CATALOGUE

OF

ORTHOPTEROUS INSECTS

IN

THE COLLECTION

OF

THE BRITISH MUSEUM.

PART I. PHASMIDÆ.

BY

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INTRODUCTION.

THE object in preparing the present Catalogue has been to give at one view a description of all the species of PHASMIDÆ now in the British Museum Collection, and also a description of those species which are known to exist in other Collections, but which are at present desiderata in the Museum Collection, to enable travellers, collectors, and others to assist in completing the National Collection.

The figures have been drawn and lithographed by the author, who has paid great attention, in preparing them, to the proportion which the joints of the limbs and the body bear to each other, which he believes to be one of the best characters for the distinction of species, and one which it is very difficult to express in a moderate space in a description.

Mr. W. W. Saunders, and several other entomologists named in the text, have most kindly lent the specimens in their Collections to be compared with those in the British Museum, and with the figures which the author had made from specimens in Foreign Collections, to enable him to determine the species with greater precision.

The species in the British Museum are marked with B.M. in the margin.

JOHN EDWARD GRAY.

British Museum, June 1, 1859.

CATALOGUE

OF

ORTHOPTEROUS INSECTS.

Class INSECTA.

Order ORTHOPTERA.

ORTHOPTERA, *Olivier.*
HEMIPTERA, pars, *Linnæus.*
HEMIPTERA, *Retzius.*
DERMAPTERA, *De Geer.*
ULONATA, pars, *Fabricius.*
DERATOPTERA, pars, *Clairville.*

Section AMBULATORIA.

This Section, comprising insects with legs formed for slow motion, consists of the single

Family **PHASMIDÆ**, *Kirby, Serville, G. R. Gray.*

Phasmodea, *Burmeister.*
Phasmina, *MacLeay.*
Spectra, *Latreille.*
Phasma, *Stoll, Lichtenstein, De Haan.*

Prothorax small, not dilated into a shield covering the head. Legs formed for walking; the fore pair not raptorial; the hind pair not saltatorial; tarsi 5-jointed. Abdomen not forcipated at the tip.

The Orthopterous insects distinguished by the preceding characters are popularly known under the names of Spectres, Walking-stick and Walking-leaf insects; the two former names being given to them in allusion to the slender twig-like form of many of the species, and the latter to the leaf-like appearance of others, especially those of the genus *Phyllium*, which indeed in the living state so nearly resemble the foliage of the plants on which they reside, as to be distinguished from them with difficulty; a curious instance of which will be found noticed under *Phyllium Scythe*.

The 5-jointed tarsi, longitudinally folded wings, when present, and abdomen not furnished with an apical pair of forceps, distinguish these insects from the cursorial *Forficulidæ* or Ear-wigs; the small size of the prothorax, or segment immediately following the head, will at once separate these insects from the cursorial family *Blattidæ* or Cockroaches; the simple fore legs from the raptorial *Mantidæ*; and the hind legs, not formed for leaping, from the saltatorial *Gryllidæ*, *Achetidæ* and *Locustidæ*.

The species are comparatively of large and often gigantic size; they frequent the warmest portions of the globe, and the recent researches of assiduous collectors in different parts of the world, have satisfactorily proved that India and the islands of the Indian Archipelago constitute the metropolis of the group. Notwithstanding their large size (may we not, indeed, from analogy with the higher tribes of animals, rather say that, as a necessary dependence upon their large size?), the insects of this family are harmless herbivorous creatures.

The attention of modern entomologists to the great increase in the number of species of these insects preserved in our collections, was first aroused by the appearance of the elegant work on the Australian Phasmidæ, published by

Mr. G. R. Gray, and subsequently by the excellent Synopsis which he published of the entire group.

The species are, however, far more numerous than has hitherto been supposed, as may be easily conceived from the fact, that notwithstanding the recent labours of G. R. Gray, Burmeister, De Haan and Serville respectively in England, Germany, Holland and France, I have been enabled in the present work nearly to double the number of known species.

The chief specific characters exist in the relative proportions of the different parts of the body, and the form and position of the spines, lobes and tubercles with which their bodies and limbs are armed. In these respects there is a general amount of resemblance between the males and females, which allows us in certain instances to assume the specific identity between specimens of opposite sexes, the males being smaller, more slender, and furnished with longer legs and antennæ; whilst the females are larger, more robust, and have shorter limbs. In many cases also the females are entirely destitute of wings, or have them only partially developed, whilst they are of full size in the males. Many species, however, appear to be entirely destitute of wings in both sexes; and it will at once be perceived, that this circumstance constitutes one of the chief difficulties in the investigation of the specific rank of the individuals. The amount of development of the sexual appendages at the extremity of the body will, however, enable us in most instances to determine whether an insect be immature or arrived at its full growth. It is, however, very probable that some of the more obscure species described in the following pages may prove to be the immature states of other, perhaps still unknown species, or that they are the sexes of other insects regarded as distinct. As, moreover, we are imperfectly acquainted with so many of the species in consequence of possessing but unique specimens (of the opposite sexes of which we are therefore entirely ignorant), it will be perceived that equally great obstacles exist against our proposing a satisfactory generic distribution of the family. The materials, in fact, which we possess are not sufficient to allow us to tabulate either the groups or the species; and I think it right to mention these circumstances as a reason for the omission of these very necessary additions to most modern monographs, which would otherwise be comparatively easy of formation. An instance of such difficulties will prove the impossibility, in our present limited knowledge of the family, of satisfactorily establishing the position of species known, as it were, only by halves. Of the large new species from the Feejee Islands, a considerable number of the apterous female specimens were first received. With no clue to the condition of the male, the only step was to place the insect amongst those which were known only as wingless species. The male, however, has since been received by the British Museum, and proves that the species belongs to the group which has winged males and apterous females. A tabulation of the species therefore, founded on the supposed apterous condition of the one in question, would have been an erroneous one.

Like the *Tipulidæ* and other long-legged insects, these species are liable to lose their legs, especially in an early stage of their existence; but as successive moultings of the skin take place without any material alteration in the general form, the limbs are re-developed; they are, however, generally distinguished by being of a smaller size than the corresponding limbs on the opposite side of the body. This has been the case with the typical specimen of *Bacteria mexicana* (*Heteronemia mexicana*, G. R. Gray), which has one of its hind legs thus abbreviated, the corresponding leg on the opposite side having been broken off. Hence Mr. G. R. Gray was led to believe that the insect was normally furnished with small hind legs, and was thence led to form it into a separate genus on that account. Several instances will be observed, on looking over the Plates of this work, in which a similar disproportion occurs in the size of the feet. Charpentier also describes an instance of this difference in the size of the legs in a specimen of *Bacillus Rossii*, as a most extraordinary fact.

As the species of this family are often well distinguished from each other by the relative length of the different portions of the legs, a description of which could not without great detail be introduced into the specific descriptions, it may be allowed me to state, that in the accompanying engravings I have carefully measured the various parts of each leg, as well as the other parts of the body. I have also given detailed figures, under each species, of the structure of the terminal segments of the body, containing the organs of generation, which, as has been long ago remarked by the most profound entomologists, afford the most important specific characters. The six basal segments of the abdomen are in general simple, whilst the three terminal ones are modified for the reception of the organs in question. In the male, these three joints, on the ventral side of the body, are shorter than the rest, and swollen; whilst in the female, the seventh ventral segment is formed into a large, often boat-shaped, ovipositor or operculum, containing within it the other organs of generation modified from the two terminal segments of the body, forming in a few instances long exserted styles or plates. In both sexes, also, the underside of the ninth dorsal segment is furnished with two generally filiform and very short setose styles, but which in the Australian

species are greatly developed, forming two long flattened appendages. As the development of these three terminal segments is therefore more various in the species than that of the six basal ones, I have thought it would be advantageous to give a separate measurement of the two portions of the abdomen. In the notice therefore of the length of the insect, that of the six basal segments is first given, and then that of the three terminal ones, with the total length, thus: abdom. lin. 6+lin. 3=lin. 9.

The presence or absence of ocelli has been used as a sectional character in the family, but, as it appears to me, too great an importance has been allowed to it; instances will, in fact, be mentioned in the course of this work, in which not only closely allied species differ in the possession of ocelli, but also the opposite sexes of the same species; and in one instance even specimens of the same sex equally disagree in this respect.

Another character has also recently been employed as of generic importance—namely, the simple or furcate condition of the second or main vein in the costal area of the wings. I have, however, met with specimens in which the veins in this portion of the wings were so arranged that it was not possible to affirm whether the vein in question were furcate or not; whilst other instances have occurred in which the vein was simple in one sex and furcate in the other.

The admeasurements are made on the English scale of 12 lines to the inch; in cases where the measures are derived from other writers, they are given in the scales which they have employed.

Another character hitherto unemployed in the determination of the species of this family, has afforded me occasionally good distinctive peculiarities—namely, the relative size of the two divisions of which the upper surface of the metathorax is composed. This, of course, is modified by the size of the wings; but still it is too useful to be neglected.

Most of the recent writers upon this family have followed the primary divisions founded upon the presence or absence of wings, first suggested by Lichtenstein. Latreille, however, followed by Serville, adopted the presence or absence of membranous dilatations on the legs as a primary character; the former author using the alary character in a secondary sense; the latter, however, entirely ignores it as a means of tabulation, using the comparative lengths of the pro- and mesothorax as a means for separating the great mass of the species into two primary groups. Considering, as I do, the wings of Insects as their most essentially characteristic organs, as compared with all other Annulose animals, I shall not hesitate to follow the arrangements of Gray, Burmeister and De Haan in this respect.

Division 1. APTEROPHASMINA.

G. R. Gray, Syn. Phasm. p. 12.

Tegmina and wings wanting in both sexes when the insects are arrived at their full growth.

Genus 1. BACILLUS.

Bacillus, *Latreille, Serville, De Haan.*
Bacillus, p., *Burmeister.*
Bacillus et Linocerus, *G. R. Gray.*

Body filiform; thorax long; the metathorax considerably elongated, glabrous. Legs long or of moderate length, simple or armed with small spines. Antennæ very short, or at least not so long as the thorax, with few (scarcely ever more than twenty) joints, the basal joint often broad and flat. Tarsi of the fore legs with the basal joint elongated.

1. Bacillus Rossii.

Filiformis; viridis vel cinereo-fuscus; subobsolete granulatus, carinula dorsali; pedibus filiformibus angulato-striatis; femoribus 4 posticis subtus tridentatis; antennis 13–23-articulatis.

Long. corp. unc. $3\frac{1}{4}$.

Bacillus Rossii, *Lep. & Serv. Enc. Méth.* x. 101.
Serv. Ann. Sc. Nat. xxii. 65; *H. N. Orth.* p. 256. 1.
Brullé, H. N. ix. 111. pl. 9. f. 2. fem.
Burmeister, Handb. ii. 561. 1.
L. H. Fischer, Orth. Eur. p. 140. pl. 8. f. 9, 10.
Cuv. Règ. Anim. (ed. *Crochard*) *Ins.* pl. 79. f. 2.
Phasma Rossia, *Fabr. Ent. Syst. Suppl.* p. 187. 4.
Latr. H. N. xii. 104; *Gen. Cr.* 3. 88.
Ph. Rossium, *Charpentier, Horæ Ent.* p. 93.
Mantis Rossia, *Fabr. Ent. Syst.* ii. 13. 4.
Rossi, Faun. Etr. i. 259. 636. pl. 8. f. 1. fem.; *Mantissa,* i. 102 (ed. *Ill.* 322).
Mantis filiformis, *Petagna, Instit. Ent.* i. 307 (*non* M. filiformis, *Fabr.*).
Cyrillo, Spec. Ent. Neap. pl. 5. f. 1. fem., t. 7. f. 1. m.
Mantis plocaria, *Lichtenstein, Linn. Trans.* vi. 11.
Plocaria domestica, *Scopoli, Delic. Insubr.* i. 60. t. 24. f. A.
Spectrum Rossii, *Lamk. An. s. Vert.* iv. 255.
Bacillus Rossia, *G. R. Gray, Syn. Phasm.* p. 20.

Hab. In Europa meridionali; Andalusia; Italia; Dalmatia; Græcia; Africa boreali. B.M.

This species appears to be variable in some of its characters. Fabricius describes it "femoribus subtus dentatis;" Latreille, "femoribus ante apicem infra unidentatis." Brullé figures all the femora as armed with from three to five spines. Charpentier says the fore legs are quite simple, and only the four hind ones spined. In a specimen in the British Museum from Marseilles, having the thorax granulated and the antennæ 13-jointed, the fore femora are quite simple, the four hind ones have four

minute spines close to the tip, and the meso- and metathorax have an elevated longitudinal line.

2. Bacillus Tripolitanus.

Viridis; antennis 20-articulatis; femoribus mediis et posticis subtus utrinque spinulis 4 minutissimis vix conspicuis armatis.

Phasma (Bacteria) tripolitanum, *De Haan, Orth. Orient.* p. 101.
An var. *B. Rossii*?

Hab. In Tripoli. B.M.?

A specimen apparently of this species in the British Museum, from Sicily, has 23-jointed antennæ, the fourth and three following joints extremely short, and all the femora are armed beneath with four small black spines.

3. Bacillus granulatus.

Fuscus vel viridis; tuberculis numerosissimis instructus; corpore longitudinaliter unicarinato; capite pallide nigro-lineato; antennis 12-articulatis; abdomine thoraceque subtus cinereo-albicantibus; pedibus nigro-maculatis; femoribus 4 posticis subtus prope apicem bispinosis; tarsis apice nigricantibus.

Long. corp. 2″ 8‴; anten. 3‴.

Bacillus granulatus, *Brullé, Exp. Sc. de Morée, Ent.* p. 84. pl. 29. f. 6; *Hist. Nat. Ins.* ix. 110. pl. 9. f. 1. fem.
G. R. Gray, Syn. Phasm. p. 20.
Serv. H. N. Orth. 258.
Phasma gallicum, *Charpentier, Horæ Ent.* p. 94.
Bacillus gallicus, *Serv. Ann. Sc. Nat.* xxii. 65.
G. R. Gray, Syn. Phasm. p. 20.
Burmeister, Handb. ii. 561. 2.
L. H. Fischer, Orth. Eur. p. 141. pl. 8. f. 11, 11 *a*, *b*.
Bacillus Rossius, *Rambur, Faune de l'Andal.* p. 24 (cum *B. Rossii* conjunctus).

Hab. In Morea; Andalusia; Sicilia; Gallia meridionali; Græcia; Barbaria.

4. Bacillus lobipes.

Fusco-flavescens; capite brevi, lævigato, antice bi-impresso; prothorace, mesothorace ac metathorace in medio unicarinatis, antice posticeque tuberculatis; abdomine lævigato, attamen 3tio 4toque segmentis postice fortiter gibbosis, ultimo in medio unicarinato; pedibus exilibus, externe subdenticulatis; femoribus tibiisque bifoliaceis.

Long. 74 millim.; larg. 4½ millim.

Bacillus lobipes, *Lucas, Expl. Scient. Algérie, An. Artic.* p. 12. pl. 1. f. 5.

Hab. In Algeria.

5. Bacillus brevis.

Brevior, crassior; femoribus omnibus subtus 4-dentatis; femoribus mediis in mare subinermibus; femoribus fœminæ distincte dentatis; antennis fœminæ 21-articulatis.

Long. corp. maris 2″; fœm. 2⅓‴.

Bacillus brevis, *Burmeister, Handb. d. Ent.* ii. 562.

Hab. Apud Promont. Bonæ Spei.

6. Bacillus Abdul, *Westw.*

Glaber, lævis; femoribus omnibus muticis, posticis 4 cylindricis; antennis 16-articulatis in mare, 18-articulatis in fœmina; thorace maris linea laterali, fœminæ punctis dorsalibus albis.

Long. corp. maris 2⅓″; fœm. 3″.

Bacillus gracilis, *Burmeister, Handb. d. Ent.* ii. 561 (*nec* B. L. gracilis, *G. R. Gray, nec* Bacteria gracilis, *Burm.*).

Hab. In Abyssinia; Ambukohl; et Arabia Felice.

Obs. Professor Burmeister considers that *Bacteria Ægyptiaca*, G. R. Gray, may be the male of this species. I can scarcely agree with such an opinion, my reasons for which will be stated under the next species.

7. Bacillus Ægyptiacus.

Filiformis, gracillimus, brunneus; capite flavo-lineato; thorace nigro-lineato marginibus flavis; pedibus gracilibus rufescentibus, anticis longis, quatuor posticis subæqualibus (mas).

Long. corp. 2″ 1‴; ant. 7‴.

Bacteria Ægyptiaca, *G. R. Gray, Syn. Phasm.* p. 18.

Hab. In Ægypto. B.M.

The typical specimen of this insect in the British Museum collection is a male, very slender and cylindrical, with the following proportions:—

Head, lin. 1⅓; proth. lin. 1; mesoth. lin. 6; metath. lin. 5; abdom. lin. 12.

The antennæ are very slender, filiform, 18- or 19-jointed, as long as the mesothorax. The head is marked on each side with a dark stripe. The thorax and abdomen are marked on each side with a slender dark longitudinal line, with a lateral paler one. The fore and middle legs are very long and quite unarmed (the hind ones are wanting). The basal joint of the tarsi is remarkably elongated, as are also the ungues and pulvilli. The three terminal segments of the body are very convex (when seen laterally), of nearly equal size, the last furnished with a narrow terminal lobe, and with two long, exserted, clavate, curved, anal styles. The three terminal ventral segments are but little

swollen and not angulated, the last extending to about half the length of the ninth dorsal segment.

Dr. Burmeister considers this insect may be the male of his *Bacteria gracilis* (*B. Abdul*, Westw.), with broken antennæ; such, however, is not the case, those organs being perfect in the British Museum specimen. His description of the male of his *B. gracilis* is as follows:—"Glaber, lævis; femoribus omnibus muticis, posticis 4 cylindricis; antennis 16-articulatis in mare; linea thoracis laterali alba."

8. Bacillus longiscaphum.

Cylindricus, lævis; capite cylindrico inermi; antennis 21-articulatis; femoribus mediis et posticis subtus apice utrinque 2-spinulosis; fœminæ vagina valde elongata, 5‴ ultra abdomen producta.

Phasma (Bacillus—Pachymorpha, *Serv.*) longiscaphum, *De Haan, Orth. Orient.* p. 101.

Hab. Apud Promont. Bonæ Spei in vinetis.

9. Bacillus gracilipes, *Westw.* Plate VIII. fig. 5.

Gracillimus, filiformis, inermis; pedibus longissimis; antennis brevibus (dimidio femorum anticorum brevioribus); abdominis apice clavato rotundato, stylis duobus capitatis analibus instructo (mas).

Long. corp. unc. $2\frac{5}{6}$; ant. lin. 7; proth. lin. $1\frac{1}{2}$; mesoth. lin. 7; metath. lin. 7; abdom. lin. 14+lin. 3=lin. 17.

Hab. In Sierra Leone. B.M.

