SCIENTIFIC RESULTS OF EXPLORATIONS BY THE U. S. FISH COMMISSION STEAMER ALBATROSS.

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No. V.—ANNOTATED CATALOGUE OF THE INSECTS COLLECTED IN 1887–'88.

BY

L. O. Howard,

Acting Curator of the Department of Insects.

INTRODUCTION.

Upon assuming charge of the Department of Insects, after Dr. Riley's departure for Europe in April last, I found this collection awaiting report, and learned that the *Myriapoda* and *Arachnida* received with the *Hexapoda*, under Accession Number 21699, had been sent to specialists for report. After a review of the material, and notification from the office of the Assistant Secretary in charge of the Museum that a speedy report was desirable, I decided that the most expeditious and satisfactory method of determining the collection would be to call upon the best known specialists in the country for assistance. I therefore sent the *Hemiptera* of the collection to Prof. P. R. Uhler, of Baltimore, Md.; the *Orthoptera* to Mr. Lawrence Bruner, of Lincoln, Nebr.; the *Diptera* to Dr. S. W. Williston, of New Haven, Conn.; the *Lepidoptera* to Rev. W. J. Holland, of Pittsburgh, Pa.; and the *Mallophaga* to Prof. Herbert Osborn, of Ames, Iowa. All of these gentlemen very kindly sent in prompt and satisfactory reports, and each is wholly responsible for the determinations in his group. The remainder of the material was determined by the Aid of the Department, Mr. M. L. Linell.

The method of arrangement adopted was deemed most desirable as giving at a glance an idea of the collections made in each general locality, but at the same time it rendered it impossible to publish each report by itself.

The *Arachnida* have been determined by Dr. George Marx, of the Department of Agriculture, and it has been deemed best to place his report in its entirety at the end of the *Hexapoda*. His report includes certain manuscript names, and the specific descriptions accompanying will be published elsewhere.

The *Myriapoda* were submitted to Mr. Charles H. Bollman, of Bloomington, Ind., who finds but eight species represented. His report is so short that his descriptions of new species are included.

The material as a whole is of great interest, and presents a strong argument in favor of future collections by the Fish Commission steamers and other Government vessels. From our standpoint the collections are surprisingly small, and but little time has evidently been given to these three classes. Conspicuous species have in most cases been preferred, and in all of the localities an hour's industrious sweeping of the herbage with a beating-net would have infinitely enriched the collections.

HEXAPODA.

CLEMENTE ISLAND, CALIFORNIA.

COLEOPTERA.

Family CARABIDÆ.

Besides fragments of the common Californian *Anisodactylus brunneus* Dej., a new species of *Calosoma* was collected here. 2 ♂ ♂. Size of *C. palmeri* Lec. from Guadeloupe Island, but different in form and sculpture.*

Family TENEBRIONIDÆ.

Eulabis grossa Lec.

One specimen.

Eusattus robustus Lec.

Three specimens.

These two species seem to be peculiar to the island.

Eleodes dentipes Esch.

One specimen. Occurs abundantly in South California.

LEPIDOPTERA.

Family BOMBYCIDÆ.

One larva of *Spilosoma* sp.

LOWER CALIFORNIA AND PANAMA.

COLEOPTERA.

Family TENEBRIONIDÆ.

Asida morbillosa Lec.

One specimen. Ballenas Bay.

Asida obsoleta Lec.

Fragments of a variety of this Californian species were taken on St. Margarita Island.

* The coleopterological fauna of Clemente Island is quite well known, and the occurrence of this conspicuous new Calosoma under this locality label arouses the suspicion that a mistake may have been made.—L. O. H.

Eleodes quadricollis Esch.

Thirty-seven specimens. St. Margarita Island. Occurs also abundantly in Southern California.

Eleodes militaris Horn.

Eleodes dentipes Esch.

Eleodes acuticauda Lec.

Fragments of these three species found at Ballenas Bay.

Cryptoglossa sp.?

Fragments. Ballenas Bay.

Cerenopus costulatus Horn.

A female and fragments of another specimen of this rare species found at Ballenas Bay.

Argoporis, new species.

Six specimens. St. Margarita Island.

Family MELOIDÆ.

Tegrodera erosa Lec.

Four specimens. St. Margarita Island. A species well known from Southern California.

Family CERAMBYCIDÆ.

Megaderus stigma Lin.

One specimen. Panama.

ORTHOPTERA.

Family ACRIDIIDÆ.

Schistocerca vaga Scudd.

A single female specimen from Ballenas Bay belongs here.

Thrincus californicus Thos.

A single pupa of this species is contained in the collection from Cerros Island.

Five specimens of a rather large *Acridiid* were collected at Cerros Island. This insect is a rather peculiar one, since from its general appearance it can easily be mistaken for one of the *Œdipodinæ*. A casual glance will, however, be sufficient to show its relationship with the *Rhomaleans* on the one side and the *Truxalids* on the other. It is one of comprehensive forms sometimes met with among insects. The strongly spined prosternum forbids its being placed either with the *Œdipodinæ* or *Truxalinæ*, while the structure of the pronotum gives its place with the *Tropidinotians*. It may be new, but from want of the proper reference-books I refrain from describing it as such.

Family BLATTIDÆ.

Blabera limbata (Burm.).

A single specimen from Panama belongs here.

Nyctobora ? holosericea ? Kl.

Two immature specimens of a cockroach from Panama are placed in the genus *Nyctobora* and referred to *holosericea* Kl. with doubt.

HEMIPTERA.

Tetyra farcta Germar, (*Pachycoris*). Zeits. I, p. 92.

No. 20. *Pachycoris guttipes* Walker, Brit. Mus., Cat. Hem., I, p. 47, No. 11.

One female from Panama. It has the antero-lateral margins of the pronotum a little more expanded than in the normal Mexican specimens, and the black dots much reduced in size.

Augocoris sexpunctatus Fabr. (*Cimex*), Spec. Ins., II, p. 339, No. 7.
Augocoris sexpunctatus Stål, Enum. Hemipt., I, p. 18, No. 2.

Two males were taken on board the ship at electric light, latitude 4° 18′ N., longitude 85° W. The smaller one is suffused with rose color on the upper side, and it is evidently immature, with the exterior integument imperfectly oxidized, and consequently it would have been dark colored if allowed to reach maturity. It is remarkable for having the rostrum very nearly as long as the body. The tip of this organ as now resting reaches almost to the end of the anal segment, but if set flat against the venter it would reach quite to the extremity of that segment.

Augocoris ehrenbergii Germar, Zeits., I, p. 140, No. 2.

One male from Panama, captured on board ship, March 6. It is only in deference to the views of my friend, the late Dr. Carl Stål, that I retain this species as separate from the preceding. The length of the rostrum is now observed to be of no value in separating the species of this genus.

Family COREIDÆ.

Catorhintha guttula Fabr. (Lygæus), Ent. Syst., IV, p. 162, No. 92.

A single immature female was collected at Panama. It is larger than the typical specimens from the West Indies and Central America, has the antenniferous spine longer and more curved, and one of the spines is wanting on the right-hand side.

MALLOPHAGA.

(On *Diomedea exulans*).

Two species of Lipeurus.

Lipeurus taurus Nitsch.

Many specimens of males, females, and young.

Lipeurus diomedeæ F. ♂, ♀, juv., and eggs.

Fabricius's description is very meager. Dufour described it fully as did Giglioli from *D. brachyura*. Piaget thinks *L. ferox* of Giebel from *D. melanophrys* the same, but makes *diomedeæ* the synonym. The identity of the forms from the different species of *Diomedeæ* is supported by careful comparison of these specimens with the descriptions of various authors and with a ♀ from the *D. brachyura* in my possession. The eggs inclosed in the vial with these and *L. taurus* probably (almost certainly) belong to *diomedeæ*. They are very large, 2.4mm long. Their shape is peculiar, reminding one of the valves of a barnacle, flattened, attached by a short pedicel, the outline as a whole semicordate, the straight line running from pedicel to apex and the opposite sides curved. Black lines run along the margin and on each face parallel to these, and a short, transverse line near the center; between this and the base are two irregular spots or expansions of the dark lines.

(On *Phaëton æthereus*).

No species have been described from this bird to my knowledge, and if so it must have been since the publication of Piaget's "Les Pediculines"

Docophorus sp.

