

## 12. EUNICA CÆRULA.

♂. Exp. 2·4 in. Allied to *E. tatila*, H.-Sch. (Aussereurop. Schm. f. 69-72), ex Haiti, but differing in the greater extent and more purple tinge of the blue of the wings, which in Haitian specimens (agreeing fairly with H.-Schäffer's plate) is of a paler tint. Beneath, the posterior wings are deeper brown, and the markings much less distinctly defined.

*Hab.* Guatemala. Mus. nostr.

6. Account of the Zoological Collection made during the visit of H.M.S. 'Peterel' to the Galapagos Islands. Communicated by Dr. ALBERT GÜNTHER, F.R.S., V.P.Z.S., Keeper of the Zoological Department, British Museum.

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(Plates XI.-XIII.)

The circumstances under which the zoological collection<sup>1</sup> described in this paper was obtained are, shortly, the following. By direction of Rear-Admiral the Hon. A. A. Cochrane, who then commanded the Pacific Station, Commander W. E. Cookson proceeded in H.M.S. 'Peterel,' in June 1875, for a short cruise in the Galapagos archipelago. His whole stay was limited to a fortnight, in which time he landed on Charles and Abingdon Islands, and at Tagus and Iguana Coves in the Albemarle Islands. These, at least, were the localities where Commander Cookson, assisted by Staff-Surgeon Bett, collected the zoological objects which, by direction of Admiral Cochrane, have been deposited in the British Museum.

Valuable as this contribution to our knowledge of the Galapagos fauna is, it serves at the same time to show how incomplete is our acquaintance with one of the zoologically most interesting stations. But for Commander Cookson's timely visit, the Abingdon Tortoise would, in all probability, have disappeared, unknown as if it had never existed, or leaving only some fragments of its osseous frame. Perhaps we may hope that the success which attended Commander Cookson's search may encourage others to complete the work commenced by Fitzroy and Darwin.

For the convenience of the student of this fauna, it seemed desirable to keep together in a connected form the notices of the various parts of the collection which have been examined and determined by the staff of the Zoological Department.

My thanks are due to Mr. McLachlan, F.L.S., for the notice of the *Libellulæ*.

<sup>1</sup> Referred to at meetings of the Zoological Society last year; see P. Z. S. 1876, pp. 178, 422, 520.

## I. BIRDS. By R. BOWDLER SHARPE.

The specimens were thirteen in number, and preserved in spirits of wine. They were obtained on Charles and Albemarle Islands, the two of the group of which we appear to know least; indeed, from the latter island one species only, *Mimus parvulus*, is recorded by Mr. Salvin in his important memoir recently published (Trans. Zool. Soc. vol. ix. pp. 447-510). Commander Cookson obtained also a *Geospiza* on that island. The species of *Dendroica* is widely spread over the archipelago, and was previously known from Charles Island; but the existence of a *Pyrocephalus* in this locality is confirmed for the first time.

The exploration of Tower and Hood Islands is still a great desideratum: their birds are reported to be peculiar; but not a single example of them has as yet reached European collections.

It is very remarkable that (as Commander Cookson reports) the birds continue to be as tame as in former times, especially in Charles and Chatham Islands, which have been so long inhabited; the small birds of all kinds are so tame that they are easily knocked down with a switch, some of the men being able to kill numbers of doves in this manner.

## 1. MIMUS PARVULUS.

*Mimus parvulus* (Gould); Salvin, *l. c.* p. 472.

A single specimen from Albemarle Island, measuring as follows—total length 8·4 inches, culmen 0·9, wing 3·95, tail 4·0, tarsus 1·3. Considerable differences exist between the bird now sent and the typical and unique specimen in the British Museum. It is much greyer, and the head is varied with ashy-brown margins to the feathers; the hinder neck is conspicuously lighter, the white sides of the neck converging and forming a half-collar; the rufous rump is very distinctly indicated, the upper tail-coverts being also shaded with rufous, all the feathers mottled and having brown centres; wing-feathers dark brown, all broadly tipped with white, these tips somewhat shaded with rufous on the inner secondaries and greater coverts; tail-feathers dark brown, edged with grey, the feathers all shading off into a white tip, broader on the inner web, the outer feather externally edged with whitish; lores and ear-coverts dark brown, slightly shaded with grey; a very distinct white eyebrow; cheeks and under surface of body pure white, the fore neck and breast distinctly spotted with triangular marks of brown.

Professor Sundevall is inclined to unite all the Galapagoan Mocking-Thrushes into one species; but Mr. Salvin points out that *M. trifasciatus* is a distinct species without doubt. In this I agree with him, the large size and very distinct endings to the wing-coverts and tail-feathers, and above all the broad edgings of brown to the breast-feathers, serving to separate it. But as regards the distinctness of *M. melanotis* and *M. parvulus*, Mr. Salvin is more in doubt; and I believe, with him, that "a larger series of specimens would show that the differences (in size alone) would gradually disappear."

The specimen sent by Commander Cookson exhibits a previously undescribed plumage of these insular *Mimi*; it is most probably a young individual.

## 2. DENDRÆCA AUREOLA.

*Dendræca aureola* (Gould); Salvin, *t. c.* p. 473.

Three specimens from Charles Island, representing an old female, a young male, and a young female. The young male bird is in an interesting plumage, having the under surface yellow, the throat white with a few yellow feathers intermixed, while on the breast the reddish streaks are just beginning to appear.

## 3. GEOSPIZA FULIGINOSA.

*Geospiza fuliginosa* (Gould); Salvin, *t. c.* p. 482.

Three young specimens from Albemarle Island, whence no *Geospiza* has as yet been recorded. Two are nestlings, the smallest being uniform creamy buff below, and having very broad rufous edgings to the wing-coverts and quills. The specimen appears to be full-grown, and measures as follows—total length 3·9 inches, wing 2·4, tail 1·7, tarsus 0·8. The Albemarle species would appear from these dimensions to be *G. fuliginosa*, as they are too big for *G. parvula*, and there is also a specimen of a young *G. fuliginosa* from Indefatigable Island (*Habel*) in the British Museum, with the plumage of which the Albemarle skin agrees very well indeed.

## 4. PYROCEPHALUS NANUS.

*Pyrocephalus nanus* (Gould); Salvin, *t. c.* p. 492.

No specimens of these Ruby-crowned Flycatchers have been before recorded from Charles Island, though Dr. Habel says that the species was found on all the islands visited by him. Commander Cookson has sent five specimens, two of which, now that they are made into skins, are yellowish where the adults are red; this is probably owing to the action of the spirit upon the plumage, and does not point to the specific distinctness of the Charles-Island bird. A young male in changing plumage shows a decided shade of red appearing on the under surface.

## II. REPTILES. By ALBERT GÜNTHER.

The two species of Tortoises (*Testudo microphyes* from Albemarle, and *Testudo abingdonii* from Abingdon Island) will be fully described and figured in the author's forthcoming work on Gigantic Land Tortoises.

Only five species of Lizards are known from the archipelago, of all of which specimens were obtained by Commander Cookson. For a full description and figures I refer to the excellent paper recently published by Dr. Steindachner ("Die Schlangen und Eidechsen der Galapagos Inseln," Festschrift der zool.-bot. Ges. Wien, 1876, 4to). Their distribution in the archipelago is as follows:—

1. LIOCEPHALUS GRAYI (Bell) = *Craniopeltis bivittata* (Ptrs.) according to Steindachner.

Chatham (*Darwin*).

Charles (*Darwin*).

Albemarle (*Cookson, Steindachner*).

James (*Steindachner*).

Indefatigable (*Steindachner*).

Jervis (*Steindachner*).

Abingdon (*Cookson*).

2. LIOCEPHALUS PACIFICUS (Steind.).

? Indefatigable (*Habel*).

Bindloe (*Habel*).

Abingdon (*Cookson*).

3. AMBLYRHYNCHUS CRISTATUS (Bell).

Generally distributed.

Commander Cookson states that the rocks at Iguana Cove were thickly covered with *Amblyrhynchi*. He found them in numbers at the other places he visited, but nowhere else so numerous and so large in size. Here they were found to weigh from 20 to 22 lb., against 12 to 14 from other localities.

4. CONOLOPHUS SUBCRISTATUS (Bell).

Albemarle (*Darwin, Cookson<sup>1</sup>, Steindachner*).

James (*Darwin*).

Barrington (*Darwin*).

Indefatigable (*Darwin*).

5. PHYLLODACTYLUS GALAPAGENSIS (Ptrs.).

Charles (*Cookson*).

### III. FISHES. By ALBERT GÜNTHER.

Of the twelve species enumerated below, five are new to the fauna of the Galapagos archipelago, viz. *Sargus unimaculatus*, *Argyriosus setipinnis*, *Hemiramphus unifasciatus*, *Clupea libertatis*, and *Balistes mitis*.

1. CENTROPRISTIS PSITTACINUS (Val.). Charles Island.

2. SERRANUS OLFAK (Jen.). Charles Island.

Jenyns (*Zool. Beagle*, p. 9, pl. 4) drew up his description from a dried skin which evidently is much distorted. Therefore it appears to be proper to give a new description from a specimen preserved in spirits, 17 inches long.

D.  $\frac{11}{16}$ . A.  $\frac{3}{10}$ .

Body compressed, of moderate height, its greatest depth being

<sup>1</sup> Only a mandible, from Iguana Cove.

equal to the length of the head and rather more than one third of the total length (without caudal). Upper profile sloping in a moderately strong curve from the commencement of the dorsal to the end of the snout. Lower jaw the longest. The teeth are in strong card in both jaws, the upper jaw with an outer series of stronger ones; one pair of canine teeth above and below, much stronger than any of the other ones. Vomerine and palatine teeth in narrow short bands. The diameter of the eye is one half the length of the snout, and two thirds of the width of the interorbital space. The maxillary, when the mouth is closed, reaches to behind the middle of the orbit. *The structure of the nostrils does not differ from that of the other species of the genus*: there are externally on each side two openings, a small anterior, and large posterior; they are separated by a narrow bridge of skin, which, in dried examples, would be very liable to shrink or disappear altogether. At the bottom of the posterior opening are the two apertures described by Jenyns which lead into the interior of the nasal organ.

