides lobed, feebly emarginate in front of right-angled hind angles, suddenly constricted at base and margined with short setae; the disc longitudinally and shallowly sulcate at middle with an obtuse and sinuous ridge on either side, an elongate tubercle near hind angles, and a deep and oblique impression in front of this, the surface covered with a dense earthy colored indument through which project short and scattered setae. Scutellum one-third longer than broad and broadly

sulcate in front. Elytra about one-seventh broader than long, with sides broadly arcuate from base to apex and margined with short widely spaced setae; the disc evenly convex, with ten well elevated intervals, the odd the most prominent, and each surmounted with a series of small tubercles from the apex of which projects a short seta; the striae with a series of large, deeply impressed pit like punctures with small tubercle-like elevated anterior and posterior margins. The legs much as in *T. seymourensis* but the front tibia with lateral spines more equal in size and closer together. The true wings appear to be little more than one-half normal size therefore not functional.

Length 10 mm., breadth 6.5 mm.

Holotype, a unique, collected **Culpepper Island,** in September 1905, by F. X. Williams.

This species is of about the same size as *T. seymourensis* but differs by having a very different type of elytral sculpturing as indicated by the more regular elevation of the elytral intervals surmounted by small crater-like tubercules and the regular arrangement of the strial punctures, in *T. seymourensis,* striae and strial punctures appear to be absent.

Neoryctes Arrow

Neoryctes Arrow, 1908, Trans. Ent. Soc. Lond., p. 342.

Parapseudoryctes Mutchler, 1925, Zoologica, V, no. 20, pp. 237–238.

Pseudoryctes Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 258.

Oryctes Illiger, G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 26–27.

The genus *Neoryctes* was proposed by Arrow to replace *Pseudoryctes* Linell, the name of which was found to be preoccupied. Mutchler, not seeing the citation, later on also proposed a new name, *Parapseudoryctes. Neoryctes* of course has priority. Linell, however, was the first to note that the species *"galapagoensis"* of G. R. Waterhouse was very different from those associated under the Old World genus *Oryctes,* the genus to which Waterhouse assigned it, so erected the genus *Pseudoryctes* to receive it.

Neoryctes galapagoensis (G. R. Waterhouse)

Plate VI, figure 5

Oryctes galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 26–27.

Oryctes galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Oryctes galapagoensis G. R. Waterhouse, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 771, p. 191.

Pseudoryctes galapagoensis (G. R. Waterhouse), Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 250.

Neoryctes galapagoensis (G. R. Waterhouse) Arrow, 1908, Trans. Ent. Soc. Lond., p. 342.

Parapseudoryctes galapagoensis (G. R. Waterhouse), Mutchler, 1925, Zoologica, V, no. 20, pp. 237–238.

Mr. Waterhouse does not indicate from what island the species that he described came from. Linell states that the Albatross Expedition in 1888 collected one female on Chatham Island, the female that he undoubtedly used for drawing up his generic description, and that Dr. G. Baur obtained six males on the same island. No other specimens seem to have been collected between that date and 1938 when Mutchler separated out his species, *N. linelli,* from the known specimens. In 1905–1906, F. X. Williams collected fourteen specimens including both males and females, which run to *N. galapagoensis,* these came from the following localities: Chatham Island, July, 1906; Charles Island, March, 1906; and Cowley Mountain, Albemarle Island, July, 1906. These specimens range in size from 15 mm. to 17 mm. in length. The wings, though present, are much reduced in size and nonfunctional. Besides these are four large females, averaging 28 mm. from Chatham Island, July, 1906, that seem to fit Mutchler's species, *N. linelli.*

Neoryctes linelli Mutchler

Neoryctes linelli Mutchler, 1938, Am. Mus. Novitates, no. 981, pp. 10–11, figs. 10, 11 and 12.

The California Academy of Sciences has four specimens from Chatham Island, collected in July, 1906, by F. X. Williams.

Neoryctes sp. ?

Two specimens of the same size and general appearance as *N. galapagoensis* were collected on Indefatigable Island, one on May 2, 1932 by M. Willows, Jr., of the Templeton Crocker Expedition, the other on March 1906, by F. X. Williams. These are much smoother, more shining, in general more finely punctured, with the prothorax wider, and with the sides more broadly rounded. These I have set aside for further study. They may be new or merely a variety of *N. galapagoensis.*

Family **PASSALIDAE**

Passalus interruptus Linnaeus

Passalus interruptus Linnaeus, 1754, Mus. Adolph. Frieder; p. 82.

Neleus tlascala Percheron, 1835, Monogr. des Passales, etc., p. 35, t. 3, f. 5.

Neleus tlascala Percheron, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 257.

Neleus tlascala Percheron, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

Passalus interruptus Linnaeus is a rather large species which ranges from Texas to Argentine. Under the name *Neleus tlascala* Percheron, a synonym of the above, Linell lists a specimen as having been taken by the Albatross Expedition in 1891, on Charles Island. No specimens have been taken since. Numerous specimens collected on Cocos Island, by F. X. Williams, are much smaller than *P. interruptus,* and have been proven to be *Popilius lenzi* Kuwert.

Family **CERAMBYCIDAE**

This family, rich in South American species, has numerous representatives in the Galapagos Archipelago, some of which are also to be found on the South American mainland but most are restricted to the islands.

Parandra galapagoensis Van Dyke, new species

Male: rather large, elongate, subcylindrical, smooth and shining, dark rufous with legs and undersurface of afterbody a lighter color; the greater part of the head including most of the mandibles, eyes, and sides of head more or less black, the pronotum generally with an almost complete and fine marginal black line, likewise the apices of femora, tibiae, and tarsal segments black or at least dark in color.

Head transverse, front feebly convex, sparsely punctured, a well marked triangular impression at middle of front margin and the postocular region coarsely punctured and rugose; mandibles large, arcuate, as long as head, notched at apices, inner margin with a blunt tooth one-fourth distance back from apex and three or four smaller yet evident blunt teeth near middle, the entire surface also rather finely and sparsely punctured though more densely so towards apices; antennae almost reaching hind angles of prothorax, segments 4–6 triangular and as long as broad, 7–10 also triangular but longer than broad and eleventh fusiform and about three times as long as broad; eyes moderately prominent, evenly arcuate in front, suddenly constricted behind causing them to stand out prominently; submentum very coarsely punctured with punctures more or less anastomosing, the front margin smooth and flattened and anterior angles prominent and smooth except for a series of small punctures. Prothorax three-eighths wider than long at middle, narrower than head across eyes, apex broadly emargi-

nate, base feebly arcuate; sides, from obtusely rounded hind angles, divergent and oblique almost to middle, then straight and parallel to apex, the marginal bead broader posteriorly; disc flattened above and minutely, sparsely punctured. Scutellum cordiform and smooth except for a few small punctures. Elytra almost twice as long as broad, 15 mm. to 8 mm., three times as long as prothorax, the sides almost straight and parallel to posterior third thence arcuate and narrowed and suddenly rounded to apices; disc smooth and practically impunctate, the few very minute punctures only observed under considerable magnification. Beneath, the base of head and prothorax finely, sparsely punctured, the meso- and metasternum finely punctured and finely pilose and the abdomen rather coarsely, shallowly punctured and dull especially towards sides and apex. Wings large and fully developed. Length 28 mm., breadth 8 mm.

Female: Similar to male as far as color and general appearance go but with head smaller, frontal punctures finer and sparser, the postocular punctures also sparse and well separated; the mandibles short, two-thirds length of head, feebly arcuate. Emarginate at apex with pronounced tooth at inner part of notch, a vague tooth at middle of inner surface and two pronounced teeth, united at base near base of inner margin; the antennae somewhat shorter and with basal segments more transverse; and the submentum rather coarsely, sparsely punctured. Prothorax four-thirteenths broader than long, with sides rather evenly arcuate and feebly narrowed forwards. Length 23 mm., breadth 7 mm.

Holotype male, **James Island,** January 1906; allotype female, James Island, December, 1905; and several designated paratypes from a series of seventy-six specimens from James Island. There are also two rather small specimens from Indefatigable Island, January 11, 1906, and four somewhat larger females from San Tomas, Albemarle Island at 1200 feet altitude, collected September, 1906. Mr. F. X. Williams who collected all specimens tells me that he chopped all specimens out of rotten logs, on the mountain tops.

This species was compared with all Central and South American species in the British Museum of Natural History collection and not found to agree with any. It runs to *P. brachyderes* in Lameere's (1902) key, but differs from a cotype of the same in the British Museum in that the upper surface is very smooth, rather finely and sparsely punctate, and has long curved mandibles in the male in contrast to the almost straight mandibles in *P. brachyderes* which are without teeth along the inner border; by having large and confluent punctures behind the eyes in contrast to moderately coarse and well spaced ones;

by the antennae having the segments 4–6 as long as broad, 7–10 longer than broad and the eleventh at least three times as long as broad, the segments in brachyderes 4–8 being longer than as broad, 9–10 as long as broad, and the eleventh about twice as long as broad; the undersurface of the head coarsely and confluently punctured. In *P. galapagoensis* most of the undersurface posteriorly is quite smooth whereas it is well punctured anteriorly in the other. All the Lameere specimens of *P. brachyderes* come from Mexico.

Stenodontes molarius (Bates)

Mallodon molarium Bates, 1879, Biol. Centr. Amer., Col. V, p. 9.

Mallodon molarium Bates, Howard, 1889, Proc. U. S. Nat. Mus., XII, no. 771, p. 191.

Mallodon molarium Bates, Linell, 1898, Proc. U. S. Nat. Mus., XII, no. 1143, p. 259.

Stenodontes molarius (Bates), Mutchler, 1925, Zoologica, V, no. 20, p. 238.

As mentioned by Linell: "The Albatross expedition in 1888 collected on Charles, Chatham, and Auxican islands seventeen examples of this large Prionid, which is distributed from Lower California through Mexico and Central America to Panama. The species is amply winged."

The California Academy of Sciences has a series of twenty-four specimens from the Galapagos Islands, including six females, and from the following localities: Chatham Island, four, January, 1906, three, July 1906; Indefatigable Island, eight on January 2, 1906, and three in July, 1906; and Villamil, south Albemarle Island, six on March 22, 1906; all collected by F. X. Williams. The Villamil specimens are all considerably smaller than those from the other islands which are large, apparently of normal size. The Academy's specimens, especially the large males, are characterized by having the mandibles curved, the inner face concave and the front of the head very coarsely, rugosely, and approximately punctured. Mexican specimens, with which they have been compared, generally have the mandibles straighter and the punctuation of the head less rugose and less approximate. The island specimens thus appear to be a variety or weak subspecies.

A second species described by Mutchler, appears to me to be somewhat pathological, especially as regards the mandibles which are so rotated as to have the inner face turned upwards. It also comes from Indefatigable Island from whence Mutchler received fourteen specimens and the California Academy eleven specimens of *S. molarius*.

Stenodontus (Mallodon) galapagoensis Mutchler

Stenodontus (Mallodon) galapagoensis Mutchler, 1925, Zoologica, V, no. 20, pp. 11–12, plate, fig. 6.

The California Academy of Sciences does not possess specimens of this species.