An undescribed species, 2mm long, with triangular head, narrow clypeus which is deeply emarginate. The color is brown, and the transverse bands of the abdomen run without interruption the width of the segments. Differs decidedly from *D. hexagonus* Giebel described from *Phæton phœnicurus*, in having the clypeus deeply cut instead of evenly truncate. Approaches *D. breviantennatus* Piaget, which occurs on *Sula australis*, but appears to be slightly smaller and lighter colored, while the abdominal bands are not interrupted in the middle. Three specimens. If desired to designate by name it may be called *Docophorus phætonus*.

Menopon sp. near *fuscofasciatum* Piag.

Agrees very closely with *fuscofasciatum* described from *Lestris pomarina* except that it appears somewhat more robust than shown in Piaget's figure. Whether the difference is sufficient for formation of a new species is doubtful without comparison with specimens of that species.

Colpocephalum sp. near *angulaticeps* Piaget.

Agrees more closely with *C. angulaticeps* from *Fregata minor* than with *C. incisum* from *Phæton flavirostris*. A very minute species, of which there was a single specimen in the vial with other lice from *Phæton æthereus*, and this was unfortunately lost by accident, an involuntary cough carrying it from the slide while placed under the microscope for dry examination.

NEUROPTERA.

Family LIBELLULIDÆ.

Anax junius Drury.

A specimen of this widely distributed species was caught on board on the Pacific coast. It also occurs in our Southern States.

Family TERMITINA.

A colony of Termites was collected at Panama, but no winged specimens. The species consequently can not be determined.

LEPIDOPTERA.

Family NYMPHALIDÆ.

Heliconius apseudes Hübn. (Sicyonia A.), Zutr. Ex. Shmett., Figs. 141, 142.

One example; ♂. Panama.

Elnia vanessoides Blanch. Gay, Faun. Chil., VII., p. 28, Pl. v, Fig. 5, 6.

One very badly worn female specimen, ticketed "Panama."

Family SPHINGIDÆ.

Ællopus titan Cram. Pap. Exot., Pl. 142, Fig. F.

One example, ticketed "Off Taboga, Bay of Panama."

Family SESIIDÆ.

Isanthrene crabroniformis Stand.

One example; ♀; labeled "Panama."

HYMENOPTERA.

Family MYRMICIDÆ.

Cremastogaster lineolata Say.

A specimen from Ballenas Bay shows that this, our common species, has a wide distribution.

Family POMPILIDÆ.

Pepsis formosa Say.

Of this Arizona species a specimen was collected on St. Margarita Island.

Family VESPIDÆ.

One poor specimen of the genus *Polybia*, from Panama.

A light-colored specimen of *Polistes* from St. Margarita Island, somewhat different from any of our southwestern forms, and two specimens of an obscure species of the same genus collected at Panama.

DIPTERA.

Family TABANIDÆ.

One specimen of a species belonging to the genus *Tabanus* from Panama. It resembles *T.* (*Atylotus*) *insuetus* O. S., though different.

GALAPAGOS ARCHIPELAGO.

COLEOPTERA

Family CARABIDÆ.

Calosoma galapagoum ? Hope, Trans. Ent. Soc., 1838.

Fifty-eight specimens (2, Duncan Island, 44, Charles Island, and 12, Chatham Island) were collected of a *Calosoma* that is of a shining bronze-green color and has the elytral intervals distinctly carinated, with the third, seventh, and tenth broken up by large punctures. The male has three tarsal joints strongly dilated and spongy beneath. Hope describes his species above as black and smooth, with three rows of punctures on the elytra. Still it is likely to be the same species. Together with all the following Galapagos beetles described by Hope and Waterhouse, it was first collected by Charles Darwin during the famous *Beagle* expedition.

Pœcilus calathoides Waterh., Ann. Nat. Hist., XVI, 1845.

A pair was found on Charles Island; the male is shining, the female opaque.

Selenophorus galapagoensis Waterh., Ann. Nat. Hist., 1845.

Five specimens from Charles Island.

Family PTINIDÆ.

One specimen of the genus *Tetrapriocerca* was collected on Indefatigable Island. Although of the same habitus it is probably different from our Florida species, *T. longicornis* Oliv., which is known to have a wide distribution in Central and South America.

Family SCARABÆIDÆ.

Oryctes galapagoensis Hope, Ann. Nat. Hist., 1845.

One specimen from Chatham Island. It is 1 inch long, shining chestnut-brown.

Family CERAMBYCIDÆ.

Mallodon sp.?

Thirteen specimens were collected on Chatham Island and one on Duncan Island. As no species of this conspicuous genus had been previously recorded from this island group, it will be highly interesting to see whether it is a new species, peculiar to the archipelago, or whether it belongs to a continental form. This can not be settled at the present time. All the other *Coleoptera* from this locality are not found elsewhere.

Eburia amabilis Bohem., Eugen. Resa, 1859.

One specimen of this elegant species was captured on Charles Island.

Family CISTELIDÆ.

Two specimens of a species of *Allecula*, probably new, from Charles Island.

Family TENEBRIONIDÆ.

Stomion galapagoensis Waterh., Ann. Nat. Hist., 1845.

Stomion helopoides Waterh., *l. c.*

The series collected is sufficient to prove the identity of these two species, and it is interesting to notice the same variability in sculpture that characterizes our western *Tenebrionidæ*. Thirteen specimens from Charles Island and five from Chatham Island.

Ammophorus bifoveatus Waterh.

One specimen from Charles Island.

Family CURCULIONIDÆ.

Three specimens of a form belonging to this family were collected on Chatham Island.

ORTHOPTERA.

Family FORFICULIDÆ.

Anisolabis maritima? Bon.

A single earwig, collected on Chatham Island, is doubtfully referred to this species. It agrees more closely with *A. azteca* Dohrn. in general color than it does with *maritima*, but in size it approaches more nearly the latter.

Family GRYLLIDÆ.

A cricket of the genus *Gryllus*, of which there are eleven (immature and mature) specimens, one collected on Albemarle Island, the others on Chatham Island; bears a close resemblance to the common *Gryllus domesticus*, if it is not that species. My material is scant in this group, and especially in foreign forms; and not wishing to rely entirely upon comparisons with descriptions in so difficult a group as this is, I have hesitated to decide further.

Family LOCUSTIDÆ.

Bucrates? cocanus? Boliv.

The species which is referred to the above-named genus and species with doubt, is represented by a single very young larva. In addition to its youth, it is alcoholic as well as somewhat mutilated.

Anaulocomera cornucervi? Brunner.

There is also a pair of small katydids, one from Chatham Island and one from Indefatigable Island, belonging to the genus *Anaulocomera*.

Although the specimens are alcoholic, the long stag-horn-like cerci of the male will hardly leave room for doubt as to its identity with *cornucervi* of Brunner.

Family ACRIDIIDÆ.

Schistocerca melanocera Stål.

There are thirty-eight specimens of this beautiful large locust (collected—sixteen on Indefatigable Island, fifteen on Charles Island, three on James Island, four on Albemarle Island, and six on Duncan Island). They are somewhat larger than our *americana* and the oriental *peregrina*, with the wings longer and more ample. It is therefore well equipped for long flights, which it evidently sometimes takes.

There are also four specimens, from Chatham Island, of a much smaller locust belonging to the same genus with the preceding. Whether or not it is a described species I am unable to say until after I have had the opportunity of examining several works upon these insects that I do not have in my library. It is a diminutive of *americana* in many respects, the females being only a trifle over $1\frac{1}{4}$ inches in length, while the males are even smaller.

In addition to the specimens above enumerated the collection also contains four pupæ of some member of the same genus, and perhaps of the preceding species, since they too were taken on Chatham Island.

Among the others from Chatham Island are two specimens of *Acridii* belonging close to the genus *Pezotettix*, but I do not care to definitely place them, since one is immature and the other has no abdomen. The tegmina and wings of the mutilated one are rudimentary, and it evidently measured 25^{mm} in length. The posterior femora are marked with three moderately broad, dusky bands, both internally and externally.

A small specimen, a male, of a locust that at first glance reminds one of the lined *Stenobothri* on account of the trivittate coloring of the head, pronotum, and tegmina, but which, upon a closer inspection, is found to be an *Acridiid*, is placed in the genus *Euprepocnemis*. It is probably an undescribed form. Indefatigable Island.