Very slender, filiform, entirely destitute of spines. Blackish-brown, smooth, polished, but not glossy. Head luteous, with a brown central vitta forming a dark trident between the eyes. Meso- and metathorax with a pale line on each side. Abdomen with a black central dorsal line, except on the terminal convex portion; the terminal abdominal segments pale buffish-brown. The antennæ are short, not reaching to half the length of the fore femora; they are 15-jointed and slender. The meso- and metathorax are slightly dilated behind for the insertion of the fore and hind legs. The abdomen has the three terminal segments gradually clavate, the last being the largest, convex and rounded behind, with the two anal styles capitate at the tip and exposed, crossing each other behind. The three ventral segments scarcely reach beyond the base of the ninth dorsal segment. The legs are very long, slender and simple.

I have adopted the MS. name applied to this species by Mr. G. R. Gray in the British Museum collection. It is here first described.

Plate VIII. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the abdomen seen sideways.

10. Bacillus Capensis.

Viridis, lævis, nitidus; capite oblongo, antice et postice æque lato, supra plano, utrinque linea obscura viridi pone oculos; prothorace capitis magnitudine, canalicula tenui media transversa; mesothorace long. lin. 4, absque carina media, postice parum latiori; metathorace mesothoracis longitudine, hujus parte postica latitudine æquali; abdomine e medio ad apicem sensim attenuato; lamina supra anum laminam subanalem longitudine lineæ excedente; pedibus muticis, longitudine mediocri, intermediis reliquis brevioribus, anticis majoribus, articulo 1mo tarsorum anticorum reliquis multo longiori, 4to omnium minuto; antennis concoloribus, subulatis, circiter 22-articulatis, articulo 1mo subdepresso, quadrangulari, 2ndo minuto, globoso, 3tio longo (fœm.).

Long. corp. 2 unc.

Bacillus Capensis, *Serv. H. N. Orth.* p. 257.
De Haan, Orth. Orient. p. 137.

Hab. Apud Promont. Bonæ Spei.

11. Bacillus Stellenboschus, *Westw.* Plate II. fig. 4.

Filiformis, luteo-viridis, glaber, nitidus, lateribus capitis et corporis pedibusque læte viridibus; antennis et pedibus brevibus; femoribus seriatim nigro-punctatis, et apicem versus intus serrulatis; segmento ultimo abdominis emarginato, stylis duobus longitudinalibus forcipem simulantibus (mas).

Long. corp. lin. 23; ant. lin. $6\frac{1}{2}$; proth. lin. 1; mesoth. lin. 5; metath. lin. 4; abdom. lin. $9\frac{1}{2}$+lin. $2\frac{1}{2}$=lin. 12.

Hab. Apud Promont. Bonæ Spei. B.M.

Luteous-green, smooth and glossy, with the sides of the head and body as well as the legs bright grass-green; very slender, cylindric, and filiform. The hind part of the meso- and metathorax and the seventh and eighth segments of the body rather dilated. The head, thorax, and abdomen with the surface entire and smooth. The antennæ short and 20-jointed. The legs rather short and simple; the fore femora curved at the base, the four posterior slightly thickened, and all finely serrated towards the tip beneath. The seventh and eighth segments of the abdomen dilated into an oval mass, and the ninth obconic-truncate, with the middle of the hind margin notched; on the under side near

its hind angles the ninth segment bears a pair of long curved clavate styles, which cross each other like a pair of forceps. On the under side the thorax and abdomen are quite simple; the three terminal ventral segments, especially the eighth, small, and not, or scarcely, extending to the hind margin of the eighth dorsal segment.

PLATE II. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the abdomen seen laterally. 4 *b*. The same seen from below. 4 *c*. The same part of the body from another specimen.

12. Bacillus Coccyx, *Westw.* PLATE VII. fig. 5.

Elongatus, subgracilis, lævis, nitidus, inermis, luridoviridi-fuscus; pedibus lutescentibus fusco-variis; abdomine sensim attenuato; operculo valde elongato, parte detecta longitudine segmentorum trium apicalium æquante; femoribus anticis simplicibus, quatuor posticis subtus prope apicem denticulatis (fœm.).

Long. corp. unc. 3, lin. 5; ant. lin. 6; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. 15 + lin. $4\frac{1}{2}$ + operc. lin. 4 = lin. $23\frac{1}{2}$.

Hab. In Africa australi. B.M.

Allied to *Bacillus Capensis*, Serville. Entirely of a lurid greenish-brown colour and glossy. The legs pale dirty luteous-brown, with darker irregular markings. The hind part of the head has two tubercles; and the front of the meso- and metathorax is finely granulose. The antennæ short, scarcely extending beyond the basal half of the fore femora; they are 23-jointed. The abdomen is gradually attenuated from the base to the extremity of the ninth segment, which exposes a minute terminal lobe at its end, as well as the two anal styles; the eighth segment is shorter than all the others; the operculum is very long, extending beneath the three terminal dorsal segments, and as far as their conjoined length beyond them; it is slender, boat-shaped, and but slightly swollen beneath the eighth dorsal segment. The fore legs are long and simple, the four hind legs are shorter and thicker, and the femora are armed beneath near the apex with several closely approximated small spines.

PLATE VII. Fig. 5. The female, of the natural size. 5 *a*. The terminal segments of the body seen sideways.

13. Bacillus Natalis, *Westw.*

PLATE XXIII. fig. 7, male; fig. 8, female.

Luteo-fuscus, gracillimus, lævis; capite elongato utrinque linea pallida (per thoracem et abdomen extensa), alteraque nigra inclusa; metathoracé fere longitudine mesothoracis; pedibus gracilibus, inermibus; antennis 18-articulatis, maris capite quadruplo-longioribus, fœminæ vix longioribus; abdomine maris apice clavato, stylis analibus incrassatis et incurvatis (mas et fœm.).

Mas. Long. corp. unc. 2, lin. 5; ant. lin. 5; proth. lin. 1; mesoth. lin. $6\frac{1}{2}$; metath. lin. 6; abdom. lin. 12 + lin. $2\frac{3}{4}$ = lin. $14\frac{3}{4}$.

Fœm. Long. corp. unc. $3\frac{1}{6}$; ant. lin. 3; proth. lin. $1\frac{1}{3}$; mesoth. lin. $7\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. 18 + lin. 3 = lin. 21.

Hab. In Africa australi; Port Natal. B.M.

The male is very slender and filiform, with the thoracic segments slightly dilated at the insertion of the legs, and the abdominal segments very slightly and gradually thickened from the middle to the extremity of each; the three terminal joints gradually clavate; the last very convex, rounded, and margined behind. The head is elongate and subconvex, simple, with a pale line on each side enclosing the eyes, and a dark line behind the eyes and extending along the sides of the thorax and abdomen. The antennæ are about four times the length of the head, 18- or 19-jointed; the joints irregular in length, the basal joint but slightly dilated. The metathorax is nearly equal to the mesothorax in length, its hinder division being extremely short. The abdominal segments are gradually, but very slightly, thickened from the middle to the extremity of each, and the three terminal segments are gradually clavate, the last being very convex, with the hind margin rounded, slightly margined behind; the three terminal segments beneath are moderately swollen, short, not extending beyond the eighth dorsal segment. The anal styles are rather long, clavate, setose, and much incurved, one folding over the other. The legs are very long and slender.

The female is much more robust than the male, nearly parallel, with the pale lateral line scarcely distinct. The antennæ are about half as long again as the head, 18-jointed; the joints irregular in length, the basal joint but slightly dilated. The hind margin of the head has a small depression in the middle; the thoracic segments are smooth, with a very fine line down the middle of the back, extending in a more distinct carina towards the extremity of the abdomen. The metathorax is about five-sixths of the length of the mesothorax, and its hinder division is very short. The operculum extends nearly to the extremity of the body; and the two anal styles are very short, elongate ovate, and setose. The legs are shorter and much more robust than those of the male, and quite simple.

PLATE XXIII. Fig. 7. The male, of the natural size. 7 *a*. The

terminal segments of the abdomen seen sideways. 7 *b*. The terminal segments seen from behind.

Fig. 8. The female, of the natural size. 8 *a*. The terminal segments of the abdomen seen sideways.

14. Bacillus humilis, *Westw.* Plate II. fig. 7.

Pallide luteo-viridis, gracilis, subcylindricus; antennis capite paullo longioribus, 16-articulatis; lateribus capitis, meso- et metathoracis serie tuberculorum minutorum instructis; subtus omnino lævis et inermis; abdomine stylis duobus porrectis terminato; operculo ad apicem abdominis haud extenso (fœm.).

Long. corp. unc. 2; ant. lin. 4; proth. lin. 1; mesoth. lin. $4\frac{2}{3}$; metath. lin. 4; abdom. lin. 13.

Hab. Ceylon. B.M.

The general colour is pale dirty yellowish-green; the surface of the body smooth, and destitute of spines. The head is oblong-ovate, with a row of minute tubercles on each side. The antennæ a little longer than the head, 16-jointed, the basal joint large and flattened. The thoracic segments are simple, their sides alone being marked by a row of minute tubercles. The metathorax is rather dilated gradually to its hind part. The abdomen is long and simple, gradually attenuated to the extremity; the segments with a lateral slightly defined margin. The body is terminated by two small porrected styles, the three terminal segments being marked with longitudinal furrows. The operculum extends beneath the seventh, eighth, and greater part of the ninth dorsal segments. The legs are long and simple; the anterior femora are curved at the base, and the middle femora slightly thickened. The body beneath is entirely simple.

Plate II. Fig. 7. The female, of the natural size. 7 *a*. The three terminal segments of the abdomen seen from the side.

15. Bacillus Tranquebaricus, *Westw.*

Elongatus, totus pallide fuscus; abdomine ante medium sensim latiori, apice attenuato (fœm.).

Phasma Nympha, *Stoll, Spectr.* pl. 10. f. 39.

Hab. Tranquebar.

16. Bacillus Indicus. Plate XXII. fig. 1.

"Flavescenti-brunnea, glabra, filiformis; antennis subbrevibus, rufescentibus, basi viridescentibus; pedibus mediocribus simplicibus, anticis lineis elevatis striatis."

Long. corp. 4″ 2‴.

Bacteria Indica, *G. R. Gray, Syn. Phasm.* p. 17.

Hab. In India orientali. Mus. Sykes; Soc. Ent. Lond. B.M.

The typical specimen of this species is in the National Collection. To Mr. G. R. Gray's characters, copied above, it may be added, that the insect is a female, with the body and legs entirely destitute of spines; it is very long and narrow, with the sides nearly parallel, its proportions being:

Head, lin. $1\frac{1}{2}$; ant. lin. 5; proth. lin. 2; mesoth. lin. 11; metath. lin. $7\frac{1}{2}$; abdom. lin. 23 + lin. 4=lin. 27. Total, unc. $4\frac{1}{2}$.

The antennæ are 20-jointed; the basal joint is grey, setose, and carinated down the middle. The head has the hind margin raised and notched in the middle. The eighth dorsal segment of the abdomen is not more than half the length of the preceding; and the operculum extends to half the length of the ninth dorsal segment.

The following is the description of a female specimen in the Collection of the Entomological Society of London:—

Elongatus, gracilis, cylindricus, lævis, omnino inermis; capite longo, margine postico elevato, et in medio inciso; antennis capite vix longioribus, circiter 25-articulatis; articulo basali magno depresso, in medio carinato; segmento apicali abdominis integro acuminato, stylis duobus brevibus latis exsertis instructo (fœm.).

Long. corp. unc. 3, lin. 7; ant. lin. 4; proth. lin. 2; mesoth. lin. 9; metath. lin. $6\frac{1}{2}$; abdom. lin. 19+lin. $3\frac{1}{2}$= lin. $22\frac{1}{2}$.

Hab. In India orientali. In Mus. Soc. Ent. Londinensis.

Long, slender, cylindrical, with the segments continuous, entirely smooth and destitute of spines or tubercles, and of a pale brownish buff-colour. The head long and narrowed behind, with the hind margin elevated and notched in the middle. Antennæ scarcely longer than the head, about 25-jointed; the basal joint broad, oblong, rugose, and carinated along the upper surface; the third and following joints very minute. Prothorax not more than half the length of the head, with an irregularly impressed line down the middle. Meso- and metathorax and abdominal segments smooth, entire; the latter gradually attenuated to the extremity of the ninth segment, which is slender and entire, exposing the two large, broad and setose caudal styles. The operculum is acute at the tip, which does not extend beyond two-thirds of the length of the ninth dorsal segment. The legs are of moderate length and slender.

Plate XXII. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

17. Bacillus Javanus.

Fuscus; antennis 16-articulatis, $2\frac{1}{2}$‴ longis; mesothorace scabro; metathorace et abdomine lævibus, medio dorsi

carinato; pedibus integerrimis elongatis submarmoratis; pedum anticorum tarsis articulo 1mo reliquis bis longiore; vagina vix usque ad apicem abdominis producta (fœm.).

Lat. corp. 1‴; long. corp. 2″ 5‴; mesoth. 7‴; metath. 5‴; ped. ant. 2″; ped. med. 1″ 5‴; ped. post. 1″ 9‴.

Phasma (Bacillus) Javanus, *De Haan, Orth. Orient.* p. 138. pl. 15. f. 8. fem.

Hab. Java.

Obs. In Fuessly's 'Archives,' Herbst has figured (pl. 51. f. 2, 3) an Indian insect which seems very closely to resemble De Haan's figure of *B. Javanus*. Herbst's description is, however, too vague to enable us to determine the question.

18. Bacillus Beroë, *Westw.* Plate XXII. fig. 2.

Gracillimus, subfiliformis, inermis; antennis brevissimis; meso- et metanoto cum abdomine linea tenuissima dorsali mediana notatis; segmentis abdominalibus e basi sensim attenuatis, lateribus longitudinaliter impressis; apice acuto; stylis caudalibus brevissimis; pedibus gracilibus inermibus (fœm.).

Long. corp. unc. 2, lin. 5; ant. lin. $2\frac{1}{2}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $6\frac{1}{3}$; metath. lin. 5; abdom. lin. 13+lin. 3= lin. 16.

Hab. In India orientali (*Mrs. Major Hamilton*). In Mus. Soc. Entom. Londinensis.

Olivaceous ash-coloured, with a paler very slender longitudinal dorsal and lateral line extending from the front of the mesothorax to the extremity of the abdomen; very slender and subfiliform, destitute of spines or tubercles. The head narrowed behind. Antennæ scarcely longer than the head, about 18-jointed; the first joint large, setose, and carinated along the upper surface; the third and following joints very short and rather irregular in size. The meso- and metathorax are each gradually widened from the middle to the insertion of the legs. The abdominal segments are marked on each side of the median line with three slightly raised elevated longitudinal lines; the segments are gradually narrowed to the extremity, which is slightly acuminated, with the two very short anal styles scarcely visible at the extremity. The operculum extends to the middle of the ninth dorsal segment. The legs are long, slender, and simple.

Plate XXII. Fig. 2. The female, of the natural size. 2 *b*. The terminal segments of the abdomen seen sideways.

19. Bacillus Regulus, *Westw.* Plate XXII. fig. 5.

Elongatus, gracilis, subconvexus; antennis brevibus; abdomine e basi ad apicem acutum attenuato; capite inter oculos bispinoso; metathorace longiori; abdominis apice longe fisso; operculo apicem abdominis longe superante; pedibus anticis simplicibus; femoribus 4 posticis irregulariter parce serratis; tibiisque prope basin externe foliolo parvo acuto instructis (fœm.).

Long. corp. unc. $3\frac{3}{4}$; ant. lin. 6; proth. lin. $1\frac{1}{2}$; mesoth. lin. 7; metath. lin. 6; abdom. lin. 20+lin. 5+operc. lin. 2 =lin. 27.

Hab. In India orientali (*Mrs. Major Hamilton*). In Mus. Soc. Entom. Londinensis.

Elongate, slender, subconvex, smooth, and entirely of an obscure brown colour. The head with two conical erect spines between the eyes. The antennæ about half as long as the fore femora, 20-jointed; the basal joint wide and flattened. The mesothorax of moderate length. The metathorax nearly as long as the mesothorax. The abdomen long, widest at the base, gradually attenuated to the tip, which is acute and deeply cleft. The operculum is very long, slender, and bent upwards, extending far beyond the extremity of the abdomen. The fore legs are long and slender; the four hind legs are shorter. The femora irregularly and widely serrated, as are also the tibiæ, which have a conical lobe on the outside near the base. The basal joint of the tarsi is long and slender.

Plate XXII. Fig. 5. The female, of the natural size. 5 *a*. The head and prothorax seen sideways. 5 *b*. The terminal segments of the abdomen seen sideways.

20. Bacillus Darnis, *Westw.*

Plate XXIII. fig. 2, male; fig. 3, female.

Fuscus, obscurus, subgranulatus, gracilis; pedibus gracilibus; capite postice elongato; antennis capite paullo longioribus; capite inter oculos tuberculis duobus parvis conicis instructo, alteris duobus in parte antica et duobus in parte postica pronoti; meso- et metathorace et segmentis abdominis versus marginem posticum spinula parva armatis; his etiam ad basin et apicem utrinque paullo dilatatis. Mas obscurior, linea dorsali metanoti, et basi femorum subrufis (mas et fœm.).

Mas. Long. corp. unc. $1\frac{1}{3}$; cap. lin. 1; proth. lin. $\frac{3}{4}$; mesoth. lin. 4; metath. lin. 3; abdom. lin. 7 + lin. 2= lin. 9.

Fœm. Long. corp. lin. $21\frac{1}{2}$; cap. lin. $1\frac{2}{3}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $4\frac{2}{3}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 8+lin. 2= lin. 10.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders. B.M.

This small slender species is of an obscure brown colour, the male being considerably darker, with a dorsal line along

the metanotum, and the base of the femora dark red. The male is very slender and cylindrical; it is not glossy, and is slightly granulose. The head is elongated and narrowed behind the eyes, between which, in both sexes, are two small conical points. The antennæ are rather longer than the head, and 20-jointed. The prothorax is armed at each extremity with two small spines. The mesothorax is long and slender, with several pairs of minute conical tubercles, and a large one, bifid at the apex, at the hinder extremity. The metathorax is rather shorter than the mesothorax; the hinder division very short, and armed, as well as the hinder extremity of the anterior division, with a raised point, as is also the case with each of the segments of the abdomen in the middle of its hinder margin. In both sexes each of the abdominal segments has the base and extremity slightly dilated on each side, arising from the presence of small lateral tubercles. The legs are long and slender; the femora slightly granulose. The female is more robust, with somewhat shorter legs; the surface of the body is more granulose; the elevated point at the extremity of the mesothorax is simple; and the operculum extends to the extremity of the abdomen. In the specimen of this sex before me, the left middle femur is armed with granules, and an erect spine near the base; but the middle leg on the right side is simple, probably having been reproduced.

PLATE XXIII. Fig. 2. The male, of the natural size. 2 *a*. The body seen sideways. 2 *b*. The four terminal segments of the abdomen seen sideways.
Fig. 3. The female, of the natural size. 3 *a*. The hind part of the thorax and the abdomen seen sideways.

21. **Bacillus Cuniculus**, *Westw.* PLATE VI. fig. 2.