Strongylaspis kraepelini Lameere

Plate VII, figure 5

Strongylaspis kraepelini Lameere, 1903, Mem. Soc. Ent. Belg., XI, p. 28 (Revision Prionides); 1919, Gen. Insect. (Wytsman), fasc. 72, p. 25, pl. 2, f. 4.

Large, robust, subcylindrical, dark reddish brown. Head of moderate size, slightly more than one-half width of prothorax, coarsely punctate-rugose, punctures somewhat finer behind eyes, larger punctures finely setiferous, narrowly longitudinally sulcate at middle, the clypeus triangular and flattened and depressed in front and in common with base of mandibles clothed with rather long golden pile, genae prominent and dentate, extending somewhat forward; mandibles short but robust and with well marked tooth near apex; antennae reaching the middle of elytra or a little beyond, more robust in male, first segment robust. Clavate and with large punctures, generally well separated but often confluent; second segment small, as broad as long in female, slightly longer than broad in male, third segment equal to fourth plus one-half of the fifth in female, and in male equal to the fourth plus a third of fifth, the terminal segments distinctly striate; eyes large and coarsely granular. Prothorax less than twice as wide as long, apex broadly yet feebly lobed at middle, front angles prominent, base broadly arcuate, sides with prominent and acute spine near base, sometimes dentate, then feebly arcuate and convergent forward to front angles and with margins irregularly serrate; disc convex, in female with general surface moderately coarsely and closely punctured and asperate, a well marked median groove extending from base two-thirds forward, the front portion more flattened and smooth and the smooth area connected laterally with a raised arcuate callosity which broadens out apically in the form of tubercules some distance before the front angles, the male with the punctures much coarser and more irregular, the median groove hardly evident, but the median smooth area becoming an irregular transverse callosity, the median basal area also somewhat elevated and smooth and the anterior arcuate line sharply elevated. Scutellum transverse and acutely granulate. Elytra less than two and one-half times as long as broad, almost five times as

long as prothorax, the disc rugose and punctate, with two well defined carinae besides broader and obtuse lateral carinae, the basal area granular and the sutural apices feebly dentate, the males with sculpturing more pronounced than in females. Length 30 mm., breadth 11 mm.

Three female specimens of this fine prionid were collected on James Island, during December, 1905, by F. X. Williams. One of these was compared with specimens from the type material kindly sent to the British Museum for my use by Hans Gebien of the Hamburg Museum. I also have a male from the type locality, Ecuador. According to Lameere, this species belongs in the true subgenus *Strongylaspis*, with the third antennal segment longer than the fourth and one-half of the fifth segment combined, the antennae not attaining the posterior third of the elytra in the female nor the extremity in the male. He considers it as an admirable transitional form between *Chiasmetes limae* Gúerin-Méneville and *Strongylaspis* of Central America. The Galapagos Island record for this species is its first record outside of the type locality record from Guyaquil, Ecuador.

Achryson galapagoensis Linell

Plate VII, figure 6

Achryson galapagoensis Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 259.

Achryson galapagoensis Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

The California Academy of Sciences collection contains eighteen specimens, ten collected on Chatham Island, February 23, 1905, two on same island in July, 1906, and three collected on South Seymour Island, July, 1906, by F. X. Williams, and a small male collected on Charles Island, May 15, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932. The series shows considerable variation in size and in the size and arrangement of markings, the Charles Island specimen not only being quite small but with the dark markings more evident than usual.

This species which is quite distinct from the well known and widely distributed *Achryson surinamum* (Linnaeus), found throughout eastern North America as well as much of South America, has hitherto been considered to be restricted to the Galapagos Islands. This is, however, not the case for I found in the British Museum of Natural History collection, fourteen specimens from the following localities: two from Eton, Peru; five from Chile; one from Quito, Ecuador; one from Colombia; and five without locality labels; all of the above could not be separated from the Galapagos Islands specimens. A Peruvian

specimen was absolutely identical with the specimen that I took abroad for purposes of comparison. This South American lot bore the manuscript name of *A. lineolatum* Chevrolat. It thus appears that this species is widely distributed throughout western South America as well as found in the Galapagos Islands.

Eburia lanigera Linell

Eburia lanigera Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 259.

Eburia lanigera Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

Eburia lanigera Linell, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, pp. 480–481.

The St. George Expedition of 1924 obtained two specimens of this species, one from James Island and one from Eden Island. Dr. Blair after reporting these, comments as follows:

"This appears to me to be only a variety of the Central-American and West-Indian *E. stigma* Oliv. Linell made no comparison with this species nor gave any indication of its position in the genus. Both Mr. Bateson's specimens have much shorter spines on both femora and elytra than normal *E. stigma.*"

The California Academy of Sciences possesses nineteen specimens of this species, collected by F. X. Williams from the following localities: three from Gardner Island near Hood, January, 1906; five from Chatham Island, February, 1906; two from Albemarle Island, one collected in December, 1905, the other April, 1906; one from Hood Island, November, 1905; four from Jervis Island, December, 1905; and four from Duncan Island, December, 1905. The entire lot are fairly uniform as to character. It is thus apparent that this beetle is the most common and widely distributed species of *Eburia* on the Islands.

Eburia proletaria Erichson

Eburia proletaria Erichson, 1847, Arch. für Naturgesch., XIII, i, p. 140.

Eburia proletaria Erichson, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 481.

Eburia bauri Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 260.

Eburia bauri Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

Elongate, subcylindrical, reddish brown, rather densely clothed with appressed grayish yellow pile and scattered hairs, especially evident on antennae, legs and upper surface. Head somewhat flattened between eyes; antennae long, in the male reaching four segments beyond apex of elytra, scape robust, subcarinate, two-thirds length of third, smooth and darker at apex, the third to eleventh filiform. Pro-

thorax slightly broader than long, somewhat more narrowed in front than behind, sides arcuate with prominent acute tooth at middle and blunt tubercle nearer apex than median tooth; disc convex, with sparse granules, a faint median carina behind middle and a prominent, somewhat acute tubercle on either side of middle slightly in front of the center; the discal tubercles, the lateral teeth and tubercles and front margin black. Scutellum transverse and more densely pilose than elytra. Elytra less than three times as long as broad and less than three times as long as prothorax, convex, emarginate and bispinose at apex, the sutural spines the shorter; disc with granules rather numerous towards base, very sparse and irregular apically, a pair of light yellow elongate and elevated ivory spots at base of each elytron, each pair midway between humerus and scutellum and the inner spots about twice length of outer, and another pair of similar spots at about the middle and midway between suture and sides of each elytron, with the outer spots about three times length of inner, and in addition a black area posterior to anterior spots and more or less surrounding the posterior spots. Legs slender, middle and posterior femora bispinose at apices with inner spines about three times as long as short outer ones, the posterior femora extending slightly beyond apex of elytra. Length 23 mm., breadth 6 mm.

The California Academy of Sciences has four specimens collected by F. X. Williams, including a typical male from Chatham Island, collected in February, 1906, which was carefully compared with specimens in the British Museum of Natural History. This served for the basis of the description given above. A second specimen, a large male, 28 mm. in length, was likewise collected on Chatham Island, February 25, 1906. This specimen was also lighter in color, more ochraceous, and without black markings of any sort. In general appearance, it agreed with many of the lighter specimens in the British Museum. A third specimen was from James Island, in December, 1905, this agrees perfectly with the first-mentioned specimen. The fourth specimen was reared from wood collected in the Islands by F. X. Williams. It emerged in the rooms of the Department of Entomology, July 21, 1914. Later on it was sent to Washington and compared with the type of *Eburia bauri* Linell by W. S. Fisher and pronounced to be the same species. On the strength of this I have suppressed *Eburia bauri* Linell as a species.

Dr. Blair mentions one specimen of *E. proletaria* as having been taken by C. L. Collenette of the St. George Expedition at Tagus Cove, Albemarle Island, which agrees in all essentials with examples from Peru. I examined this specimen and also noted that in the British

Museum there is a large series of *E. proletaria* from many parts of western South America such as Guyaquil in Ecuador, Colombia, Peru, Bolivia, and Chile. When compared with *E. lanigera, E. proletaria* stands out as larger and of a more rufous color, the other being dominantly piceous with gray pile, with the discal and anterior lateral tubercles of the prothorax more prominent and the apical spines of the elytra and the femoral spines more unequal.

Eburia amabilis Boheman

Eburia amabilis Boheman, 1858, Fregatten Eugenie Resa, I, p. 150.
Eburia amabilis Boheman, C. Waterhouse, 1877, Proc. Zoo. Soc., VI, p. 82.
Eburia amabilis Boheman, Howard, Proc. U. S. Nat. Mus., XII, p. 192.

This species has apparently never been taken since the voyage of the *Eugenie* or at least recognized since then.

The California Academy of Sciences has no specimen of this species.

Compsa apicalis Blair

Compsa apicalis Blair, 1933, Anns. Mag. Nat. Hist., ser. 10, XI, p. 481.

No specimens of this species are in the California Academy of Sciences collection.

Desmiphora hirticollis Olivier

Desmiphora hirticollis Olivier, 1795, Ent. IV, 68, p. 11, t. 4, f. 37.
Desmiphora mexicana Thomson, 1860, Class. Ceramb., p. 75.
Desmiphora mexicana Thomson, Bates, 1886, Biol. Centr.-Amer., V, p. 116.
Desmiphora hirticollis Olivier, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, vol. XI, p. 482.

This species, one specimen of which was taken by the St. George Expedition of 1924, on James Island at light (C. L. Collenette), and reported by Blair, is a common and widely distributed tropical-American species occurring from Mexico and the West Indies to the Argentine.

The California Academy of Sciences has no specimens from the Galapagos Islands.

Estola galapagoensis Blair

Plate VII, figure 4

Estola galapagoensis Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 482.

The three specimens in the California Academy of Sciences collection were collected on Albemarle Island, one on December, 1905, the

others at San Tomas, altitude 1200 feet, Albemarle Island September, 1906, both by F. X. Williams. The December specimen was checked with the type and labeled as a paratype by Dr. Blair.

Estola cribrata Blair

Estola cribrata Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 483.

This species is lacking in the collection of the California Academy of Sciences.

Estola insularis Blair

Estola insularis Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 483.

The California Academy of Sciences possesses two specimens of this species, agreeing perfectly with the description and collected on Indefatigable Island, January 11, 1906, and James Island, January 5, 1906, both by F. X. Williams.

Estola duncani Van Dyke, new species

Rather small, elongate, yet closely knit, reddish brown, sparsely clothed with closely appressed rufous pubescence with here and there a few tufts of lighter color to give it a slightly maculated appearance, and with short, much inclined black setae somewhat uniformly though sparsely dispersed over the surface of the elytra. Head rather wide, somewhat flattened, coarsely but not closely punctured, with a narrow, median impunctate longitudinal line between the eyes; pubescence short and depressed and with a few short setae about the eyes and on the occiput; antennae robust, annulated, the base of each segment pale, reaching to posterior third of elytra, third segment slightly shorter than fourth, the following gradually shorter, with a few hairs fringing the under surface. Prothorax transverse, convex above, with short lateral tubercules situated just behind the middle, disc with coarse and rather closely placed punctures from each of which arises an inclined seta, the intervening areas clothed with the maculated rufous and gray pile. Elytra three-sevenths longer than wide and three and a half times as long as prothorax, gradually narrowed from shoulders, with punctures coarser and less closely placed than on pronotum yet numerous and with the setae arising from them somewhat larger than on pronotum and black. Beneath with vestiture much as on upper surface but the punctures more widely spaced and giving the surface a spotted appearance. Length 10 mm., breadth 4 mm.