Trimerotropis placida? Stål.

Two specimens of a small *Trimerotropis* are placed here, although Saussure in his "Prodromus Œdipodiorum" makes it a synonym of *Tr. ochraceipennis* (Blanch.). Length of body, ♀, 20 to 22 millimeters. James Island.

Family BLATTIDÆ.

Periplaneta americana Linn.

Ten specimens of this cosmopolitan cockroach were collected on Chatham Island.

Periplaneta australasiæ Fab.

Also widely distributed. Three mature specimens and three mature larvæ from Charles Island.

Leucophæa surinamensis (Lin.).

This rather widely distributed species of cockroach is represented in the present collection by three mature and nine immature specimens. Of the former one, a rather darker form than usual is from Bahia, Brazil; three young are from the Island of Abrolhos. The remaining specimens are from the Galapagos Islands.

Nauphœta bivittata Brunner.

Three specimens from Chatham Island are referred here.

Nauphœta lævigata? (Pal.).

The Galapagos Islands material also contains three immature specimens of a second *Nauphœta*, which is evidently the *Blatta lævigata* of Palisot de Beauvais.

HEMIPTERA.

Family PENTATOMIDÆ.

Nezara viridans Stål., Freg. Eugenie Resa. Ins., p. 228, No. 21.

Two specimens were secured on Chatham Island.

Family HYDROBATIDÆ.

Halobates wuellerstorfi Frauenf., Verh. Zool. Bot. Gesell., v. 17, 458. B. White, Challenger Exped. Zool., v. VII, p. 40, pl. 1, fig. 1.

Numerous specimens were collected from the surface of the ocean near the Galapagos Islands and south as far as latitude 23°, and also in the Caribbean Sea. A variety of the female at Chatham Island.

NEUROPTERA.

Family LIBELLULIDÆ.

Four specimens of the genus *Æschna* from Chatham Island and one specimen of the genus *Tramea* from Albemarle Island. No species of the *Libellulidæ* are described from the Archipelago, but these strong flyers may belong to the continental species.

LEPIDOPTERA.

Family NYMPHALIDÆ.

Agraulis vanillæ Linn. var. *galapagensis* Holland.

The form of *A. vanillæ* in the collection ticketed "Chatham Island" differs in some respects so decidedly from the typical form as to well deserve a varietal name. It is characterized by its smaller size, by the darker and more fuscous tint of the basal half of the wings, by the great increase in breadth of all the black markings on both surfaces, and the almost entire obliteration of the white dots by which the spots in the

cell on the upper surface of the primaries are pupiled in typical specimens.

One specimen, Galapagos, Chatham Island.

Family PAPILIONIDÆ.

Callidryas eubule Lin. (*Pap. e.*), Syst. Nat., I, 2, p. 764.

Four ♂ ♂; one ♀. Chatham Island.

Two ♂ ♂. Charles Island.

Differs in no respect from the forms taken commonly in the Southern United States and West Indies.

Family HESPERIDÆ.

Thymele sp. nov. ?

Near *T. santiago* Lucas (*Eudamus s.*), Sagra Hist. Cuba, VII, p. 623; but differing decidedly on the under surface.

The specimen is in very poor condition. Labeled "Chatham Island."

Family SPHINGIDÆ.

Deilephila lineata Fab., Ent. Syst. III, 1, p. 368, 39. Smith-Abbott, Lep. Ins. Georgia, pl. 39.

One example, ♂. "Galapagos, Charles Island."

(The collection contains a specimen of the genus *Protoparce* labeled "Galapagos, Charles Island," which is too badly worn to permit of a proper description, but which is sufficiently well preserved in part to indicate that it is not referable to any species known to the writer. A careful examination of the "Species Générale" and of Mr. A. G. Butler's revision, and a reference to all of the subsequent literature accessible, fails to disclose a description or a figure applicable to the species. It comes near to *Ochus*, Klug, yet seems to be distinct. Holland.)

Protoparce cingulata Fabr., Syst. Ent., 545.

(A very badly worn female of this species is contained in the collection and labeled, "Galapagos, Chatham Island." The species is distributed from Canada to Uruguay, and from Massachusetts to the Hawaiian Islands. Its occurrence in the Galapagos is an interesting fact. Holland.)

Protoparce calapagensis sp. nov. (Holland.)

UPPER SURFACE.—Anterior wings white, traversed by double, undulate, black transverse anterior, posterior, and submarginal lines, the latter terminating near the exterior angle in a conspicuous black spot. A row of marginal black spots, those nearest the apex protracted in the form of dashes; the second from the apex, coalescing with the submarginal line, further ornaments the wing. Fringes white, interrupted at the end of the nervures by black. The discal dot is pure white, large, narrowly margined with black. Upon the costa, near the base, is a black dash, followed by some confused "pepper and salt" markings

near the transverse anterior line. Posterior wings gray, shading into white at anal angle, and traversed by three black bands, of which the two on the discal space are narrow, while the submarginal band is broader, widening rapidly from the anal angle toward the anterior margin. Head, antennæ, and thorax white. Patagiæ white, marked in the middle with a deep black curved line extending from the insertion of the anterior wings about two-thirds of their length. Abdomen light gray, almost white, ornamented by two large tufts of black hair at base, and by a narrow dorsal line consisting of a black dash upon each segment. Each segment is further margined by a transverse line of black at its insertion, and the second, third, and fourth are marked by lateral spots of pale yellow surrounded with black.

UNDER SURFACE.—Palpi, thorax, and abdomen snowy white. Upper ends of tibiæ and tarsi light brown, ringed with white. Wings gray, obscurely marked, and banded as on upper surface.

Expanse of wings, 90mm.

Described from one female specimen in fair condition, labelled "Galapagos, Charles Island."

Also five Sphingid larvæ of as many different species, of which three are from Chatham Island, one from Duncan Island, and one from Indefatigable Island.

Family BOMBYCIDÆ.

Utetheisa bella Linn. var. **ornatrix** Linn.

One damaged example labeled "Galapagos, Chatham Island."

Family NOCTUIDÆ.

Two examples of the genus *Pseudaglossa*, one defective specimen of the genus *Zanclognatha*, and three examples of another genus of this family were collected at "Galapagos, Chatham Island."

There are three larvæ belonging to a species of *Catocala* from Duncan Island, also eight larvæ of a species near *Alysia*, one larva near *Prodenia*, and a Noctuid pupa from Chatham Island, and one larva near *Hydræcia*, from Indefatigable Island.

Family PYRALIDÆ.

One example of the genus *Crambus* from "Galapagos, Chatham Island."

The collection also contains a specimen from Chatham Island, denuded of scales, and so torn as to be wholly indeterminable.

Family GEOMETRIDÆ.

One specimen of a Geometrid larva collected on Chatham Island.

The collection also contains an unexpanded example of some species of *Ægeria*, evidently killed as it was emerging from the chrysalis, and labeled "Galapagos, Chatham Island."

HYMENOPTERA.

Family FORMICIDÆ.

A dark-colored species of the genus *Camponotus* was collected, one male from Albemarle Island, numerous males and two females from Charles Island.

Of a light-colored species of the same genus seven males were taken on Charles Island, and one male on Albemarle Island.

Family APIDÆ.

Two females of the genus *Xylocopa* of a purple-black color, even the wings, were taken on Indefatigable Island. On this island was also collected a male specimen that may be of the same species. It has transparent wings, and the body is covered with pale rufous hairs.

DIPTERA.

Family CULICIDÆ.

Twelve specimens of the genus *Culex* were collected, of a luteous color, with blackish mesonotum.

CHILI AND STRAITS OF MAGELLAN.

COLEOPTERA.

Family CICINDELIDÆ.

Agrius fallaciosus Chevr., Ann. Fr., 1854.

A specimen was collected on Elizabeth Island of this rare and exceedingly interesting form. It occurs only at the straits, and is the only South American representative of the group to which our genera *Amblychila* and *Omus* belong.

Family CARABIDÆ.

Carabus suturalis Fab.

Three specimens from Sandy Point, and one from Laredo Bay, of this species. It occurs also in Chili, and is of a graceful form and brilliant color, like the other Chilian species of *Carabus*. Some authors separate them into the genus *Ceroglossus*.

Migadops ovalis Waterh., Ann. Nat. Hist., 1842.