The præoperculum is rather more than rectangular, the basal margin nearly straight and horizontal, the ascending margin finely denticulated with a shallow sinuosity above the angle. Operculum with a flat triangular spine.

Scales nearly smooth, lateral line not very conspicuous.

Dorsal spines slender, the second being the longest, its length contained twice and one fourth in that of the head. The length of the first spine is four ninths of that of the second, the third, fourth, fifth, and sixth spines gradually decreasing in length. Caudal sub-truncated. Body uniform dark brown. Head and fins yellow.

3. *SERRANUS HUMERALIS* (C. V.).

= *S. albomaculatus* (Jen.). Charles Island.

4. *PRISTIPOMA CANTHARINUM* (Jen.). Charles Island.

5. *CHRYSOPHRYS TAURINA* (Jen.). Charles Island.

Very closely allied to *Ch. calamus*.

6. *SARGUS UNIMACULATUS* (Bl.). Charles Island.

This fish is to be added to the list of species occurring on both sides of the Isthmus of Panama. Hitherto it was known from the Atlantic coasts of Tropical America (including the West Indies) only.

7. *DOYDIXODON FREMINVILLII* (Val.). Charles Island (Post-Office Bay). Albemarle Island (Iguana Cove).

The number of dorsal rays varies from 15 to 17; that of the anal rays appears to be more constant, namely 12. With regard to the distribution of this fish on the Pacific side of the American continent, and the alleged presence of teeth on the palate, see Zool. Record, iv. p. 160.

8. *ARGYRIOSUS SETIPINNIS* (Mitch.). Charles Island (Post-Office Bay).

9. *HEMIRAMPHUS UNIFASCIATUS* (Ranz.). Charles Island (Post-Office Bay).

This is one of the fishes which appear to extend within the tropics almost round the globe; hitherto it has not been brought from the West coast of Africa.

10. *CLUPEA LIBERTATIS* (Gthr.). Charles Island (Post-Office Bay).

11. *TETRODON HERALDI* (Gthr.). Charles Island (Post-Office Bay).

12. *BALISTES MITIS* (Benn.). Charles Island (Post-Office Bay).

#### IV. MOLLUSCA. By EDGAR SMITH.

The shells collected by Commauder Cookson are all from Charles Island. They belong to twenty-two species, the majority of which were previously known to have been found in the archipelago, though we were ignorant in some instances of the island on which they had been obtained. Six of the species are additions to this fauna, three of them being apparently undescribed.

##### A. *Marine Species.*

###### 1. *PURPURA PATULA*, Linn.

Both the normal form of the species and the variety (*P. columellaris*, Lamarek) occur at Charles Island. Some of the typical specimens with thin lips have the spire quite elevated, indeed quite as much so as certain of the variety with the thickened and strongly dentate labrum. One of the latter form is quite a curiosity, on account of its diminutive size and solidity, being only an inch in length and yet quite adult.

###### 2. *PURPURA CALLAOËNSIS*, Gray.

The single specimen from Charles Island differs from all Peruvian examples I have seen in having four stout lirations within the aperture, which do not reach to the margin of the labrum; and the four transverse ridges which usually encircle the body-whorl of this species are very well developed. The specimens in the Cumingian collection are stated to have come from the Galapagos Islands, according to a ticket preserved with them; but Reeve quotes Callao Bay as the home of the species.

###### 3. *ENGINA CROCOSTOMA*, Reeve.

This species has been found at Panama; and the Philippine Islands were given by its author as the habitat.

4. RHIZOCHILUS (CORALLIOPHILA) PARVUS, sp. nov. (Plate XI. fig. 6.)

*Testa parva, fusiformi-ovata, vix rimata, alba; anfractus circiter 7, convexiusculi, longitudinaliter plicati, plicis obliquis 10-11 validis, et liris spiralibus rugosis fortibus (in anfr. penult. 5-6, in ultimo circa 18, alternatim majoribus) cincti; apertura caeruleo-alba, pyriformis, ad basim canalem brevem aliquanto recurvum jungens, longitudinis totius  $\frac{1}{2}$  paulo superans; labrum crenulatum, intus denticulatum.*

Longit.  $10\frac{1}{2}$  millim., diam. fere 6.

This pretty species is of a short fusiformly-ovate shape, entirely white; the whorls are spirally lirate, two of the lirations on the upper whorls being stouter than the others; and those on the last are regularly alternately large and small, the stout ones being twice as thick as the latter. The aperture is bluish white, pyriform, and prolonged into the basal channel, which is somewhat recurved; the columella is straightish, thinly callous, smooth and shining; the labrum is strongly crenulated on the margin and armed within with about ten lirations, which do not extend far within the aperture.

Although there are not any very striking peculiarities in this little shell, still it does not satisfactorily agree with any other species. For its size the spiral ribs are remarkably stout, and are more conspicuous than the oblique plications.

5. COLUMBELLA FUSCATA, Sowerby.

Panama, Mazatlan, West Columbia, and Peru are other localities where this species has been found.

6. LATIRUS VARICOSUS, Reeve.

It is curious that the single specimen obtained by Commander Cookson is in exactly the same worn condition as the shells originally described.

7. LATIRUS TUBERCULATUS, Broderip.

Also found on the west coast of Central America.

8. MITRA (STIGATELLA) TRISTIS, Swainson.

This species is also quoted from Mazatlan, Panama, and St. Elena, West Columbia.

9. CONUS NUX, Broderip.

10. CIRITHIUM MACULOSUM, Kiener.

11. CALYPTRÆA, sp.

There are two small specimens of a species of this genus in the collection, probably the young stage of *C. tortilis*, Reeve, or *C. alveolata*, A. Adams, both of which are described as inhabitants of these islands. One of them has taken up its abode in the shell of a dead *Fissurella*, and has curiously extended the margin of its shell through the apical hole.

## 12. HIPPONUX GRAYANA, var., Menke.

A young shell, apparently belonging to this species, differs from the normal form in being much more coarsely radiately costated; and consequently the crenulation of the basal margin is considerably more conspicuous.

## 13. RISSOMA STRICTA, Menke.

The single specimen from the Galapagos Islands agrees very closely with the description given by Menke (*Zeitschrift für Malakozoologie*, 1850, p. 177). The labrum is very greatly thickened, and the transverse liration is strongly developed around the lower half of the body-whorl. The whorls are ten in number, and have about twenty smooth ribs, which are slightly flexuous on the last. Fig. 25, on plate iii. of Schwartz von Mohrenstein's monograph of the genus, gives a very good representation of this species.

## 14. TROCHUS (OMPHALIUS) COOKSONI, sp. n. (Plate XI. fig. 7.)

*Testa valde umbilicata, suborbiculata, levissime conoidea, fusco roseoque variegata, lineis albidis nigro articulatis obscure picta; anfractus 4½, sublævigati, convexiusculi, striis spiralibus paucis tenuibus insculpti; ultimus superne convexus, infra suturam leviter depressus, ad peripheriam complanatus, idcirco biangulatus, basi subplanus, tenuissime spiraliter striatus, circa umbilicum sulco haud profundo aratus; umbilicus albus, profundus, callo albido, ad basim columellæ dentem formante circumdatus; apertura suborbicularis; columella arcuata, anfractui callo juncta.*

Diam. maxima 8 millim., minima 7, alt. 4.

This shell is deeply umbilicated, elevately orbicular, convex above, only slightly conical and flat beneath; the last whorl is flattened at its middle; and this produces a double angulation, which, however, is not very conspicuous; there is also a faint depression a little below the suture. The coloration of this species is not very definite; the upper surface is blotched irregularly with pink and brown, and some spiral, articulated lines, the base is a trifle paler; the only sculpture consists of fine spiral striations, which are most conspicuous on the base; the callus which surrounds the umbilicus is whitish, and terminates in a faint tooth on the columella, and is bordered by a shallow sulcus in the whorl. The columella terminates above in a callosity which extends upward some distance on the whorl, and also spreads out within the aperture.

*T. occultus* of Philippi, bears a faint relationship to this form, but is more conoid and more strongly sculptured.

## 15. FISSURELLA OBSCURA, Sowerby.

## 16. CHITON (LOPHYRUS) GOODALLII, Broderip.

## 17. CHITON (LOPHYRUS) SULCATUS, Wood.



## 18. ARCA, sp.

Two small shells, probably the young of a larger species, seem most nearly allied to *A. gradata*, Brod. & Sowb.; they are rather more finely reticulated than is usual with that species, but in form, and the position of the umbones, they agree very well.

B. *Terrestrial Species.*

## 19. BULIMUS NUX, Broderip.

The specimens of this species collected by Commander Cookson are very coarsely striated, and much darker in colour than those described by Broderip. They are striped longitudinally with a mixture of slate-colour and brown, with here and there some pale streaks; and some specimens have a distinct pale band around the middle of the body-whorl; and the four apical whorls are bluish black.

This species is considerably variable in form, some examples being much more elongate than others.

The following measurements show how great is the variation in length. One shell is 20 millims. long and 10 in diameter, and another very short one has a length of only 16 millims. and yet is the same width as the longer specimen.

## 20. BULIMUS UNIFASCIATUS, Sowerby.

## 21. BULIMUS ESCHARIFERUS, Sowerby.

This species is quoted by Reeve as having been found at Chatham Island by Darwin. The Charles-Island shells are considerably larger than those from the above locality, and also coarser in sculpture, some of them displaying spiral granose or rugose striation as in *B. rugulosus* of Sowerby, from the same islands; and, indeed, they appear to be an intermediate variety or connecting link between the two species, both as regards size and sculpture. The largest specimen measures 19 millims. in length, and  $7\frac{1}{2}$  in width.

## 22. SUCCINEA BETTII, sp. nov. (Plate XI. fig. 8.)

*Testa ovata, superne aliquanto acuta, tenuissima, diaphana, flavo-cornea, versus apicem rubescens, irregulariter arcuatim striatula, nitens; anfractus 3, penultimus parvus convexus, ultimus maximus, inflatus; apertura ovata, superne angustata vix obliqua; columella obliqua, parum arcuata, tenuissime callosa; peristoma simplex regulariter arcuatum.*

Long. 13 millim., diam. maxima 8, aperturæ longit. 10 millim., diam.  $5\frac{3}{4}$ .