Holotype, a unique, collected on **Duncan Island**, during December, 1905, by F. X. Williams.

This species is apparently somewhat similar to a number of unnamed South American species, specimens of which I examined in the British Museum of Natural History Collection, yet different from any.

Acanthoderes galapagoensis Linell

Plate VII, figure 2

Acanthoderes galapagoensis Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 261.

Acanthoderes galapagoensis Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

This conspicuous cerambycid is apparently widely distributed throughout the Archipelago. Mr. F. X. Williams collected one specimen on March 2, 1906, on Albemarle Island, a second at Villamil, Albemarle Island, August 20, 1906, and seven specimens in January, 1906, on James Island. Both sexes are represented.

Leptostylus galapagoensis Van Dyke, new species

Plate VII, figure 1

Rather small, robust, a reddish brown color which is mostly concealed above the short dense, closely appressed scalelike, chalky white pubescence, uniform except for a small brown patch of pubescence near suture and slightly in advance of apex and a smaller patch near elytral margins on a level with the hind femora, the punctuation of both pronotum and elytra conspicuous because of the punctures not being covered by the dense pubescence. Head with posterior margin and a sharply defined median longitudinal line extending from occupit to clypeus denuded of pile; eyes strongly reniform, well separated above and coarsely faceted; antennae long and delicate, extending four and a half segments beyond elytral apex in males, third segment shorter than fourth and slightly more robust, the following segments gradually shorter. Prothorax considerably more than a third broader than long with a short acute tubercle on lateral margin, slightly behind the middle, the sides feebly arcuate and convergent forwards from spine and straight and parallel to base behind spine; disc transversely impressed behind apex and in front of base, with two low tubercles, one on either side of middle, a short denuded median line between middle and base and rather densely and somewhat coarsely punctured, the punctures conspicuous because uncovered by pile. Scutellum unclothed medially. Elytra over two-sevenths longer than wide, broad

at base with prominent humeri, gradually narrower behind; disc with prominence at middle of each elytron near base and a feeble ridge extending from humeri obliquely inwards almost to apex, the rest of surface densely and finely pubescent except for the uncovered conspicuous punctures which are more or less regularly scattered over the surface, the punctures separated from each other by from two to several times their diameter. Beneath densely, uniformly clothed with fine white pile, the punctuation concealed. Legs stout. Length 10 mm., breadth 4.75 mm.

Holotype male and several designated paratypes from a series of eighteen specimens collected at **Villamil, South Albemarle Island,** March 14, 1906, by F. X. Williams. Mr. Williams also collected one specimen on James Island, March 2, 1906, and one specimen on Jervis Island, December 18, 1905.

This attractive chalky-colored species should be readily recognized. It is placed in *Leptostylus* for it agrees with the members of that genus in having the sides of the prothorax angulate behind the middle, the scape more or less cylindrical, antennae without cilia, broad mesosternum and rather short hind metatarsus but differs from typical species by the fact that the sides of the prothorax are acutely tuberculate, not bluntly tuberculate, and the mesosternum provided with two short posterior tubercles.

Females are needed to see whether they have a pronounced exposed ovipositor or not. Almost no South American species of the genus are known though the group is well represented in Mexico. This and the following species also show certain relationships with Bate's *Atrypanuis* and associates like *Trypanidias,* more strictly southern genera, but lack the elongated lower lobe of the eyes of the former and the long ovipositor of the latter. In *Atrypanius* we have a genus which strongly suggests our species because of the presence of the posterior lateral tubercles on the mesosternum but the eyes are very different.

Leptostylus williamsi Van Dyke, new species

Quite small, reddish brown, rather densely clothed with short and closely appressed scalelike pile which is in the main white; marked with a small transverse black marking at shoulders, a bare irregular and somewhat triangular patch at sides behind the middle, which reaches the outer margin but not quite to the suture, two small spots subapically, one along suture, the second near side margin, and a series of five or six black dots extending along the suture

behind the middle, the small pronotal punctures somewhat evident because unclothed but the elytral punctures less conspicuous as more or less concealed by the vestiture. Head with impressed median longitudinal line unclothed; eyes strongly reniform, narrowly separated above and coarsely faceted; antennae long and delicate, reaching about five segments beyond apex of elytra, scape somewhat sinuous and subcylindrical outwardly and feebly fuscous towards apex, the third segment shorter than the fourth, the following gradually shorter. Prothorax less than twice as wide as long, the lateral tubercles very acute, almost spiniform and placed as usual slightly back of middle, sides barely arcuate, almost straight and convergent forwards from the spines, straight and parallel behind; disc transversely impressed back of apex and in front of base, with a small tubercle on each side of middle and rather densely punctured; the punctuation evident because not covered by the pile. Scutellum bare at middle, tufted laterally. Elytra about twice as long as broad and almost five times as long as prothorax, widest at base, humeral angles prominent, gradually narrowed posteriorly, apices of elytra feebly and obliquely truncate; disc with elongate tubercle near middle of each elytron close to base and a feeble ridge reaching from humeri, obliquely inwards almost to apex, the surface densely pubescent but with scattered punctures more or less conspicuous. Beneath densely uniformly pilose, the pile finer and not scalelike, punctuation concealed; the two small tubercles at hind margin of mesosternum hardly visible. Legs stout, the clavate portion of hind femora and tibiae fuscous. Length 6 mm., breadth 2.25 mm.

Holotype, collected on **James Island**, March 2, 1906, by F. X. Williams; a paratype collected at Academy Bay, Indefatigable Island, March 24, 1925, by the Templeton Crocker Expedition; and a specimen since badly injured by *Anthrenus*, collected on Jervis Island, December 18, 1905, by F. X. Williams. The Indefatigable Island specimen is slightly smaller than the holotype and with the color pattern more definite. The Jervis Island specimen was larger than either of the others and with the markings rather inconspicuous.

This little species differs from the preceding by being in general considerably smaller and proportionally narrower, with a decided maculate color pattern and by having the dorsal punctuation of both prothorax and elytra finer and less evident. It is distinctly congeneric with the preceding, in fact very closely related, having the same acute lateral tubercles to prothorax, the small tubercles on hind margin of mesosternum somewhat conspicuous and the dorsal punctuation uncovered by the vestiture and therefore quite evident.

Taeniotes hayi (Mutchler)

Monochammus hayi Mutchler, 1938, Am. Mus. Novitates, no. 981, p. 13, pl. fig. 3.

Monochammus cocoensis Mutchler, 1938, Am. Mus. Novitates, no. 981, p. 13.

[Dr. Van Dyke retained this species in *Monochammus*. The present generic assignment and synonymy conforms to Dillon and Dillon (1941, p. 17).]—Ed.

Family CHRYSOMELIDAE

This family is very poorly represented on the Galapagos Islands. There are, however, several species that are definite representatives of its fauna while a number of others that have been attributed to it, chiefly well-known Central and South American species which have no doubt been collected by careless collectors and wrongly attributed to the Islands. This is no doubt the case with the following: *Doryphora guerini* Stal, var., *Diabrotica ventricosa* Jacoby, and *Physonota alutacea* Boheman, species collected by members of the St. George Expedition of 1924, and listed by Blair as from the Islands.

I believe that the above were all collected on the mainland, later taken to the Islands and mixed with local material. Those definitely known to occur on the Islands are the following:

Metachroma labrale Blair

Metachroma labrale Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 484.

The California Academy of Sciences has one specimen of this species, collected on Indefatigable Island, in October, 1905, which was compared with Blair's type, and sixteen specimens collected at Villamil, South Albemarle on March 4–14, 1906. Most of the specimens have a greenish gloss to the upper surface. The species is fully winged.

Diabrotica limbata C. Waterhouse

Diabrotica limbata C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., pp. 81–82.

Diabrotica limbata C. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

This species has not been collected by any of those who have visited the Islands since Darwin's time.

Docema Charles Waterhouse

Docema C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., p. 80.

Docema galapagoensis (G. R. Waterhouse)

Haltica galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 39–40.

Docema galapagoensis (G. R. Waterhouse), C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., p. 81.

Haltica galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, p. 262.

Docema galapagoensis (G. R. Waterhouse), Mutchler, 1925, Zoologica, V, no. 20, p. 238.

The California Academy of Sciences has a series of fifty-five specimens: one from Charles Island, May 17, 1932, the type locality; five specimens from Jervis Island, June 6, 1932; and three specimens from Tagus Cove, Albemarle Island, March 23, 1932; all collected by M. Willows, Jr., of the Templeton Crocker Expedition of 1932; and thirty-seven specimens from Albemarle Island, April 24–26, 1906, collected by F. X. Williams. They are all black above and agree in every way with the description except that there is a variation in the color of the legs.

Docema darwini Mutchler

Docema darwini Mutchler, 1925, Zoologica, V, no. 20, pp. 230, 238.

A specimen collected by F. X. Williams for the California Academy of Sciences was collected on Chatham Island, in February, 1906. It has been carefully compared with one of Mutchler's paratypes. According to Williams notes, it was taken on a heliotrope-like plant on various islands, also on some Laguminosae. This species is larger than the preceding and aeneous, not black in color.

Longitarsus lunatus Charles Waterhouse

Longitarsus lunatus C. Waterhouse, 1877, Proc. Zoo. Soc. Lond., p. 81.

Longitarsus lunatus C. Waterhouse, Mutchler, 1925, Zoologica, V, 20, p. 238.

The California Academy of Sciences has no specimens in its collection.

Longitarsus galapagoensis Van Dyke, new species

Oval, quite convex above; piceous as to body, head, scutellum, fourth and following antenal segments, first and second pair of legs, and the tibia and tarsi of hind pair; the prothorax variable from entirely piceous to almost entirely castaneous. The holotype is castaneous with a V-shaped median and oblique lateral piceous spot, the elytra castaneous with sutural area and lateral margins somewhat piceous,

the general surface smooth and shining. Head smooth, eyes rather coarsely faceted, third antennal segment shorter than second or fourth, fifth longer than fourth, the following gradually more robust. Prothorax distinctly transverse, very finely, diffusely punctured. Elytra elongate oval, with prominent though rounded humeri; finely and rather sparsely punctured; wings fully developed. Length slightly over 2 mm., breadth somewhat less than a millimeter.

Holotype and numerous designated paratypes from a series of nineteen specimens collected by F. X. Williams on **Charles Island**, May 15, 1906. There is also one specimen collected in February, 1906 on Chatham Island by Mr. Williams; also four specimens collected by M. Willows, Jr., of the Templeton Crocker Expedition of 1932, two on Charles Island, April 25, 1932, and two on Indefatigable Island, May 5 and May 6, 1932.

This small and very distinctly marked species was compared with the type of *L. lunatus*, which is in the British Museum, and found to differ not only in color pattern, but in being larger, having the prothorax distinctly transverse while hardly wider than long in the other, in having the elytra broad at the shoulders and with them well developed while in the other elytra are narrowed at the shoulders and with them practically obliterated, also much broader across the middle. The wings are well developed in *L. galapagoensis* while apparently atrophied in *L. lunatus*.

Family **BRUCHIDAE**

But two species of this family so far have been collected in the Galapagos Islands. They were both described by K. G. Blair.