Elongatus, gracilis, cylindricus; capite inter oculos spinis duabus auriformibus armato; antennarum articulo basali magno, dilatato; thorace abdomineque inermibus, hujus segmenti ultimi angulis posticis acute productis medioque parum inciso; femoribus anticis supra dimidio basali serratis, quatuor posticis subtus ante apicem spina armatis (fœm.).

Long. corp. unc. 6; cap. lin. $3\frac{1}{2}$; proth. lin. 2; mesoth. lin. 16; metath. lin. 12; abdom. unc. 2, lin. $7\frac{1}{2}$ + lin. 6 = unc. 3, lin. $1\frac{1}{2}$.

Hab. Ceylon. B.M.

Long, slender, cylindrical, smooth, dirty luteous-brown; the horns of the head and base of the abdomen dark brown. The head with two long curved spines between the eyes (like the ears of a rabbit). Basal joint of the antennæ broad and depressed. Meso- and metathorax long and simple, scarcely dilated at the base of the legs. Abdomen long, cylindrical and simple; the eighth segment very thick; the ninth longer, with its posterior lateral angles prominent; the middle of the hind margin slightly notched. The operculum extends to the extremity of the ninth dorsal segment, and is convex near its extremity. The legs are long and slender; the fore femora, from the base to the middle of the straight portion, are serrated on the upper edge; the four posterior femora are armed beneath near the tip with a small spine, and the four hind tibiæ are slightly serrated at the tip.

PLATE VI. Fig. 2. The female insect, of the natural size. 2 *a*. The head seen sideways. 2 *b*. The extremity of the abdomen seen sideways.

Obs. A small specimen, apparently of this species, in the collection of the East India House, brought from Java by Dr. Horsfield ("No. 5"), has the two horns of the head shorter, more foliaceous, with rounded serrated upper edges, and the following proportions:—

Long. corp. unc. $4\frac{1}{4}$; cap. lin. 2; anten. lin. 3; proth. lin. 2; mesoth. lin. 11; metath. lin. 8; abdom. lin. 22 + lin. 6 = unc. $2\frac{1}{3}$.

Another still smaller specimen, in the same collection, also from Java (Horsfield, "No. 4"), agrees with the last-mentioned specimen, but the head is oblong-cylindrical and entirely destitute of horns. Its measurement is as follows:—

Long. corp. unc. 3, lin. 7; cap. lin. $1\frac{3}{4}$; anten. lin. $5\frac{1}{2}$; proth. lin. $1\frac{3}{4}$; mesoth. lin. 9; metath. lin. $7\frac{1}{2}$; abdom. lin. 19 + lin. 5 = unc. 2.

This specimen seems to unite the present with the following species, from which last it, however, differs in the four posterior femora being furnished only with a small lobe-like spine on the under side near the tip.

The National Collection possesses several specimens, which might at first sight be mistaken for separate species. One of these, from Silhet, has the head large, oval, and flattened, of a dull luteous-brown colour, with two dark lines on each side behind the eyes; there is also only one spine on the upper edge of the middle femora near the base; and the meso- and metathorax are wider (probably arising from pressure in drying). Other specimens differ in the number of spines on the legs.

22. **Bacillus Hyphereon**, *Westw.* PLATE VI. fig. 1.

Elongatus, gracilis, cylindricus, lævis, luteus; capite inermi; antennis brevibus, 27–32-articulatis, articulo basali lato, depresso; abdomine e basi ad apicem sensim atte-

nuato, segmento apicali angulis apicalibus prominentibus; femoribus anticis supra serratis, intermediis prope basin supra 3-, 2- vel 1-foliaceo-spinosis, posticis prope basin 1-spinosis (fœm.).

Long. corp. unc. 5, lin. 5; cap. lin. 3; anten. lin. 12; proth. lin. 2; mesoth. lin. 14; metath. lin. 11; abdom. lin. 29+lin. 6=unc. 2, lin. 11.

Hab. In India orientali; Ceylon. B.M., &c.

Long, slender, cylindrical, smooth, and with the surface destitute of tubercles and spines. The head oval, simple. The antennæ short, not reaching beyond half the length of the fore femora; the basal joint very broad, oval and flattened. The segments of the thorax and abdomen are simple; the eighth segment of the latter the shortest; the ninth with its hinder angles prominent, and its hind margin slightly notched in the middle. The operculum is long, but does not extend beyond the extremity of the terminal segment of the abdomen; it is convex towards its apex. The legs are long and slender; the femora of the fore legs denticulated along the whole of the upper edge; the tibiæ long and slender; the middle legs shorter and rather thicker than the rest, the femora with three (sometimes two, rarely one) small foliaceous lobes near the base on the upper edge, and a more or less distinct spine on the under edge near the tip; the hind femora have a spine near the base on the upper edge, and another smaller on the under edge near the tip.

Plate VI. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

I am not satisfied as to the specific distinction between this and *Ph. Cuniculus*, depending as it does on the existence of horns on the head, and want of spines at the base of the middle legs in the latter, and *vice versâ* in the former.

The Entomological Society of London has received an Indian specimen of this species from Mrs. Hamilton, which appears still further to connect the present species with the preceding; having two diverging spines between the eyes; the mesothorax granulated; the middle femur on the right side with three foliaceous spines towards the base on the upper side, whilst there is only one on the left femur; the middle tibia on the right side is also three-spined on the upper edge, whilst the left one is only 1-spined; the hind femur has also one spine on the upper edge near the base. The proportions are as follow:—

Long. corp. unc. $4\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. $12\frac{1}{2}$; metath. lin. 10; abdom. lin. 24+lin. $2\frac{1}{2}$=lin. $26\frac{1}{2}$.

23. Bacillus Alauna, *Westw.*

Plate XXIII. fig. 6.

Elongatus, gracilis, cylindricus, lævis, olivaceo-fuscus, linea tenui laterali lutea; antennis capite dimidio longioribus; pedibus intermediis brevioribus, femoribus utrinque basin versus tuberculo parvo instructis; his et posticis apicem versus infra subspinulosis; tibiisque vix distincte serrulatis.

Long. corp. circ. unc. $3\frac{1}{2}$; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. 8; metath. lin. 6; abdom. segm. 6 basal. lin. 19.

Hab. In Indiæ orientalis regionibus septentrionalibus. In Mus. East India House.

Entirely smooth, and of an olivaceous-brown colour, with a slender pale luteous line down each side of the body; long, narrow, cylindrical. Head longer than wide, gradually narrowed from the eyes to the base, which is slightly elevated and divided into four parts or small tubercles. The antennæ are scarcely one and a half time longer than the head; the basal joint is oval and flattened; the remainder, twenty-three or twenty-four in number, are short and filiform. The mesothorax is slightly dilated above the base of the middle feet. The metathorax is long, its hinder division rather short. The six basal segments of the abdomen are cylindrical and simple; the three terminal segments are broken off in the unique specimen before me, so that I am unable to determine the sex. The fore legs are also wanting; the middle legs are comparatively short; the femora have two small lobes on the under side near the base on the opposite angles of the limb, and near the tip they have a minute spine on the under edge; the tibiæ are slender, with a few very minute and slender spines; the basal joint of the tarsi is about as long as the second and third joints together. The hind legs are rather longer and simple, except that the femora are armed with a minute spine on the under side near the tip.

This species seems to approach nearly to *B. Hyphereon* in its general characters.

24. Bacillus? Artemis, *Westw.*

Plate XXVI. fig. 9.

Elongatus, gracilis, cylindricus, granulis minutissimis obsitus; segmento 6to abdominis subtus spina deflexa armato, segmentis tribus terminalibus compressis; operculo vix apicem abdominis attingente; pedibus intermediis brevioribus, femoribus infra tuberculo parvo instructis; femoribus posticis basi inermibus, omnibus subtus apicem versus spinulis nonnullis minutis armatis (fœm.).

Long. corp. unc. 4, lin. 5; cap. lin. $2\frac{1}{4}$; proth. lin. 2; mesoth. lin. $10\frac{1}{2}$; metath. lin. 8; abdom. lin. 24+lin. 6 =lin. 30.

Hab. In Assam (*D. Jenkins*). In Mus. Westwood.

The antennæ of the unique specimen of this species in my collection being broken off beyond the basal joint, I am unable to determine precisely whether it belongs to this genus or not; but its apparent affinity to *Bac. Hyphereon* and *Alauna* and the dilated basal joint of the antennæ favour such an opinion. The head is rather longer than wide, gradually narrowed from the eyes to the base; the disk is convex (not acutely elevated at the base), covered with numerous minute granules, which are arranged in about seven irregular longitudinal rows. The basal joint of the antennæ is moderately large, nearly oval, depressed, with a small carina along the middle. The mesothorax is long and subcylindrical, but little dilated above the base of the middle legs. The metathorax is long, of equal width with the mesothorax, its hinder division rather short. The abdomen is long, more slender than the thorax; the segments simple, except the sixth, which is armed beneath at its extremity with a strong deflexed spine; the three terminal segments of the abdomen are compressed, the eighth segment being about half the length of the seventh segment; the ninth segment is subtruncate at its extremity, with the outer apical angles rather produced. The operculum is long and compressed, black and granular at its extremity, which does not quite reach the extremity of the abdomen; the two apical styles are small and deflexed. The fore legs are wanting; the middle ones are rather short; the femora furnished with a small conical leaflet on the under side; the under side near the apex is armed with several very minute spines; the tibiæ are armed with several minute and widely affixed spines; the basal joint of the tarsi is rather longer than the second and third joints taken together.

25. **Bacillus Amathia**, *Westw.* Plate XXIII. fig. 9.

Luteo-fuscus, opacus, subcylindricus; abdomine latiori, convexo; antennis capite vix duplo longioribus, articulo basali magno, dilatato; vertice ante medium spinis duabus acutis erectis armato; metathorace subbrevi; abdomine longitudinaliter striolato, segmentis tribus apicalibus brevioribus, stylis analibus latis ovalibus; pedibus (anticis deteritis) crassioribus; femoribus quatuor posticis ante apicem subtus spinula armatis tibiisque subspinulosis.

Long. corp. unc. $3\frac{1}{4}$; cap. lin. 3; anten. lin. 6; proth. lin. 2; mesoth. lin. 9; metath. lin. $5\frac{1}{2}$; abdom. lin. 15+ lin. 5=lin. 20.

Hab. In regionibus septentrionalibus Indiæ orientalis. In Mus. East India House.

This species is more robust than most of the preceding insects. It is entirely of a dull luteous-brown colour, not glossy, and destitute of tubercles. The head is oblong, slightly narrowed from the eyes to the hind margin, which is elevated and divided into several small tubercles; the front of the vertex is armed with two erect acute spines. The antennæ are not twice the length of the head; the basal joint is large, subovate and flattened; the third and remaining joints are filiform; the terminal ones very short. The metathorax is about half the length of the mesothorax; its hinder division is very short. The six basal segments of the abdomen are swollen, with several longitudinal striæ, a more conspicuous raised line down the middle of the back and in the middle of each side; the three terminal segments are short, compressed; the last rounded at its extremity, with two large oval anal styles. The operculum scarcely reaches to the extremity of the last dorsal segment. The fore legs are wanting in the unique specimen before me; the four hind ones are rather robust; the femora have a minute spine beneath near the tip; and the tibiæ are armed with a few minute and distant spines on each edge; the basal joint of the intermediate tarsi is as long as the three following joints together.

26. **Bacillus Souchongia**, *Westw.* Plate VII. fig. 8.

Gracillimus, filiformis, inermis; antennis fere longitudine mesothoracis, 18-articulatis; pallide luteus, linea tenui media fusca e capite ad anum extensa; abdominis segmentis apicalibus paullo latioribus, 8vo angulis posticis acuminatis deflexis, 9no subemarginato, stylis caudalibus longis et valde curvatis; pedibus longis, gracilibus, simplicibus (mas).

Long. corp .unc. $2\frac{1}{3}$; cap. lin. $1\frac{1}{2}$; anten. lin. 7; proth. lin. 1; mesoth. lin. $6\frac{1}{2}$; metath. lin. 5; abdom. lin. $11\frac{1}{4}$+ lin. $2\frac{1}{2}$=lin. 14.

Hab. In China. B.M.

Very slender and filiform; entirely destitute of spines or tubercular processes; entirely pale luteous, with a brown line down the centre of the thorax and abdomen on the upper side. The antennæ short (not quite so long as the mesothorax), 18-jointed, and very slender; the thoracic segments simple; the abdominal segments slightly thickened at the tips, the eighth segment having its posterior lateral angles acuminated and deflexed, the ninth segment gra-

dually widened; the outer apical angles rounded, the hind margin subemarginate, and furnished beneath near its extremity with two long curved setose styles, extending beyond the extremity of the abdomen, their tips meeting together; the three terminal ventral segments do not extend beyond the extremity of the eighth dorsal segment. The legs are long, slender, and simple.

PLATE VII. Fig. 8. The male, of the natural size. 8 *a*. The three terminal segments seen sideways. 8 *b*. Ditto seen from beneath.

27. Bacillus (Linocerus) gracilis.

Filiformis; thorace abdominis longitudine, glabro; viridescenti-brunneus; pedibus longis, gracilibus, simplicibus; capite parvo; antennis capite dimidio longioribus, 15-articulatis, articulis 1mo et 2do magnis depressis, reliquis moniliformibus.

Long. corp. 3″; anten. 6‴.

Linocerus gracilis, *G. R. Gray, Syn. Phasm.* p. 20.
Burmeister, Handb. d. Ent. ii. 2. 562.

Hab. In China. In Mus. Hope, olim, hodie haud inventus.

28. Bacillus Beecheyi.

Elongatus, gracilis, brunneus, glaber; capite inter oculos cornubus duobus brevibus armato; pedibus brevibus, obscure fasciatis; lineis elevatis striatis (fœm.).

Long. corp. 3″ 2‴; anten. 2‴; mesoth. lin. 8; metath. lin. 6; abdom. lin. 16+lin. 5=lin. 21.

Bacillus Beecheyi, *G. R. Gray, Syn. Phasm.* p. 21.
Burmeister, Handb. d. Ent. ii. 2. 562.

Hab. In Insulis Sandvicensibus. B.M.

In the type specimen preserved in the National Collection, the fore legs are broken off. The middle tibiæ are slightly dilated at the base beneath, with a small spine near the base above and another small one near the middle beneath; the hind femur is dilated, and armed with several small spines near the tip beneath; the tibia is dilated near the base beneath, and slightly serrated beyond the middle; the eighth dorsal segment of the abdomen is short, the ninth nearly twice the length of the eighth, carinated above and notched at its extremity, exposing a pointed anal lobe extending backwards more than half the length of the ninth segment; the two anal styles are very short, and the operculum does not extend beyond the middle of the ninth dorsal segment. The antennæ are at least 19-jointed, the third and following joints being very short and transverse.

29. Bacillus brunneus.

Filiformis, flavo-brunneus; thorace tuberculis parvis albis; pedibus brevibus; femoribus 4 posticis interne multidentatis; antennis capite vix longioribus.

"Long. corp. 2″ 11‴; anten. 3‴."

Bacillus brunneus, *G. R. Gray, Ent. Australia*, pl. 7. f. 3; *Syn. Phasm.* p. 21.
Burm. Handb. d. Ent. ii. 2. 562.

Hab. In Australia (Swan River). In Mus. Hope. B.M.

The typical specimen in the British Museum is now destitute of the abdomen; the antennæ are of the length of the head, with the basal joint short, broad, and nearly circular, with a broad carina down the middle; the mesothorax is marked with white tubercles, and all the femora are finely denticulated.

30. Bacillus australis.

Viridis aut brunnescens, maris vertice albido; fœminæ femoribus quatuor posticis subincrassatis, subtus utrinque rufo dentatis; tibiis posticis serratis (mas et fœm.).

Mas. Long. corp. unc. 3, lin. 7; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. 8; metath. lin. $6\frac{1}{2}$; abdom. lin. 21 +lin. 4=lin. 25.

Fœm. Long. corp. unc. $4\frac{3}{4}$; cap. lin. 3; proth. lin. 2; mesoth. lin. 10; metath. lin. 9; abdom. lin. 25+lin. 8= lin. 33.

Bacillus australis, *Charpentier, Orth. Descr.* pl. 57. male et fem.

Hab. In Australia. B.M.

Obs. The male has the body slender and filiform, and the female has the abdomen wider than the metathorax, but with the fourth, fifth and sixth segments gradually attenuated, the seventh, eighth and ninth slender; the abdomen in both sexes is terminated by two elongated, exserted, straight anal styles pointed at the tips, and the operculum of the female does not extend beyond the middle of the ninth dorsal segment. In numerous specimens in the National Collection from King George's Sound, the hind tibiæ are strongly serrated, and the thorax is entirely smooth.

Although closely allied to *B. brunneus*, the present species is quite distinct. The antennæ in both sexes are 23-jointed; they are filiform, not attenuated towards the tip; the basal joint twice the width of the following joints. There is a dark brown line down the whole of the back. The anterior femora are quite simple; the four hind femora have three rows of spines on the under side. The middle tibiæ are smooth, or with two or three minute serrations, and the two hind tibiæ have two rows of spines.

31. **Bacillus Dolomedes,** *Westw.* Plate V. fig. 4.

Gracilis, subcylindricus, subnitidus, pallide luteo-viridis; capite utrinque linea castanea pone oculos; mesonoto utrinque serie tuberculorum nigrorum lineaque castanea quæ per latera metanoti etiam extendit; stylis analibus operculoque valde elongatis; pedibus brevibus; femoribus serratis (fœm.).

Long. corp. unc. $4\frac{2}{3}$; cap. lin. $3\frac{1}{2}$; anten. lin. 8; proth. lin. 2; mesoth. lin. 11; metath. lin. 7; abdom. lin. 22+lin. 6+operc. lin. 4=lin. 32.

Hab. New Holland. B.M.

Long and rather slender, subcylindric, rather glossy, entirely pale luteous-green. Head rather large, destitute of spines. Antennæ short, not reaching the extremity of the fore femora. Meso- and metathorax marked on each side with a longitudinal chestnut line, which in the former bears a row of black tubercles. The abdomen is long, the segments gradually but slightly diminishing in size and width to the last, which is acute, bearing on its under side the two exserted anal styles. Operculum very long and boat-shaped, extending considerably beyond the last dorsal segment of the abdomen. The legs, especially the four posterior, are rather short; the fore femora curved at the base and widely serrated along the upper edge; the four hind femora are more robust and more strongly serrated beneath; the tibiæ are slender, the four posterior armed with two or three very minute spines.

Plate V. Fig. 4. The female, of the natural size. 4 *a*. The three terminal segments of the abdomen seen sideways.

32. **Bacillus Peristhenes,** *Westw.*

Plate VII. fig. 1, male. Plate VIII. fig. 2, female.

Luteo-viridis, elongatus, gracilis, filiformis; abdomine attenuato, stylis analibus valde elongatis, rectis, compressis; maris thorace inermi, lævi, fœminæ granuloso; pedibus gracilibus, omnino inermibus; femoribus utriusque sexûs serie punctorum minutorum nigrorum longitudinaliter disposita, omnibus inermibus (mas et fœm.).