Var. *Testa brevior.*

This species is most nearly allied to *S. rubicunda* Pfeiffer, which was described as coming from the island of Masafuera, off the coast of Chili. From it the present species differs in consisting of half a whorl more. This difference is quite apparent when the spires of the two species are regarded with the mouth of the shell towards the eye. The penultimate and apical whorls of the Galapagos species

will be seen to be considerably more elevated than in *rubicunda*. The colour of the latter is rather paler, except the apex, which is perhaps a trifle deeper in tint.

## V. CRUSTACEA. By EDWARD J. MIERS.

But little attention has hitherto been paid to the Crustaceans of the Galapagos archipelago, except as regards the *Oxyrhyncha* (*vide* Bell, Zool. Trans. ii. p. 39 *et seq.* 1841); and Commander Cookson's collection contained four species only, two of which are well known and widely distributed, the two others being undescribed.

### 1. LEPTODIUS COOKSONI, n. sp. (Plate XII. fig. 1.)

Carapace smooth, transverse, scarcely at all convex, surface everywhere finely punctulated, the punctulations more crowded upon the anterior part. Frontal margin with the median fissure distinct, obscurely 4-lobed. The frontal, gastric, and antero-lateral regions areolated, the areolets and intervening fissures well defined. Antero-lateral margins obtuse and rounded, the tooth at the external orbital angle and the first marginal tooth quite obsolete, the three following teeth having the form of obscure rounded lobes. Posterior to the last tooth or lobe of the antero-lateral margin are two or three short, obscure, transverse lines. Anterior legs very strong, granulated; wrist and upper and outer surface of hand with numerous raised reticulating lines; a blunt tooth at the antero-internal angle of the wrist, and a slight ridge on the upper and inner margin of the hand, terminating posteriorly in a tubercle. Fingers black. Ambulatory legs short, smooth, and without hairs, except on the tarsi, which are closely tomentose. Abdomen of ♂ 5-, of ♀ 7-jointed. Length of carapace of ♂ about  $\frac{7}{12}$  in. Breadth  $\frac{1}{12}$  in.

*Hab.* Charles Island.

A single, apparently adult male is in the collection, and a female, much smaller. Their colour (in spirits) is dark reddish brown. This species has altogether the external aspect of a *Xanthodius*, but has not any trace of the ridge upon the palate, the character upon which the genus was founded by Stimpson. It is to be noted that in *Xanthodius* this ridge is not produced to the anterior margin of the buccal area, and, therefore, does not completely define the branchial channel; so that in fact the genus *Xanthodius* occupies an intermediate position between the *Chlorodiinæ*, in which the palatal ridge is entirely absent, and the *Oziinæ*, in which it is fully developed.

### 2. GRAPSUS PICTUS.

*Pagurus maculatus*, Catesby, Nat. Hist. Carolina, ii. pl. xxxvi. fig. 1 (1743).

*Grapsus pictus*, Latr. Hist. Nat. Crust. vi. p. 69 (1803): M.-Edw. Hist. Nat. Crust. ii. p. 86 (1837).

*Hab.* Charles Island.

One specimen of this species, an adult male (length  $2\frac{2}{3}$  in., breadth

3 in.), is in the collection. It occurs in nearly all the warmer temperate and tropical seas of the globe.

The specimen from Charles Island resembles in all respects specimens of *G. altifrons*, Stimpson (Ann. Lyc. Nat. Hist. New York, vii. p. 230, 1860), in the collection of the British Museum, from Cape St. Lucas, California, presented by the Smithsonian Institution. This species cannot be regarded as distinct from *G. pictus*, as the characters given are by no means constant or restricted to Western-American specimens.

### 3. REMIPES PACIFICUS.

*Remipes pacificus*, Dana, U.S. Expl. Exp. xiii. Crust. i. p. 407, pl. xxv. fig. 7 (1852).

*Hab.* Charles Island.

One specimen was obtained.

This species was described by Dana from specimens collected at the Fiji and Sandwich Islands; its occurrence at Cape St. Lucas, California, has since been recorded by Stimpson; and specimens from the last-mentioned locality, presented by the Smithsonian Institution, are in the collection of the British Museum. There are also specimens in the collection from the New Hebrides, Fiji, Navigators', and Samoa Islands, the coast of Australia, the Philippines, and Mauritius.

I think it not improbable that this species may be identical with the *Remipes testudinarius* of Latreille (Gen. Crust. et Ins. i. p. 45), described and figured by Milne-Edwards (Hist. Nat. Crust. p. 206, pl. xxi. figs. 14-20), from Australia.

### 4. CUBARIS GALAPAGOËNSIS, sp. n. (Plate XII. fig. 2.)

Convex, narrow-oblong, minutely punctulated, and strongly granulated. Head narrow-transverse, with two or three small granules near its posterior margin. Eyes very small, black. First segment of the body with two larger sigmoid elevations on its dorsal surface, near its anterior margin, the granulations less regular and more numerous than on the succeeding segments; the six succeeding segments with a transverse series of about six regularly placed granules near the posterior margin, and two or three in front of them, on each side of the middle line a group of larger granules; towards the lateral margins the granules again become uniseriate. Segments of the tail with but one or two small granules towards the lateral margins; last segment concave on the sides, wider at its proximal than at its distal extremity, and with three small granules on its upper surface. Antennæ with the penultimate about half the length of the last joint. Colour iron-grey, segments with paler margins and patches on each side of the middle line.

*Hab.* Charles Island.

A single specimen is in the collection. This species is distinguished from most of its congeners by the strongly granulated segments of the body. In *C. cubensis*, De Saussure (Mém. Soc. Phys. et Hist. Nat. Genève, xiv. (2) p. 481, pl. v. fig. 42, 1858), the segments

are granulated on each side, but the transverse series of submarginal granules are wanting.

## VI. MYRIOPODA and ARACHNIDA. By A. G. BUTLER.

### MYRIOPODA.

#### 1. SCOLOPENDRA COMPLANATA.

*Scolopendra complanata*, Newport, Ann. & Mag. Nat. Hist. 1st ser. xiii. p. 99.

One example, Charles Island.

### ARACHNIDA.

#### 1. ANDROCTONUS AMERICUS.

*Androctonus americanus*, Linnæus, Syst. Nat. 2, p. 1038. no. 4.

One example, Charles Island.

#### 2. LYCOSA INDOMITA.

*Lycosa indomita*, Nicolet, Gay's Hist. Fis. de Chili, Aran. pl. 2. fig. 12 (1854).

One example, Charles Island.

Previously known from Chili.

#### 3. THERIDION CAROLINUM, n. sp. (Plate XIII. figs. 3, 3<sup>a</sup>, 3<sup>b</sup>.)

♀. Cephalothorax testaceous, cordiform, truncate in front, caput ascending, about half the width of the pectoral region, separated by an oblique depressed line on each side, and having a central longitudinal brownish line; eyes amber-coloured with black margins, arranged in two very slightly convex rows across the anterior part of the caput; the four central eyes forming a nearly regular square, the posterior pair being larger; the lateral pairs placed obliquely; abdomen ovate, black, with a dorsal longitudinal moniliform band, and three converging oblique lateral stripes (not reaching the central band) whitish; legs ochraceous, setose; tibiæ banded with brown, palpi rather slender, testaceous, brownish at the tips; maxillæ and falces testaceous; pectoral plate scutiform, testaceous in the middle, brown on each side; ventral surface of abdomen with a broad longitudinal irregular whitish band, and a marginal streak of the same colour on each side. Length 7 millims; relative length of legs 1, 4, 2, 3.

One example, Charles Island.

#### 4. LATRODECTUS APICALIS, n. sp. (Plate XIII. figs. 5, 5<sup>a</sup>, 5<sup>b</sup>.)

♀. Cephalothorax shining piceous, cordiform, truncate in front, caput ascending, separated by a strongly defined depressed oblique line on each side; anterior eyes blackish, posterior amber-yellow, arranged in two convex rows on the front of the caput; the four central eyes forming a nearly regular quadrangle, the posterior pair being larger; the lateral pairs placed rather further back and

obliquely; abdomen ovate, shining, piceous, with bronzy reflections, densely setose; a dorsal longitudinal ill-defined carina, and on either side a series of about five punctures; an apical white-tipped irregular orange spot; legs shining, piceous, setose; proximal extremities of tibiæ and the metatarsi slightly reddish; maxillæ and falces dark olivaceous; pectoral plate scutiform, dark olivaceous; ventral surface of abdomen olivaceous at the base, a central laterally excised large orange spot. Length 9 millims.; relative length of legs 1, 4, 2, 3.

Four examples, Charles Island.

This species seems most nearly to approach *L. formidabilis* of Nicolet. Two of the examples are much paler than the type, their abdomens having a greyish appearance.

5. *EPEIRA COOKSONII*, n. sp. (Plate XIII. figs. 2, 2<sup>a</sup>, 2<sup>b</sup>, 2<sup>c</sup>.)

♀. Cephalothorax reddish tawny, with three (central and lateral) longitudinal brown stripes, elongate cordiform, truncated in front, nearly flat, with a deep depression behind the head; eyes arranged on the front margin of the caput, the four central ones forming an elongate quadrangle upon a central prominence, the lateral pairs placed further back at the anterior angles of the cephalothorax, very small; abdomen velvety black, with a beautiful longitudinal sceptre-like band, and dotted lateral stripes, gold, the inner margins of the lateral stripes indicated by an interrupted sinuated golden line; legs reddish tawny, the distal extremities of the tibiæ, metatarsi, and tarsi blackish, the femora and tibiæ sprinkled with black bristles, the metatarsi and tarsi clothed with black hairs; palpi ochraceous, setose, with blackish terminal joint; falces mahogany-red, maxillæ and labrum deep castaneous, bordered with ochraceous; pectoral plate subpyriform, pentagonal, piceous, with a longitudinal central testaceous streak; ventral surface of abdomen velvety black, castaneous at the base, streaked at the sides with undulating lines of silvery hair; four large central pale ochraceous spots, in the centre of which is a whitish spot; a red spot on each side of the region of the spinners. Length 16 millims.; relative length of legs 1, 4, 2, 3.

Nine examples, Charles Island; six specimeus, Albemarle Island.

Var. abdomen olivaceous, markings whitish.

One specimen, Albemarle Island.

This beautiful species is most nearly allied to *E. oaxacensis* of Keyserling, the figure of which would almost answer for it; but the description of the coloration does not at all agree with it.