Spermophagus galapagoensis Blair

Sphermophagus galapagoensis Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, I, pp. 678–679.

The California Academy of Sciences has two specimens of this species which have been carefully compared with the type. They were collected by M. Willows, Jr., of the Templeton Crocker Expedition of 1932, on Hood Island, April 20, 1932.

Bruchus fuscomaculatus Blair

Bruchus fuscomaculatus Blair, 1928, Ann. Mag. Nat. Hist., ser. 10, I, pp. 679–680.

No specimens of this species appear to have been taken except by the St. George Expedition of 1924. It is not represented in the California Academy of Sciences collection.

Family **ANTHRIBIDAE**

Ormiscus G. R. Waterhouse

Ormiscus G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 37.

Ormiscus variegatus G. R. Waterhouse

Ormiscus variegatus G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, pp. 37–38.

Ormiscus variegatus G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Ormiscus variegatus G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 268.

Ormiscus variegatus G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

In the California Academy of Sciences there are three specimens of what is apparently this species. One is lighter in color than the type, somewhat immature, I would say, agreeing more with var. B. than with the type. It was collected on Gardner Island, near Hood Island, April 22, 1932, by M. W. Willows, Jr., of the Templeton Crocker Expedition of 1932. The second specimen was collected at Villamil, Albemarle Island, March 4–14, 1906, by F. X. Williams. The third specimen was collected on Abingdon Island, September 18–23, 1906, by F. X. Williams. The species has ample wings.

Family **CURCULIONIDAE**

Quite a number of weevils belonging to various subfamilies and tribes have been taken at different times on the Islands. Most of these have been collected in limited numbers too, which is not surprising considering that many of them are quite small. Judging from this I believe that there are many species still undiscovered in the Islands.

Amphideritus cuneiformis (G. R. Waterhouse)

Plate VII, figure 9

Otiorhynchus cuneiformis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 38.

Otiorhynchus cuneiformis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., p. 82.

Otiorhynchus cuneiformis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 267.

Otiorhynchus cuneiformis G. R. Waterhouse, Mutchler, 1925, Zoologica, 20, p. 238.

The original type of this species which should be in the British Museum, appears to have been lost. I looked for it very carefully while studying there, also had the assistance of the keepers, but without result. The California Academy of Sciences has two specimens collected by F. X. Williams on Chatham Island, one during July, 1906, the other and larger one, January 24–30, 1906; both agree absolutely with the Waterhouse description. These are the only specimens, I believe, that have been collected since Darwin's time, but these are sufficient to settle some points that have long been in doubt. They, of course, do not belong to the Old World genus *Otiorhynchus* but to the genus *Amphideritus* Schwarz, a well known South American genus, which is sufficiently characterized by the scrobes being lateral, broad behind, the prothorax without postocular lobes, the rostrum rather short and broad; the scape of the antennae rather long, passing the eyes; the elytra slightly broader than the prothorax; the scutellum visible between the elytra at base; and the front coxae contiguous but with a small postcoxal process. The first specimen had but recently emerged, for the deciduous pieces of the mandibles are still attached, broad at base, and sickle-shaped. This specimen is the smaller, 6 mm. long by 2.75 mm. wide. The second specimen, a somewhat worn individual with much of the scaling removed from both pronotum and disc of elytra, is larger, 8 mm. long by 4 mm. wide. In this second individual, as a result of the removal of much of the scaly covering, the pronotum is shown to be rather broadly, longitudinally impressed at middle and somewhat coarsely, irregularly punctured. The elytral striae in this second individual are rather well impressed as well as coarsely punctured and the intervals elevated and convex.

Pantomorus Schonherr

Pantomorus Schönherr. 1840, Genera et Species Curculionidum, V. 2, Paris, p. 942.

Aramigus Horn, 1876, Proc. Amer. Phil. Soc., XV, p. 93.

This rather large genus which is so well represented in Mexico and Central America, differs from its parent stock, *Naupactus* Schonherr, which is dominant throughout much of South America, only by being wingless. The genus is a very polymorphic one. The typical forms as represented by the Mexican genotype, *P. albosignatus* Boheman, and the common and widely distributed species, *P. godmani* Crotch, now well established in western North America, are of rather moderate size and with a cylindrical prothorax. The species from the Galapagos Islands, for there are several rather closely related or slightly divergent

forms, are in general somewhat larger and have the prothorax more or less spherical like the Mexican species, *P. albicans* Champion. Champion (1911) in his treatment of Mexican species, has divided them into two groups:

1. Males without mucro on the inner edge of extremity of middle tibia.

2. Males with mucro on the inner edge of extremity of middle tibia.

To the first group, the more typical species belongs *P. albosignatus* Boheman, while to the second group belong such species as *P. albicans* Champion and those to be found in the Galapagos Islands.

In the Galapagos Islands, the genus is widely distributed and according to F. X. Williams the species in the adult stage are to be found on various plants, but preferably on the croton. In the various islands they have had a tendency to develop into more or less closely allied races and species. In the material at hand, I have a sufficient number of specimens to be able to separate about six species. A specimen from Hood Island is too rubbed to enable it to be properly characterized. All of the species in the Islands are quite variable as to size and color pattern, the usual coloration being gray or light brown produced by a rather closely appressed pile, with erect or suberect setae or long hair projecting above and a certain number of silvery white scales concentrated to form spots or maculations or placed in denser formation along the sides. In the majority of specimens the true scales are lacking while in others they are very evident, the most complete scaly pattern being shown in a large female specimen of typical *P. galapagoensis,* from Chatham Island. In this specimen, there are numerous elongate scales along the sides of the prothorax, placed vertically; somewhat more robust scales densely placed along the sides of the elytra, arranged obliquely; a series of elongate, more or less elliptical scales arranged in spots as follows: a small one at the base of the elytra near its middle and a series of three arranged in the manner of a broken lunule extending from the humerus to the suture near its center, a subapical macule, and a series of somewhat broader scales closely applied to the side pieces of the meso- and metasternum. The males are in general narrower than the females, less robust, with the legs longer and the front tibiae more arcuate towards the apex, the antennae apparently also longer, the prothorax more spherical with the base of the elytra more evidently elevated and carinate towards the suture, the abdomen also more flattened or broadly impressed towards the base.

Pantomorus galapagoensis Linell

Plate VII, figure 7

Pantomorus galapagoensis Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 268.

Pantomorus galapagoensis Linell, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

Pantomorus galapagoensis Linell, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 485.

Rather large and robust, piceous to rufopiceous, in fresh specimens rather densely clothed with a closely appressed pile of mixed light and dark brown or gray hairs, often with a silvery gloss, in addition with rather long, erect, fine hairs rather uniformly scattered over the elytra and in many specimens with patches of elongate silvery white scales arranged as three white spots of an interrupted lunule extending from the humerus to the suture near the middle, also along the side pieces of the meso- and metathorax. Head feebly convex, alutaceous, finely punctured and rugose and somewhat aciculate; rostrum broad, one and a half times as long as broad, flattened above, rugose and punctate, strigose at sides and with a sharply impressed longitudinal groove extending from the middle of frons to above the level of insertion of antennae; mandibles prominent with the supports to the deciduous pieces conspicuously projecting; eyes prominent, very convex, and obliquely set; antennae long, fully reaching to hind margin of prothorax, second funicular segment one-third longer than first. Prothorax one-fourth broader than long in female and but little broader than long in males, apex transverse, base feebly arcuate in females, distinctly sinuate at sides and with well defined median lobe in males, also rather finely margined in both sexes, sides broadly rounded, constricted in front and behind; disc very convex, alutaceous, fairly to coarsely rugose, sparsely punctured, sometimes aciculate and generally with a well impressed longitudinal line at middle. Elytra cordate, about two-sevenths longer than broad and three times as long as prothorax, convex, striae feebly impressed but strial punctures coarse but close and deeply impressed, intervals flat or feebly convex and generally almost twice as wide as striae and derm alutaceous and finely rugose. Legs long, front tibiae arcuate apically and coarsely serrate on inner margin in both sexes, middle tibia mucronate within at apex. Beneath with pile somewhat less dense than above. Length 10–14 mm., breadth 4.5–6 mm.

The males are in general narrower, with more spherical prothorax, somewhat concave abdomen, and with legs apparently longer. Linell was in error in stating that the males had the larger thorax.

Type, no. 1327, U.S.N.M. Linell had before him one male and four

females from Chatham Island (three collected by the *Albatross* Expedition in 1888 and two by Dr. G. Baur). One of these specimens, a paratype sent to the British Museum, I used for comparison with some of my specimens. The California Academy of Sciences has thirty-three specimens, thirty-two collected January 24–30, 1906, and February 21–24, 1906, by F. X. Williams on Chatham Island; also one collected April 15, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932. This species, judged by the specimens which we have, is in general the largest and most robust of the Galapagos Islands species, also when fresh the most densely pilose and with the longest and finest erect hair. The color of the pile varies with the specimens, some being almost uniformly brown while others are varicolored, and in a limited number the maculation of silvery scales are very conspicuous.

Pantomorus blairi Van Dyke, new species

Of moderate size, less robust than preceding species, piceous with appressed pile rather short and sparse, a unicolored brown or gray and not appreciably concealing the derm beneath, the erect hairs rather stiff and of moderate length, and well dispersed over the surface of the elytra. Head somewhat coarsely, closely punctured and rugose with the usual sharply impressed longitudinal line and generally the strigae, the rostrum and antennae with similar proportions to the preceding but the eyes a bit less prominent, less convex. Prothorax with proportions of *P. galapagoensis* but with disc rather finely and irregularly punctured and generally quite rugose, smoother in females and base generally more transverse in males. Elytra with base quite transverse, sides but slightly arcuate and convergent backwards and apex less acute. As a result of the sparse pubescence the derm of the disc is quite exposed, showing the strial punctures to advantage, which appear to be less coarse and closer together than they are in *P. galapagoensis*. Beneath with sparse pubescence. Length of holotype male 10 mm., breadth 5 mm., of allotype female, length 13 mm., breadth 7 mm. Three of the paratypes are much smaller.

Holotype male, allotype female, and two paratypes will be returned to the British Museum of Natural History. They are from a series of six specimens, kindly loaned to me for purposes of study by Dr. K. G. Blair. Two of the specimens will be retained. Three specimens are depauperized, much smaller than the others. All specimens were collected on **James Island,** February 20–22, 1925, by G. Bateson:

This species is in general slightly smaller and darker than *P. galapagoensis,* with head more distinctly punctured, the eyes less convex,

pronotum more definitely loosely punctured, the afterbody more parallel sided, the appressed pubescence sparser and the erect hairs more rigid. The usual color of the pile is of a uniform brown, gray in one or two, and in but one specimen are there a few silvery scales forming a small macule behind the base of the elytra though the scales of the meso- and metapleurae are quite evident in all specimens as usual.