One specimen from Laredo Bay. The genus is peculiar to Patagonia and the Falkland Islands.

Six different species belonging to the genus *Antarctia* were collected. Two specimens of one species were caught on board near Chiloe, another pair of a different species on board a long distance southwest from Chiloe. At Sandy Point were taken nineteen specimens of three species, and at Laredo Bay two specimens of the sixth species. The species are so nearly allied, and so large a number have been described from Chili and Patagonia, that it is not safe to identify them without comparison

with the types. In the far south they replace our Amaras and resemble them greatly, but are easily distinguished by having two impressed punctures on the apical half of the elytra, while the Amaras have none.

Agonum gayi Sol., Gay Hist. Chil., IV.

Three specimens from Sandy Point of this Chilian species.

Pristonychus chilensis Gory, Ann. Fr., 1833.

One specimen from Lota, Chili, of this form considered a variety of the European *Pr. complanatus* Dej.

Tetraodes lævis Blanch., Voy. Pole Sud, 1853.

Four specimens from Gregory Bay, and two from Sandy Point, of this large, shining, Broscus-like species, which is peculiar to the straits.

Family DYTISCIDÆ.

Lancetes præmorsus Er.

One specimen from Sandy Point of this Chilian species. The genus *Lancetes* occurs in southern South America and Australia.

Family SILPHIDÆ.

Necrodes biguttulus Fairm., Rev. ? Zool., 1859.

One specimen from Elizabeth Island of this fine species which is peculiar to the straits.

Family ELATERIDÆ.

Agriotes magellanicus Blanch., Voy. Pole Sud, 1853.

One specimen from Sandy Point.

An Elaterid larva was found at Port Churruca, and a Lampyrid larva at Latitude Cove, Patagonia.

Family COCCINELLIDÆ.

Adalia angulifera Muls.

One specimen, Tomé, Chili.

Family LUCANIDÆ.

Sclerognathus femoralis Guér., Rev. Zool., 1839.

Fourteen specimens from Sandy Point of this interesting Dorcus form, which also occurs in Chili.

Family SCARABÆIDÆ.

Macrosoma glaciale Fab.

One specimen of this species, peculiar to the straits, from Sandy Point.

Maypa viridis Sol., Gay. Hist. Chil.

Six specimens from Sandy Point of this brilliant Chilian species. At Gregory Bay was found a specimen of a *Rutelinid* which can not safely be identified without comparison.

Also three Lamellicorn larvæ from Sandy Point.

Family CERAMBYCIDÆ.

Microplophorus magellanicus Blanch., Voy. Pole Sud, 1853.

A *Prionid*, resembling our *Tragosoma*. One specimen from Sandy Point.

Family TENEBRIONIDÆ.

Phaleria gay Lap., Hist. Nat., II.

Four specimens from Lota, Chili.

Nyctelia multicristata Blanch., Voy. Pole Sud, 1853.

Eight specimens from Gregory Bay, and one from Elizabeth Island, of this large, beautiful species, found only at the straits.

Emalodera obesa Guér., Rev. Zool., 1841.

Nine specimens Gregory Bay, three Elizabeth Island, and one from Sandy Point—peculiar to the straits.

Platesthes depressa Guér., Rev. Zool., 1841.

One specimen of this curious little species from Gregory Bay.

Family CURCULIONIDÆ.

Cylindrorrhinus angulatus Guér., Rev. Zool., 1841.

Thirteen specimens of this large, interesting species were captured at Gregory Bay. Peculiar to the Magellan region.

Rhyephenes lævirostris Sol., Ann. Fr., 1839.

Two specimens from Sandy Point of this Chilian species.

Eublepharis (Lophotus) vitulus Fab.

Sandy Point, four specimens, and one from Laredo Bay. It is a very conspicuous species.

A specimen of a smaller species of the genus *Lophotus* was obtained at Sandy Point.

Three other species of Rhyncophorus beetles were collected at Sandy Point, nine specimens of one, and one specimen of each of the two others. As they have no other striking peculiarities they can not very well be identified from the old descriptions alone in this extremely difficult group.

ORTHOPTERA.

Family FORFICULIDÆ.

Anisolabis chilensis? Blanch.

Here is placed, with some doubt, a mutilated specimen collected at Gregory Bay. Books of reference for this group of insects are not numerous, many of the species being without descriptions, occurring only in catalogues.

Family LOCUSTIDÆ.

Stenopelmatus chilensis? Sauss.

A single male specimen of a large, cricket-like *Locustida*, from Lota, Chili, appears to belong here. The structural character of the prosternum will, however, necessitate its removal from that genus as limited.

Family ACRIDIIDÆ.

Bufonacris terrestris Walk.

The most remarkable orthopterous insect among the lot is the large wingless *Bufonacris terrestris* of Walker. Not only is it of interest on account of its odd appearance, but also from the fact of its having been recorded a second time from the Straits of Magellan. Saussure, in his "Additamenta ad Prodromum Œdipodiorum" (p. 160, foot-note), discredits Walker's citation of the habitat of this locust. It is a barren ground form, and is closely allied to our genus *Haldemanella*. Its occurrence at a point so widely removed from the subtropical region certainly is an anomaly. Four specimens from Gregory Bay.

Another exceedingly interesting form from Gregory Bay is represented by six specimens of a small *Truxalid* belonging to a genus very closely related to *Oxycoryphus* in its general appearance, but differing greatly from that genus in being entirely apterous, and in having the body ridged or corrugated as in the genus *Phrynotettix* Sauss. among the *Eremobites*.

HEMIPTERA.

Family PENTATOMIDÆ.

Ditomotarsus hyadesi Signoret, Ann. Soc. Ent. Fr., 1885, p. 64.

An immature male specimen from Sandy Point.

Family ARADIDÆ.

Isodermus patagonicus Stål (*Mezira*?), Engenie Resa, Ins., p. 260, No. III.

One specimen, a male, was collected at Sandy Point. It has fully developed wings.

NEUROPTERA.

Family ODONATA.

Æschna diffinis Ramb., Histoire des Neuroptéres, 1842.

Two specimens of this species were caught at Island Harbor, Patagonia.

One specimen collected at Latitude Cove belongs to the genus *Diplax*. At Mayne Harbor, Patagonia, was taken a Libellulid pupa.

Family LIMNOPHILIDÆ Ramb. 1842.

Halesus hyadesi J. Mabille, Mission Scientif. du Cap Horn, 1888.

One specimen captured at Gregory Bay. Above-named French expedition in 1883 records also only one specimen (from Orange Bay), and

the species must be considered sufficiently rare, only one specimen for each hemisphere.

LEPIDOPTERA.

Family NYMPHALIDÆ.

Argynnis cytheris Drury (*Pap. C.*), Ill. Ex. Ent., II, pl. IV, fig. 3, 4. *A. siga* Hübn., Zutr. Ex. Schmett, fig. 677, 678. *A. anna*, Blanch., Gay Faun. Chili, VII, p. 23, ♀. *A. lathonioides* Blanch., Gay Faun. Chili, VII, p. 22, pl. II, fig. 1, 2.

I give what appears to me to be the correct synonymy of this species. The specimens of *anna*, and its female *lathonioides*, in my collection, which were determined for me by Dr. Staudinger, and which agree with Blanchard's description, certainly agree also with the figure of Drury's *cytheris* as closely as possible, and Drury's figure is admitted by Mr. Kirby, in his Synonymic Catalogue, to represent the same insect figured at a later date by Hübner as *siga*.

Five males (*Anna*), and one female (*Lithonioides*), labeled "Straits of Magellan, Gregory Bay."

Family PAPILIONIDÆ.

Pieris xanthodice Lucas, Rev. Zoolog., 1852, p. 337.

One specimen, ♂, "Straits of Magellan, Gregory Bay."

A dozen larvæ of a Diurnal were taken at Sandy Point.

Family BOMBYCIDÆ.

Saturnia rubrescens Blanch.

One female, labeled "Western Patagonia."

Hemileuca hyadeti Mabille. (*Saturnia hyadeti.*)

One male, labeled "Western Patagonia."

Ecpantheria indecisa Walker. *E. bonariensis* Boisd. Oberthür, Études Ent. VI, pt. IV, p. 111, pl. XVIII, fig. 4 and 7.

One male, labeled "Straits of Magellan, Gregory Bay."

Family NOCTUIDÆ.