Mas. Long. corp. unc. 2; cap. lin. 2; anten. lin. 5; proth. lin. 1; mesoth. lin. 4; metath. lin. 3; abdom. lin. 11 +lin. 3+styl. anal. lin. 3=lin. 17.

Fœm. Long. corp. unc. $3\frac{1}{4}$; cap. lin. $2\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $6\frac{1}{2}$; metath. lin. 4; abdom. lin. 19+lin. 5+styl. anal. lin. 4=lin. 28.

Hab. In Australia. B.M.

The male is luteous-green, smooth, slender, filiform, destitute both of spines and tubercles. The antennæ slender, reaching to about two-thirds of the length of the fore femora, 19- to 21-jointed; the basal joint rather narrow, the remainder of equal thickness throughout. The head beneath is white, with a black or brown lateral vitta extending from the eyes to the prothorax, the middle of the black mark being granulated with luteous; the crown with a small circular impression between the hind part of the eyes. The abdomen is long and slender with the sides nearly parallel; the third segment is deeply impressed on its under side; the two anal styles are transformed into a pair of long, thin, sabre-shaped filaments, extending far beyond the extremity of the body. The legs are moderately long, slender, and simple, each of the femora both in front and behind with a row of minute black dots. The basal joint of all the tarsi is as long as all the remaining joints.

The female is larger, with shorter legs, and the abdomen more attenuated from the middle to the extremity, which is furnished with a pair of anal styles not quite so long as the eighth and ninth dorsal segments united together; the operculum is very acute at its extremity, which reaches to about two-thirds of the length of the eighth dorsal segment, which is rather longer than the seventh; the meso- and metathorax are covered with minute granules, the former being furnished with minute rudimental tegmina.

Plate VII. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

Plate VIII. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of its abdomen seen sideways.

33. **Bacillus Peridromes,** *Westw.*

Plate VIII. figs. 2 *b*, 2 *c*.

Elongatus, gracilis, subcylindricus, obscure fuscus, inermis, lævis, impunctatus, haud nitidus; antennis fere longitudine mesonoti, apicibus sensim gracillimis; segmentis abdominis vitta laterali et sublaterali instructis; apice stylis duobus valde elongatis armato (fœm.).

Long. corp. unc. $2\frac{5}{8}$; cap. lin. 2; anten. lin. 10; proth. lin. $1\frac{1}{2}$; mesoth. lin. 8; metath. lin. $4\frac{1}{4}$; abdom. lin. $12\frac{1}{2}$ +lin. $3\frac{1}{2}$+styl. anal. lin. $2\frac{3}{4}$=lin. $18\frac{3}{4}$.

Hab. In Australia. B.M.

This species is closely allied to *B. Peristhenes*, but differs in the longer and very much attenuated antennæ, less parallel form of the body, and longer operculum, which reaches to the middle of the ninth dorsal segment; the antennæ are 21- or 22-jointed, gradually attenuated to the tips; the basal joint broad, with a channel along its upper surface; the body is smooth above; the head and prothorax with a very slender central impressed brown line; the mesothorax has three or four very fine granules on either side

near the base, and the abdominal segments have a lateral and sublateral slender carina on each side. All the legs are wanting in the single female specimen which I have seen in the British Museum collection.

PLATE VIII. Fig. 2 *b*. The head and antennæ. 2 *c*. The terminal segments of the abdomen, seen sideways.

34. Bacillus Crouanii.

"Supra brunneo-viridis, infra testaceus; antennis 20-articulis, complanatis; prothorace capitis latitudine, sed paulo breviore, duobus sulcis obsoletis cruciato; mesothorace lævi nec carinato; pedibus striatis; tarsis obsolete pilosis, primo articulo unà trium sequentium longitudine."

"Long. 70 mill., lat. 3½ mill."

Bacillus Crouanii, *Le Guillou in Guérin's Rev. Zool.* 1841, p. 293.

Hab. Hamoa.

35. Bacillus Hookeri, *White*.

Viridis; capite carina obliqua inter oculos et basin antennarum, vertice linea tenui nigra lineisque duabus nigris in lateribus deflexis capitis; hoc et thorace lævibus; pronoto linea tenui media antica nigra alteraque breviore postica; metanoto linea nigra media in parte antica; pedibus acute angulatis; femorum angulo unico vage serrato; tibiis inermibus; antennis nigris articulis duobus basalibus flavis.

Mas. Long. corp. unc. 2⅓; anten. lin. 7; proth. lin. 1½; mesoth. lin. 5; metath. lin. 4; abdom. lin. 11+lin. 4 = lin. 15.

Fœm. Long. corp. unc. 3½; anten. lin. 12; proth. lin. 2; mesoth. lin. 8; metath. lin. 7½; abdom. lin. 16+lin. 6+ styl. anal. lin. 2=lin. 24.

Bacillus Hookeri, *White in Zool. Voy. Erebus & Terror, Ins.* p. 24. pl. 6. f. 6.

Hab. New Zealand. B.M.

Obs. This species differs from *B. australis* especially in all the tibiæ being destitute of spines, and in the operculum of the female not extending beyond the extremity of the abdomen.

The male is very slender, the abdominal segments rather dilated at the extremity, the seventh conical and considerably dilated at its extremity; the eighth nearly twice the length of the seventh, obconic; the ninth short, with its lateral apical angles strongly deflexed and extended backwards, with the two anal styles elongated, exserted, curved and subclavate; the seventh and eighth ventral segments are very short, and the ninth does not extend beyond the middle of the eighth dorsal segment, it is swollen and has a conical protuberance near its base. The legs of the male are slender and scarcely serrated. The antennæ of both sexes extend nearly to the hinder extremity of the mesothorax, and are attenuated to the tip.

The female is subrugose, much broader than the male; the head and thorax distantly granulated, the anterior granules in front of the head arranged in a V-like mark; the abdomen gradually narrowed to the end of the sixth segment, the seventh gradually widened beneath, the eighth and ninth gradually narrowed to the tip (the eighth much longer than the ninth); the two anal styles are elongate, exserted, straight and attenuated; the operculum extends to the extremity of the abdomen; the legs have all the femora more or less widely serrated; the base of the fore femora is rosy or fulvous coloured.

36. Bacillus annulatus, *Westw.* PLATE VII. fig. 6.

Gracilis, subfiliformis, mesonoto et abdomine crebre granulosis; pallide griseus, segmentis abdominalibus basi obscure annulatis; antennis brevibus (longitudine prothoracis), circiter 15-articulatis; pedibus brevioribus simplicibus; abdominis segmento ultimo conico, stylis duobus longis conniventibus instructo (mas).

Long. corp. unc. 2⅙; anten. lin. 3½; proth. lin. 1; mesoth. lin. 5; metath. lin. 5; abdom. lin. 10+lin. 3½= lin. 13½.

Hab. ——? B.M.

Slender, subfiliform, destitute of spines, smooth, with the mesonotum and abdominal segments finely granulose; the general colour pale grey, with the abdominal segments banded at the base with blackish. A black line extends from the middle of the crown of the head to the front of the mesothorax, which with the metathorax is furnished on each side near the extremity with an elongated slightly raised space, whitish-grey coloured and finely punctured. The mesothorax is not longer than the metathorax, and has also a row of tubercles on each side; the three basal segments of the abdomen have a triangular dusky patch at the base of each, and the abdomen is greyish-white with some black punctures. The antennæ are short (not extending beyond the prothorax) and 16-jointed; the seventh abdominal segment is gradually dilated from the base to the extremity, and the eighth is as gradually narrowed; the ninth again is gradually widened, being truncate at its extremity, with two long anal exposed styles which cross each other; the three terminal ventral segments are very short, not extending to the extremity of the eighth dorsal segment, the

ninth ventral segment being swollen at its base. The legs are rather short and entirely destitute of spines.

PLATE VII. Fig. 6. The male, of the natural size. 6 *a*. The three terminal segments of the abdomen seen from the side.

Genus 2. **PACHYMORPHA.**

Pachymorpha, *G. R. Gray, De Haan, Serville.*
Bacillus, p., *G. R. Gray* (olim), *Burmeister.*

Body apterous, subcylindric or depressed, carinated down the middle and scabrous. Antennæ very short; basal joint large, depressed. Head often bicornuted. Legs generally rather short, the four posterior with denticulations on the upper edges; the basal joint of the fore tarsi not longer than the second joint.

1. (37.) Pachymorpha squalida.

PLATE XXII. fig. 4, female, var.

Subcylindrica, rugosa, brunneo-nigra albo mixta; capite bicorni; mesothorace abdomineque ad apicem in medio carinatis, hoc basi subdepresso et apice compresso; pedibus mediocribus, posticis quatuor externe subdentatis; antennis 11-articulatis (fœm.).

Long. corp. indiv. typic. $2''\ 1'''$; anten. $3\frac{1}{2}'''$; proth. $1\frac{1}{2}'''$; mesoth. $5'''$; metath. $4'''$; abdom. $8'''+5\frac{1}{2}'''=13\frac{1}{2}$.

Bacillus squalidus, *Hope, MS.*
G. R. Gray, Ent. Austral. p. 3. f. 2; *Syn. Phasm.* p. 21 (Pachymorpha squalida).
Serville, H. n. Orth. p. 260.
Burmeister, Handb. d. Ent. ii. 2. 562.
Hab. In Australia. In Mus. Hope.

A specimen of this species from New Holland, in the collection of the Rev. F. W. Hope, is represented in the accompanying figure (Plate XXII. fig. 4), differing from the typical specimen (also in the Hopean Collection) in its narrower form, in its much less rugose upper surface, in the horns of the head being small and conical (and not large rounded lobes), and especially in the different form of the terminal segments of the abdomen of the female, which in the type are strongly carinated, the eighth segment being elevated far above the ninth, which has its upper surface straight, but its under considerably sinuated.

Its proportions are as follow:—

Long. corp. unc. $2\frac{1}{2}$; anten. lin. 4; proth. lin. $1\frac{1}{2}$; mesoth. lin. 5; metath. lin. 4; abdom. lin. 10+lin. 7=lin. 17.

It is entirely of an obscure grey colour varied with brown, the upper surface slightly rugose and irregular, with a few scattered polished granules and short raised lines. The head is oblong, raised between the eyes, where it is armed with two short erect spines; the hind margin is elevated and slightly tubercled at its sides. The antennæ are about half as long again as the head, 11-jointed, the basal joint large and wide at its base, the upper surface with a raised line down the middle. The prothorax above is irregular, with an impressed line in the centre, and with two prominent granules in the middle of its fore margin. The meso- and metathorax and the abdominal segments have a raised line down the middle of the back; the five basal segments have the sides parallel, the sixth is gradually narrowed to its hinder extremity, the seventh is parallel at the sides; the eighth and ninth are long and gradually acuminated to the tip, which is entire and pointed, the two minute caudal styles not being visible from above. The operculum is small, and does not extend to the middle of the ninth dorsal segment; it is notched at its tip. The legs are rather short and entirely destitute of spines.

PLATE XXII. Fig. 4. The female specimen above described, of the natural size. 4 *a*. The head and prothorax seen sideways. 4*b*. The three terminal segments of the abdomen seen sideways.

Should this insect ultimately prove to be distinct, it may be allowed to retain the specific name of *Bacillus Pasithoë* which I had proposed for it.

2. (38.) Pachymorpha? simplicipes.

Corpore (præsertim fœminæ) rugoso, fusco-cinereo; thorace et abdomine carina dorsali, vertice cornubus duobus parvis depressis; capite postice subtuberculato; prothorace subquadrato, tuberculis duobus spiniformibus marginis antici; mesothorace tuberculis duobus spinosis marginis antici (in fœmina majoribus); metathorace mesothorace paullo breviori; abdomine fœminæ segmentis 4 vel 5 basalibus utrinque tuberculo parvo spinoso in margine postico; pedibus mediocribus, corpori concoloribus, in utroque sexu muticis (mas et fœm.).

Long. corp. maris 16 lin., fœm. 20 lin.

Pachymorpha simplicipes, *Serville, H. n. Orth.* p. 259.

Hab. In Nova Hollandia. In Mus. Paris.

Obs. The male of this species which I have examined, in the National Museum at Paris, has the penultimate segment of the abdomen much swollen, oval, and nearly twice the width of the preceding segment. I did not find the female.

3. (39.) **Pachymorpha Hystriculea.** PLATE I. fig. 4.

Fusca, rugosa, opaca, spinisque numerosis armata; lateribus mesonoti ferrugineis; segmentis apicalibus abdominis lutescentibus; antennarum articulis nonnullis intermediis apice obscuris; capite inter oculos tuberculis duobus instructo, abdominisque segmento 4to lateribus dilatatis folioloque dorsali spinisque armato; pedibus spinosis (fœm.).

Long. corp. lin. 20; anten. lin. 4; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. $3\frac{1}{2}$; abdom. lin. 7 + lin. 3 = lin. 10.

Hab. Nova Zealandia. B.M.

The head is widened from the hind part to the eyes, between which are two obtuse tubercles irregular at the top, and behind each of these is a row of small raised granules. The antennæ are very short, 16-jointed, with the seventh, tenth, thirteenth and sixteenth joints dark at the tips. The prothorax is as large as the head, with two small spines on its hinder part. The mesothorax is armed with two spines near its anterior extremity, two near the middle, and two near the hind margin, scarcely placed in regular pairs, and the hinder extremity is armed with several smaller spines. The metathorax bears a pair of spines near its fore end, and its extremity is dilated and armed with several divergent spines; the six basal segments of the abdomen are armed with a spine on each side near the base, the fourth segment being furnished with a dorsal and two lateral foliaceous rugose appendages; the terminal segments of the abdomen are narrower than the others. The operculum extends beneath the seventh, eighth, and base of the ninth segments; it is emarginate at its tip, and the ninth segment is furnished beneath near its tip with two deflexed styles. The body beneath is rugosely granulated, with a few small spines arranged symmetrically on the abdominal segments. The legs are of moderate length, the fore femora curved at the base, and slightly serrated on the upper edge; the four posterior femora are armed with three or four small spines both on the anterior and posterior margins; the tibiæ are furnished with a few small serratures.

PLATE I., Fig. 4. The female, of the natural size. 4 *a*. The head, pro- and mesothorax seen laterally. 4 *b*. The abdomen seen laterally. 4 *c*. The three terminal segments seen beneath.

4. (40.) **Pachymorpha? Omphale,** *Westw.*
PLATE II. fig. 5.

Lutea (viridis insecto vivente?), opaca, supra carina longitudinali mediana alterisque tribus minoribus utrinque e capite ad anum extensis, corpore e fronte ad segmentum 6um abdominis sensim dilatato, segmentis reliquis attenuatis; cercis duobus analibus porrectis; operculo fere ad apicem abdominis extenso (fœm.).

Long. corp. lin. 20; anten. lin. 3; proth. lin. 1; mesoth. lin. $3\frac{1}{2}$; metath. lin. 3; abdom. lin. $7\frac{1}{2}$ + lin. 3 = lin. $10\frac{1}{2}$.

Hab. In Africa australi. B.M.

Entirely opake and of a dirty luteous colour (probably green whilst alive), and distinguished by a strong raised line extending down the middle of the back from the head to the extremity of the body, having moreover three slender carinæ on each side of the central one, the middle one of the three on each side being less distinct than the other two; the outer margin of the body is acute and margined; beneath, the body is furnished with five similar longitudinal carinæ, besides another on each side close within the lateral margin. The head is rather small. The antennæ very short, about 20-jointed, the basal joint being large and dilated. The body is gradually dilated from the head to the sixth segment of the abdomen, behind which it is attenuated, being terminated by two small oval appendages; the operculum itself nearly extending to the extremity of the ninth segment of the abdomen. The legs are short and simple, the anterior femora curved at the base; the tibiæ are straight and slender.

PLATE II. Fig. 5. The female, of the natural size. 5 *a*. Antenna magnified. 5 *b*. The three terminal segments of the abdomen seen laterally.

Genus 3. ANISOMORPHA.

Anisomorpha, *G. R. Gray, Burm., De Haan.*

Body rather short, cylindrical in the male, robust and subdepressed in the female, glabrous. Antennæ moderately long, multiarticulate, second and third joints of equal length. Legs unequal, those of the males long, those of the females short and robust; basal joint of the tarsi short. Mesothorax occasionally furnished with rudimental tegmina.

1. (41.) **Anisomorpha ferruginea.**

Fusco-ferruginea, aptera; mas filiformis; pedibus corpore longioribus, viridibus.

Fœmina ovato-oblonga; pedibus corpore brevioribus; mesothorace nec non abdominis basi utrinque vitta viridi.

Long. corp. maris 1″ 6‴, fœm. 2″ 3‴.

Phasma ferruginea, *Pal. Beauv. Ins. Orthopt.* pl. 14. f. 6, 7.
G. R. Gray, Syn. Phasm. p. 18 (Anisomorpha ferruginea).
Burmeister, Handb. d. Ent. ii. 2. 570.

Hab. In Carolina et Virginia.

2. (42.) Anisomorpha buprestoides.

Mas. Flava, post mortem rufo-fusca, linea media dorsali nec non utrinque laterali nigra; pedibus nigro lineatis; antennis rufo-brunneis.

Long. corp. mas 1″ 10‴; anten. 10‴. Fœm. 3″ 1‴; anten. 1″ 1‴.

Fœm. Phasma buprestoides, Le Spectre Air d'Escarbot, *Stoll, Spectr.* pl. 23. f. 87 (fem.).
G. R. Gray, Syn. Phasm. p. 19 (Anisomorpha buprestoides).
Spectrum bivittatum, *Say, Amer. Ent.* iii. pl. 38.
Mas. Phasma vermicularis, *Stoll, Spectr.* pl. 23. f. 88.
Burmeister, Handb. d. Ent. ii. 2. 570.

Hab. In Georgia Americæ septentrionalis. B.M.

3. (43.) Anisomorpha Bogotensis.

Brevis, nigra, nitida; capite quadrato; prothoracis stigmatibus anticis marginatis; mesothorace prothorace linea dimidia longiore; elytris alisque minimis, ovatis, fuscis; pedibus brevibus; operculo apicem abdominis attingente (mas et fœm.).

Lat. mesoth. 2⅔‴. Long. corp. 12½‴; proth. 1½‴; mesoth. 2‴; ped. ant. et med. 9‴; ped. post. 10‴.

Bacteria Bogotensis, *Goudot in Guérin's Mag. de Zool.* 1843, *Ins.* pl. 125.
Phasma (Anisomorpha) unicolor, *De Haan, Orth. Orient.* p. 102.

Hab. Santa Fé de Bogota. B.M., Mus. Saunders, &c.

Numerous specimens of this species, in all stages of growth from the egg to the imago, are in Mr. Saunders's collection, received from M. Goudot himself. The alary tubercles appear as minute oval lobes immediately beneath each of the posterior lateral angles of the mesonotum and of the anterior half of the metanotum; they are equally developed in both sexes, and appear when the insect is not above one-fourth of its full size. When the insect is full-grown, they are pale straw-coloured, depressed, and with the surface marked with a number of small impressions. The fourth segment of the abdomen of the male is armed beneath with two deflexed obtuse spines. The legs are clothed with short hairs.

4. (44.) Anisomorpha Roulinii.