Pantomorus crockeri Van Dyke, new species

Small, piceous with legs somewhat rufous; body sparsely clothed with fine, rather short pile which is not closely appressed and which has the individual hairs somewhat curled and irregularly directed, the erect hairs of moderate length, stiff and rather oblique, scales absent except on the metapleurae where they are sparse and more hairlike than usual. Head coarsely punctured and rugose; eyes moderately prominent but widely separated by at least three times their own diameter; beak short and broad, as broad as long. Prothorax somewhat broader than long, coarsely and irregularly punctured and very rugose, with granules very conspicuous, and a well defined median longitudinal impression. Elytra nearly two-fifths longer than broad and three-fifths longer than prothorax, very convex, the declivity more precipitous than usual, the striae moderately impressed, strial punctures coarse and close, intervals feebly convex and about as wide as striae, the surface minutely punctured. Beneath rather sparsely clothed with fine hair. Length 7 mm., breadth 3.5 mm.

Holotype, a unique collected on **Tower Island**, March 25, 1935, by the Templeton Crocker Expedition of 1935, and deposited in the collection of the California Academy of Sciences.

This very distinct and stubby species has as its most characteristic features, its shortness and small size, its short rostrum, widely separated eyes, very granular pronotum, convex elytra, and irregularly inclined pubescence. I have named it after Templeton Crocker, a generous patron, who has added much to our knowledge of the Galapagos Islands.

Pantomorus caroli Van Dyke, new species

Of moderate size, piceous or rufopiceous; body above rather densely clothed with closely appressed, regularly dispersed fulvous or gray pile, concealing to a great extent the derm beneath; and in addition provided with very short, stiff semierect hairs, irregularly dispersed over the elytra though most evident on the elytral declivity; and with scales generally absent above, only a few specimens showing them usually obliquely within and behind the humeri, but the scales on meso- and metapleurae present as usual but limited in number. Head

alutaceous, rather densely, finely punctured, often strigose at sides, flattened in front; eyes prominent, rather widely separated; rostrum broad but almost a third longer than broad, similarly sculptured to rest of head but with strigae more evident and with the usual sharply and deeply impressed longitudinal median groove running back to the occiput. Prothorax at least 5 mm. broader in female than male and barely broader than long in males, apex transverse or feebly emarginate at middle, base broadly feebly arcuate at middle in female, with a pronounced lobe at middle and strongly sinuate each side in male, sides broadly arcuate, somewhat constricted at base and apex in female, more definitely so in male and with the anterior and posterior margins also better defined; disc quite convex, finely diffusedly punctured, rugose and often distinctly alutaceous especially in males, and generally with a more or less observable median longitudinal impression. Elytra about a third longer than broad and three times as long as prothorax, somewhat transverse at base and with humeral angles well defined though rounded at apices especially in males, sides feebly arcuate and widening to posterior third thence more broadly rounded and convergent to apex; disc convex, striae not or feebly impressed, the strial punctures coarse, their own diameter apart, and deeply impressed, intervals generally flat and much wider than striae, general surface finely rugose and with minute punctures here and there. Beneath rather sparsely pubescent, legs as in related species. Length 6–13 mm., breadth 2.5–5.5 mm., the smaller measurements from depauperized specimens.

Holotype, allotype and several designated paratypes from a series of twenty-seven specimens in the California Academy of Sciences collection, all collected by F. X. Williams on **Charles Island,** October 3–15, 1905. There is also a single specimen before me, loaned by the British Museum which was collected by G. Bateson of the St. George Expedition, March 1925. The specimen is from Charles Island and is much denuded. There is considerable variation in size between individuals, several being quite small; there is also variation to a slight extent in color of pile, in degree of strial impression, and sculpturing of pronotum, most being quite rugose while two large females have the surface much smoother and shining. The males all have the prothorax quite spherical.

The main diagnostic characters of this species are the somewhat dense appressed pubescence, the short, dispersed yet evident erect hairs or setae, the (in general) finely rugose pronotum, and the fair size of the normal individuals. It appears to be most closely related to *P. galapagoensis,* differing primarily in having less dense pile, shorter

and sparser setae, and more coarsely sculptured pronotum; also the elytra are more transverse at base and the humeri more sharply angulate.

Pantomorus conwayensis Mutchler

Pantomorus conwayensis MUTCHLER, 1938, Am. Mus. Novitates, no. 981, pp. 15–16.

Of moderate size, rufopiceous; sparsely clothed with short, gray, closely appressed pile which does not appreciably conceal the derm beneath; with a few short, curved setae, very obliquely set, hardly projecting above normal pile and only evident on elytral declivity; and in a limited number of cases with macules of elliptical shape and silvery scales, placed one on either side of the scutellum, a series of from three to four extending obliquely inwards from the humerus towards the suture and one on the sixth interval a third of the distance from the apex as well as forming a marginal patch along the outer side of the meso- and metasternal pleurites. Head alutaceous in front, rather densely punctured with broad, shallow, somewhat aciculate punctures, with the usual deep median longitudinal impression. Elytra almost a third longer than broad and about twice as long as prothorax, quite transverse at base, with well defined subangular humeri, the sides feebly arcuate and gradually expanded to posterior third; disc with striae slightly impressed, strial punctures coarse, close together and deeply impressed, the intervals as wide or slightly wider than striae, and flattened or feebly convex depending upon the degree to which the striae are impressed. Beneath sparsely pilose.

Holotype male and allotype, in the American Museum of Natural History.

In describing this species, Mutchler had before him, thirty-three specimens, collected either by the Williams' Galapagos Expedition of 1923 or by the Crocker Expedition of 1935. All of these were collected in Conway Bay, Indefatigable Island.

The California Academy of Sciences has the following specimens: one small paratype from Conway Bay, received from the American Museum of Natural History; two specimens collected March 24, 1925, at Academy Bay, Indefatigable Island, by the Templeton Crocker Expedition of 1925; two specimens collected May 6–7, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932, and one collected October 25–28, 1905, by F. X. Williams, all labeled Indefatigable Island. Besides these are six other specimens, all badly rubbed, which were collected May 2 or 6, 1932, by M. Willows, Jr., of the Templeton

Crocker Expedition of 1932, on Indefatigable Island. One small specimen loaned by the British Museum, which was collected by G. Bateson of the St. George Expedition of February 16, 1925, is before me.

This species is best separated by its sparse pubescence and short, curved setae which are mainly confined to the elytral declivity. It is rather closely related to the species that follows:

Pantomoris williamsi Van Dyke, new species

Very much like *P. conwayensis* in general appearance and in most essential features, having in particular the short sparse pubescence which does not appreciably conceal the derm. It differs, however, in having the erect setae which are rather short stiff hairs, quite evident, generally dispersed over the elytra and but little inclined, and in having the silvery scales which are quite elongate and hairlike, not elliptical as in the other species, assembled in various conspicuous macules in all of the specimens before me. These macules are arranged as follows: two somewhat vague ones at the base of the elytra, a series of three arranged in the form of an interrupted lunule from the humerus towards the suture, and a series of from two to three arranged transversely across the posterior third of the elytra, the outermost, the largest, placed on the sixth and seventh intervals. Length 9 mm., breadth 4.5 mm.

Holotype female and two paratype females, the first collected on **Albemarle Island**, April 15, 1906, by F. X. Williams, one at Cebes Settlement, Albemarle Island, April 24, 1906, collected by F. X. Williams, and the other at Iguano Cove, Albemarle Island, March 17–21, 1906, also by F. X. Williams. I also have before me three specimens from Banks Bay, Albemarle Island, April 10–17, 1906, collected by F. X. Williams, and two specimens on loan from the British Museum, collected in 1925, by G. Bateson, on Albemarle Island. These will also be considered as paratypes.

Key to Galapagos Islands Species of Pantomorus Schoenherr

1. Erect hairs or setae rather long, fully as long as intervals are wide, quite dense and more or less uniformly dispersed 2
— Erect hairs or setae somewhat short, generally sparse and as a rule more evident on elytral declivity 4
2. The closely appressed pile of the elytra generally unicolored and sparse, allowing the brown derm to be readily seen beneath, true scales rarely seen 3
— The closely appressed pile of the elytra generally varicolored, and dense,

concealing the derm to a great extent, scales more or less evident (Chatham Island) ..... *R. galapagoensis* Linell

3. Rostrum much longer than broad; pronotum moderately, not coarsely rugose; pile of elytra light brown or gray and regularly inclined (James Island) ..... *P. blairi* Van Dyke

— Rostrum little longer than broad; pronotum coarsely rugose with evident granules; pile of elytra gray with individual setae much curved or curled and not regularly inclined (Tower Island) ..... *P. crockeri* Van Dyke

4. The appressed pile of elytra very short, fine and sparse, not concealing to any degree the brown derm beneath; macules of silvery scales generally present on elytra and very evident 5

— The appressed pile of elytra rather coarse and dense, concealing the derm to an appreciable extent, scaly macules rarely indicated on elytra, erect setae short and sparse on disc, longer, denser and more inclined on declivity (Charles Island) ..... *P. caroli* Van Dyke

5. Short, erect setae sparsely dispersed over the elytra (Indefatigable Island) ..... *P. conwayensis* Mutchler

— Setae hardly observable on disc of elytra, short and much inclined on elytral declivity, pile abundant (Albemarle Island) ..... *P. williamsi* Van Dyke

Gerstaeckeria galapagoensis Van Dyke, new species

Plate VII, figure 8

Medium sized, robust, black with rufous antennae; very densely clothed above with short, broad, varicolored scales, the majority dark brown, giving the basic color, the others varying from light brown to white, the latter generally assembled so as to give the distinctive color pattern. These scales are disposed as follows: about the eyes; on the pronotum, in the form of a short longitudinal line in front of the scutellum and a few spots on the disc, generally a pair near the center and several at the sides; and on the elytra as a lunate patch extending obliquely inwards from the humerus, and a slightly arched transverse patch, widest at center and sides, placed at the summit of the elytral declivity and extending from fourth interval on one elytron to the fourth on the opposite elytron. The scaling on the underside and legs is somewhat less dense than above. Head very coarsely, densely punctured above, the punctures extending on to the sides of the rostrum but becoming finer and more widely spaced toward the apex with each puncture on head and base of rostrum supporting a scale which is rather broad on occiput and narrower and more upright between the eyes, also in general a lighter brown or dirty white about the eyes; eyes separated in front by slightly more than the diameter of a single eye, a small fovea between; the rostrum about as long as head, feebly arched, carinated above, constricted in front of eyes and feebly nar-

rowed about middle. Prothorax about one-fifth broader than long, base transverse, apex over one-fourth narrower than base, broadly arcuate, the lobe covering base of head, sides arcuate from base forward to beyond middle, thence narrowed and feebly constricted before apex, disc convex, densely and coarsely punctured, each puncture supporting a scale. Elytra more a fifth longer than broad and about two and a half times as long as prothorax, without posthumeral process, the sides evenly arcuate from base to posterior third then gradually narrower and somewhat sinuate to the somewhat extended apex; disc very convex, the declivity almost vertical, striae broad and well impressed, the strial punctures very coarse, separated by one-half their own diameter, intervals as wide as striae, convex and finely and rather densely punctured, all punctures supporting a scale as elsewhere above and all intervals equally scaly. Beneath rather coarsely, densely punctured. Legs with femora unarmed, clothed with light and dark scales, which are generally arranged in a somewhat annulated manner on the outer face, the third tarsal segment very broad, lobed, much wider than second. Length, without rostrum, 7–8 mm., breadth 3.5–4 mm.

Holotype and designated paratypes from a series of forty-six specimens, collected by F. X. Williams on **Abingdon Island,** September 18–23, 1906. This species would probably fall in the subgenus *Copuntiaphila* Pierce and somewhere near *G. cruciata* Champion according to Pierce's (1889) key.