Six examples representing five species of the genus *Agrotis* are labeled as collected at "Western Patagonia," "Lota, Chili," and "Straits of Magellan, Gregory Bay."

There is also one example of the genus *Mamestra* and three examples of the genus *Leucania* from "Straits of Magellan, Gregory Bay."

Three larvæ of a *Noctuid* near *Plusia* are from Sandy Point, also two Noctuid pupæ were collected at the same place.

Family PYRALIDÆ.

Botys tedra? Cram., Pap. Exot., pl. 6, 312.

One example. "Lota, Chili."

Three examples of the genus *Ciambus* are from "Straits of Magellan, Gregory Bay."

The collection contains besides these a specimen from Gregory Bay denuded of scales and so torn as to be wholly indeterminable.

HYMENOPTERA.

Family ICHNEUMONIDÆ.

A specimen of the genus *Amblyteles* and a brilliant colored specimen of a *Stilpnus* were found at Gregory Bay.

Family FORMICIDÆ.

A female specimen of the genus *Camponotus* was captured at Lota, Chili.

Family POMPILIDÆ.

Three specimens of a *Pompilus* were found at Gregory Bay.

Family APIDÆ.

Bombus chilensis Spin., Gay, Hist. Chil.

Of this very large Chilian species two specimens were taken at Borja Bay.

Family VESPIDÆ.

Odynerus vespiformis Halid.

One specimen from Sandy Point.

DIPTERA.

Family TIPULIDÆ.

Two specimens of the genus *Pachyrhina* were taken at Straits of Magellan.

Family TABANIDÆ.

Two specimens, each of a different species of *Tabanus* are from the Straits of Magellan.

Family ASILIDÆ.

Two females and one male of the genus *Asilus* are from the Straits of Magellan (Gregory Bay). The species would be located in the genus *Philodicus*, save for the absence of spines at the tip of the very short conical ovipositor. The abdomen is brownish-gray, with three rows of rounded brown spots; the wings hyaline, with small clouds on the basal cross-veins, anterior cross-vein, and furcation of the third.

Family SYRPHIDÆ.

Dolichogyna nigripes Bigot, Ann. Soc. Ent. Fr., 1884, 346, Chili.

One female specimen from the Straits of Magellan. The description applies sufficiently well, but it is not impossible that the form is only a variety of *D. fasciata*, Macq., described from this region by Bigot, as

Helophilus hahni (Mission Sc. Cap Horn, Dipt. vi, Div. 24, pl. III, f. 6). The legs are deep black, with the extreme tip of the femora and the basal third of the tibiæ yellow. The antennæ are black throughout, and the inner mesonotal stripes are slender. It is a little queer that two such allied species should have so wide a habitat in common.

Family SARCOPHAGIDÆ.

Two small specimens, each of a different species of the genus *Sarcophaga* and of the ordinary types, are from the Straits of Magellan.

The collection also contains a specimen of a *Tachinid* from the Straits of Magellan that I can not locate in any genus known to me.

Family MUSCIDÆ.

Lucilia (Compsomyia) macellaria Fabr. Screw-worm fly.

The synonomy of this species is as follows:

Musca macellari Fabricius, Syst. Ent., 776, 14; Ent. Syst., iv, 319, 28; Syst. Antl., 292, 42; Olivier, Encycl. Méth. viii, 14, 14; Wiedemann, Auss. Zw. Ins., ii, 405, 36; Macquart, Dipt. Exot., ii, 3, 147, 28, pl. xvii, f. 9 (*Lucilia*); Lynch, Arribalzaga, El. Nat. Agr., i, 187 (*Calliphora*); Annales Soc. Cient. Arg., x, 70, et seq. (*Compsomyia*); ibid., 248, et seq. (id.).

Lucilia vitatta Macquart, Dipt. Exot., ii, 3, 141, 10, pl. xvii, f. 10.

Caliphora fulvipes Macquart, Dipt. Exot., ii, 3, 132, 13, pl. xvi, f. 3; Blanchard in Gay's Hist. de Chile, vii, 434, 4; Schiner, Nov. Exped., 309.

Chrysomyia bata Walker, List, etc., iv, 875.

combrea Walker, op. cit., 876.

fasciata Walker, Dipt. Saunders, 330, 337.

lyrcea Walker, List, etc., iv, 873.

verena Walker, List, etc., iv, 874.

caruca Walker, List, etc., iv, 877.

gamelia Walker, List, etc., iv, 878.

Lucilia rubrifrons Macquart, Dipt. Exot., 4. Suppl., 250, 56, pl. xxiii, f. 5; Rondani, Dipt. Merid. Am., lecta *P. strobeli*, 3, 10.

Lucilia hominivorax Coquerel, Ann. Soc. Ent. Fr. (3), vi, 1858, 173, pl. iv, f. 2; vii, 1859, 233, pl. vi, f. 1; Laboulbéne, Bull Soc. Ent. Fr. (4), viii, 1860, 36; Lucas, ibid., 40.

Calliphora infesta Philippi, Zeitschr. f. Ges. Naturw., xvii, 513.

Calliphora annulipes Philippi, Zeitschr. f. Ges. Naturw., xvii, 514.

Chrysomya viridula R. Desvoidy, Essai sur les Myod., 445.

affinis R. Desvoidy, l. c.

tibialis R. Desvoidy, op. cit., 446.

Vherminieri, l. c.

alia R. Desvoidy, op. cit., 447.

carrulescens R. Desvoidy, l. c.

socia R. Desvoidy, l. c.

decora R. Desvoidy, op. cit., 48.

plaei R. Desvoidy, l. c.

lepida R. Desvoidy, l. c.

fulvicrura R. Desvoidy, op. cit., 416.

Somomya annulipes (*? Lucilia*) Phil. Rondani, Arch. per la Zool., etc., iii, 30.

Calliphora anthropophaga Conil, Act. Ac. N. C. Ex., iii, 41, 1878.

The above synonomy of this interesting fly is reproduced almost wholly from "Lynch Arribálzaga." I have compared a considerable number of the descriptions, and have found no reason to seriously doubt any, though it is true that an exhaustive study of the allied forms from both North and South America may possibly entitle a few of the names to specific rank. The red or reddish hind femora and tibiæ have furnished ground for some of these names, and Lynch recognizes two varieties, which may properly be called *Macellaria genuina* and *Macellaria fulvipes* Macquart. These lighter-colored specimens occur among the material from both Montevideo and the United States. Among these ten specimens there is a great difference in size, agreeing in this respect also with those from North America. I have seen the species from all parts of the United States, and from Canada and Mexico, as well as Brazil. It seems to occur over the whole of both continents. Twenty-seven specific names is rather an unusual number for a fly to be burdened with.

MONTEVIDEO AND URUGUAY.

COLEOPTERA.

Family CARABIDÆ.

Calosoma bonariense Dej.

A single broken specimen of this species. It resembles our *C. sayi* in habitus, but belongs to a different group of the genus.

Platysma striatulum Fab.

One specimen. A large, smooth, and greenish species.

Family STAPHYLINIDÆ.

Staphylinus tristis Blanch.

One poor specimen.

Family TENEBRIONIDÆ.

Two specimens of a large species belonging to the tribe *Blaptini.*

HEMIPTERA.

Family PENTATOMIDÆ.

Nezara armigera Stål., Freg. Eugenie, resa. Ins., p. 229, No. 24. Enum. Hemipt., II, p. 43, No. 19.

Two specimens were collected.

NEUROPTERA.

Family ODONATA.

Six specimens of a species belonging to the genus *Cynacantha* were captured.

Family HEMEROBIIDÆ.

One specimen of the genus *Chrysopa.*

LEPIDOPTERA.

Family NYMPHALIDÆ.

Junonia genoveva Cram. var. **hilaris** Felder, Reise Nov., Lepidoptera, III, p. 400.

A fragmentary specimen of the female ticketed "Montevideo."

Family LIPARIDÆ.

There are two examples of a moth structurally near to *Orgyia* Ochs., but unknown to me, and which, without much labor, I could not determine. These are labeled "Montevideo."

HYMENOPTERA.

Family ICHNEUMONIDÆ.

One specimen of the genus *Anomalon*.

Family VESPIDÆ.

Odynerus argentinus Sauss.

One specimen collected.

BRAZIL (BAHIA AND ABROLHOS ISLANDS).