Plate XXV. fig. 10, male; fig. 11, female.

Nigra, nitida, lævis; femoribus læte fulvis, apice nigris; meso- et metanoto inermibus; abdominis maris segmento 4to subtus integro, apicali rotundato, postice inciso, fœminæ integro; operculo fœminæ apicem abdominis attingente (mas et fœm.).

Mas. Long. corp. lin. 9½; anten. lin. 7; proth. lin. 1; mesoth. lin. 1½; metath. lin. 1½; abdom. lin. 3+lin. 2= lin. 5.

Fœm. Long. corp. lin. 13; anten. lin. 6½; proth. lin. 1¾; mesoth. lin. 1¾; metath. lin. 1¾; abdom. lin. 4+lin. 2= lin. 6.

Bacteria Roulinii, *Goudot, MS. in Guérin's Mag. de Zool.* 1843, p. 4.

Hab. In Cordillera orientali, Paramos; Nova Granada (*M. Goudot*). In Mus. Saunders.

Closely allied and very similar in general characters to *An. Bogotensis*, but at once distinguished by the striking contrast of the colour of its thighs to the rest of the body, and by the want of the alary tubercles.

The male is slender, subcylindrical; the female broader, especially across the middle of the body; black, glossy, destitute of spines or tubercles. The antennæ are about two-thirds of the length of the body in the male, and about half its length in the female. The mesothorax is but little longer than the prothorax. The male has the three terminal ventral segments very much swollen, but not extending beyond the eighth dorsal segment; the anal styles are larger and incurved. The operculum of the female is thin, acute, and bent upwards at the tip. The legs are moderately long, simple, entirely black, except the femora, which are fulvous red, with the tips black.

Plate XXV. Fig. 10. The male, of the natural size. 10 *a*. The terminal segments of the abdomen seen sideways.
Fig. 11. The female, of the natural size. 11 *a*. The terminal segments seen sideways.

5. (45.) Anisomorpha Paromalus, *Westw.*

Plate IV. fig. 1, male. Plate III. fig. 5, female.

Nigra, nitida; capite et thorace toto utrinque vitta longitudinali castaneo-rufa; antennis pedibusque piceis; capite, pro- et metathorace inermibus; mesothorace versus angulos anticos spinuloso; pedibus brevibus, anticorum femoribus ad basin parum curvatis; abdomine inermi, maris apice clavato, fœminæ e basi ad apicem sensim attenuato, apice rotundato.

Long. corp. maris unc. 1½; anten. lin. 10; proth. lin. 1⅔; mesoth. lin. 3; metath. lin. 2¾; abdom. lin. 7+lin. 2½= lin. 9½.

Long. corp. fœm. unc. 2⅓; anten. lin. 14; proth. lin. 2¾; mesoth. lin. 5; metath. lin. 4½; abdom. lin. 10+lin. 3= lin. 13.

Hab. Venezuela (*Dyson*). B.M.

Glossy black; the head, pro-, meso- and metathorax with an ill-defined longitudinal chestnut-red vitta on each side; the legs and antennæ pitchy; the body beneath pitchy-black and rather glossy. The head has two minute impressions near the anterior margin behind the antennæ, and two others in the front of the crown. The head, pro- and metathorax, as well as the abdomen, are destitute of spines; but the mesothorax is spinulose towards the anterior angles. The body is gradually widened from the head to the middle legs; the metathorax is rather oblong, the sides slightly dilated. The abdomen of the male is gradually narrowed from the base to the seventh segment, which, with the eighth and ninth, form a short oval club, the ninth being notched at the tip, with two curved setose styles beneath; the terminal ventral segment does not extend to the middle of the ninth dorsal one; the eighth ventral segment being short and constricted at the sides. The abdomen of the female is gradually narrowed from the base to the ninth segment, which is rounded behind, exposing the extremity of the two styles (fig. 5 *a* **). The operculum does not extend beyond the middle of the ninth dorsal segment, exposing a flattened bipartite membranous piece (5 *a* ♂). The legs are rather short and robust, entirely simple; the fore femora scarcely curved at the base.

PLATE IV. Fig. 1. The male, of the natural size. 1 *a*. The three terminal segments of the abdomen seen from beneath. 1 *b*. The same seen sideways.

PLATE III. Fig. 5. The female, of the natural size. 5 *a*. The terminal segment of the abdomen seen from beneath. 5 *b*. The same seen sideways.

6. (46.) Anisomorpha pardalina, *Westw.*

PLATE V. fig. 1, male; fig. 2, female.

Crassa, subcylindrica, glabra, obscure virescenti-albida, obscurius variegata; abdomine nitido, lutescenti maculis striolisque castaneis, tegminibus obscure viridi-fuscis, reticulatis; pedibus perbrevibus, robustis, inermibus, anticis basi haud curvatis (mas et fœm.).

Long. corp. maris unc. 2, lin. 5; anten. lin. 10; proth. lin. $3\frac{1}{2}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. 11 + lin. $4\frac{1}{2}$ = lin. $15\frac{1}{2}$.

Long. corp. fœm. unc. $3\frac{1}{4}$; anten. lin. 10; proth. lin. $4\frac{1}{2}$; mesoth. lin. 5; metath. lin. 5; abdom. lin. 15 + lin. $6\frac{1}{2}$ = lin. $21\frac{1}{2}$.

Hab. Chili. B.M.

The male is glabrous and coloured in the same way as the female, but with the markings more suffused (possibly the effect of grease). The head is short and broad, punctured on the disc with two minute impressions between the eyes; the upper lip is prominent and rounded; the antennæ are short and 20-jointed. The prothorax is wider than the head, with the anterior angles rounded, exposing the spiracles; the disc is rather uneven and slightly punctured. The mesothorax is considerably dilated, its dorsal portion elevated, and furnished at its hind part with a pair of flat, semiovate, elytriform, dark greenish-brown wing-cases, strongly reticulated, but immoveable, and only extending over the basal part of the metathorax, which latter is spotted like the segments of the abdomen, and bears a pair of minute rudimental wings, of a dirty straw colour, and soldered to the surface at its base. The abdomen is elongate, gradually narrowed from the base to the seventh segment in the male, the three terminal segments forming an oval mass; the three terminal ventral segments short and gaping widely, exposing the complicated male organs of generation. The abdomen of the female is broader and swollen, the lateral margins being more membranous than the disc; it is gradually narrowed from the base to the extremity, which is rounded and entire. The operculum is short and flat, not extending beyond the middle of the eighth dorsal segment. The legs are dirty olive-brown, mottled with buff; they are short and very strong, and entirely destitute of spines; the fore femora are not bent at the base. The body beneath is pale luteous-buff, very slightly spotted with dark brown.

PLATE V. Fig. 1. The male, of the natural size. 1 *a*. The three terminal segments of the abdomen seen from beneath. 1 *b*. The same seen sideways. **. The two anal styles. †. A small, central, curved, horny point. ‡. Two horny, flattened, curved appendages; the right-hand one (as seen from below) much longer than the other. *o o*. Two conical elongated leathery lobes.

Obs. There is only one fully-developed male in the National Collection, and the anal appendages may possibly have become distorted in their position whilst drying.

Fig. 2. The female, of the natural size. 2 *b*. The three terminal segments of the abdomen seen laterally. 2 *a*. The same seen from beneath.

7. (47.) Anisomorpha crassa.

Fusca, subnitida; capite punctato-granulato, præsertim in mare; antennis fusco-testaceis, basi obscurioribus; mesothorace prothoracis longitudine; elytris squamiformibus, valde reticulatis; pedibus crassis, carinatis, punctatis.

Long. corp. maris lin. 18; fœm. lin. 24–30.

Anisomorpha crassa, *Blanchard in Gay's Hist. Chili*, vi. p. 28. pl. 1. f. 7.

Hab. Chili. Mus. Paris.

The National Museum in Paris contains several specimens of this species, which I have examined, and which differ considerably from each other. The specimen represented in M. Gay's work is a large female, which bears a strong general resemblance to, and has rudimentary tegmina as fully developed and the abdomen as gradually attenuated as in, the female of *An. pardulina*. Others, of a much narrower form, with the sides of the body nearly parallel, have the hind margin of the mesothorax dilated at each side, with a deep rounded notch in the middle. These are evidently males, the largest measuring as follows:—Head, 2 lines; prothorax, $2\frac{1}{4}$ lines; mesothorax (to extremity of lateral scales), $3\frac{1}{2}$ lines; metathorax, 3 lines; abdomen, 11 lines: total, 23 lines.

Another specimen, which is evidently a female, measures more than half an inch longer than the specimen figured in M. Gay's work, its dimensions being:—Head, 2 lines; prothorax, $3\frac{1}{4}$ lines; mesothorax, $4\frac{3}{4}$ lines; metathorax, $4\frac{1}{4}$ lines; abdomen, 18 lines = 33 lines, or $2\frac{3}{4}$ inches. It has the thoracic portion of the body considerably narrower than the female figured by M. Gay; the prothorax is nearly square and smooth; the mesonotum rather oblong and only slightly emarginate behind, without any decided indication of the rudimentary wing-scales; the metanotum rather oval, and the abdominal segments gradually attenuated to the tip. From these characters there seems to me to be reasonable doubt whether this specimen, from its larger size, can be a female of this species with the wing-covers undeveloped. I should be rather inclined to consider it as a distinct species, for which I would propose the provisional specific name of *An. grylloides*.

8. (48.) Anisomorpha flavomaculata.

Picea; prothoracis maculis irregularibus, mesothoracis maculis quinque, metathoracis maculis duabus lateralibus, femorumque basi obscure lutescentibus.

Long. 50 millim.

Anisomorpha flavomaculata, *Blanchard in D'Orbigny, Voy. Amér. Mérid. Entomol.* p. 215. pl. 26. f. 6.

Hab. In Bolivia, Santa Cruz, sub corticibus arborum emortuarum.

9. (49.) Anisomorpha Semele, *Westw.*

PLATE XXV. fig. 7.

Nigra, lævis, nitida, inermis; capite et pedibus piceis; capite subquadrato, inter oculos bi-impresso; prothorace capitis magnitudine; mesothorace lateribus dilatatis, margine postico recto; metathorace paullo breviori, margine postico recto; segmentis abdominalibus sensim angustioribus, intermediis impressione transversa versus marginem posticum, segmento apicali oblongo-ovali, apice rotundato; operculo apicem abdominis attingente; pedibus posticis, subbrevibus, simplicibus (fœm.).

Long. corp. fœm. lin. 17; (anten. fractæ); proth. lin. 2; mesoth. lin. 3; metath. lin. 3; abdom. lin. 5 + lin. 3 = lin. 8.

Hab. The Andes; Peru. B.M.

The only specimen I have seen of this species is a very imperfect female in the National Collection. It is jet-black, impunctate, very glossy, and has the head and hind legs pitchy; it is smooth, and destitute of spines or tubercles. The head and prothorax are of nearly equal size; the former has the sides behind the eyes nearly straight, and the crown of the head is marked with two impressions between the eyes. The prothorax is slightly margined at the sides, the anterior angles spiraculiferous. The mesothorax is gradually widened from the anterior margin to the middle, from whence to the base the sides are nearly parallel; it is impressed on each side within the lateral margin and slightly in the middle of the disc; the hind margin is straight, and destitute of rudimentary wing-scales. The metathorax is as broad as the widest part of the mesothorax, subconvex; the lateral margin constricted rather before the middle, exposing the dilated flanks of the metasternum. The abdomen is gradually narrowed from the base to the extremity; the three terminal segments are arched above, the ninth being obtusely rounded and exposing the extremity of the operculum, which extends beneath the three terminal joints; the two anal styles are very short and ovate. The four fore legs are wanting; the two hind ones are short, strong and simple.

PLATE XXV. Fig. 7. The female, of the natural size. 7 *a*. The three terminal segments seen sideways.

10. (50.) Anisomorpha ? Cerberus, *Westw.*

PLATE I. fig. 6.

Nigra, glabra, nitida (femorum anticorum basi tantum albida); mesothorace supra antice tuberculo magno ovali lævi instructo; hoc et metathorace postice elevatis, dilatatis; abdomine angusto, segmentis 7 et 8 incrassatis, 9no profunde bifido; antennis brevibus; pedibus valde elongatis, gracilibus; femoribus versus apicem subtus serrulatis (mas).

Long. corp. unc. $2\frac{1}{3}$; anten. lin. 11; proth. lin. 2; mesoth. lin. 5; metath. lin. 3; abdom. lin. 10 + lin. 5 = lin. 15.

Hab. Ceylon. B.M.

The entire body is glossy black and smooth, the fore femora alone being dirty buff at the base; the body beneath is smooth and polished, with the joints simple. The head is oval, convex, polished and smooth, with two small impressions in front of the crown. The antennæ are short, 16-jointed, the basal joint small, the second square, the remainder oblong and setose. The prothorax is widest behind the middle. The mesothorax is constricted at its base, rather dilated before the middle, narrowed again behind the middle, and dilated at its hind part; the swollen anterior part bears a large oval raised tubercle. The metathorax is more than half the length of the mesothorax, dilated behind the middle, where, as well as near the base, it is furnished with a raised transverse ridge. The abdomen is long and rather slender, the fourth segment being the narrowest, whence it is gradually dilated to the eighth joint, which is swollen at its sides; the ninth joint being considerably narrower, shorter, and deeply notched, the two divisions of the notch being deflexed; the ninth ventral segment is also swollen beneath, and notched at its extremity, which does not extend to the extremity of the dorsal surface; the basal segments are transversely swollen across the hind part, and the hind ones are marked with longitudinal impressions. The legs are very long and slender, the fore femora but slightly curved at the base, and all the femora finely serrated from the middle to the extremity on the under side.

PLATE I. Fig. 6. The male, of the natural size. 6 *a*. The head, thorax, and first abdominal segment seen laterally. 6 *b*. The four terminal segments of the abdomen seen laterally.

I am induced to place this insect in the present genus on account of its uniform black colour and polished surface. It ill accords, however, with the preceding species, owing to the great length of its legs and the nodose structure of its thoracic segments.

Genus 4. DIAPHEROMERA.

Diapheromera, *G. R. Gray, Serville.*
Bacteria, p., *Burmeister, De Haan.*

Body elongate; that of the male cylindric, that of the female broader and somewhat thickened. Thorax long, glabrous. Abdomen shorter than the thorax. Legs long; intermediate femora in the male thickened and spined, in the female slender and simple. Antennæ elongated.

1. (51.) Diapheromera Sayi.

Viridescenti-brunnea; capite flavescenti fasciis tribus fuscis; femoribus anticis viridibus, intermediis in mare crassis, flavo-brunneis, fusco-annulatis, quatuor posticis subtus juxta apicem spina picea acuta armatis. Fœmina paullum incrassata, cinerea, robusta; pedibus gracilibus, quatuor posticis spinosis.

Long. corp. mas et fœm. 2″ 9‴; anten. mas, 2″ 9‴; fœm. 1″ 9‴.

Spectrum femoratum, *Say, Amer. Ent.* iii. pl. 37.
Diapheromera Sayi, *G. R. Gray, Syn. Phasm.* p. 18.
Serville, H. N. Orth. p. 247.
Burmeister, Handb. d. Ent. ii. 2. 566.
De Haan, Orth. Orient. p. 134 (Bacteria, sp.).

Hab. In America septentrionali. B.M.

2. (52.) Diapheromera calcarata.

Femoribus concoloribus; posticis 4 subtus ante apicem spina armatis; spinis mediorum crassioribus et longioribus (mas).

Long. corp. 2″ 9‴.

Bacteria (Bacunculus) calcarata, *Burmeister, Handb. d. Ent.* ii. p. 566.
De Haan, Orth. Orient. p. 134.

Hab. In Mexico.

Genus 5. BACTERIA.

Bacteria, *Latreille, Serville, G. R. Gray, De Haan, Burmeister.*

Body apterous in both sexes, that of the male slender, filiform, of the female more robust, cylindric. Head small, sometimes cornuted. Antennæ long, setaceous. Thorax smooth, or but slightly rugose, nearly as long as the abdomen. Abdomen of moderate length, or long; glabrous. Legs long, equal in length in the opposite sexes, simple, and without membranous lobes to the thighs; basal joint of the tarsi sometimes dilated, erect, longer than the three following.

1. (53.) Bacteria Calamus.

"Filiformis, cylindrica, aptera, virescens; antennis setaceis, flavescentibus; capite lævo, glabro, flavescenti, corpore magis obscuro; pedibus flavescentibus; femoribus lineis elevatis striatis." (*Fabr.*)

Mantis Calamus, *Fabricius, Ent. Syst.* ii. p. 13; *Ent. Syst. Suppl.* p. 187 (Phasma Cal.).
Serville, Ann. Sci. Nat. xxii. p. 64 (Bacteria Cal.).
G. R. Gray, Syn. Phasm. p. 17 (ibid.).
Burm. Handb. d. Ent. ii. 2. p. 564 (ibid. fœm.).
Lichtenstein in Linn. Trans. vi. p. 10.
Latreille, Gen. Crust. et Ins. iii. p. 88.
Lamarck, An. s. Vert. iv. 255 (Spectrum Cal.).

Hab. In Insula Sanctæ Crucis (*Fabr.*); Surinam, Brazil (*Burm.*). B.M.

The above description is copied from Fabricius, and it will be seen that it affords no absolute characters either for the determination of the species or sex of the insect which served for the Fabrician description, and which was contained in the Collection of Lund. The insect which was regarded as this species by Mr. G. R. Gray, in the Collection of Mr. Children, is now in the British Museum Collection. It is a female, measuring 3 inches 7 lines in length, and was received from the Rev. L. Guilding of St. Vincents. The description given by Mr. G. R. Gray is—"Virescens, corpore subplano, subscabro, linea media elevata; femoribus lineis elevatis striatis." The proportions of the body are—Head, lin. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. $10\frac{1}{2}$; metath. lin. $4\frac{3}{4}$; abdom. lin. 17+lin. 5=lin. 22. The abdomen is destitute of dorsal appendages, and is gradually narrowed to the extremity, where it is slightly truncated, exposing the two small anal styles. The operculum varies in length in different specimens; the full-grown individuals having it extended beyond the last segment of the body about the length of this joint; in others it only reaches to the extremity of the body.

The insect, however, which Dr. Burmeister regards as *B. Calamus*, is quite distinct from that above described by Gray. His character is—

B. Calamus, abdominis segmento 4to supra pone marginem posticum lobato. Mas: lævis, tarsorum articulo 1mo subcristato; relatio mesothoracis ad metathoracem=3:2; abdominis segmento penultimo utrinque processu acuto dependente. Fœmina: subscabra, thorace spinoso, tarsorum articulo 1mo cristato; relatio mesothoracis ad metathoracem=8:5.

Long. corp. maris 4″ 9‴; fœm. 7″ 1‴.

The male is referred to Stoll's fig. 81 (not 87 as misprinted in Burmeister); but Stoll's insect is nearly $5\frac{1}{2}$ inches long, and his figure neither represents any lobe on the fourth dorsal segment of the abdomen, nor any dilatation of the basal joint of the tarsi; whilst the female described by Burmeister is twice the length of Guilding's specimen described by Gray. An examination of the Lundian specimen, if still in existence at Kiel, can alone solve this question.