Besides the rather large Abingdon Island series of specimens of *Gerstaeckeria* in the collection of the California Academy of Sciences, there are specimens from several of the other islands of the Galapagos Archipelago. These all possess the basic characters and general scale color pattern indicated in *G. galapagoensis* though those from certain islands seem to possess in addition, and in spite of their variability, certain definite peculiarities which I think entitles them to a name as subspecies, though nothing more.

Gerstaeckeria galapagoensis barringtonensis Van Dyke, new subspecies

This form apparently differs from the more typical form by being in general slightly smaller; by having the prothorax barely broader than long, the sides well rounded and with the greatest breadth in front of the middle and almost straight behind and convergent to base; and by having the disc of both pronotum and elytra as seen from the side, more convex, the humeral angles more rounded, and the strial

punctures of the elytra more sharply defined. Length 6 mm., breadth 3 mm.

Holotype and several designated paratypes from a series of thirteen specimens, collected on **Barrington Island,** July 4–10, 1906, by F. X. Williams.

Gerstaeckeria galapagoensis hoodensis Van Dyke, new subspecies

This form is about the same size as the preceding and also differs from typical *G. galapagoensis* in having the prothorax but slightly broader than long, with sides but feebly arcuate; the elytra with the sutural interval depressed, the others very convex, and the strial punctures sharply defined.

Holotype and four paratypes collected on **Hood Island,** by F. X. Williams, on the following dates: two in January, 1906, two on June 23–30, 1906, and one on February 1–14, 1906.

Gerstaeckeria galapagoensis seymourensis Van Dyke, new subspecies

The specimens of this subspecies are all, unfortunately, almost completely denuded of scales. They are the largest of any of the races, have the prothorax one-sixth broader than long, with the sides well rounded and broadest at middle, the disc somewhat flattened, elytra elliptical, one-third longer than broad, and with the disc quite flattened as seen from the side but not when viewed from behind, and the intervals equally elevated. The size and elongated body chiefly distinguish it. Length 9 mm., breadth 4 mm.

Holotype and three paratypes, three collected on **South Seymour Island,** November 22, 1905, and one July, 1906, by F. X. Williams. I have also associated with these a single specimen collected on Indefatigable Island, October 25–38, 1905, by F. X. Williams. It cannot be distinguished from the others.

All of the members of the genus *Gerstaeckeri* are cactus feeding. We have numerous species in the southern part of the United States, chiefly in the semiarid Southwest, in Mexico and the West Indies, I know of none that have been described from South America though I feel that they must be found somewhere along the more desert parts of the West Coast. They have no functional wings.

Geraes batesoni Blair

Geraeus batesoni Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, IX, pp. 485–486.

No specimens have been taken by any of the Academy's expeditions

nor by any expeditions previous to the St. George Expedition which furnished Blair's specimen.

Lembodes subcostatus Van Dyke, new species

Plate VII, figure 3

Small, elongate and subdepressed, black opaque, more or less covered with a chalky indumentum which gives the insect a clouded gray and brown appearance, and with stubby scales arranged in series or tufts over the upper surface and more or less regularly arranged on the legs. Head partly concealed by overhanging pronotum and with a few stubby erect scales placed between the eyes and on base of rostrum; antennae rufous. Prothorax almost a third longer than broad, apex in the form of a lobe, notched at middle and overhanging the head, base transverse, sides almost straight or very feebly arcuate to beyond middle where they are suddenly narrowed as they merge with the margins of the shovel-like apical lobe; disc rather irregularly convex behind, more flattened in front with the erect, brown, stubby scales scattered over the base, arranged in the form of four tufts one on either border near the middle and one on either side of the middle of disc, and in a denser series in arched formation just back of apical margin, as well as a few scattered behind this series. Elytra about twice as long as wide and twice as long as prothorax, base transverse with humeral angles extending slightly forward, sides almost straight and feebly diverging to beyond the middle, thence arcuate, narrowed and sinuate at apical fourth and continued on to the rather broad subtruncate apex which is feebly notched at suture; the disc convex, somewhat flattened suturally and with a series of three feeble longitudinal costae on either side which are surmounted and more definitely outlined by series of the suberect stubby brown and gray scales, the costae placed one along the side margin, one somewhat above and one midway between this and suture, this last diverging from the suture as it passes backwards, a few scales also placed along the suture. Beneath with surface concealed by gray indumentum, in addition to a few scales scattered over second ventral and arranged in transverse rows on the third and fourth ventral segments. Legs gray, somewhat annulated with black on outer surface and rather densely set with the more or less erect scales which are larger and spoon shaped on the tibiae. Length 4.5 mm., breadth 1.75 mm.

Holotype and two paratypes, collected as follows, the holotype from **Duncan Island**, November 1, 1905, a second specimen, also from Duncan Island, January 1–17, 1905, and the third from Iguano Cove, Albemarle Island, March 17–21, 1906, all by F. X. Williams.

Five other species have been described previously: *L. solitarius* Boheman, the type species from the West Indies; *L. ululu* Chevrolat from Santo Domingo; *L. trux* Champion from Guatemala; *L. furcicollis* Chevrolat from Colombia; and *L. albo-signatus* Chevrolat from Chile. The species *Lembodes subcostatus* has been compared with the type of *L. trux* and found to be very different, being larger, less parallel, and with a lobed not truncate prothorax, as well as differing otherwise, and it apparently does not agree with the descriptions of the other species.

Anchonus galapagoensis G. R. Waterhouse

Anchonus galapagoensis G. R. Waterhouse, 1845, Ann. Nat. Hist., XVI, p. 39.

Anchonus galapagoensis G. R. Waterhouse, C. Waterhouse, 1877, Proc. Zoo. Soc., V, p. 82.

Anchonus galapagoensis G. R. Waterhouse, Linell, 1898, Proc. U. S. Nat. Mus., XXI, no. 1143, p. 268.

Anchonus galapagoensis G. R. Waterhouse, Mutchler, 1925, Zoologica, V, no. 20, p. 238.

Anchonus galapagoensis G. R. Waterhouse, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 485.

Outside of the specimens collected by Charles Darwin and described as above by G. R. Waterhouse, there are only two specimens that I know of that have been collected since in the Archipelago, one listed by Blair from the type locality, James Island, and one in the California Academy of Sciences collection, collected on James Island between December 22, 1905, and January 5, 1906, by F. X. Williams; this last specimen has been carefully compared with the type. The genus *Anchonus* Schonherr is a large one, widely distributed throughout the warmer parts of the New World, being found in Mexico, Central and South America, and the West Indies. One specimen has even been taken in the South Pacific.

Dryotribus mimeticus Horn

Dryotribus mimeticus Horn, 1873, Proc. Am. Phil. Soc., XIII, p. 433.

Dryotribus mimeticus Horn, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 486.

Thalattodora insignis Perkins, 1900, Fauna Hawaiiensis, vol. 2, p. 146.

Three specimens of this species were taken on Narborough Island by C. L. Collenette of the St. George Expedition. Blair states that this widespread species is represented in the British Museum of Natural

History collection by specimens from Florida, the West Indies, China, western Australia, and Hawaii. I have seen specimens also from the Marquesas Islands. It is a strand inhabiting species so no doubt owes its wide distribution to this fact. No specimens of this species were collected in the Galapagos Islands by the California Academy of Sciences expedition.

Macrancylus gracilis Van Dyke, new species

Small, linear and subcylindrical, smooth and shining, rufous with base of head piceous, head parallel sided or feebly convergent forwards to beyond eyes, occiput smooth with a feeble transverse impression demarking it in front, the frons alutaceous and rather coarsely and regularly punctured, the punctures separated by at least their own width; eyes small, lateral, much flattened, hardly projecting beyond side margin; rostrum about as long as head proper, slightly narrower at base than head, with straight sides feebly convergent forwards, the supper surface with punctures continuous with those of head but gradually finer; antennae rufous but with club very light colored, a yellowish white. Prothorax at least twice as long as broad, sides rounded at base, straight and gradually convergent forwards; disc alutaceous with punctures somewhat coarser than on head, rather regularly placed and about their own diameter apart. Elytra over three times as long as broad and one-third longer than prothorax, as broad at base as base of prothorax, with base transverse, the humeri rounded, sides straight and parallel until near apex where they become rounded; disc striatopunctate, the striae feebly impressed, punctures rather coarse and close together, almost contiguous in places, the intervals flat, as wide as striae and crenulate as a result of being indented by punctures. Beneath alutaceous, with punctures rather regularly yet widely distributed, the afterbody piceous. Length 3 mm., breadth 5 mm.

Holotype, a specimen collected on **Abingdon Island**, in September, 1906, by F. X. Williams. Nine other specimens from Abingdon Island collected in September 18–23, 1906, by F. X. Wililams have been designated as paratypes.

This species has been carefully compared with specimens of *M. linearis* Le Conte, from Florida and the West Indies and with *M. immigrans* (Perkins) from Hawaii, the two other species in the genus, and found to be more narrowed, shining, and in general more graceful than either, with the head including rostrum a bit narrower, the eyes less prominent but otherwise with about the same proportions; the

puncture somewhat finer (in *M. linearis)*, coarse and close while in *M. immigrans* they are rather coarse but not close; the prothorax more narrowed than in either of the others as is also the general body, alutaceous, with punctures finer and better separated; the elytra smoother, intervals finer and more flattened, in others more or less convex, strial punctures also much finer and as a result the striae themselves less deeply impressed. The general color is also lighter, a clearer red, not rufopiceous as in the others. The distribution of these three species is somewhat suggestive of that of the species previously mentioned.

Neopentarthrum Mutchler

Neopentarthrum Mutchler, 1925, Zoologica, V, no. 20, p. 231.

The California Academy of Sciences possesses a paratype of *Neopentarthrum towerensis* Mutchler, kindly donated by Mr. Mutchler, also a single specimen collected on Tower Island (Darwin Bay), June 16, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932, which has been compared with the type. In addition the Academy possesses specimens of several other species, differing greatly from the above, from other islands. These will be described later on.

Neopentarthrum towerensis Mutchler

Neopentarthrum towerensis Mutchler, 1925, Zoologica, V, no. 20, pp. 231–232, fig. 45.

Neopentarthrum towerensis Mutchler, Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 468.

Besides the above, Blair lists one specimen from Franklin Lake, as having been taken by the St. George Expedition. The California Academy of Sciences specimens have been mentioned previously.