COLEOPTERA.

Family ELATERIDÆ.

Two specimens of an Elaterid larva were collected on Abrolhos Islands.

ORTHOPTERA.

Family GRYLLIDÆ.

Scapteriscus vicinus Scudd.

There is a specimen of a mole-cricket belonging to Scudder's genus *Scapteriscus* which is characterized chiefly by having two claws upon the tibiæ, instead of four to the front or digging feet. This specimen from Bahia and another specimen from St. Lucia are of the species called *vicinus* Scudder.

Family ACRIDIIDÆ.

Rhomalea miles Drury.

Nine specimens of this highly-colored locust were taken at Bahia. They are all immature.

Scyllina peregrans Stål.

There are also three specimens of a locust that is made out to be this insect. It is a much slenderer species than the *Scyllina viatoria* Sauss., and approaches our *Syrbula admirabilis* (Uhler) in its general appearance. Two mature individuals and one pupa from Abrolhos Islands, off the east coast of Brazil,

Family LOCUSTIDÆ.

Conocephalus subulatus? Bolív.

The collection contains a single larva of a Conocephalus from Abrolhos Islands which is probably *subulatus* Bolivar.

LEPIDOPTERA.

Family BOMBYCIDÆ.

A Bombycid larva was taken at Bahia.

Family NOCTUIDÆ.

Erebus odora Linn.

One battered example of this gigantic Brazilian moth "came on board ship in the night after leaving the Abrolhos Islands, December 28, 1887." It is a strong flyer, and is sometimes taken as far north as New York City.

A Noctuid larva, near *Aletia*, was collected at Bahia.

HYMENOPTERA.

Family APIDÆ.

There is a very poor specimen of a bee belonging to some one of the genera peculiar to South America, collected at Bahia.

DIPTERA.

Family HIPPOBOSCIDÆ.

One specimen of the genus *Olfersia* bears the label "Abrolhos Islands, December 28. This insect flew on board when we were three miles from the island." It had probably escaped from some bird flying in the vicinity.

ST. LUCIA.

COLEOPTERA.

Family STAPHYLINIDÆ.

One specimen of the genus *Lathrobium*.

Family LAMPYRIDÆ.

One specimen of the genus *Pyractomena*.

Family SCARABÆIDÆ.

Ligyrus tumulosus Bur.

One specimen.

ORTHOPTERA.

Family GRYLLIDÆ.

Gryllotalpa hexadactyla Perty.

Fifteen specimens are referable to this species.

Scapteriscus vicinus Scudd.

One specimen.

NEUROPTERA.

Family ODONATA

Lestes simplex Hagen.

One specimen.

One specimen of the genus *Libellula.*

LEPIDOPTERA.

Family NYMPHALIDÆ.

Anartia jatrophæ Lin. (*Pap. j.*), Mus. L. U. R., p. 289.

Two defective specimens labeled "Port Castries, St. Lucia."

Family SPHINGIDÆ.

A larva collected that belongs here.

HYMENOPTERA.

Family FORMICIDÆ.

Numerous male specimens of an undetermined specie of the genus *Lasius.* A portion of a nest of a tree-ant was also taken.

Family POMPILIDÆ.

Pepsis ornata Say.

One specimen.

Family APIDÆ.

One specimen of the genus *Xylocopa*

ARACHNIDA.

BY GEORGE MARX, M. D.

The steamer *Albatross* collected *Arachnida* at the following five principal points:

(1) Abrolhos Islands, off the Brazilian coast, December 28.

(2) At the Straits of Magellan at three points: Gregory Bay, January 18; Laredo Bay, January 22; and Sandy Point, January 27.

(3) At the Galapagos Islands, as follows: Chatham Island, April 4; Charles Island, April 8; Albemarle Island, April 10; James Island, April 11; Indefatigable Island, April 12; and Duncan Island, April 13.

(4) In Lower California: St. Margarita Island, May 2; Balenas Bay, May 3; and Cerros Island, May 5.

(5) In California: Clemente Island.

The total result of these collections was thirty-seven species of *Araneæ* and six species of Scorpions.

The following list contains the *Araneæ*, arranged according to their classification:

Family EPEIRIDÆ.

1. Gasteracantha insulana Thor.
2. Gasteracantha cancriformis Lin.
3. Gasteracantha velitaris Koch.
4. Argiope argentata Fabr.
5. Epeira cooksonii Butler.
6. Epeira flaviventris Nicolet.
7. Epeira labyrinthea Hentz.

Family THERIDIDÆ.

8. Linyphia (Dyplostylum) magellanii nov. sp.
9. Latrodectus scelio Thor.
10. Latrodectus mactans Walk.
11. Latrodectus apicalis Butler.

Family SCYTODIDÆ.

12. Loxosceles galapagoensis sp. nov.

Family THOMISIDÆ.

13. Thanatus antarcticus sp. nov.

Family SPARASSIDÆ.

14. Selenops aissa Walk.
15. Heteropoda venatoria Lin.

Family AGALENIDÆ.

16. Agalena (immature).
17. Tegenaria morsitans sp. nov.

Family AMAUROBIDÆ.

18. Amaurobius frigidus sp. nov.

Family DRASSIDÆ.

19. Drassus pacificus sp. nov.
20. Gayenna rosea sp. nov.
21. Clubiona brevipes sp. nov.
22. Zora californica sp. nov.
23. Zora latithorax sp. nov.

Family LYCOSIDÆ.

24. Lycosa fallax sp. nov.
25. Lycosa fuegiana sp. nov.
26. Lycosa ornata sp. nov.

Family CTENIDÆ.

27. Ctenus obscurus sp. nov.

Family ATTIDÆ.

28. Phidippus morsitans (found on board of the ship).
29. Menemerus galapagoensis sp. nov.

Family DYSDERIDÆ.

30. Segestria galapagoensis sp. nov.

Family FILISTATIDÆ.

31. Filistata capitata Hentz.
32. Filistata hibernalis Hentz.
33. Filistata oceanea sp. nov.

Family THERAPHOSIDÆ.

34. Cyclosternum schmardæ Auss.
35. Cyrtauchenius similis L. Koch.
36. Lasiodora striatipes Auss.
37. Eurypelma rapax Auss.

The spiders collected at the Abrolhos Islands bear a general South American character; they are eight species, five of which are known and have been previously described; one, the *Epeira labyrinthea* Hentz, is of special interest, for it is an inmate of the United States, where it is found as high north as the State of Maine, and is, as far as our knowledge of the geographical distribution of *Arachnida* in the United States goes, confined to the Atlantic States, from Maine to Florida. It has also been collected on the Bermuda and West India Islands and in California.

The following are the names of the spiders collected at Abrolhos Islands:

1. Epeira labyrinthea Hentz.
2. Cyclosternum schmardæ Auss.
3. Cyrtauchenius similis L. Koch.
4. Lasiodora striatipes Auss.
5. Eurypelma rapax Auss.
6. Tegenaria morsitans sp. nov.
7. Zora latithorax sp. nov.
8. Ctenus obscurus sp. nov.

The spiders collected at the STRAITS OF MAGELLAN represent a new and strange fauna, and, although on two former occasions collections have been made in the same region and the material described, we find in our material that seven out of the ten species are new to science. The three already described are *Epeira flaviventris* Nic., which has been described by Simon from a collection from Cape Horn and which was originally described by Nicolet from Chili in Gay's Hist. fisica y polit. de Chili. We find here also the *Epeira labyrinthea* Hentz. mentioned above. It is hardly recognizable, for its color has greatly changed; the dorsal folium is nearly obliterated, only two lighter spots at each side remain, and the whole body is covered with a long and dense pubescence. The third known species is the cosmopolitan form *Latrodectus mactans* Walck., occurring, as it seems, everywhere around the globe below a certain degree of latitude. The following is the list of species from the Magellan Straits:

a. Gregory Bay:
1. Epeira flaviventris Nic.
2. Latrodectus mactans Walck.
3. Amaurobius frigidus sp. nov.
4. Lycosa ornata sp. nov.
5. Thanatus antarcticus sp. nov.
6. Clubonia brevipes sp. nov.

b. Sandy Point:
7. Lycosa fuegiana sp. nov.