Stoll's figure 81, on the other hand, is given by Mr. G. R. Gray as the larva of a species of *Cladoxerus* ("*C. filiformis?*" G. R. Gray); and in the Paris Museum I found a similar male sent from 'De la Mana' by Leschenault, named *Cladoxerus gracilis*, fem.* I entirely agree with Dr. Burmeister in regarding Stoll's figure as the male of a large species of *Bacteria*; but it appears to me uncertain to which species it really belongs.

* M. Serville also (Ann. Sc. Nat. xxii. p. 60) regards this figure of Stoll as the larva of a male of the genus *Cladoxerus*.

2. (54.) Bacteria Canna.

Abdomine cylindrico; tarsorum articulo 1mo cristato, medio angulato; pedum mediorum femoribus prope basin unilobatis. Mas. Mesothorace lævi; tarsorum articulo 1mo reliquis longiore.

Long. corp. 5″ 4‴; mesoth. 1″ 6‴; metath. 1″.

Fœmina. Mesothorace spinoso vel spinuloso; tarsorum articulo 1mo reliquis æquali.

Long. corp. $7\frac{1}{2}$″; mesoth. 2″; metath. 14‴.

Phasma (Bacteria) Canna, *De Haan, Orthopt. Orient.* p. 101.

Hab. Apud Promont. Bon. Spei.

"*Obs.* Affine *B. muricatæ* Illig., Burm., sed majus."

3. (55.) Bacteria simplicitarsis.

"*B. Arumatiæ* affinis, pedibus gracilibus, tarsorum articulo 1mo longo simplici."—*G. R. Gray.*

Bacteria simplicitarsis, *G. R. Gray, Syn. Phasm.* p. 43.

Hab. ——? B.M.

Obs. The typical specimen of this insect, described as above by Mr. G. R. Gray, is in the National Collection. It is $6\frac{3}{4}$ inches long; the relative lengths being—head, lin. 3; prothorax, lin. $2\frac{3}{4}$; mesothorax, lin. 20; metathorax, lin. 13; abdomen, lin. 35 + lin. 6 = lin. 41. The three terminal segments of the abdomen are very short, the last nearly square, with the anal styles very short, but exserted at the hinder angles of the joint; the operculum extends beyond the last joint to about the length of the latter; the four hind femora are simple, except near the tips beneath, where they are armed with a small conical spinose lobe or compound spine.

4. (56.) Bacteria Baucis, *Westw.* Plate VIII. fig. 8.

Elongata, subgracilis, pallide lutescens (viridis insecto vivente?), lævis; corpore inermi, subcylindrico; segmenti basalis abdominis margine laterali membranaceo setoso, segmentis duobus ultimis brevioribus, 9no in medio marginis postici inciso; antennis et pedibus elongatis; femoribus omnibus versus apicem subtus spina instructis (fœm.).

Long. corp. unc. $4\frac{1}{3}$; anten. lin. 40; proth. lin. $2\frac{3}{4}$; mesoth. lin. $12\frac{1}{2}$; metath. lin. 7; abdom. lin. 23+lin. 5 =lin. 28.

Hab. ——? B.M.

Body moderately slender, elongate, subcylindric; the mesothorax rather narrowed in front, entirely pale luteous buff; a slender line extending down the middle of the thoracic and abdominal segments; the body entirely destitute of spines; the head slightly tubercled behind. The antennæ long and slender. The meso- and metathorax slightly dilated at the place of insertion of the legs. The basal segment of the abdomen has the lateral connecting membrane clothed with short brown setæ set at right angles to the body; the eighth and ninth segments are short; the ninth with the outer terminal angles rounded, and the apical margin notched in the middle; the short anal styles are visible at the sides; the operculum extends to the extremity of the ninth dorsal segment, it is acute at the tip, and very slightly swollen beneath in the middle. The legs are of moderate length; and all the femora are armed on the under side near the tip with a small spine.

PLATE VIII. Fig. 8. The female, of the natural size. 8 *a*. The terminal segments of the body.

Another somewhat smaller specimen from the Swainsonian Collection has the membranous connexion between the dorsal and ventral surfaces of the hinder segments furnished with short setæ.

5. (57.) Bacteria Arumatia, *Stoll.*

PLATE XXIII. fig. 4, var.?

Fusca, testaceo-annulata; pedibus aliquanto corpore brevioribus; tarsorum articulo 1mo triangulari erecto; corpore in utroque sexu lævi, inermi.

Long. corp. maris 4″ 8‴; fœm. 6″ 7½‴—7″.

Small Brazil Quill Locust, *Petiver, Gazoph.* tab. ix. fig. 2, cut 551.

Phasma Arumatia (Le Branche de Bouillot), *Stoll, Spectr.* pl. 13. f. 51 ♀.
G. R. Gray, Syn. Phasm. p. 16.
(Bacteria arumatia) *Serville, H. N. Orth.* p. 223.

Mantis baculus, *Roesel, Ins. Bel. Gryll.* pl. 19. f. 10.
Oliv. Enc. Méth. vii. p. 638. no. 71. pl. 13. f. 2.

Mantis Ferula, *Fabr. Ent. Syst.* ii. p. 12; *Ent. Syst. Suppl.* p. 187 (Phasma ferula).
Latreille, Gen. Cr. et Ins. iii. p. 88.
Lichtenst. Linn. Trans. vi. p. 10. no. 1.
Serville, Ann. Sc. Nat. xxii. p. 64 (Bacteria ferula).
Burmeister, Handb. d. Ent. ii. 2. 564 (B. ferula, fem.).
Lamarck, An. s. Vert. iv. 255 (Spectrum ferula).

Hab. In India occidentali, Guadeloupe. B.M.

The female of this species is tolerably well represented by Stoll, whose figure exhibits the unarmed head, smooth body, and angulated basal joint of all the tarsi. Fabricius does not refer his *Ph. ferula* to Stoll, nor does his description—"*M.* magna, elongata; corpore filiformi, aptero, viridi; pedibus longitudine corporis; femoribus angulatis, *posticis* 4 *apice spinosis*; antennæ mediocres, apice fuscæ; corpus totum lævе, glabrum, viride absque elytris et alis"—quite satisfactorily agree with Stoll's figure. Lichtenstein quotes both Stoll and Fabricius under his *ferula*, with the character—"*Ph.* pedibus aliquanto corpore brevioribus, tarsorum articulo 1mo triangulari erecto; *anticorum pedum femora et tibiæ apice subspinosæ.*" Dr. Burmeister chiefly distinguishes the female of *B. Arumatia* (*ferula*, F. Burm.) from those of *B. Calamus, muricata* and *simplex* by the smooth surface of the body.

Mr. W. W. Saunders possesses an insect of large size, which I refer to this species with some doubt. It is a female, represented of the natural size, in Pl. XXIII. fig. 4, and measures 8½ in. in length; its proportions being—antennæ, unc. 4; head, lin. 4; proth. lin. 3; mesoth. lin. 24; metath. lin. 15; abdom. lin. 48½+lin. 8+opercul. lin. 2½=lin. 59. The head is oval, very convex, with a minute tubercle on each side near the inner hinder angle of the eyes. The body is smooth; the thorax with a very slender raised line on each side within the lateral margin; the fourth and fifth dorsal segments of the abdomen have a small foliaceous lobe in the middle of the hind margin; the terminal segment of the abdomen is nearly square; the hind margin entire; the two anal styles visible at the sides. The operculum is granulated, and extends a quarter of an inch beyond the extremity of the abdomen (fig. 4 *a*); it is furnished within with two elongated slender filaments bent upwards at the extremity, and extending also a little beyond the abdomen. The legs are long and slender, destitute of spines or lobes, and the basal joint of all the tarsi is angulated in the middle of the upper edge. It is a native of Columbia. If it should ultimately prove distinct, it may receive the name of *B. Remphan.*

6. (58.) Bacteria filiformis.

"Corpore filiformi, aptero, fusco; antennis nigris; pedibus corpore longioribus, inermibus" (*Fabr.*). "Pedibus anticis inermibus, longitudine corporis; antennis nigris, corpore et pedibus fuscis, testaceo-annulatis; tarsorum articulis primoribus reliquis æqualibus," *i. e.* haud cristatis (*Lichtenstein*).

Mantis filiformis, *Fabricius, Ent. Syst.* ii. p. 12; *Ent. Syst. Suppl.* p. 186 (Phasma filiformis).
Olivier, Enc. Méth. vii. p. 625.
Latreille, Gen. Crust. et Ins. iii. 88.
Serville, Ann. Sc. Nat. xxii. 64.
Lamarck, An. s. Vert. iv. 255 (Spectrum filiforme).

Phasma cornutum, *Guilding, Linn. Trans.* xiv. 137, mas (*nec* cornutum, *Lichtenst.*=bicornis, *Stoll, G. R. Gray*).

Phasma cornutum, *G. R. Gray, Syn. Phasm.* p. 17 (Bacteria filiformis).
Lichtenstein in Linn. Trans. vi. p. 9. pl. 1. f. 1 (Phasma filiformis).
Brown, Jamaica, 433. pl. 42. f. 5.
Bacteria ferula, mas, *Burm. Handb. d. Ent.* ii. 2. 564.
Hab. In Indiæ occidentalis insulis.

This is another insect of which the insufficiency of the early descriptions renders identification nearly impossible. Fabricius, who first described the species, saw it in Dr. Hunter's Museum at Glasgow, and gives "In America meridionali" as its habitat. He, however, refers to Herbst's *Archives*, t. 51. f. 2. That figure, however, represents a species of *Bacillus*, as above referred to under No. 17. An examination of the Hunterian specimen, if still in existence, will alone clear up the question as to the true Fabrician species. Lichtenstein, taking up the species, gives South America and the opposite islands as its locality. His figure represents a very slender male insect, rather more than 4 inches long, with the body neither spined nor tubercled; the two terminal segments of the body much swollen, with two short anal styles at the extremity; the legs long and slender, annulated with black. "The *Ph. filiforme* in the Ohrtmannian Collection," he observes, "is without doubt a male, full-grown, and yet without any wings. Time will show whether or not the *Ph. filiforme* be the male of *Ph. Ramulus*"—evidently meaning *Ph. ferula* (*arumatia*), of which he states, "Habitat cum præcedente" (*Ph. filiformis*).

Dr. Burmeister accordingly regards *Ph. filiformis* as the male of *B. ferula* (*arumatia*); he however describes it as having the first joint of the tarsi as "distinctius cristato," whereas Lichtenstein expressly alludes to its similarity to the following joints. Burmeister adds—"abdominis segmento penultimo utrinque processu acuto dependente nullo."

7. (59.) Bacteria muricata.

Mas. Lævis; tarsorum articulo 1mo supra carinato; relatio mesothoracis ad metathoracem = 4 : 3; abdominis segmento penultimo utrinque processu acuto dependente.

Fœm. Subscabra; thorace densius spinoso, spinis crassioribus obtusis, articulo tarsorum 1mo cristato; relatio mesothoracis ad metathoracem=3 : 2; abdomine in utroque sexu segmento 4to integro; thorace maris lævi, fœminæ muricato.

Long. corp. maris 3″ 10½‴; fœm. 5″ 8‴.

Bacteria muricata, *Burmeister, Handb. d. Ent.* ii. p. 564.

Hab. In Brasilia, Para.

A male insect in the National Collection, sent from Tapajos, Brazil, by Mr. Bates, agrees tolerably well with Lichtenstein's figure of *B. filiformis*. It measures rather more than 4 inches in its total length; the antennæ, lin. 27; the prothorax, lin. 1½; the mesothorax, lin. 13; the metathorax, lin. 9; and the abdomen, lin. 19+lin. 4=lin. 23. Its colour is rufous brown varied with green, the latter colour most prominent on the thoracic segments; it is very slender and cylindric; the body and legs entirely destitute of spines or tubercles; the seventh and eighth dorsal segments of the abdomen are dilated, each of the hinder lateral angles of the eighth being elongated into a deflexed spine; the ninth segment is small, widened behind and subemarginate, exposing the anal styles at the sides; the three terminal ventral segments are short, with a strong deflexed spine in the middle. The legs are very long, slender and simple, the four hind ones of a dark colour with pale bands. The basal joint of the tarsi is not cristated. This character seems to agree with the male of *B. muricata* of Illiger, which is from Para in Brazil. A larger male specimen (5¼ inches long), sent from Villa Nova by Mr. Bates, agrees with the preceding.

8. (60.) Bacteria simplex.

Aptera, elongata, obscure testacea; antennis mediocribus; thorace cylindrico, scabro, postice attenuato; capite inermi, oculis prominulis; pedibus anticis elongatis; pedum tarsi articulo 1mo triangulari erecto.

Long. corp. 5″ 3‴; anten. 2″ 4‴.

Phasma simplex, *Stoll. Spectr. Index.*
G. R. Gray, Syn. Phasm. p. 17 (Bacteria simplex).
Burmeister, Handb. d. Ent. ii. 2. 565 (B. simplex, fem.).
Le Squelette Chinois, *Stoll. Spectr.* t. 14. f. 55.
Phasma Sceleton, *Lichtenstein in Linn. Trans.* vi. p. 10.
Oliv. Encycl. Méth. vii. 639 (Mantis Sceleton).
Hab. In China [? ?]. Mus. Holthuys. B.M. ?

9. (61.) Bacteria hastata.

Femoribus muticis, corpore punctis albis elevatis piliferis; maris cercis analibus brevibus, compressis, hirtis; fœminæ cercis analibus mucronatis, hirtis; operculo vaginali longissimo, acuto, canaliculato.

Long. corp. maris 3″; fœminæ cum operc. vag. 4″ 9‴.

Bacteria hastata, *Burmeister, Handb. d. Ent.* ii. p. 567.

Hab. In Brasilia.

10. (62.) Bacteria bicornis.

Aptera, lævis, glabra, cylindrica, dilute fusca; pedibus elongatis, obscuro fasciatis; femoribus angulatis, interme-

diis subtus apice muticis; tibiis omnibus muticis; capite oblongiusculo, bicornuto, cornubus auriformibus; maris tarsorum articulo basali simplici, fœminæ plus minusve supra cristato.

Long. corp. maris 3″ 6‴; anten. 2″ 5‴.

Long. corp. fœm. unc. $6\frac{3}{4}$; anten. unc. $3\frac{1}{4}$; proth. lin. 3; mesoth. lin. 17; metath. lin. $12\frac{1}{2}$; abdom. lin. 39+lin. $5\frac{1}{2}$ +operc. lin. 2=lin. $46\frac{1}{2}$.

Phasma bicornis, *Stoll, Spectr. Index.*
G. R. Gray, Syn. Phasm. p. 16 (Bacteria bicornis).
Burmeister, Handb. d. Ent. ii. 2. 566.
Le Spectre ou Squelette cornu, *Stoll. Spectr.* t. 15. f. 57 & 57 *t.*
Phasma cornutum, *Lichtenstein in Linn. Trans.* vi. p. 10.
Guilding, Linn. Trans. xiv. 137. pl. 6 (♂ haud Ph. filiformis, *Fabr.*).
Mantis Keratosqueleton, *Oliv. Enc. Méth.* vii. p. 639.
Hab. In America australi et India occidentali. B.M.

Obs. The four hind femora in the female have an angulated dilatation near the base on the hinder edge, and the operculum extends beyond the extremity of the body. The male is excellently figured by the Rev. L. Guilding, as above referred to, and Stoll's fig. 57 is a good representation of the female.

11. (63.) Bacteria Cyphus, *Westw.* PLATE VII. fig. 7.

Elongata, gracilis, cylindrica, lævis, pallide rufo-fusca; capite et prothorace utrinque vitta laterali obscura, capite spinis duabus latis inter oculos; metathorace ante medium utrinque tuberculo laterali; segmento ultimo dorsali abdominali postice latiori et subemarginato, angulis posticis rotundatis; segmento ultimo ventrali tuberculo acuto curvato instructo (mas).

Long. corp. unc. $3\frac{2}{3}$; anten. unc. 2; proth. lin. 2; mesoth. lin. 10; metath. lin. 7; abdom. lin. 19 + lin. 4 = lin. 23.

Hab. ——? B.M.

I am only acquainted with a single male of this species, which appears to be closely allied to *B. bicornis*. It is long, slender, cylindrical, smooth, except a very few minute tubercles on the front of the mesothorax, pale rufous brown, the head and prothorax with a dusky line on each side behind the eyes. Head widest in front, with two erect, broad, irregularly notched horns between the eyes. Antennæ long and slender (reaching to the extremity of the fore tibiæ); mesothorax long and slender, with a few tubercles in front; metathorax with a small prominent tubercle on each side at about one-third of the distance from the base. Abdomen moderately long, the seventh and eighth segments short, widened behind; the terminal segment still broader, especially behind; the outer apical angles rounded; the posterior margin slightly emarginate; the under surface furnished along the extremity with numerous small teeth; the anal styles rather long and thickened, but not visible from above. The three terminal ventral segments short, scarcely extending beyond the base of the ninth dorsal segment, the ninth swollen at its base beneath into a curved horny tubercle; beyond this, extending beneath the ninth dorsal segment, is a strong, detached, curved, horny point. The legs are moderately long, especially the anterior pair; the middle and hind femora are rather thickened; the whole are destitute of spines.

PLATE VII. Fig. 7. The male, of the natural size. 7 *a*. The head seen sideways. 7 *b*. The terminal segments of the body seen sideways. 7 *c*. The same seen from beneath.

12. (64.) Bacteria linearis.

Obscure fusca (insecto viventi viridi); antennis setaceis, longitudine corporis; pedibus gracillimis, inermibus (mas).

Long. corp. fere unc. $2\frac{1}{2}$.

Mantis linearis, *Drury, Exot. Ent.* i. pl. 50.
Bacteria linearis, *G. R. Gray, Syn. Phasm.* p. 17 (nec Ph. linearis, *Fabr.*).
Burmeister, Handb. d. Ent. ii. 2. 567.
Hab. In India occidentali, Antigua. B.M.

Obs. Burmeister gives the additional character, "cercis analibus brevibus mucronatis obtusis."

There is a specimen in the Banksian Collection thus named, which may, without much doubt, be regarded as typical. Its proportions are—Body, unc. $2\frac{1}{3}$; head, lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 8; metath. lin. 4; abdom. lin. 13. The two anal styles are obliquely deflexed, and the terminal ventral segment scarcely extends beyond the base of the ninth dorsal segment.

Two immature male specimens from the collection of Forstromm, marked as natives of St. Bartholomew's Island, are contained in the British Museum Collection, and may possibly be referred to this species.

13. (65.) Bacteria crudelis, *Westw.*

Elongata, cylindrica, lævis; capite et corpore inermibus; segmentis basalibus abdominis utrinque prope basin tuberculo minuto armatis; pedibus 4 posticis elongatis, femoribus crassioribus, spina forti acuta alteraque minori prope apicem subtus armatis (mas?).

Long. corp. circ. unc. 5; cap. lin. $1\frac{1}{2}$; proth. lin. 2;

mesoth. lin. 15; metath. lin. 10; abdominis segm. 6 basalia lin. 25 (apice mutilato).