Neopentarthrum cunicollis Van Dyke, new species

Of the same size and general proportions as *N. towerensis* but with the prothorax well rounded and broadest close to the base, the sides almost straight and convergent to apex with hardly a perceptible interruption by the feeble post-apical constriction, thus forming a wedge-shaped body; the elytra with striae rather deeply and sharply impressed on the disc, the punctures clear cut, close together, and to a great extent confined to striae, indenting the intervals but little thus the latter are more regular, less crenulate throughout. The punctuation of the pronotum and underside and other characters are practically the same as in *N. towerensis.*

Holotype, a unique collected on **Duncan Island,** December 1, 1905, by F. X. Williams. With this species I have associated another specimen, not differing morphologically as far as I can see except in having the elytral striae less sharply impressed and the punctures a bit larger thus nicking the intervals to a greater extent. This specimen which was collected near Iguano Cove, Albemarle Island, May 21, 1932, by M. Willows, Jr., of the Templeton Crocker Expedition of 1932, I would consider but a variety of *N. cunicollis.*

Neopentarthrum mutchleri Van Dyke, new species

Of about the same size and proportions as *N. towerensis,* piceous or slightly rufopiceous beneath with legs and antennae rufous. Head alutaceous and with fine sparse punctures; the rostrum slightly longer and with basal portion narrower; the eyes more flattened, not protruding at all beyond side margins. Prothorax feebly broader than long, with sides evenly and well rounded, very narrowly constricted at base and more broadly so at apex; disc as regularly but slightly more finely punctured, the post apical transverse impression distinct sharply demarking a collar; elytra about twice as long as broad, the sides feebly but regularly arcuate from transverse base to posterior fourth where regularly rounded to apex; the disc with striae not defined but the strial punctures distinct and serially arranged while the finer interstrial punctures are only observable here and there. Beneath with the few punctures finer than in *N. towerensis.*

Holotype, a specimen collected on **Abingdon Island,** September 18–23, 1906, by F. X. Williams. Three other specimens from Abingdon Island, collected at the same time as the above, have been designated as paratypes. A fourth specimen, which I have associated, is from Indefatigable Island, collected October 25–26, 1905, by F. X. Williams. It is somewhat narrower and generally less robust than the Abingdon specimens but with identical sculpturing. I cannot see that this specimen is anything more than a variety. The Abingdon specimens, I am naming after my good friend, A. J. Mutchler, former curator of insects in the American Museum of Natural History.

Neopentarthrum glabrum Van Dyke, new species

Somewhat narrower than *N. towerensis,* with head and pronotum distinctly alutaceous, the elytra elliptical and practically smooth, the sculpturing obscure at most and of a black color, with antennae and legs rufous. Head feebly, sparsely punctured behind, more coarsely and closely so in front and on base of rostrum, the latter about as long

as head and broad, especially in front; the eyes feebly projecting beyond side margin of head. Prothorax with sides broadly rounded in type, less so in paratype, narrowly constricted at base and broadly narrowed and sinuate towards apex; the disc with punctures rather fine and well spaced, the anterior transverse impression vague, not forming a well defined collar though the apex is distinctly narrowed. Elytra elliptical, twice as long as broad, sides evenly arcuate from transverse base to posterior fourth, then more definitely rounded to apex; the disc moderately convex, smooth and somewhat shining, the striae obliterated and strial punctures likewise except those near the suture which are small and feebly indicated. Beneath smooth in front, with a few fine and sparse punctures on metasternum and somewhat coarser and more numerous punctures on last three abdominal segments. Length 3 mm., breadth 1 mm.

Holotype and one paratype, the first collected on **Hood Island,** January, 1906, and the second on Abingdon Island, September 18–23, 1906, both by F. X. Williams. This comparatively smooth species is most closely related to *N. mutchleri* but readily separated by its black color, pronounced elliptical elytra, and practical absence of elytral sculpturing. In spite of one of the specimens coming from Abingdon Island, the home of *N. mutchleri,* it agrees absolutely with the type of *N. glabrum* and not with the former.

Key to Species of Neopentarthrum Mutchler

1. Elytra with sides straight and parallel in basal two-thirds, the elytral striae sharply impressed and regularly punctured 2
— Elytra somewhat elliptical, that is with sides more or less arcuate throughout, striae either vague or not impressed 3
2. Prothorax widest at about the middle ..... *N. towerensis* Mutchler
— Prothorax widest near the base ..... *N. cunicollis*, new species
3. Elytral striae vaguely impressed but strial punctures distinct though shallowly impressed and somewhat regularly arranged ..... *N. mutchleri*, new species
— Elytra smooth without striae and with only a vague puncture here and there ..... *N. glabrum*, new species

Family **PLATYPODIDAE**

Platypus santacruzensis Mutchler

Platypus santacruzensis Mutchler, 1925, Zoologica, V, no. 20, pp. 232–233, fig. 24.

Recently while going over some duplicate material, I found what is presumably a second specimen collected on South Albemarle Island,

August 20, 1906, by F. X. Williams. This gives the California Academy of Sciences a representative of this species.

Family **SCOLYTIDAE**

Pycnarthrum insulare Blair

Pycnarthrum insulare Blair, 1933, Ann. Mag. Nat. Hist., ser. 10, XI, p. 487.

Besides the four paratypes cited by Blair which are in the California Academy of Sciences collection and which were collected: the Tower Island specimens, September 14, 1905, and the Hood Island specimens, January, 1906, both sets by F. X. Williams, the Academy also possesses five more specimens from Tower Island and five more from Hood Island, same data as above, as well as a series of fifty-five specimens collected on Albemarle Island, March 4–14, 1906, by F. X. Williams. These insects are stated by Dr. Williams to breed in mangrove seeds.

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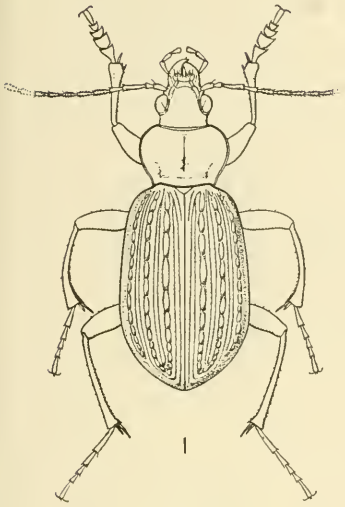
PLATE 1

1. *Calosoma howardi* Linell
2. *Cicindela galapagoensis* W. Horn
3. *Calosoma darwinia*, new species
4. Right wing of *Calosoma howardi* Linell
5. Right wing of *Calosoma darwinia*, new species
6. *Calosoma galapageium* Hope
7. *Calosoma linelli* Mutchler



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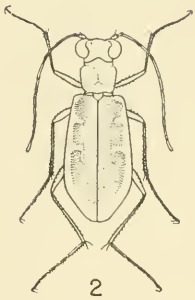

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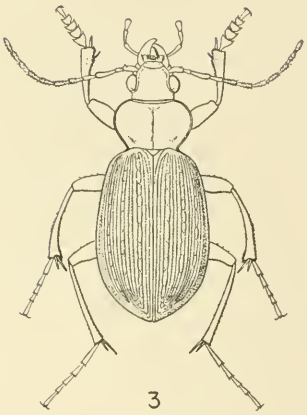

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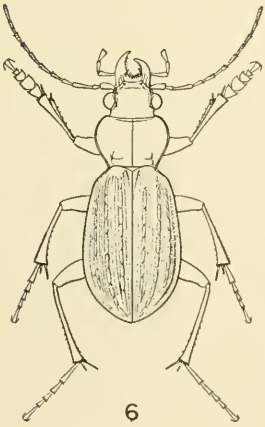

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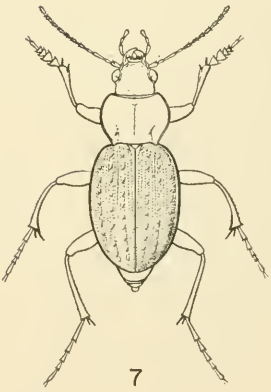

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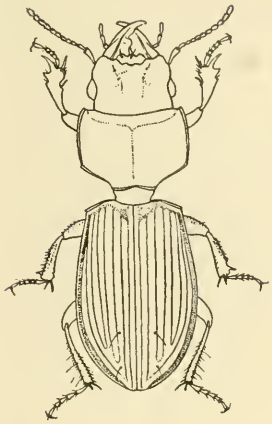
PLATE 2

1. *Scarites galapagoensis* Linell
2. *Selenophorus obscuricornis* (G. R. Waterhouse)
3. *Scarites williamsi*, new species
4. *Feronia duncani*, new species
5. *Feronia galapagoensis* G. R. Waterhouse
6. *Feronia calathoides* G. R. Waterhouse
7. *Agonum darwini*, new species
8. Prothorax of *Agonum darwini*, new species
9. Prothorax of *Agonum chathami*, new species
10. *Agonum albemarli*, new species



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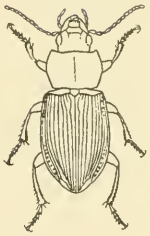

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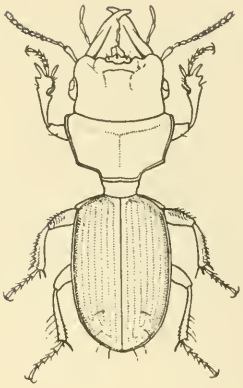

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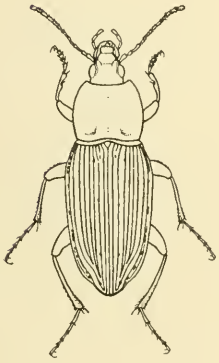

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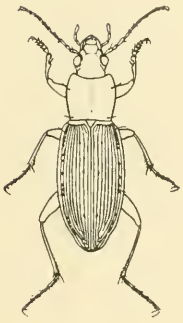

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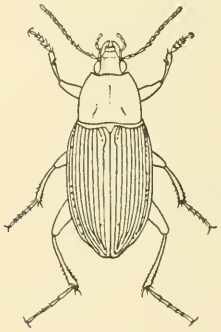

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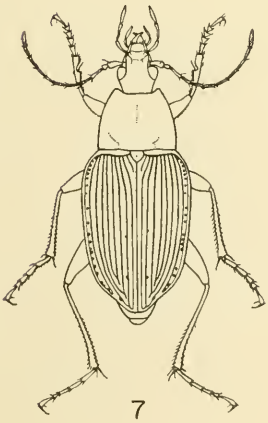

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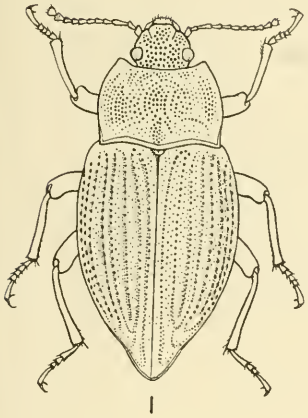
PLATE 3

1. *Stomion galapagoensis* G. R. Waterhouse
2. *Stomion helopoides* G. R. Waterhouse
3. *Stomion cribricollis*, new species
4. *Stomion longulum*, new species
5. *Stomion laevigatum* G. R. Waterhouse
6. *Stomion linelli* Blair
7. *Stomion longicornis*, new species
8. *Stomion rugosum*, new species



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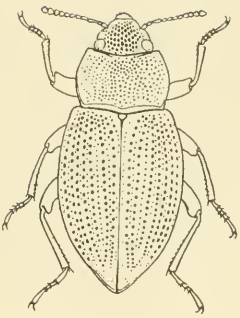

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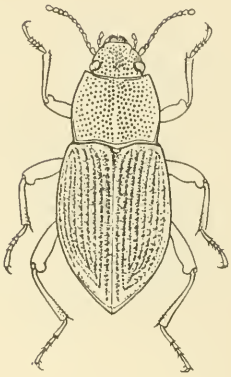

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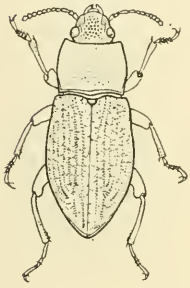