6. *GASTERACANTHA INSULANA*. (Plate XIII. figs. 1, 1<sup>a</sup>, 1<sup>b</sup>, 1<sup>c</sup>.)

*Gasteracanthainsulana*, Thorell, Öfvers. Vetensk. Akad. Förhandl. xvi. p. 302. no. 8 (1859, edit. 1860); Eug. Resa, Zool. Arachn. p. 17 (1868).

Seven specimens, Charles Island, one specimen, Albemarle Island.

This very handsome species was originally described as from the Galapagos Islands.

7. THOMISOIDES UTRIFORMIS, n. sp. (Plate XIII. figs. 4, 4<sup>a</sup>, 4<sup>b</sup>, 4<sup>c</sup>.)

Cephalothorax cordiform, truncate in front (the caput nearly straight at the sides), orange-tawny, pilose, with marginal and radiating lines of short black setæ; eyes pale olive-hyaline, the central pair close together on the centre of the anterior margin of the caput, lateral pairs tolerably wide apart, placed on the lateral anterior margins of the caput, slightly obliquely; abdomen trapezoidal, excavated in front, transversely wrinkled and bisinuate behind, pilose, sordid ochraceous, clothed in front with coarse black setæ, a series of depressions on each side; legs testaceous, banded with grey, with longitudinal series of short black setæ; palpi testaceous, setose; falces castaneous, setose; maxillæ and labrum castaneous; pectoral plate testaceous, circular, slightly truncated in front and behind; abdomen below olive-brown, paler at base. Length 9 millims.; relative length of legs 2, 1, 3, 4.

One specimen, Charles Island.

Most like *T. rubripes* of Nicolet.

VII. COLEOPTERA. By C. WATERHOUSE.

GEODEPHAGA.

SELENOPHORUS GALAPAGOËNSIS, G. R. Waterh.

The type of this species, found by Mr. Darwin and described as "*piceus*," is evidently immature, as the two specimens just received from Commander Cookson (unfortunately also both females) are almost black above, but very slightly æneous when viewed obliquely. The larger specimen measures  $4\frac{4}{5}$  lines.

*Hab.* Charles Island (*Darwin* and *Cookson*).

HYDRADEPHAGA.

EUNETES OCCIDENTALIS, Er.

Six examples, which agree very well with the brief description of this species.

*Hab.* Charles Island (*Cookson*).

ACILIUS INCISUS, Aubé, var.

Three examples. The male agrees perfectly with that of *A. incisus*. The female differs in having the thorax more punctured, and in having the elongate punctures on the elytra much stronger and more close than in any examples of *incisus*; and the punctures, although diminishing in strength and density, extend nearly to the apex.

As considerable difference is admitted to exist in this respect in *A. circumscriptus*, the specimens from Galapagos must, I think, be considered mere varieties of *A. incisus*.

*Hab.* Charles Island (*Cookson*).

## PALPICORNIA.

## TROPISTERNUS LATERALIS, Fab.

This species has already been recorded from the Galapagos, and appears to be common there.

*Hab.* Charles Island (*Darwin* and *Cookson*).

## NECROPHAGA.

## ACRIBIS, gen. nov.

Head large, broad, convex above; epistoma slightly produced, narrow; antennæ about as long as the head, 1st joint rather elongate, 2nd short obconic, 3rd as long as the 2nd and more slender, 4th to 7th becoming gradually shorter, 8th nearly globular, the 9th, 10th, and 11th forming a large ovate compressed club. Intermediate legs retractile; posterior femora partially covered by the posterior margin of the metasternum. Basal segment of the abdomen large, the 2nd and 3rd very short.

Closely allied to *Clambus*, which it resembles in general form.

## ACRIBIS SERRATIVENTRIS, sp. n.

*Subglobosus, niger, nitidus, discrete subtilissime punctulatus; capite subltus antennisque piceo-testaceis; elytris apice obtuse rotundatis; abdomine piceo, segmentis marginibus minute serratis.* Long.  $\frac{2}{3}$  millim.

Build of *Clambus minutus*, but smaller and not so much narrowed posteriorly. Shining black. Head large, very broad and very convex, angular at the sides, emarginate on each side of the base of the epistoma at the insertion of the antennæ. Thorax ample, the whole surface marked with fine transverse scratches, and sparingly and very finely punctured (as are also the head and elytra), each puncture bears a short fine black hair; the posterior angles are broadly rounded. Scutellum triangular, short, and very broad. Elytra convex, but less so posteriorly, a little longer than broad, not much narrowed towards the apex, which is broadly rounded.

*Underside.* — Head beneath pitchy testaceous. Thorax below deeply excavated for the reception of the head in repose. Intermediate legs, when retracted, completely hidden by the posterior portion of the mesosternum. Metasternum a little shorter than the basal segment of the abdomen, with its posterior margin slightly flexuous in the middle. Posterior femora rather large, well separated from each other at their bases; tibiæ about  $\frac{2}{3}$  the length of the femora: posterior tarsi as long as the tibiæ, rather stout. Abdomen pitchy, the margins paler, the margins of the 1st to 4th segments serrate or, rather, minutely toothed like a comb; the basal segment, as well as the sterna, are distinctly and moderately thickly pencilled.

*Hab.* Charles Island (*C. Darwin*).

## PHALACRUS DARWINII, sp. n.

*Oblongo-ovalis, convexus, piceo-niger, nitidissimus; antennis pe-*

*dibusque obscure testaceis; elytris punctorum seriebus duabus, singulis stria suturali, antice abbreviata, impressis.* Long.  $1\frac{1}{2}$  millim.

Nearly black; the head pitchy. Thorax (when seen under a microscope) sparingly punctured. Elytra with an impressed sutural stria, only visibly punctured when seen under the microscope; parallel to this stria is a row of punctures, a little further removed from the stria than the stria is from the suture; there is a second row of punctures, but it is not quite so distinct as the first.

*Hab.* Charles Island (*C. Darwin*).

## MALACODERMATA.

### MELYRIDÆ.

#### ABLECHRUS, gen. nov.

Eyes entire, not very prominent. Antennæ inserted in front of the eyes, of 9 joints, the 1st joint short obconic; the 2nd as long as broad; 3rd as long as the first, a little rounded at its base; 4th and 5th as long as the 3rd, subcylindrical; the 6th and 7th a little shorter; the 8th one third longer than broad, narrowed at its extreme base; the 9th joint one third longer than the 8th, elongate-ovate, subacuminate at the apex. Thorax convex, transverse, rounded at the sides and behind. Elytra at their base not broader than the thorax, but somewhat suddenly widened below the shoulders, ample posteriorly, rounded at the apex.

This insect closely resembles *Ebæus thoracicus* in form; the structure of the antennæ, however, is quite different, and unlike any genus of Melyridæ with which I am acquainted. Its position would be near *Ebæus*.

#### ABLECHRUS FLAVIPES, sp. n.

*Æneus, nitidus, vix pubescens; thorace transverso, cum elytris sat crebre evidenter punctato, his thorace fere triplo longioribus, basi thorace haud latioribus, postice ampliatis, apice rotundatis; antennis flavo-testaceis, articulis tribus apicalibus infuscatis; pedibus flavis.* Long. 2 millim., lat. 1 millim.

General form that of *Ebæus thoracicus*, but smaller and relatively a trifle shorter; thorax rather convex, a little narrowed in front, very finely margined at the sides and posteriorly, distinctly and rather thickly punctured. Scutellum distinct. Elytra at their base not broader than the thorax, but immediately becoming broader and rounded posteriorly. Legs yellowish; the posterior tibiæ slightly curved; apex of tarsi slightly infuscated.

*Hab.* James Island (*C. Darwin*).

## HETEROMERA.

### STOMION GALAPAGOËNSIS, G. R. Waterh.

Three examples were brought by Commander Cookson.



## AMMOPHORUS COOKSONI, sp. n.

*Oblongus, ater, vix nitidus; capite lato, planato, crebre fortiter longitudinaliter ruguloso-punctato: thorace quam caput  $\frac{1}{4}$  latiore, latitudine quam longitudo  $\frac{1}{5}$  majore, sat convexo, confertim fortiter punctato, antice posticeque oblique angustato, lateribus medio subparallelis, angulis anticis subacutis prominulis, posticis acutiusculis vix divaricatis; elytris basi thorace haud latioribus, postice paulo ampliatis, convexis, fortiter late sulcatis, sulcis seriebus punctorum magnorum transversim impressis, interstitiis angustis cariniformibus, nitidis; humeris denticulo acuto armatis; pedibus brevibus obscure piceis, tibiis asperatis. Long. 3 lin., lat.  $1\frac{1}{3}$  lin.*

This species is closely allied to *A. obscurus*, G. Waterh., but is relatively broader. The 4th to the 11th joints of the antennæ are very strongly transverse; the forehead is more strongly punctured; and the interspaces are inclined to form rugulæ, especially near the eyes. The thorax is more strongly punctured, about  $\frac{1}{5}$  broader than



long (whereas in *A. obscurus* it is only as broad as long); the sides are more sinuous. The costæ of the elytra are more pronounced, and the channels are more slightly punctured. The legs are shorter somewhat and rough.

*Hab.* Charles Island.

Brit. Mus.

## PHYTOPHAGA.

## HALTICIDÆ.

## DOCEMA, gen. nov.

Antennæ approximate at their base. Claws simple. Cotyloid cavities for the anterior coxæ open. Prothorax marked posteriorly with a transverse impressed line, not bounded on each side by the short longitudinal impression. Posterior femora not reaching to the extremity of the elytra. Basal joint of the posterior tarsi as long as the two following joints taken together; the 2nd and 3rd joints about as long as broad.

The position of this genus appears to me to be next to *Graptodera*.

## 1. DOCEMA GALAPAGOËNSE, G. R. Waterh.

*Haltica galapagoënsis*, G. R. Waterh. Ann. and Mag. N. H. 1845, xvi. p. 39.

*Hab.* Charles Island (*C. Darwin*).

## 2. LONGITARSUS LUNATUS, sp. n.

*Ovalis, convexus, piceo-testaceus, nitidus; thorace convexo, paulo latiore quam longiore, postice parum angustato, fere lævi; elytris basi thorace vix latioribus, medio rotundato-ampliatis, crebre evidenter punctatis, lunula communi picea notatis.*  
Long.  $1\frac{3}{4}$  millim.