Sandy Point—Continued.
8. Linyphia magellanii sp. nov.
Latrodectus mactans Walck.

c. Laredo Bay:
9. Guyenna rosea sp. nov.
10. Epeira labyrinthea Hentz.
Lycosa fuegiana.
Epeira flaviventris.

The collection from the GALAPAGOS consists, unfortunately, of only ten species taken in the nine days the *Albatross* was present in that region. These ten species are representatives of eight families and therefore suggestive of a rich fauna. What a pity that more time could not be spent in collecting at such interesting points; but we are glad for the opportunity of a mere glimpse at the very interesting fauna of that group of islands.

The Galapagos Islands have been visited before, and H. M. S. *Petrel* collected natural history specimens extensively in 1875. Among these were the following seven *Arachnida*, which were described and delineated by Mr. Butler in the Proc. Zoöl. Soc. London, 1877:

1. Androctonus americus Linn.
2. Lycosa indomita Nic.
3. Gasteracantha insulana Thor.
4. Theridium carolinum Butler.
5. Latrodectus apicalis Butler.
6. Epeira cooksonii Butler.
7. Thomisoides utriformis Butler.

Of these, three are represented in our collection, viz, *Gasteracantha insulana*, *Epeira cooksonii*, *Latrodectus apicalis*. Two more specimens, previously described, were found among the species, viz: *Latrodectus scelio* Thorell (the renowned "Katipo" of New Zealand) and *Heteropoda venatoria*, a cosmopolitan in the equatorial and tropical regions.

A species which seems to live in great abundance on these islands is the *Epeira cooksonii* Butler; it is related to our *domiciliorum*, which has undergone on the Pacific coast already a change in its form and coloration, so that Dr. McCook has described it as new—*Ep. vertebrata*. In *Ep. cooksonii* this change is increased, but still the relationship is preserved by the structure of the epigynum.

The following is a list of the material collected at the Galapagos group:

a. Chatham Island:
1. Gasteracantha insulana Thorell.
2. Epeira cooksonii Butler.
3. Segestria æquatoria sp. nov.

b. James Island:
Gasteracantha insulana Thorell.
Epeira cooksonii Butler.

c. Charles Island:
4. Latrodectus scelio Thorell (Katipo) (young).
5. Agalena (immature).
6. Loxosceles galapagoensis sp. nov.

Charles Island—Continued.
7. Filistata oceanea sp. nov.
8. Heteropoda venatoria Lin.
Gasteracantha insulana Thorell.
Epeira cooksonii Butler.

d. Albemarle Island:
Epeira cooksonii Butler.
Heteropoda venatoria.

e. Indefatigable Island:
9. Menemerus galapagoensis sp. nov.
10. Latrodectus apicalis Butler.

In the collection from Lower California we meet again with a majority of well-known species, as our *Epeira labyrinthea* Hentz.; *Gasteracantha cancriformis*, also found in the Southern States of the United States and in California; *Argiope argentata* Fabr., frequently collected in southern Florida, Texas, and California; *Gasteracantha velitaris* Koch, the crab spider of the southern Atlantic States; *Selenops aïssa* Walck., found in Key West, Fla., and the West Indies; *Filistata hibernalis* Hentz., from Alabama. The two new species are *Drassus pacificus* and *Zora californica*.

a. Cerros Islands:
1. Drassus pacificus sp. nov.
2. Epeira labyrinthea Hentz.

b. Ballenas Bay:
3. Gasteracantha cancriformis Lin.
4. Argiope argentata Fabr.

c St. Margarita Island:
5. Gasteracantha velitaris C. Koch.
6. Selenops aïssa Walck.
7. Filistata hibernalis Hentz.
8. Zora californica sp. nov.
Epeira labyrinthea.
Argiope argentata.

The material from Clemente Island, California, comprises four species, of which only one is new:

1. *Filistata capitata* Hentz., a common form in the Southern States.
2. *Latrodectus mactans* Walck., a species which had been caught also at the Straits of Magellan by the *Albatross*, and which is cosmopolitan.
3. *Argiope argentata*, several times mentioned above.
4. *Lycosa fallax*, a new species.

Résumé.

From—	Species.	New.	Already known.
Abrolhos Islands	8	4	4
Magellan Straits	10	7	3
Galapagos Islands	10	5	5
Lower California	8	2	6
California	4	1	3

The scorpions collected on this occasion are six in number of species, and belong to the three families into which the order of Scorpions is divided.

Family BUTHIDÆ.

1. Centrurus biaculeatus Luc.

From Panama; a species, cosmopolitan, and frequently found in countries bordering the Atlantic Ocean below 25° north latitude.

2. Centruroides exilicauda Wood.

From St. Margarita Island, Lower California; a common species in that region.

3. Centruroides luctifer sp. nov.

From Indefatigable Island, Galapagos; a very interesting species.

Family PANDINIDÆ.

4. Vejovis galapagoensis sp. nov.

From Chatham Island, Galapagos.

5. Broteas formosus sp. nov.

From St. Margarita Island, Lower California.

Family BOTHRIURIDÆ.

6. Timogenes niger sp. nov.

A mutilated and broken specimen from Montevideo, Uruguay.

This is, so far, the result of my investigation, and I hope to have an opportunity to describe and figure the new species of this interesting collection.

MYRIAPODA.

BY C. H. BOLLMAN.

1. Spirobolus sanctæ-luciæ sp. nov.

DIAGNOSIS.—Allied to *Spirobolus surinamensis* Bollman; but the horse-shoe-like markings only prominent along the middle line of segment; no deep sulcus behind repugnatorial pore; legs light yellow.

Type.—No. 590.

HAB.—Port Castries, St. Lucia, Windward Islands.

Description.—Segments dark brown, posterior borders lighter; ante-

rior margin of first pale; head and first dorsal plate greenish; antennæ pale brown; legs very light yellow (pale), probably red in life.

Rather slender, anterior segments attenuated.

Venter slightly reticulated, sulcus very indistinct; clypeus not deeply excised, foveolæ 2+2, distant, sulcus shallow.

Antennæ slenderer than in *surinamensis*, hardly reaching second segment.

Ocelli about 40, in a series, patch suboval.

Segments shining, rather smooth, especially posteriorly; anterior ten segments with distinct concentric striæ on basal part; posterior part, especially on anterior segments, sulcate beneath; division of segments not evident, a hollow depression along which are horseshoe like depressions; these are scattered over the dorsal part of segments, but are small and shallow; the posterior four segments almost destitute of markings.

First segment narrowed laterally, anterior margin concave, a strong marginal sulcus.

Anal segment obtusely angled, not surpassing valves; anal valves narrowly margined, reticulated; anal scale very slightly rounded, almost transverse.

Repugnatorial pore large, situated in hollow on anterior part.

Legs extending slightly beyond sides of body.

Segments 50.

Length of body 45^{mm}; width 3.4^{mm}. This species is described from an adult female; in the same vial is a very young specimen, showing only 41 segments. In Karsch's "*Neue Juliden des Berliner Museum*" this species would stand near *Spirobolus biconicus* from Mauritius.

2. Himantarium tæniopse (Wood).

No. 599, Margarita Island, Lower California; ♀.

A young specimen. Pairs of legs, 148.

3. Pectiniunguis americanus gen. et sp. nov.

Diagnosis.—Related to *Schendyla eximia* Meinert; but the anal pair of legs jointed and the claw of maxillary palpus pectinate along its entire under side.

Type.—No. 598.

Hab.—Pichilingue Bay, Gulf of California.

Description.—Orange, darkest anteriorly; legs pale.

Robust, scarcely attenuated anteriorly, more posteriorly.

Segments not polished, very finely reticulate; sparsely pilose.

Prehensorial legs not reaching base of antennæ; sternum almost twice as wide as long, anterior margin slightly callous; coxæ of about equal length and width, unarmed, anterior margin not much sinuate.

Cephalic plate slightly longer than wide; basal plate three times as wide as long; pre-basal plate exposed. Antennæ filiform, rather long.

Dorsal plate manifestly bisulcate.

Spiracles suboval, longitudinal, anterior largest.

Ventral plates not sulcate; porous area suboval, much smaller on posterior segments; last ventral plate very wide, pilose, sides converging.

Posterior pleuræ large, pilose; pores large, concealed.

Anal pair of legs 6-jointed, moderately crassate, joints all large, densely pilose; unarmed.

Pairs of legs ♀ 65.

Length 50^{mm}; width 1.55^{mm}.