Hab. In India occidentali (*Forsttrom*). B.M.

The unique specimen of this insect in the National Collection is much mutilated, wanting the antennæ, fore legs, and extremity of the abdomen. I suppose, however, that it is a male insect. The head is rather small and unarmed; the mesothorax very long, and (as well as the metathorax) dilated at the insertion of the legs; these segments are also unarmed. The abdominal segments are simple and slender; the six basal segments bear a small tubercle on each side close to the base; they are not furnished with any dorsal appendage. The four hind legs are moderately long; the femora rather incrassated, and armed near the tips beneath with a strong and acute spine, succeeded by a smaller one; the tibiæ and tarsi are slender and simple.

14. (66.) **Bacteria Haita**, *Westw.*

PLATE XXV. fig. 5, male; fig. 6, female.

Luteo-viridis, vitta laterali pallidiori; capite postice elongato, supra inermi, vitta media obscuriori; mesothorace valde elongato; abdomine maris cylindrico, segmento ultimo apice truncato, stylis caudalibus deflexis, subconicis, apice intus curvatis; abdomine fœminæ subconvexo, e medio ad apicem sensim attenuato, stylis caudalibus elongatis, porrectis; pedibus gracilibus, femoribus omnibus apicem versus subdenticulatis (mas et fœm.).

Mas. Long. corp. unc. 3; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 9; metath. lin. 6; abdom. lin. 14 + lin. $2\frac{1}{2}$ = lin. $16\frac{1}{2}$.

Fœm. Long. corp. unc. $4\frac{1}{2}$; cap. lin. $2\frac{1}{3}$; proth. lin. 2; mesoth. lin. 13; metath. lin. 8; abdom. lin. 22+lin. 5+ operc. lin. $2\frac{1}{2}$=lin. $29\frac{1}{3}$.

Hab. In Insula St. Domingo. Mus. Saunders. B.M.

The male is very slender and cylindrical, the thoracic segments being slightly dilated at the insertion of the legs. The body is quite smooth, scarcely polished, and destitute of spines. The general colour is pale luteous with a darker line down the middle of the back, and a slender pale green line down each side of the body. The head is elongated posteriorly, the hind margin slightly elevated, the middle of the raised edge being depressed; on each side behind the eye is a dusky line. The mesothorax is very long, the metathorax about half the length of the pro- and mesothorax. The abdomen is slender; the segments very slightly dilated at the base, the three terminal segments short, the last truncate and slightly margined behind; the anal styles deflexed, subconical, and curved inwards at the tip. The legs are long and slender, the femora slightly toothed beneath near the tip.

The female is larger, more robust, and of a dirty luteous brown colour, with shorter legs; the surface of the body is smooth; the head and thoracic segments finely mottled with minute luteous dots; on the crown of the head behind is a large, reversed, triangular pale spot, more or less distinct, enclosing a spear-shaped dark one. The thoracic segments are quite simple; the mesothorax is greatly elongated; the hinder division of the metathorax occupies only two-sevenths of its entire length. The abdomen is subdepressed, gradually attenuated from the third segment to the extremity, where it is terminated by a small, elongate, semi-ovate, constricted lobe, along which runs a fine central carina; the anal styles are elongated and straightly porrected backwards, being as long as the preceding segment, which is twice the length of the penultimate one; the operculum is slender and acute at the tip, which scarcely extends beyond the middle of the last segment. The legs are rather short, and all the femora slightly toothed near the tip on the under side; the femora and tibiæ are more or less distinctly varied with paler spots.

In the want of an opportunity of examining the original insect from Antigua, described and figured by Drury under the name of *Mantis linearis* (Exot. Ent. i. pl. 50), and which was evidently a male insect, closely allied to the male above described, it is impossible to determine whether the latter be really distinct from Drury's insect. (See *ante*, p. 24.)

PLATE XXV. Fig. 5. The male, of the natural size. 5 *b*. The terminal segments of the body seen sideways.

Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen sideways. 6 *b*. The extremity of the last segment seen from above, with the base of the anal styles.

15. (67.) **Bacteria Mexicana.**

Filiformis, olivacea; capite albido, pedibus lineis elevatis striatis; thorace abdomini longitudine æquali*; pedibus mediocribus, simplicibus (mas).

Long. corp. 3″ 5‴; anten. 1″ 11‴.

Heteronemia mexicana, *G. R. Gray, Syn. Phasm.* p. 19.

Hab. In Mexico. B.M.

Obs. The description, "pedes posteriores reliquis breviores," given by Mr. G. R. Gray, upon which indeed his genus *Heteronemia* was established, results from the left

* Mr. G. R. Gray says, "thorace abdomine longiori," which would be a very unusual character; these two parts of the body are, however, exactly equal in length.

hind leg (the right one being broken off) of the unique specimen now in the British Museum having been lost and subsequently reproduced of a smaller size than the other legs, with the tarsus imperfectly developed. The insect is very long, slender, and cylindrical. It is a male, and is entirely destitute of spines or tubercles. Its proportions are as follow:—Head, lin. $1\frac{1}{3}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. $11\frac{1}{2}$; metath. lin. $7\frac{1}{2}$; abdom. lin. $15\frac{1}{2}+$lin. $5\frac{1}{4}=$lin. $20\frac{3}{4}$. The meso- and metathorax are slightly dilated at their hind part; the abdominal segments are rather narrowed in the middle; the eighth segment is considerably longer than the ninth, which is rather square above, emarginate behind, with two elongated clavate anal styles porrected obliquely beyond the extremity of the body; the three terminal ventral segments are dilated, and do not extend beyond the middle of the eighth dorsal segment. The legs are very slender and quite simple.

Dr. Burmeister suggests that this insect may be the female of his *Bacteria tridens*. Desirable as it is to determine the sexes of these insects, and justifiable to suggest the sexual identity of insects described as distinct where sufficient evidence exists of such a relation, it is clearly unadvisable to attempt this where no grounds exist to enable the student to arrive at such a conclusion. In the present instance we have a male insect regarded as the female of another species, whereas the description "corpus filiforme" should have suggested to Dr. Burmeister that the insect was a male.

16. (68.) Bacteria Cubaense.

Fusca; pedibus submarmoratis integerrimis; capite cylindrico.

Mas. Tarsorum articulo 1mo cæteris bis longiore; cercis analibus incurvatis, obtusis.

Long. corp. 2″ 10‴.

Fœm. Thorace albo punctato; tarsorum articulo 1mo cæteris dimidio longiore; abdominis articulo 6to apice infra bifoliato; vagina angusta, obtusa; articulo penultimo vix longiore; lobis interioribus peracutis, vagina longioribus.

Long. corp. 5″ 3‴.

Phasma (Bacteria) Cubaense, *De Haan, Orthopt. Orient.* p. 101.

Hab. In Insula Cuba.

17. (69.) Bacteria granulicollis.

Angusta, viridis; antennis testaceis, basi obscurioribus; mesothorace elongato, tuberculis minutis, sparsis; femoribus posticis et mediis apice unifoliaceis, tibiis simplicibus.

Long. corp. maris lin. 32.

Bacteria granulicollis, *Blanchard in Gay's Hist. Chili*, vi. p. 26.

Hab. In Chili.

Obs. The typical male specimen of this species, which I have examined and drawn, in the Paris Museum, has the following proportions:—Head, lin. 2; proth. lin. 2; mesoth. lin. $9\frac{1}{2}$; metath. lin. 6; abdom. lin. 12+lin. 5=lin. 17.

18. (70.) Bacteria foliacea.

Omnino virescens; capite oblongo; antennis gracilibus; prothorace carinato, tuberculato; mesothorace tuberculis minoribus; pedibus subannulatis, femoribus mediis et posticis basi apiceque foliaceis.

Long. corp. lin. 27–28.

Bacteria foliacea, *Blanchard in Gay's Hist. Chili*, vi. p. 26.

Hab. In Chili.

Obs. The typical specimen of this insect in the Paris Museum wants the fore legs; the middle and hind pairs of these organs are comparatively short; the body is long and slender, with the following proportions:—Head, lin. $1\frac{1}{2}$; proth. lin. 1; mesoth. lin. 6; metath. lin. $5\frac{1}{2}$; abdom. lin. 17.

19. (71.) Bacteria (Bacunculus) spatulata.

Mas. Glaber; antennis corpore longioribus, filiformibus, articulis distinctis; genitalibus maximis, incrassatis.

Fœm. Thorace scabro, antennis corpori æqualibus, femoribus 4 posticis ante medium et apicem biphyllis.

Long. corp. maris 3″; fœm. (cum operculo vaginali) 4″.

Bacteria spatulata, *Burmeister, Handb. d. Ent.* ii. p. 566. *Blanchard in Gay's Hist. Chili*, vi. p. 25; *Orth.* pl. 1. f. 6.

Nec Prisomera phyllopus, *G. R. Gray* (ut opin. *Burm. l. c.*).

Hab. In Chili.

The male of this species preserved in the Paris Museum has the following proportions:—Head, lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. 9; abdom. unc. $2\frac{1}{3}$. The head has two erect horns between the hind part of the eyes, and the abdominal segments have a small lobe in the middle of the hind margin of each.

Obs. The *Prisomera? phyllopus* of Mr. G. R. Gray (Syn. Phasm. p. 16),—a native of South America, in the Hopean Collection, shortly described as "olivaceum, thorace scabriusculo, femoribus quatuor posticis basi et apice perfoliatis,"—considered by Dr. Burmeister as identical with *Bacteria spatulata*, is quite distinct.

20. (72.) **Bacteria Ætolus**, *Westw.*

PLATE XXII. fig. 3.

Valde elongata, gracilis, granulosa; capite inter oculos bifoliato; antennis fere longitudine pedum anticorum; abdominis segmento 1mo et 4to in medio marginis postici tuberculo foliaceo, 6toque utrinque foliolo acuminato; operculo longissimo; femoribus et tibiis pedum 4 posticorum parce foliatis articuloque basali tarsorum omnium supra angulato (fœm.).

Long. corp. cum operc. unc. $7\frac{1}{2}$; anten. unc. $2\frac{3}{4}$; proth. lin. 3; mesoth. lin. 20; metath. lin. 12; abdom. lin. 35+ lin. 6+operc. lin. $9\frac{1}{2}$=lin. $50\frac{1}{2}$.

Hab. In Mexico (*D. Coffin*). In Mus. Westwood.

Entirely of a pale ashy colour varied with brown; very long and slender, the thoracic and basal segments of the abdomen covered with small granules. The head with two short, rough, conical leaflets between the eyes. The antennæ are very slender and nearly as long as the fore legs. The meso- and metathorax are but slightly widened at the base of the legs. The abdomen has the five basal joints long and of equal width; the sixth and following are gradually attenuated to the tip, which is slightly bifid, exposing the two caudal styles at the sides; the basal and fourth segments are furnished at the middle of the hind margins with a dilated foliaceous lobe, and the sixth segment has its sides furnished at their extremities with two lobes rounded on the outer edge, and with the hinder angles porrected backwards. The operculum is very long and slender, extending far beyond the extremity of the abdomen; the fore legs are moderately long and simple; the basal joint of all the tarsi is angulated above; the four hind legs are moderately long; the femora curved, furnished near the base beneath with a triple spine, and with a single one close to the extremity; the tibiæ have a lobe near the base, and another towards the extremity on the outer edge.

Obs. The left hind leg is smaller than the opposite one on the right side, and destitute of lobes, having evidently been reproduced.

PLATE XXII. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the abdomen seen sideways.

21. (73.) **Bacteria Clinteria**, *Westw.*

PLATE XXV. fig. 9.

Tota lævis, viridis, elongata, subgracilis, subcylindrica; capite prothorace parum majori, antice bi-impresso; operculo fœminæ ultra apicem abdominis longe extenso; pedibus gracilibus, femoribus duobus anticis supra serratis, intermediis prope basin supra bispinosis.

Long. corp. cum operc. unc. $6\frac{1}{4}$; capit. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. $10\frac{2}{3}$; abdom. lin. 30 +lin. 6; opercul. lin. 9=lin. 45.

Hab. In America meridionali. B.M.

A female of this species in the National Collection is the only representative of it which I have seen. It is very long and slender, entirely smooth, and of a green colour. The head is somewhat larger than the prothorax, and has two small impressions in front of the crown; the antennæ are broken off. The meso- and metathorax are cylindrical, and only slightly dilated at the insertion of the legs; the abdomen is of nearly uniform width with the thoracic segments, and the six basal segments are of nearly equal length; the seventh is shorter and more dilated, the eighth very short, the ninth rather longer and more attenuated, and slightly carinated with a minute semicircular terminal appendage, exposing at its extremity two minute conical points, and at its sides the short obtuse anal styles. The operculum is very long (about equal in length to the three basal segments of the abdomen), and extends far beyond the extremity of the body; it is swollen beneath the eighth and ninth dorsal segments. The legs are moderately long and slender, the anterior femora serrated along the upper edge, the basal joint of the tarsi longer than the remaining joints united; the middle femora are armed near the base on the upper edge with two spines; the hind legs are simple.

PLATE XXV. Fig. 9. The female, of the natural size. 9 *a*. The extremity of the ninth dorsal segment of the abdomen. 9 *b*. The extremity of the abdomen seen sideways.

22. (74.) **Bacteria Dryas**, *Westw.*

Femoribus tibiisque fasciatis; posticis 4 subtus ante apicem multispinosis, spinis inæqualibus, minutis.

Long. corp. maris 3″; fœm. 5‴.

Bacteria spinosa, *Burmeister, Handb. d. Ent.* ii. p. 567. *De Haan, Orth. Orient.* p. 134 (nec B. spinosa, *G. R. Gray, Syn. Phasm.*).

Hab. In Insula "St. Domingo."

23. (75.) **Bacteria tridens.**

Femoribus 4 posticis subtus ante apicem 4–5-spinatis.

Mas. Minus gracilis, lævis; cercis analibus erectis apice 3-fidis, obtusis.

Long. corp. 2″ 2‴.

Bacteria tridens, *Burmeister, Handb. d. Ent.* ii. p. 567. *De Haan, Orth. Orient.* p. 134.

Hab. In Mexico, Oaxaca. B.M.

This species is at once distinguished by the remarkable digitated structure of the two styles at the extremity of the abdomen. I possess a specimen, presented to me by Mr. Coffin, the proportions of which are as follow:—Head, lin. $1\frac{1}{2}$; proth. lin. 1; mesoth. lin. $6\frac{1}{2}$; metath. lin. $5\frac{1}{2}$; abdom. lin. 11 + lin. 4 = lin. 15. The female insect received in company with the male seems to me to agree in almost every respect with the female of *B. striata* of Burmeister.

24. (76.) Bacteria striata.

Femoribus omnibus muticis.

Mas. Gracilis, lævis; cercis analibus elongatis, aduncis.

Fœm. Brevior, crassior, opaca; abdomine supra lineis elevatis striato; cercis analibus lanceolatis, rectis, compressis.

Long. corp. maris 2″ 11‴; fœm. 2″ 6‴.

Bacteria striata, *Burmeister, Handb. d. Ent.* ii. p. 567.

Hab. In Mexico. B.M.

25. (77.) Bacteria gracilis.

Femoribus muticis tibiisque fasciatis, maris cercis analibus brevibus capitatis.

Long. corp. 2″ 10‴.

Bacteria gracilis, *Burmeister, Handb. d. Ent.* ii. p. 567.

Hab. La Guayra.

26. (78.) Bacteria Faunus, *Westw.*

Unicolor viridis, femoribus 4 posticis subtus ante apicem 1–2-spinatis.

Long. corp. 2″ 10‴.

Bacteria viridis, *Burmeister, Handb. d. Ent.* ii. p. 568 (nec Bact. viridis, *G. R. Gray, Syn. Phasm.*).

Hab. In America meridionali.

27. (79.) Bacteria strigiventris, *Westw.*

Plate XXIV. fig. 6, female.

Viridis; capite parvo, oblongo; mesothorace et metathorace sensim latioribus; abdomine e basi sensim attenuato, hoc lineis undecim gracilibus elevatis; operculo apice bifido; stylis analibus brevibus, obtusis; pedibus brevibus, simplicibus (fœm.).

Long. corp. lin. 23; capit. lin. $1\frac{1}{2}$; proth. lin. $\frac{1}{2}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. 3; abdom. lin. $8\frac{1}{2}$ + lin. 3 = lin. $11\frac{1}{2}$.

Hab. In Columbia (*M. Gaudichaud*). In Mus. Saunders.

This species is allied to *B. striata*, Burmeister. It is green, opake and smooth, except the abdomen, which has one central and five slender elevated lines on each side. The head is small and oblong, without spines or tubercles. The antennæ are gradually attenuated, and extend backwards to the middle of the metathorax. The thoracic segments are gradually dilated from the head to the base of the abdomen, whilst the latter is gradually attenuated to its extremity. The metathorax is rather more than half the length of the mesothorax. The operculum of the abdomen extends slightly beyond the extremity of the body; it is deeply bifid at the tip, and but little swollen in the middle; the anal styles are short, exserted at the tip of the body, and incurved. The legs are short and simple, the fore femora moderately widened along the upper angle, and all the femora are quite simple. The basal joint of the tarsi is about as long as the three following joints in all the feet.

Plate XXIV. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the body seen laterally. 6 *b*. The extremity of the operculum.

28. (80.) Bacteria turgida, *Westw.*

Plate VIII. fig. 4, male; fig. 9, female.

Gracilis, cylindrica; corpore maris lævi, filiformi, segmentis analibus dilatatis; fœminæ capite bicorni, meso- et metathorace subasperis; abdominis segmentis tribus apicalibus brevibus, ultimo apice trifido, femoribus intermediis subtus prope apicem subspinosis.

Long. corp. maris lin. 37; capit. lin. $1\frac{2}{3}$; anten. lin. 18; proth. lin. 1; mesoth. lin. 9; metath. lin. 7; abdom. lin. 14 + lin. 3 = lin. 17.

Long. corp. fœm. unc. $4\frac{3}{4}$; capit. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. 9; abdom. lin. 26 + lin. 4 = lin. 30.

Hab. In Venezuela. B.M.

The materials for this species in the British Museum Collection are mutilated and unsatisfactory, consisting of the bodies of a male and female insect from Venezuela stuck upon one pin, whence we may be led to infer that they had been captured *in coitu*.

The male is very slender, filiform, destitute of spines or tubercles. It is obscure ferruginous, with the thorax green at the sides. The antennæ are slender, extending rather beyond the middle of the metathorax. The three terminal segments of the abdomen are considerably dilated, the ninth having the hinder lateral angles rounded and the hind

margin emarginate; the three ventral segments are dilated, especially at the extremity of the eighth segment.

The female is much more robust and cylindrical. It is opake dull brown, with paler spots. The head with two acute spines between the eyes; the sides of the meso- and metathorax serrated (the latter more widely). The abdomen is gradually but slightly narrowed, the three terminal segments short (the three together being scarcely longer than the sixth segment), and the ninth is trifid at the extremity. The middle legs are rather short, with a single spine on the under side beyond the middle, and several minute ones near the extremity; the operculum is mutilated.