Closely resembles *L. ballotæ*, Marsh., in form and general appearance. The antennæ are nearly the same; but the second joint is a little more pear-shaped; and the third is as long as the second, but more slender. The thorax is a trifle less broad, and not visibly punctured. The elytra are very convex, much rounded at the sides, broadest across the middle, the shoulders almost completely effaced; the surface is somewhat uneven, which makes the punctuation less distinct; and the punctures are rather closer and finer than in *L. ballotæ*; a lunate pitchy band is placed across the middle.

*Hab.* Charles Island (*C. Darwin*).

## GALERUCIDÆ.

## DIABROTICA LIMBATA, sp. n.

*Nigra, nitida; thorace pallide flavo; elytris piceis, obsolete costatis, inter costas irregulariter biseriatis striato-punctatis, apice lævi, marginibus flavis; antennis basi pedibusque obscure testaceis, tarsis fuscatis.* Long. 2 lin.

Head shining black. Thorax scarcely broader than long, a little narrowed towards the base, pale yellow, with two well-marked depressions on the disk. Elytra pitchy; at their base not quite twice as broad as the thorax, rather broader behind, obsolete costate towards the sides, with double irregular lines of distinct (but rather fine) punctures between the costæ; the apex nearly smooth; the margins pale yellow, the yellow part widening at the apex. Legs yellowish, the knees and tarsi slightly dusky.

*Hab.* James Island (*C. Darwin*).

The following are the species of Coleoptera known to me to have occurred in the Galapagos Islands.

## 1. Albemarle Island.

*Corynetes rufipes*, *Fabr.*

## 2. James Island.

*Notaphus galapagoënsis*, *G. R. Waterh.*

*Dermestes vulpinus*, *Fabr.*

*Ablechrus darwinii*, *C. Waterh.*

*Corynetes rufipes*, *Fabr.*

*Ammophorus bifoveatus*, *G. R. Waterh.*

*Anchonus galapagoënsis*, *G. R. Waterh.*  
*Diabrotica limbata*, *C. Waterh.*  
*Scymnus galapagoënsis*, *G. R. Waterh.*

3. Chatham Island.

*Creophilus villosus*, *Grav.*  
*Bostrichus uncinatus*, *Germ.*<sup>1</sup>  
*Ammophorus galapagoënsis*, *G. R. Waterh.*  
*Pedouæces pubescens*, *G. R. Waterh.*

4. Charles Island.

*Selenophorus galapagoënsis*, *G. R. Waterh.*  
*Eunectes occidentalis*, *Er.*  
*Acilius incisus*, *Aubé.*  
*Tropisternus lateralis*, *Fabr.*  
*Acribis serrativentris*, *C. Waterh.*  
*Phalacrus darwinii*, *C. Waterh.*  
*Stomion galapagoënsis*, *G. R. Waterh.*  
*Ammophorus cooksoni*, *C. O. Waterh.*  
*Ormiscus variegatus*, *G. R. Waterh.*  
*Otiorynchus cuneiformis*, *G. R. Waterh.*  
*Docema galapagoënsis*, *G. R. Waterh.*

5. The particular island not specified.

*Feronia calathoides*, *G. R. Waterh.*  
*Feronia insularis*, *Bohem.*  
*Feronia galapagoënsis*, *G. R. Waterh.*  
*Amblygnathus obscuricornis*, *G. R. Waterh.*  
*Copelatus galapagoënsis*, *G. R. Waterh.*  
*Phillydrus*, *sp.*  
*Copris lugubris*, *Bohem.*  
*Oryctes galapagoënsis*, *G. R. Waterh.*  
*Physorhinus galapagoënsis*, *G. R. Waterh.*  
*Stomion helopoides*, *G. R. Waterh.*  
*Stomion lævigatum*, *G. R. Waterh.*  
*Ammophorus obscurus*, *G. R. Waterh.*  
*Pedonæces galapagoënsis*, *G. R. Waterh.*  
*Pedonæces morio*, *Bohem.*  
*Phaleria manicata*, *Bohem.*  
*Eburia amabilis*, *Bohem.*

VIII. HYMENOPTERA and DIPTERA. By FRED. SMITH.

The Hymenoptera collected by Commander Cookson are referable to two species. Three other species collected by Mr. Darwin during the Voyage of the 'Beagle,' specimens of which were quite recently deposited in the British Museum by G. R. Waterhouse, Esq., may be added on this occasion.

<sup>1</sup> The "*Apate*" mentioned by Mr. Waterhouse, *Ann. and Mag. Nat. Hist.* 1845, xvi. p. 36.

1. *CAMPONOTUS SENEX*, Smith, Cat. Hymenopt. part vi. p. 47.  
From Charles Island (*W. E. Cookson*).

2. *CAMPONOTUS PLANUS*.

Worker. Length,  $1\frac{3}{4}$  line. Black, with the legs, antennæ, and mandibles ferruginous; thinly sprinkled with pale glittering hairs. Head slightly shining, oblong, a little wider than the thorax, with the eyes prominent and situated high at the sides near the vertex. Thorax rounded anteriorly, flattened above, and gradually narrowed to the metathorax, which is truncate behind; the sutures dividing the pro-, meso-, and metathorax only slightly impressed. Abdomen ovate, semiopaque; the node of the petiole incrassate, narrow, the sides nearly parallel, rounded above.

Charles Island (*C. Darwin*).

3. *CAMPONOTUS MACILENTUS*.

Worker. Length,  $2\frac{1}{4}$  lines. Pale ferruginous, with the legs pale testaceous, smooth and shining, and having a few erect scattered pale hairs. The head wider than the thorax, oblong, with the eyes large, ovate, and black; the vertex slightly emarginate behind. Thorax compressed and much narrowed behind, convex above. Abdomen wider than the head, and oblong-ovate. The scale of the petiole wedge-shaped and rounded above.

Charles Island (*C. Darwin*).

4. *AGRIOMYIA VAGANS*.

Female. Length 2 lines. Head and thorax rufo-piceous; abdomen pale ferruginous, smooth and shining. Head oblong, the vertex rounded behind; the mandibles and antennæ paler than the head. Thorax a little longer than the head, deeply strangled between the pro- and metathorax; the former rounded in front and very convex; the metathorax abruptly truncated obliquely; the legs rufo-piceous, with the tarsi and the articulations pale testaceous; the tibiæ paler than the femora and spinose exteriorly. Abdomen oblong, cylindric, and one third longer than the head and thorax, mottled with dark rufo-piceous stains; the second segment with three or four transverse impressed lines; the apex acute.

On comparing this insect with females of the different genera into which the genus *Thynnus* has been divided, it appears from its general structure to belong to the genus *Agriomyia* of Guérin.

Charles Island (*C. Darwin*).

5. *XYLOCOPA MORDAX*, Smith, Trans. Ent. Soc. Lond. 1874, p. 294, ♀.

Male. Length 8 lines. Ochraceous, the ocelli and mandibles black, the latter with a yellow spot at their base; the clypeus with a rufo-fuscous longitudinal line in the middle; the antennæ fuscous above; the pubescence fulvous. The mesothorax smooth and shining on the disk, as is also the scutellum; both nearly impunctate, having only a few very fine punctures: the mesothorax blackish on each

side and closely punctured. Wings fulvo-hyaline, their nervures dark ferruginous; the femora rufo-piceous, palest towards their apex; the pubescence on the thorax and legs fulvous. The apical margins of the segments of the abdomen rufo-piceous; the pubescence fulvous.

Albemarle Island, Charles Island (*W. E. Cookson*).

Of DIPTERA, Commodore Cookson collected two species in Charles Island, one being the *Musca ochricornis* of Wied., the other apparently new—

SYRPHUS ALBOMACULATUS.

Length 4 lines. The front covered with silvery tomentum, as well as the posterior margin of the head behind the eyes. The thorax of a metallic blue-green; the scutellum rufo-piceous, with its posterior margin pale testaceous. Wings hyaline and splendidly iridescent; the nervures dark fuscous. The legs rufo-piceous, with the anterior tibiæ, the base of the intermediate and posterior pair, and also the tips of the femora pale rufo-testaceous. Abdomen blackish brown, smooth and shining; at the base of the second and third segments laterally a large white isosceles-triangular macula.

IX. NEUROPTERA. By R. McLACHLAN.

Only two species collected; both are Dragonflies, belonging to the subfamily *Libellulina*.

1. PANTALA HYMENÆA.

*Libellula hymenæa*, Say, Journ. Acad. Philad. vol. viii. p. 19.

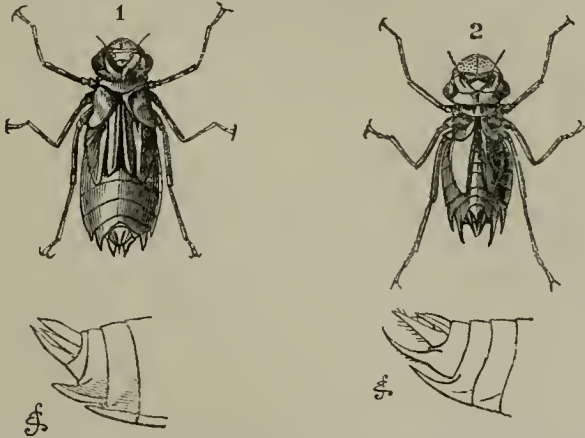
*Pantala hymenæa*, Hagen, Neurop. N. Amer. p. 142.

One individual. In the 'Neuroptera of North America,' Hagen records this only from Indiana, Western Texas, and Mexico. Later on, in his "Synopsis on the *Odonata* of America" (Proc. Bost. Soc. Nat. Hist. vol. xviii. May 1875), he adds Illinois and Cuba as localities. In the 'Entomologist's Monthly Magazine,' vol. xi. p. 92 (September 1874), I noted that Mr. G. F. Mathew, R.N., found the species at Payta, Peru, and says of it:—"This fine species occurred along the sea-coast. I cannot imagine where the larvæ fed, as there was no fresh water within many miles of Payta, and rain is almost unknown there. Just above high-water mark, in some places, there were large patches of a species of *Mesembryanthemum*; and these dragonflies were always to be found hawking above them." I possess an example from Chili. There can be little doubt that the species is migratory, though not to the same extent as its congener *P. flavescens*, which is found almost all over the world.