This species is described from an adult female.

According to Meinert's diagnosis of the genus *Schendyla* this species would be included under that genus; but the three known species may be separated by the following generic characters:

a. Claw of maxillary palpus not pectinate, outer part of first pair of maxillæ without a trace of a lateral process; labrum entirely united, teeth 20–22, equal; anal legs 6-jointed ..... *Nemorensis.*

aa. Claw of maxillary palpus pectinate; outer part of first maxillæ with a small lateral process; labrum free in the middle.

b. Anal pair of legs 5-jointed; claw of maxillary palpus only pectinate under the apex; labral teeth about 15, equal; first joint of anal legs almost coalesce with second ..... *Eximia.*

bb. Anal pair of legs 6-jointed; claw of maxillary palpus pectinate for its entire length; labral teeth 8+10+8, the outer enlarged; first joint of anal legs not coalesced with second ..... *Americanus.*

On account of these generic differences between the three species, especially between the first and the last two, I have thought it best to place *americanus* and *eximia* under the new genus *Pectiniunguis*, of which *americanus* is the type, restricting *Schendyla* to *nemorensis*.

The generic differences between *americanus* and *eximia* are no doubt worthy of subgeneric rank, and I therefore propose the name *Nannopus* for the reception of *eximia*.

4. Scolopendra macracanthus sp. nov.

DIAGNOSIS.—Allied to *Scolopendra subspinipes* Leach; but the femora of anal legs armed beneath with *three* spines, of which the two anterior are very large, the superior-interior surface armed with six spines; the first *nine* dorsal plates immarginate.

Type.—No. 165F.

HAB.—Pacific coast, some place between Lower California and Straits of Magellan.

Description.—Brownish-green; tip of antennæ and lateral parts of dorsal plates green; head and first dorsal plate darker.

Rather slender, smooth, only lightly punctate anteriorly.

Head suborbicular, punctate, not sulcate.

Antennæ, 18 jointed; articles moderate, the first six not hirsute.

Prosternal teeth 5+5, the inner two small and coalesced; coxal tooth large, apex carinate, nodule present.

Dorsal plate, except the first nine (10), marginate; sulci beginning at the third and indistinct on the posterior; posterior border transversely wrinkled.

Sulci of ventral plates distinct; last ventral plate long and narrow, sides converging, posterior border rounded.

Second torsal joint of all the legs, except anal, armed beneath with a spine.

Anal legs long, slender; femora, with six spines on the superior-interior surface, arranged in three series; three beneath, uniseriate, the anterior two largest; apical process bifid.

Posterior pleuræ densely porose; angular process small, bifid.

Length 120mm.

In the collection is a specimen without a more definite locality than "Pacific coast."

The following key will help to separate it from the related species:

Femora of penultimate pair of legs unarmed; first dorsal plate without a transverse furrow; tarsal joints armed.

a. Femora of anal legs unarmed beneath, two spines within; the first 6-11 dorsal plates immarginate; last two tarsal joints unarmed ..... *Dehaani*.

aa. Femora of anal legs armed beneath.

b. Spines of femora of anal legs 4-6, always two beneath; the first four or five dorsal plates immarginate; the last or the last two tarsi unarmed. *Subspinipes*.

bb. Spines of femora of anal legs 9, 3 beneath; the first nine dorsal plates immarginate; the last tarsal joint unarmed ..... *Macrocanthus*.

5. Scolopendra microcanthus sp nov.

DIAGNOSIS.—Allied to *Scolopendra pernix* Kohlrausch, but the anal pair of legs slender, spines small, and more numerous.

Type.—No. 600.

HAB.—St. Margarita Island, Lower California.

Description.—Pale green, posterior border of segments dark; prehensorial legs orange.

Slender; smooth, very lightly punctate.

Head suboval, punctate; sulci absent.

Antennæ 25-29-jointed, long, basal not very crassate, the first 3 or 4 smooth.

Prosternal teeth 4+4 inner coalesced; coxal tooth large, inner margin unarmed.

The first 15 dorsal plates immarginate; sulci well developed, and commencing at transverse suture of first plate and dividing them into three planes.

Sulci of ventral plates shallow, last plate short and wide, sides converging, rounded, posterior margin emarginate.

Second tarsal joints of all legs, except anal, armed.

Anal pair of legs slender as in *heros;* spines very small; 8–12, in 3 or 4 series on the superior-interior surface; 4 or 5 in 2 series on the

inner surface; beneath 10–12 in 2 or 3 series; apical process large and blunt, armed with 9–11 small spines.

Posterior pleuræ narrow; apex long, armed with 7–9 spines, posterior margin concave; a marginal spine.

Length 75mm.

Described from one specimen of which the anal pair of legs is broken off.

This new species is separated from *heros*, *pachypus*, *nicaraguensis*, and *viridis* by the large number of spines of apical process of femora and the well-marked sulci of first dorsal plate.

6. Scolopendra galapagoensis sp. nov.

DIAGNOSIS.—Related to *Scolopendra viridicornis* Newport, but the spines of apical process of femora of anal legs, 6–8; spines of apex of posterior pleuræ, 9–12; spines of femora of 2–20 pairs of legs, 4 or 5.

Type.—No. 594.

HAB.—Chatham, James, and Albemarle Islands, Galapagos Archipelago.

Description.—Very dark brown, more yellowish posteriorly; under parts more brown than upper; the first five or six antennal joints dark blue, rest rusty; tarsi brownish, rest of legs bluish-brown, except base of femora, which is more brown, like ventral plates; posterior pleuræ and femora of anal legs reddish-brown.

Robust, smooth, all parts very slightly punctate.

Head suboval; two longitudinal sulci, which break up posteriorly, and send a branch along lateral margin.

Antennæ long, 17-jointed, articles long, basal subcrassate, the first four or five not hirsute.

Prosternal teeth 3+3, large, inner coalesced; a transverse sulcus along anterior part of sternum.

The first four dorsal plates immarginate; posterior borders transversely wrinkled; crest of anal segment weak, only extending three-fourths of the way.

Sulci of ventral plates distinct; last plate rather short, narrow, posterior border rounded.

Second tarsal joint of all the legs, except anal pair, armed. Anal legs rather long and stout; 10–13 spines on the superior-interior surface of femora arranged in 3 series; within are 2 or 3 uniseriate spines; beneath 7–9 spines arranged in 2 or 3 series; apical process with 6–8 spines.

Femora of 2–20 pairs of legs, armed with 4 or 5 spines at their exterior apex, the posterior usually with 5 spines; femora of penultimate pair of legs armed above with 1–3 spines.

Posterior pleuræ with 9–12 apical spines and 1 or 2 marginal; above on margin of dorsal plate are 2 small spines.

Length of largest specimen 160mm.

This species is described from two adult and one young specimen from Chatham Island, one young individual from James Island, and another from Albemarle Island. The type is an adult from Chatham Island.

The five species belonging to this group of *Scolopendra* may be separated as follows:

Femora of penultimate pair of legs armed; first dorsal plate with a transverse sulcus.

a. Ventral plates not sulcate; tibiæ of anal legs armed with spines ..... *Prasina.*

aa. Ventral plates with two longitudinal sulci.

b. Last dorsal plate without a median carina.

c. Femora of last three pairs of legs armed; tibiæ of anal legs unarmed... *Valida.*

cc. Femora of all legs armed; tibiæ of anal legs armed ..... *Gigas.*

bb. Last dorsal plate with a median carina.

d. Femora of penultimate pair of legs not armed above; spines at apex of femora of 2–20 pairs of legs, 2 or 3; spines of apical process of anal legs, 1–3; spines of apex of anal pleuræ, 1–3 ..... *Viridicornis.*

dd. Femora of penultimate pairs of legs with 1–3 spines above; spines of apex of femora of 2–20 pairs of legs, 4 or 5; spines of apical process of femora of anal legs, 6–8; spines of apex of anal pleuræ, 9–12..... *Galapagoensis.*

7. Scolopendra sp.?

No. 591, Abrolhos Islands, Brazil.

A very young specimen and unidentifiable.

8. Henicops chilensis Gervais.

1847.—*Henicops chilensis* Gervais.

Aptères, iv, 239 (Chile).

No. 593, Port Churruca, Straits of Magellan.

One young mutilated female.

Prosternal teeth, 4+4.