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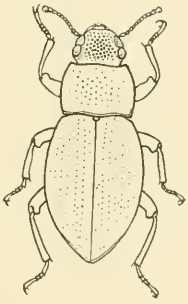

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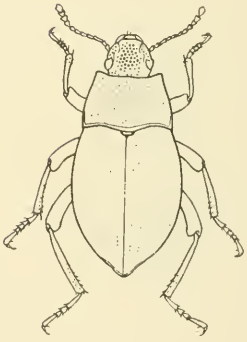

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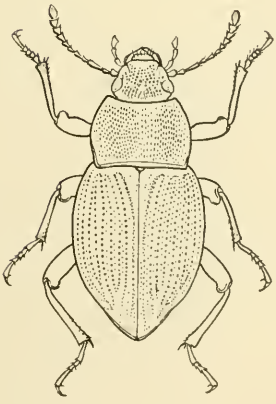

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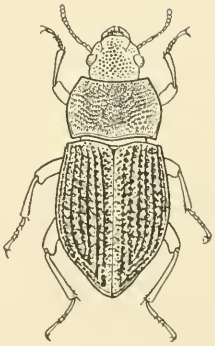

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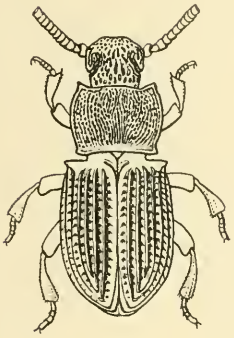
PLATE 4

1. *Ammophorus galapagoensis* G. R. Waterhouse
2. *Ammophorus galapagoensis subpunctatus*, new subspecies
3. *Ammophorus galapagoensis laevis*, new subspecies
4. *Ammophorus cooksoni* C. Waterhouse
5. *Ammophorus obscurus* G. R. Waterhouse
6. *Ammophorus bifoveatus* G. R. Waterhouse
7. *Ammophorus abingdoni*, new species
8. *Ammophorus insularis* Boheman



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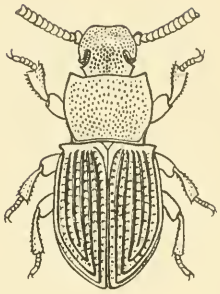

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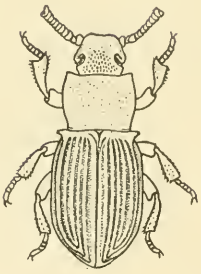

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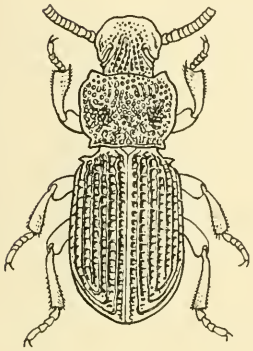

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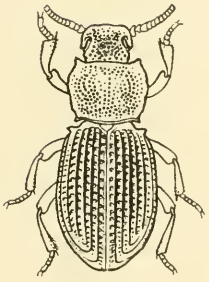

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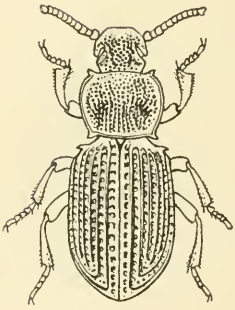

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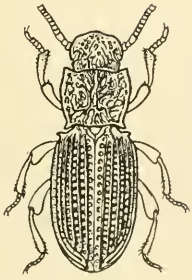

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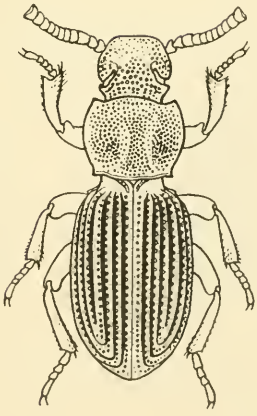

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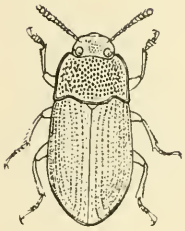
PLATE 5

1. *Pedonoeces wenmani*, new species
2. *Pedonoeces caudatus*, new species
3. *Pedonoeces bauri* Linell
4. *Pedonoeces galapagoensis* G. R. Waterhouse
5. *Pedonoeces spatulatus*, new species
6. *Pedonoeces costatus* G. R. Waterhouse
7. *Pedonoeces pubescens* G. R. Waterhouse
8. *Pedonoeces lugubris* (Boheman)
9. *Pedonoeces barringtoni*, new species



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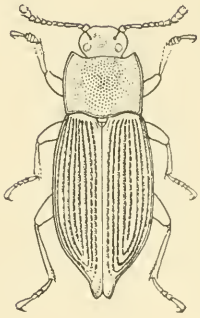

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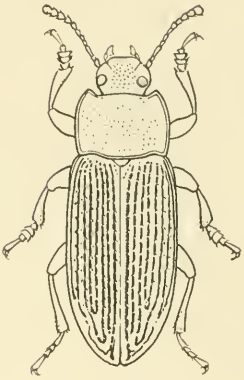

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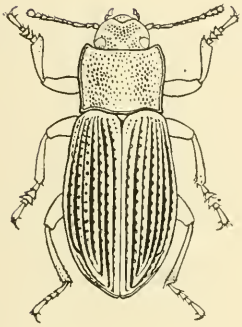

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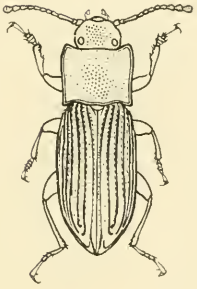

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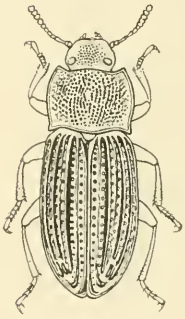

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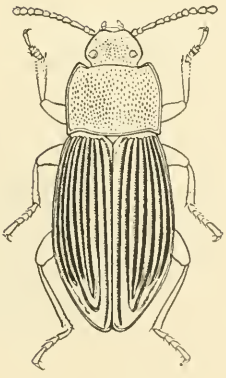

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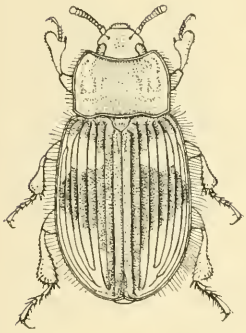
PLATE 6

1. *Phaleria manicata* Boheman
2. *Pelonium longfieldi* Blair
3. *Rhacius costipennis* Blair
4. *Conoderus galapagoensis*, new species
5. *Neoryctes galapagoensis* (G. R. Waterhouse)
6. *Chrysobothris williamsi*, new species
7. *Trox galapagoensis*, new species
8. Elytra of *Trox seymourensis* Mutchler



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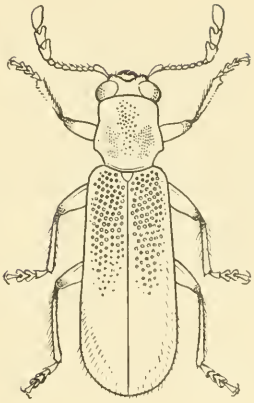

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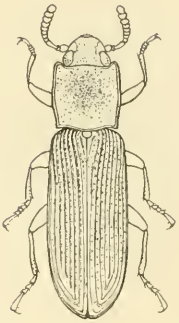

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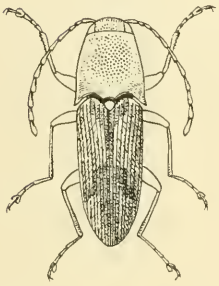

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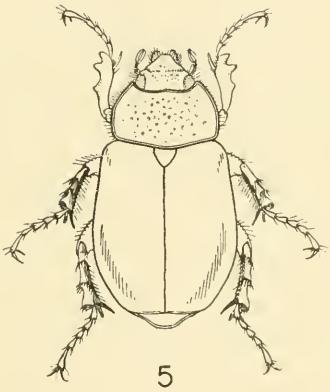

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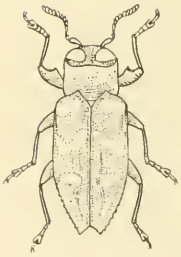

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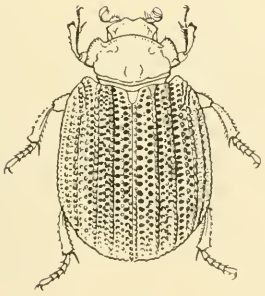

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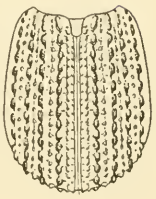

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PLATE 7

1. *Leptostylus galapagoensis*, new species
2. *Acanthoderes galapagoensis* Linell
3. *Lembodes subcostatus*, new species
4. *Estola galapagoensis* Blair
5. *Strongylaspis krapelini* Lameere
6. *Acryson galapagoensis* Linell
7. *Pantomorus galapagoensis* Linell
8. *Gerstaeckeria galapagoensis*, new species
9. *Amphideritus cuneiformis* (G. R. Waterhouse)

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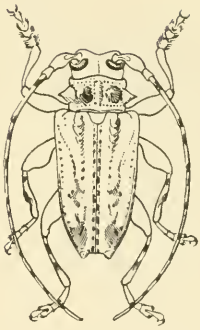

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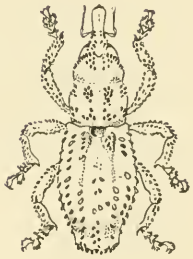

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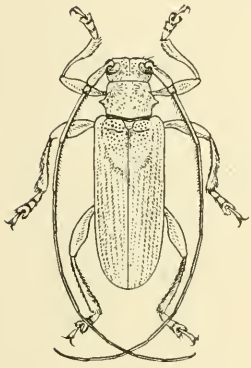

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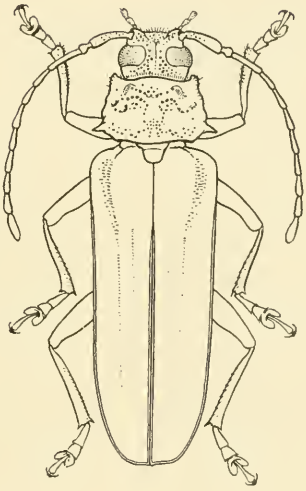

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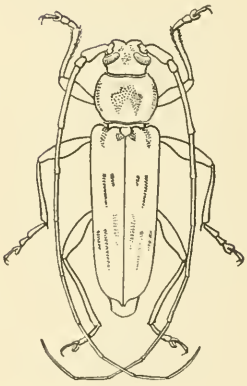

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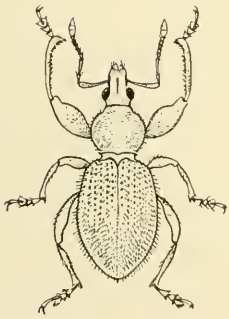

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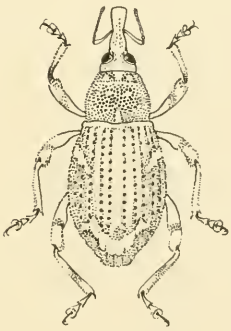

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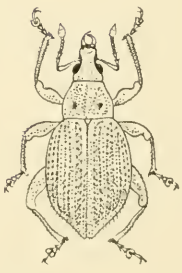

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