2. TRAMEA, sp. ?

Three individuals. As these examples are in bad condition, and having regard for the difficulties that surround the group, I do not venture to describe them, although they possibly pertain to a new species, of large size (almost as large as *Pantala hymenæa*), and with

only a very small dark anal spot on the hinder wings, in this latter character differing from most of the species of Central America.



There are also two "nymph"-forms, which I was at first inclined to consider only conditions of one species, but which I am now convinced represent the nearly mature condition of two; and it may be that they pertain to the *Pantala* and *Tramea* respectively.

The larger form (*Pantala*?) (fig. 1) may be described as follows:—

Length, 23 millims. Body above (excepting the eyes and anal processes) uniformly opaque, pulverulent, brownish grey; beneath, dingy yellowish and shining. Eyes yellowish. Mask of labium elongate, its anterior edge forming a triangle with obtuse apex. Mandibles very large and prominent, standing out much in advance of the front of the head, their interlocked edges with about eight rather blunt teeth; very convex externally, forming (with the mask) a gibbous projection. Head above with a large and deep triangular depression behind the region of the ocelli. Pronotum with rounded hinder margin. Anterior rudimentary wings very narrow, lanceolate, extending to the hinder suture of the sixth abdominal segment; posterior broad in the anal portion, rather longer than the anterior. Abdomen short and broad, a small black triangular spot in the middle of the hinder suture of each ventral segment; the alate marginal portion very broad if viewed from beneath. Eighth segment produced at the sides into a strong flattened acute tooth, furnished with small distant spines on the edge. Ninth produced into a much longer and broader curved tooth, broadly triangular at its base, also with small spines on its edge. The form of the anal valves &c., is as follows:—Median dorsal process long and very strong, its sides dilated and triangular at base, the upper edge forming a sharp keel. Lateral superior processes slender and much shorter. Lateral inferior processes long, lanceolate, and very acute, scarcely shorter than the median dorsal process, slightly curved. All the anal processes shining, and dingy yellowish. Legs slender, not especially long, concolorous with the body; but on the femora and tibiæ there are indications of broad fuscous rings, and the intermediate and posterior tarsi are blackish.

The smaller "nymph" (*Tramea?*) (fig. 2) is only 19 millims. long. Uniformly very shining, brown, with a tinge of blackish above; pale greyish yellow beneath. Eyes deep black. Mouth-parts even still more prominent than in the form above described: mandibles thickly sprinkled with small blackish dots; the interlocked edges without visible teeth. Head above with an oblong depression behind the region of the ocelli, with a lateral extension on each side, dilated, and forming broad shallow pits, in which the antennæ are inserted. Pronotum with a broad yellowish median band; its posterior edge raised and rounded. Anterior rudimentary wings narrow, extending over the hinder margin of the 7th segment; posterior very broad at the base in the anal portion, network distinct, the apices extending to beyond the middle of the 8th segment. Abdomen very short and broad; each ventral segment with two small blackish spots, having a tendency to form two lines on the terminal segments; alate lateral portions extremely broad; 8th and 9th segments each produced laterally and posteriorly into a lanceolate acute process, with fine spines on the outer edge, that on the 8th extending to about the apical margin of the 9th, that on the latter equally long, and extending beyond the anal processes. Median dorsal anal process lanceolate, strong, curved downward, its dorsal edge with long blackish spines towards the apex. Lateral superior processes slender and spiniform, blackish at the tips, as long as the dorsal. Lateral inferior processes much longer, stronger, and nearly straight, furnished with long and strong black spines, inferiorly at the base with long yellowish spiniform hairs. Legs much longer than in the form above described, more slender, pale brownish, but with a faint blackish line on the femora and tibiæ externally, and with blackish tubercles on their edges, whence arise short yellowish spines.

This "nymph" is evidently in its last stage before the exclusion of the imago. The neuration of the hind wings is distinct; and the position of the triangle warrants the belief that it pertains to *Tramea*.

Upon comparing these "nymphs" with those of two familiar European species, viz. *Plathemis depressa* and *Diplax striolata*, the most striking feature is the greater prominence of the mouth-parts, the longer and more slender legs, and the absence of the dorsal dentate crest on the abdomen. *P. depressa* has the angles of the apical segments not produced into processes; but in *D. striolata* the processes are very evident, and approach the forms here described.

#### X. LEPIDOPTERA, ORTHOPTERA, and HEMIPTERA.

By A. G. BUTLER.

The following list contains not only the species collected by Commander W. E. Cookson, but also some Hemiptera discovered by Charles Darwin, Esq., during the visit of the "Beagle," and recently deposited in the British Museum.

Among the species most worthy of note may be especially mentioned a beautiful little moth (*Cydosia sylpharis*, n. sp.) obtained by Commander Cookson, and certainly the most splendidly coloured form of that genus yet described.

## LEPIDOPTERA.

## 1. DEIOPEIA ORNATRIX, var.

*Noctua ornatrix*, Linnæus, Syst. Nat. ii. p. 829.

One specimen, Albemarle Island, June 23, 1875.

This is the less heavily marked form of the species, also taken in the Galapagos Islands by Darwin.

## 2. CYDOSIA SYLPHARIS, sp. n.

Primaries dark metallic green; an abbreviated subcostal longitudinal streak, a much longer longitudinal submedian streak, an interrupted longitudinal internal streak, a basicostal litura, several costal spots, a large oblique subapical spot, and a congregation of dots upon the disk towards the external angle silvery white; a spot above the end of the cell, and a second at external angle, bright golden; secondaries hyaline whitish, the veins brown; the borders brownish grey, diffused internally; discoidal cell and area beyond it greenish iridescent; thorax metallic green, spotted with white; body bronzy, greenish towards its anal extremity, white at the sides, primaries below shining brown, secondaries hyaline, with the veins and borders brown; pectus brown, spotted with white, anterior coxæ golden; venter bronzy green, with a central series of large white spots; expanse of wings 1 inch 2 lines.

One example, Albemarle Island, June 23, 1875.

This and the preceding species, although sent in spirit, are in very fair condition.

There are also in Commander Cookson's collection two larvæ of a *Sphinx* moth, two of a Geometer, and a pupa of (apparently) a *Pyrilide*, from Charles Island.

## ORTHOPTERA.

## 1. PANCHLORA SURINAMENSIS.

*Blatta surinamensis*, Linnæus, Syst. Nat. ii. p. 687.

Charles Island (2 adult, 2 immature).

## 2. PERIPLANETA AMERICANA.

*Blatta americana*, Linnæus, Syst. Nat. ii. p. 687.

Charles Island (2 adult examples).

## 3. AGRÆCIA COOKSONII, n. sp.

♀. Above piceous or black, mottled with testaceous; head almost uniformly black; frons castaneous, testaceous at the sides; mandibles black, castaneous at the base; under surface of the body testaceous; oviduct testaceous, its outer half blackish along the margins.

Head dull, nearly smooth, rather broader than the prothorax, an obtuse prominence between the antennæ; antennæ about twice the length of the body; eyes very prominent; frons shining, punctured in the middle; mandibles deeply grooved externally; thorax rugose, with lateral carina; wings undeveloped; abdomen obovate, dorsally



carinate, terminal appendages above short, curved, subpyriform; oviduct much compressed, very acute, curved upwards, not so long as the abdomen; anterior coxæ with a short anterior external fusiform spine; anterior femora with three increasing denticles towards the distal extremity of their infero-interior margin; tibiæ with seven pairs of short acute spines along their inferior margins; middle coxæ without spine; posterior femora with four denticles; posterior tibiæ with ten pairs of short acute spines. Length of the body 11 to 20 lines, oviduct 5 to 7 lines.

Three examples, Charles Island; two examples, Albemarle Island, June 23rd.

The type is from Charles Island; it is the largest and most nearly adult example sent; the smaller examples are much paler.

#### 4. *ACRIDIDIUM MELANOCERUM*.

*Acrididium melanocerum*, Stål, Eug. Resa, p. 326.

Five examples, Charles Island; three examples, Albemarle Island.

#### 5. *ACRIDIDIUM LITEROSUM*.

*Acrididium literosum*, Walker, Cat. Derm. Salt. iv. p. 620.

Two examples (one immature), Charles Island.

#### 6. *VATES*? sp. (larval form).

Two examples, Charles Island.

### HEMIPTERA.

#### 1. *SCIOCORIS GALAPAGOËNSIS*, n. sp.

Olive-brown, depressed, densely punctured; head rounded and slightly narrowed in front, slightly notched in the middle of its anterior margin, angulated in front of the eyes, rounded behind, about as long as the thorax; thorax deeply excavated in front, depressed at the sides; scutellum longer than the head and thorax together, linguiform; corium of hemelytra extending beyond the end of the scutellum, the pellucid area being consequently extremely small; abdomen reddish brown, clouded with blackish; legs rather slender, testaceous, all the femora with a black internal spot: length 4 lines.

One imago, Charles Island (*W. E. Cookson*).

There is also what I believe to be an immature form of this species; but it is too little developed for accurate determination.

#### 2. *ANASA OBSCURA*.

*Anasa obscura*, Dallas, Cat. Hemipt. p. 505.

Three examples, Galapagos Islands (*Darwin*).

The particular island is not specified.

#### 3. *NYSIUS MARGINALIS*.

*Nysius marginalis*, Dallas, Cat. Hemipt. p. 556.

Charles and James Islands (*Darwin*).

This appears to be a common species. It is described by Stål (Eng. Resa, p. 252) as *Cymus galapagensis*; but the form of the head, with its extremely prominent eyes, seems to agree far better with *Nysius*.

4. *MIRIS LINEATA*, n. sp.

Form and size of *M. ruficornis*; pale flesh-colour or pinky white; femora of legs testaceous; head oblong, subconical, abruptly conical in front, about two thirds the length of the thorax; the latter widening hindwards; scutellum cordiform, nearly as long as the head; a central longitudinal well-defined carina from the front of the head to the apex of the scutellum, bordered on each side by a grey line, a grey streak also running from the back of the eyes to the hinder margin of the thorax; abdomen rose-colour, with a central longitudinal carmine line which extends to the anal extremity, and with a lateral similar line which terminates at the antipenultimate segment; hemelytra longer than the abdomen, longitudinally plicate; base of antennæ, and tibiæ of legs, hairy: length  $5\frac{1}{2}$  millimetres.

Two examples, Charles Island (*Darwin*).

Mr. Darwin obtained three examples of the larval condition of what is apparently an allied species from James Island.

5. *CAPSUS SPOLIATUS*.

*Capsus spoliatus*, Walker, Cat. Hemipt. Heteropt. vi. p. 112. n. 254.

Charles and James Islands (*C. Darwin*).

6. *CAPSUS NIGRITULUS*.

*Capsus nigrutilus*, Walker, Cat. Hemipt. Heteropt. vi. p. 112. n. 255.

Charles Island (*C. Darwin*).

Walker's type is quite black, but apparently not naturally so; two other examples recently obtained, but also collected by Mr. Darwin, are tawny, with bright castaneous spots on the outer margins of the hemelytra.

7. *CAPSUS QUADRINOTATUS*.

*Capsus quadrinotatus*, Walker, Cat. Hemipt. Heteropt. vi. p. 113. n. 256.

Charles and James Islands (*C. Darwin*).

Evidently a common species.

8. *CAPSUS DARWINI*, n. sp.

Head conical, broader than long; thorax trapezoidal, convex, nearly twice as wide behind as it is long; scutellum rectangularly triangular, slightly longer than the thorax; hemelytra considerably longer than the abdomen; antennæ about the length of the entire body. Colour testaceous, antennæ blackish towards the tips; head, thorax, and corium of hemelytra above, and the sides of pectus below, longitudinally streaked with parallel black lines; membrane with two black spots on the costa, the first at the apex of the corium, and

the other half way between the latter and the apex of the membrane : length of body  $2\frac{1}{2}$  millimetres, of entire insect with the wings closed 4 millimetres.

Three specimens, Charles Island (*C. Darwin*).

A very pretty and well-marked species.

9. *MONANTHIA CYTHARINA*, n. sp.

Filiform, general aspect and coloration of *M. debilitata*.

Head pyramidal, white, the central area longitudinally subcylindrical, with a central carina, reticulated with brown ; thorax much wider than long, with compressed angular lateral wings, subsinuate in front, centre of anterior margin deeply excavated, three well-defined longitudinal keels, the central one straight, the two lateral ones concave ; brown, with white borders and keels, the whole surface reticulated with darker brown ; scutellum cordiform, brown, with darker reticulations, a central longitudinal white keel ; basal half of hemelytra broad and externally strongly convex ; apical area narrower and less convex ; each hemelytron with a longitudinal fusiform area enclosed by a keeled margin, from the base to the middle ; central area brown, with the keels and a central  $\Lambda$ -shaped marking white ; costal borders white, with a quadrate spot near the base and several at apex dark brown ; the whole surface reticulated with dark brown ; legs and antennæ testaceous : length 3 millimetres.

One specimen, James Island (*C. Darwin*).

HEMIPTERA HOMOPTERA.

1. *ISSUS VARIUS*.

*Issus varius*, Walker, Cat. Homopt. ii. p. 372.

James and Charles Islands (*C. Darwin*).

2. *ISSUS ROSTRIFER*, n. sp.

Head conical, rostriform when viewed laterally, leaf-like above, with a marginal and a central longitudinal ridge ; pronotum considerably wider than long, convex in front, concave behind, with a prominent tubercle behind the antero-interior angle of each eye ; meso- and metanotum narrow, irregular, with a central longitudinal carina ; scutellum triangular with sinuated sides, and narrow marginal ridge ; abdomen laterally compressed, somewhat depressed at base, so that the scutellum, seen laterally, forms with the metanotum a projecting tubercle ; tegmina semicircular, reticulated ; colour testaceous, head above brightest in tint : length 3 millimetres.

Charles Island (*C. Darwin*).

3. *DELPHAX SUBSTITUA*.

*Delphax substitua*, Walker, Cat. Homopt. ii. p. 354. n. 21.

Charles and James Islands (*C. Darwin*.)

4. *DELPHAX VICARIA*.

*Delphax vicaria*, Walker, Cat. Homopt. ii. p. 355. n. 23.

Charles and James Islands (*C. Darwin*).

## 5. DELPHAX SIMULANS.

*Delphax simulans*, Walker, Cat. Homopt. ii. p. 355. n. 24.

Charles and James Islands (*C. Darwin*).

## 6. DELTOCEPHALUS OBLIQUUS.

*Acocephalus obliquus*, Walker, Cat. Homopt. iii. p. 851. n. 23.

## 7. JASSUS PLANUS, n. sp.

Above sordid testaceous; pronotum in front, and head, ochraceous, the latter with a greyish spot in the centre of the ocelli; tegmina pale testaceous, hyaline; pectus and venter pale testaceous; rostrum and legs sandy yellow; eyes brown; ocelli black: head very broad, exceedingly short from the vertex hindwards, convex in front, concave behind; thorax convex in front, the sides converging, subsinuate, and ending in a truncate slightly convex line behind; scutellum triangular, all the sides slightly sinuate; tegmina extending considerably beyond the abdomen, rather narrow, distinctly convex in front; rostrum extending to the second pair of coxæ, broad and angulated at base, its basal article centrally tumid; hind tibiæ with about seven external strong spines: length of body 3 millimetres, including the tegmina  $4\frac{1}{2}$  millimetres.

One example from Charles Island (*C. Darwin*).

## 8. JASSUS LUCIDUS, n. sp.

Shining mustard-yellow; tegmina whitish, transparent; wings white; head broad, exceedingly short from the vertex hindwards, convex in front, concave behind; thorax transverse, much broader than long, very convex in front, less so behind; scutellum triangular; tegmina extending considerably beyond the body, rather narrow, slightly convex in front; rostrum nearly as in preceding species, but narrow at base; hind tibiæ densely spined: length of body about  $2\frac{1}{2}$  millimetres, including the tegmina about  $3\frac{1}{2}$ .

One example, James Island (*C. Darwin*).

The specimen being somewhat damaged, I have been unable to take absolutely definite measurements.

## 9. JASSUS STRIOLARIS, n. sp.

Head testaceous, above with a central and lateral longitudinal line and a spot on each side between them, black; frons with a central line and the ocelli black; thorax black, with two central dots in front, and two U-shaped markings on the posterior half, testaceous; scutellum testaceous; tegmina black, with longitudinal testaceous veinings; body below black; legs testaceous: structure as in *I. planus*: length of body 3 millimetres, including the tegmina  $4\frac{1}{2}$  millimetres.

Charles Island (*C. Darwin*).

## XI. ECHINODERMATA. By EDGAR SMITH.

## I. ECHINI.

1. CIDARIS THOUARSII, Val.

2. TOXOPNEUSTES SEMITUBERCULATUS, Val.

## II. ASTERIIDÆ.

## 3. HELIASTER MICROBRACHIA, Xantus.

## III. OPHIURÆ.

## 4. OPHIOTHRIX SPICULATA, Leconte.

## 5. OPHIONEREIS ALBOMACULATA, sp. nov. (Plate XI. figs. 1-5.)

Disk somewhat pentagonal, finely scaled, the scales in the region of the radial shields larger than elsewhere; radial shields very small, narrow, pointed within, not far apart, the inner sides nearly straight, outer curved, white with the outer tips blackish; oral shields shaped like a short spear-head, the point being obtuse, and towards the mouth and the handle broad and short, the madreporic shield a little larger and of a somewhat different form; side oral shields irregularly triangular, small, situated on the sides of the orals, the outer angle touching the first very small ventral arm-plate, the lower end not nearly reaching to the apex of the oral shield; mouth-papillæ 6-8 on each mouth-angle, subequal, the outermost one generally the largest; arms about six times as long as the width of the disk, broadest about an inch from it, and towards it gradually attenuating; upper plates irregularly quadrangular, the sides converging outwardly; the outer edge is consequently narrower than the inner, and straight; the supplementary plates on each side about half as large as the central ones; lower arm-plates square, with the angles rounded; 4 spines on about the first twelve side arm-plates, 3 on the rest; the lowest is a little the smallest, the central one the largest (2 millims. in length), the uppermost broad, compressed and truncate at the apex; the single tentacle-scale is large and subcircular. The colour of the disk (in alcohol) dark olive, almost black, varied with white near the radial shields; arms above of the same dark tint as the disk, with white spots at intervals of a few segments, and towards the end of the arms the plates on each side of those which are white or which are white-spotted are almost black; lower arm-plates purplish brown, tentacle-scales a little paler; arm-spines dark olive with pale lips.

Diam. of disk 13 mill.; width of the first dorsal arm-plates including the supplementary ones 2 millims., of the fifteenth 3 millims.

*Hab.* Charles Island.

This species is remarkable in having the middle portion of the rays considerably broader than the base; the first lower arm-plate is very small, being only about one fourth the size of the next and situated between the side mouth-shields. The white spots on the upper surface of the arms are generally on the outer edges; but towards the end of the arms they meet, thus forming transverse white bands; and on each side of them the adjoining plates are much darker than the roots of the arms, in fact almost black, thus giving a very striking variegated aspect to them.

## EXPLANATION OF THE PLATES.

## PLATE XI.

- Figs. 1-5. *Ophionereis albomaculata*, p. 92.  
 6. *Rhizochilus parvus*, p. 70.  
 7. *Trochus (Omphalius) cooksoni*, p. 71.  
 8. *Succinea bcttii*, p. 72.

## PLATE XII.

- Fig. 1. *Leptodius cooksoni* ♂, nat. size, p. 73.  
 1 a. Front, antennal, and orbital region, and buccal cavity, showing absence of palatal ridge, enlarged.  
 1 b. Hand of male; enlarged, twice nat. size.  
 1 c. Abdomen of male; enlarged.  
 1 d. Abdomen of female; enlarged.  
 2. *Cubaris galapagoensis*; enlarged, three times nat. size, p. 76.  
 2 a. Lateral view in outline.  
 2 b. Front of head showing antennæ; enlarged, six times nat. size.  
 2 c. Terminal segment, do.

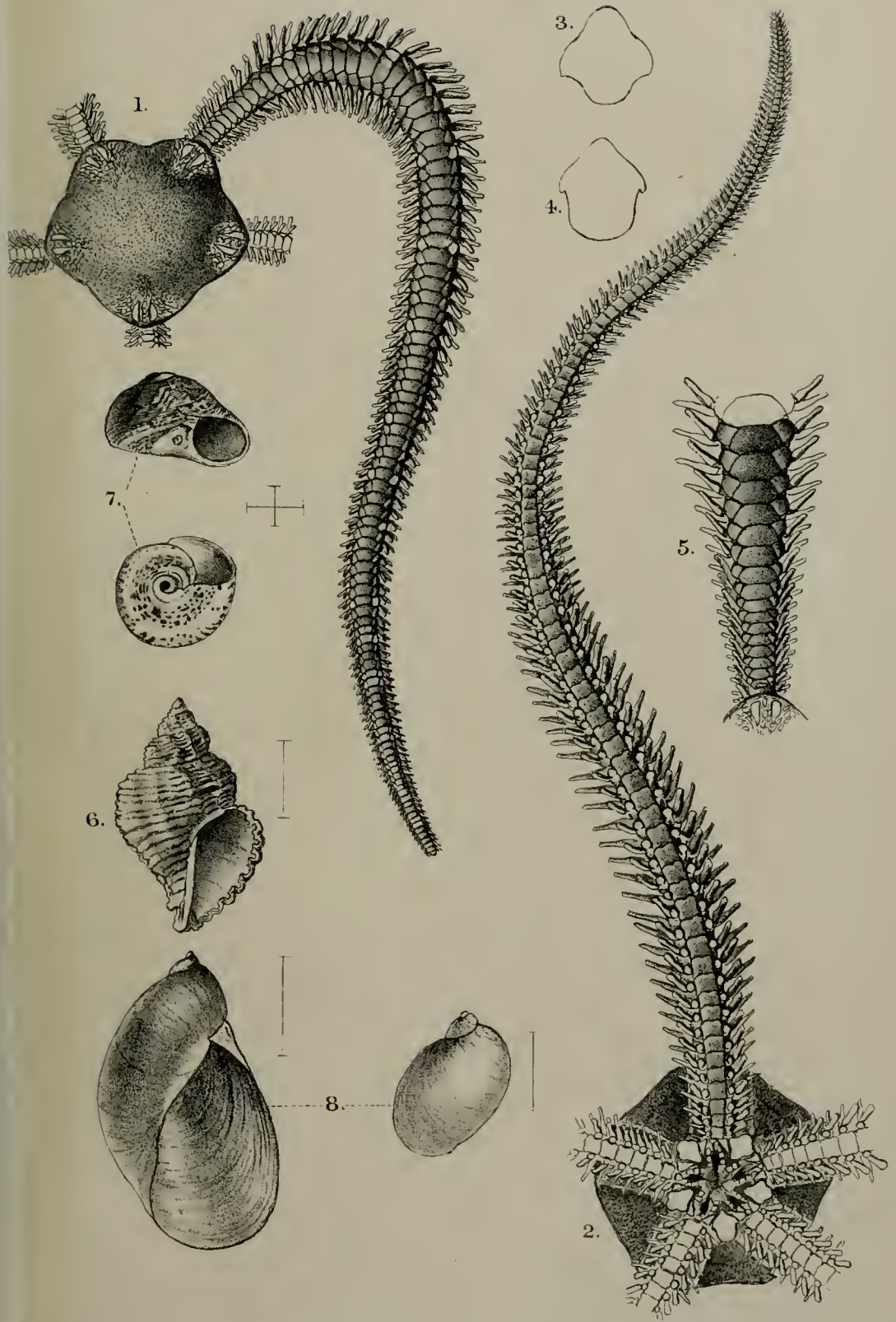
## PLATE XIII.

- Fig. 1. *Gasteracantha insulana*, Thorell, nat. size, p. 76.  
 1 a. Profile of the same.  
 1 b. Caput, with eyes, showing their position.  
 1 c. Single falx, showing arrangement of teeth.  
 2. *Epeira cooksonii*, Butler, nat. size, p. 76.  
 2 a. Profile of the same.  
 2 b. Caput, with eyes.  
 2 c. Single falx.  
 3. *Theridion carolinum*, Butler; enlarged, twice nat. size: p. 75.  
 3 a. Profile of the same.  
 3 b. Caput, with eyes.  
 4. *Thomisoides utrififormis*, Butler, nat. size, p. 77.  
 4 a. Single falx of the same.  
 4 b. Profile.  
 4 c. Caput, with eyes.  
 5. *Latrodectus apicalis*, Butler, profile, nat. size: p. 75.  
 5 a. Single falx of the same, showing the want of teeth.  
 5 b. Caput, with eyes.

7. Description of a New Species of *Lobiophasis* and a New Species of *Pitta* from the Lawas River, N.W. Borneo.  
 By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c., Senior Assistant, Zoological Department, British Museum.

[Received February 6, 1877.]

When my friend Mr. Ussher was appointed Governor of Labuan, the first thing that I naturally asked him, was to try and get additional specimens of the *Lobiophasis bulweri*. I have received several letters from him, announcing the successive failures of his attempts to obtain more examples of this bird; but at last I heard from him that, although the collector whom he had sent to the Lawas river had not met with the longed for Pheasant, he had procured a pair of an apparently new species, which I might expect to see before long.



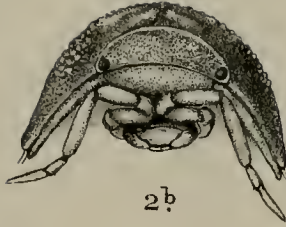
E. A. Smith del.

Mintern Bros. imp.

1-5, OPHIONEREIS ALBOMACULATA. 6, RHIZOCHILUS PARVUS.  
 7, TROCHUS COOKSONI, 8, SUCCINEA BETTI,



2<sup>a</sup>



2<sup>b</sup>



2.



2<sup>c</sup>



1<sup>d</sup>



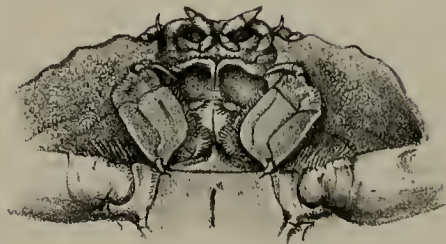
1.



1<sup>c</sup>



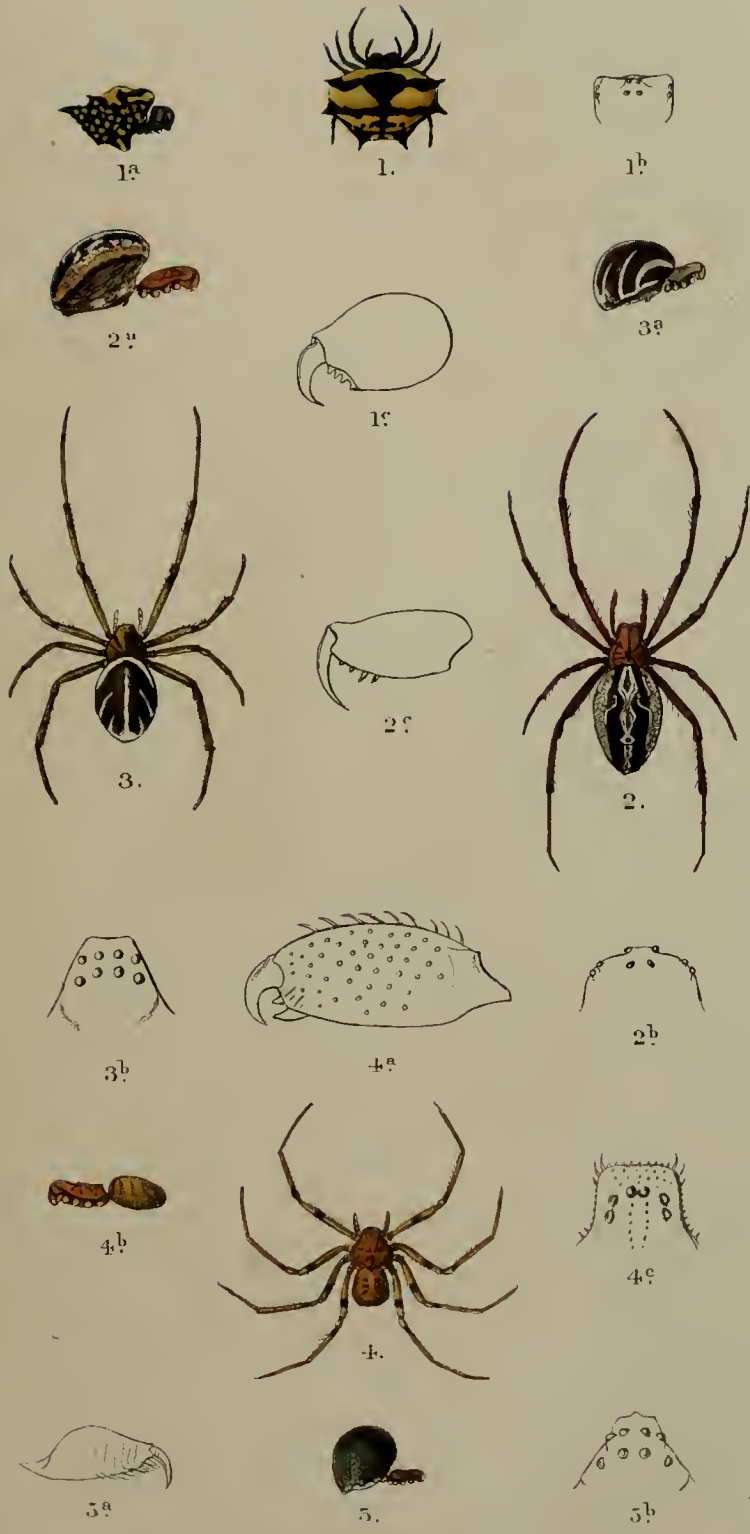
1<sup>b</sup>



1<sup>a</sup>

1, LEPTODIUS COOKSONI.  
2, CUBARIS GALAPAGOENSIS.





E. A. Smith

Mintern Bros. imp.

SPIDERS OF THE GALAPAGOS.

# PROCEEDINGS

OF THE

SCIENTIFIC MEETINGS

OF THE

# ZOOLOGICAL SOCIETY

## OF LONDON

FOR THE YEAR

1877.



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