PLATE VIII. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.
Fig. 9. The female, of the natural size. 9 *a*. The terminal segments of the abdomen seen sideways.

29. (81.) Bacteria Molorcha, *Westw.*
PLATE XXIV. fig. 4.

Valde elongata, cylindrica, fere parallela, opaca, irregulariter granulosa, viridi-fusca; mesonoto tuberculis nonnullis majoribus nigris; abdominis segmento 5to utrinque lobato; pedibus brevibus, inermibus; operculo vix ultra segmentum 7m extenso (fœm. vix matura).

Long. corp. unc. $2\frac{3}{4}$; capit. lin. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 6; metath. lin. $4\frac{1}{2}$; abdom. lin. 15 + lin. $3\frac{1}{2}$= lin. $18\frac{1}{2}$.

Hab. In Columbia (*M. Goudot*). Mus. Saunders.

This species is at once distinguished by its uniform width, and by the dilatation of the sides of the fifth segment of the abdomen. The head is short and square, with a number of minute raised granules chiefly arranged in lines. The antennæ are longer than the head and whole of the thorax, and finely setose; the basal joint is short and rather broad, the alternate joints brown at the tips. The remainder of the body is also rugose and slightly granulose, the granules of the mesonotum larger and black. The metathorax is rather more than two-thirds of the length of the mesothorax. The abdomen is considerably longer than the front part of the body; it has the fifth segment considerably dilated on each side beyond the middle; the seventh segment is nearly equal in length to the preceding, the eighth and ninth are short, and, as well as the seventh, carinated above. The operculum is narrow, not swollen, and scarcely extends beyond the seventh segment; behind it are two flattened, narrowed pieces, and the two anal styles are very small and terminal. The legs are short and simple; the fore femora broad, and flattened along the upper edge. The basal joint of the tarsi is about equal in length to the three following joints.

PLATE XXIV. Fig. 4. The female (probably immature), of the natural size. 4*a*. The terminal segments of the abdomen seen sideways.

30. (82.) Bacteria Molita, *Westw.*
PLATE XXVI. fig. 3.

Gracillima, lævis, inermis, olivaceo-fusca, opaca; abdomine cylindrico, segmento 7mo utrinque dilatato, 8vo obconico, angustiori, 9no lateribus inflato-rotundatis; stylis analibus parvis, ovalibus, apice acutis; pedibus longis, inermibus (mas).

Long. corp. unc. $2\frac{1}{4}$; capit. lin. $1\frac{2}{3}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $7\frac{1}{3}$; metath. lin. 5; abdom. lin. $8\frac{1}{2}$+lin. 3=lin. $11\frac{1}{2}$.

Hab. In Columbia (*M. Goudot*). Mus. Saunders.

Very slender, smooth, opake, olivaceous brown, destitute of spines. Head simple, moderately elongated behind the eyes. Antennæ very long and slender. Mesothorax very long, slender, cylindrical, slightly dilated at the insertion of the middle legs, as is also the hind part of the metathorax, which is about two-thirds of the length of the mesothorax. The abdomen is subcylindrical, with a slender raised line on each side, more distinct on the hinder segments; the seventh segment is gradually dilated on each side, the eighth narrowed and obconic, and the ninth swollen on each side into a very convex lobe, with a raised line down the middle above; hind margin slightly emarginate, concave beneath, enclosing the short thick ovate anal styles, which are pointed at the tips. Legs moderately long, slender, and simple; tarsi with the basal joint half their length.

PLATE XXIV. Fig. 3. The male, of the natural size. 3*a*. The terminal segments seen laterally. 3*b*. The terminal segments, with the anal styles, seen from behind.

31. (83.) Bacteria Thestylis, *Westw.*
PLATE XXIV. fig. 2.

Gracillima, cylindrica; capite brevi, rotundato, supra bispinoso; segmentis thoracicis apice dilatatis et spinosis; segmentis abdominalibus in medio sensim attenuatis, basalibus bispinosis, apicalibus inflatis; stylis analibus crassis, curvatis, obtusis et incurvatis (mas).

Long. corp. lin. 24; capit. lin. 1; proth. lin. 1; mesoth. lin. 7; metath. lin. $5\frac{1}{2}$; abdom. lin. $7\frac{1}{2}$+lin. 3=lin. $10\frac{1}{2}$.

Hab. In Columbia (*M. Goudot*). Mus. Saunders.

This is one of the most slender species with which I am acquainted, having however seen but a single male indivi-

dual. It is quite cylindrical, the thoracic segments being considerably dilated at the insertion of the legs, and the abdominal segments gradually but slightly narrowed in the centre, the extreme base and apex being also slightly constricted. The general colour is greenish brown, with the legs slightly mottled with buff. The head is short, broad, and armed with two erect spines behind the eyes on the crown. The antennæ are very long and slender, slightly ringed with buff. The prothorax is armed with a pair of erect spines in the middle of its hind part. The mesothorax is very long and slender, with several minute whitish tubercles arranged irregularly; it is armed at its extremity with two erect spines in the middle, and two smaller ones at the sides. The metathorax is about four-fifths of the length of the mesothorax and rather more dilated at its hinder extremity, which is armed with two erect spines at the extremity of its anterior portion, and two smaller and wider apart at the extremity of the hinder portion; it is also armed with a small tubercle and a spine on each side in front of the legs. The abdomen is slender, with the joints slightly widened near the base and extremity, each however being very slightly constricted; the first segment has a pair of spines on its upper surface at the hinder part; there is also a corresponding but much smaller pair on the second joint; the seventh and eighth segments are wider than the preceding, and the ninth is greatly swollen both laterally and on the upper side, concave beneath; the terminal ventral segments are much compressed and deflexed, extending to the extremity of the eighth dorsal segment, which is emarginate at its lateral margins; and the anal styles are large, incurved and obtuse. The legs are long and slender; the four posterior femora with a minute spine near the apex beneath; the tarsi long and very slender, the basal joint as long as all the following joints taken together.

Plate XXIV. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways. 2 *b*. The last segment, with the anal styles, seen from behind.

32. (84.) Bacteria rubispinosa.

Subrugosa, pallide flava; capitis vertice sub-bituberculato; prothorace capitis longitudine, mesothorace prothorace sextuplo longiore et multo latiori; supra, spinis numerosis crassis armato, marginibusque spinosis; metathorace mesothorace e tertia parte breviori, in medio supra noduloso-dilatato; pedibus fulvo brunneoque subfasciatis, antennisque fulvo-brunneis (fœm.).

Long. corp. 6½ unc.

Bacteria rubispinosa, *Serville, H. n. Orth.* p. 224.

Hab. In Cayenna. Olim in Mus. Serville.

33. (85.) Bacteria Trophinus, *Westw.*

Plate V. fig. 5.

Gracillima, filiformis, subnitida, olivaceo-fusca; abdomine magis fusco; capite spinis duabus nigris inter oculos; capite sub oculos utrinque linea lata albida notato; antennis longissimis, fuscis, annulis duobus albis prope apicem; pedibus longis; femoribus paullo crassioribus, pallide nebulosis; segmento 9no abdominis lato, emarginato; stylis duobus longis subclavatis forcipatis (mas).

Long. corp. unc. 5; anten. unc. 4; proth. lin. 2; mesoth. lin. 14; metath. lin. 12; abdom. lin. 25 + lin. 5= lin. 30.

Hab. Port Natal. B.M.

Greenish brown, slightly glossy, the head on each side with a broad white stripe beneath the eyes, and with dark streaks on the crown; the two spines between the eyes black; antennæ brown, with two whitish rings near the tip; the legs, especially the anterior pair, with light irregular cloudings; the four hind femora with a row of minute white dots. Body slender and cylindric; the meso- and metathorax slightly dilated at the tips, as well as the ninth abdominal segment, which is impressed at each side, with the apical angles rounded off and emarginate in the middle, with the two anal styles long, clavate, and forcipate (the terminal ventral segments are mutilated at the tip in the unique male in the National Collection). The legs are very long and slender, the femora slightly thickened, the middle femur on the right side having a small spine on its hinder surface near the base.

Plate V. Fig. 5. The male, of the natural size. 5 *a*. The three terminal segments of the abdomen seen from the side.

34. (86.) Bacteria lineata.

"Cærulescens, lineis longitudinalibus albis et nigris."

Long. corp. 3″.

Bacteria lineata, *G. R. Gray, Syn. Phasm.* p. 17.

Hab. In Africa (Sierra Leone).

Not having seen this species, I can only give the short characters from the 'Synopsis of Phasmidæ.'

35. (87.) Bacteria Emesa, *Westw.* Plate V. fig. 3.

Gracillima, filiformis, cylindrica, omnino inermis, pallide virescens, parum nitida; abdomine fuscescente; capite linea media obscura; pedibus pallide fuscis, subnebulosis; tibiis basi obscuris cum fasciis obscuris; segmento ultimo abdominis paullo latiori, lateraliter marginato, apice integro (mas).

Long. corp. fere unc. 5 ; anten. unc. $2\frac{3}{4}$; proth. lin. 2 ; mesoth. lin. 16 ; metath. lin. 11 ; abdom. lin. 24+lin. 4= lin. 28.

Hab. ——? B.M.

This species rivals *Phasma nematodes*, De H., in its long and slender proportions ; but its fore legs are much shorter, and its antennæ longer. The head is wider than the prothorax, with a dark, broad, longitudinal line along the middle of the crown. The antennæ are very slender, and reach to the middle of the anterior tibiæ. The thoracic and abdominal segments are very slender and cylindrical ; the meso- and metathorax slightly dilated at the posterior extremity ; the seventh segment of the abdomen is not more than half the length of the sixth, and is gradually widened nearly to its extremity ; the eighth is also widened in the same manner, and the ninth is slightly constricted at the base ; it is wider than the eighth, its sides margined, its hind angles rounded off, exposing the anal styles, and its hind margin entire and rounded. The terminal ventral segments are mutilated in the unique male specimen in the National Collection. The legs are long and very slender, entirely destitute of spines ; the femora slightly clouded ; the tibiæ blackish at the base, and obsoletely banded with darker brown.

Plate V. Fig. 3. The male insect, of the natural size. 3 *a*. The four terminal segments of the abdomen seen sideways.

36. (88.) **Bacteria tenuis**, *Westw.* Plate VIII. fig. 1.

Gracillima, filiformis, inermis ; antennis pedibus anticis longioribus ; metathorace perbrevi ; femoribus omnibus ante apicem subtus denticulis minutis approximatis armatis ; abdominis segmento ultimo ventrali apice subtrifido (mas).

Long. corp. lin. 34 ; anten. lin. 32 ; proth. lin. $1\frac{1}{3}$; mesoth. lin. 10 ; metath. lin. 4 ; abdom. lin. 14 + lin. 3 = lin. 17.

Hab. ——? B.M.

Very slender, filiform, destitute of spines on the body ; the head rather large and oblong, with several tubercles at its hinder part ; the antennæ are very long (considerably longer than the fore legs) ; the mesothorax is proportionately very long, and the metathorax shorter than usual ; the abdominal segments are slightly thickened at the articulations ; the three terminal dorsal segments form an elongate oval mass, with the surface rather rugose, attenuated behind, and exposing the two slender anal styles, as well as a dilated process pointed at its extremity ; the three terminal ventral segments are soldered together, the extremity being slightly trifid. The legs are long and slender, and all the femora are very slightly denticulated at a short distance before the extremity on the under side.

I have adopted the MS. name applied to this species in the British Museum Collection.

Plate VIII. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the body seen sideways.

37. (89.) **Bacteria Sarawaca**, *Westw.*
Plate XXV. fig. 1, male ; fig. 2, female.

Fusca, luteo partim varia, crebre granulosa, gracilis ; pedibus gracillimis ; mesothorace longissimo, metathorace abbreviato ; abdomine maris filiformi, stylis analibus deflexis vix curvatis, apice obtusis ; fœminæ operculi apice acute bifido ; segmento ultimo dorsali truncato, serrato (mas et fœm.).

Long. corp. maris lin. 34 ; cap. lin. 2 ; anten. lin. 32 ; proth. lin. 2 ; mesoth. lin. $10\frac{1}{3}$; metath. lin. 3 ; abdom. lin. 14+lin. 3=lin. 17.

Long. corp. fœm. lin. 46 ; cap. lin. $2\frac{1}{3}$; anten. lin. 38 ; proth. lin. 2 ; mesoth. lin. 12 ; metath. lin. 4 ; abdom. lin. 21+lin. 4=lin. 25.

Hab. In Insula Borneo, Sarawak (*D. Wallace*). In Mus. Saunders.

This species is at once distinguished by the great length of the mesothorax, which with the prothorax measures one-third of the entire length of the body. The head is moderately elongated, with the sides parallel. The antennæ are very long and slender. The prothorax is marked with a blackish line down the middle and at the side, the latter extending along the sides of the meso- and metathorax and abdomen ; the thoracic segments are but very slightly granulose ; the mesothorax is marked with a black spot in the middle of the hind part ; the metathorax does not equal one-third of the length of the mesothorax, its hinder division occupying about two-fifths of its entire length. The abdomen is slender, filiform, the eighth segment longer than either the seventh or last, which is rounded behind, subconvex, with the anal styles beneath deflexed, nearly straight, and subclavate. The legs are long, slender and simple, with the base of the tarsus more than half its whole length ; the thoracic and abdominal segments are margined on the under side with a black lateral line.

The female is much more robust and considerably more granulose, especially on the meso- and metathorax. The head has the sides parallel, and its hind part has a transverse row of small tubercles. The antennæ are very long and slender. The metathorax agrees in its small size with

that of the male. The abdominal segments are very slightly marked with a slender longitudinal carina; they are nearly parallel throughout their whole length; the terminal dorsal segment is truncate at its extremity, where it is serrated; and the operculum is deeply and acutely bifid at its extremity, and extends beyond the extremity of the body. The legs are long and slender, and entirely simple. The basal joint of the tarsi is about half the length of the tarsus itself.

PLATE XXV. Fig. 1. The male, of the natural size. 1 *a*. The extremity of the body seen from behind.

Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways. 2 *b*. The terminal dorsal segment of the abdomen.

38. (90.) **Bacteria Shiva**, *Westw.* PLATE VIII. fig. 6.

Elongata, subdepressa, abdomine latiori, e segmento 4to ad apicem sensim attenuato, stylis longis duobus apice porrectis terminato; capite et segmentis thoracicis crebre granulosis; abdomine striolato; pedibus simplicibus.

Long. corp. unc. $2\frac{1}{4}$; anten. lin. 12; proth. lin. $1\frac{1}{2}$; mesoth. lin. 5; metath. lin. 3; abdom. lin. 12 + lin. 4 = lin. 16. B.M.

Hab. In Indiæ orientalis partibus septentrionalibus.

Elongated, subdepressed, with the body widening from the middle of the mesothorax to the middle of the abdomen, and then gradually attenuated to the extremity, which is acute, and terminated by two straight, broad, exserted anal styles. The head and prothorax are marked down the middle with a fine impressed line and with a granulated vitta, including a fine black line on each side behind the eyes. The head and thoracic segments are finely granulated. The antennæ are slender, nearly extending to the extremity of the fore tibiæ, and the abdominal segments are marked on the upper side with several longitudinal vittæ. The legs are moderately long and slender, and entirely destitute of spines. The operculum extends nearly to the extremity of the ninth dorsal segment; it is nearly straight, and not swollen in the middle.

PLATE VIII. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen laterally.

39. (91.) **Bacteria viridis.**

Viridis, glabra; thorace linea media; pedibus lineis elevatis striatis.

Long. corp. 2″; anten. 1″ 1‴; proth. lin. 1; mesoth. lin. 6; metath. lin. 5; abdom. lin. 11 + lin. 3 = lin. 14.

Bacteria viridis, *G. R. Gray, Syn. Phasm.* p. 17.

Hab. In Insulis Sandvicensibus. B.M.

Obs. The two specimens of this species in the National Museum are of the opposite sexes, but appear not to be fully grown. The body is long, slender and cylindric; the extremity of the metathorax slightly dilated at the origin of the hind legs; the surface of the meso- and metathorax is finely granulose (more strongly so in the male). The head is destitute of any spine or tubercle. The fore legs are slender and simple, the middle legs rather short; the femora with two small spines near the tip beneath; the middle tibiæ rather dilated near the base on the under side (the hind legs are wanting); the basal joint of the tarsi is rather longer than the remaining joints together. The abdomen is slender, cylindric; the ninth dorsal segment is deeply slit (to about half its length); the lateral margins strongly deflexed; on the under side it is furnished with two short obtuse lobes; the three terminal segments extend to the extremity of the eighth dorsal segment. The body of the female is terminated by a minute anal lobe, the anal styles are very short and obtuse, and the operculum, which is flat, only extends to the base of the ninth dorsal segment.

40. (92.) **Bacteria Eutrachelia**, *Westw.*
PLATE XXIV. fig. 11.

Valde elongata, gracillima, pallide cinerea, opaca; capite postice attenuato; mesothorace antice parum granulato; metathorace dimidio mesothoracis breviori, parte ejus postica brevissima; abdomine in medio sensim latiori et ad apicem attenuato, loboque elongato apicali apice subacuto, instructo (fœm.).

Long. corp. unc. $3\frac{3}{4}$; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 10; metath. lin. $6\frac{1}{2}$; abdom. lin. 20 + lin. 3 + lob. apic. lin. 2 = lin. 25.

Hab. In Nova Hollandia, Swan River. In Mus. Hopeano, Oxoniæ.

This species, of which I have only seen a single female, is well distinguished by its very slender form, its long, posteriorly attenuated abdomen, terminated by a slender appendage like a tenth joint, and its uniform dull, pale grey colour. The head is greatly elongated and narrowed behind the eyes; in front, between the eyes and the base of the antennæ, are three minute spear-shaped impressions. The antennæ are slender, extending to the middle of the metathorax. The mesothorax is very long and of equal breadth throughout, and with a slender raised median dorsal line (which extends to the extremity of the abdomen). The metathorax measures three-fifths of the mesothorax in length; its hinder division is very short, not being more than one-sixth of its whole length. The abdomen

is considerably longer than the anterior portion of the body; it is gradually widened to the fourth segment, and is afterwards gradually attenuated to the tip; the three terminal segments together are not longer than the sixth, the seventh being equal to the eighth and ninth united; the last is furnished with a long narrow appendage resembling a tenth joint, with its extremity obtusely pointed. The operculum is not at all convex, and extends only to the base of the ninth segment; the two anal styles are very short and thin, attached on the under side of the ninth joint. The legs are long, very slender, and simple; the tarsi short, with the basal joint as long as the remainder united.

I suppose, notwithstanding its length, that the unique specimen which I have seen is an immature female.

PLATE XXIV. Fig. 11. The female, of the natural size. 11 *a*. The terminal segments of the abdomen seen sideways.

41. (93.) Bacteria cœnosa.

PLATE XXVII. fig. 2, male.

Flavescenti-brunnea; thorace scabro, abdominis apice viridi; operculo flavo; pedibus longis, hirsutis; antennis elongatis, articulorum apicibus nigris.

Long. corp. 2″ 11‴; anten. 1″ 10‴; proth. 1½‴; mesoth. 7‴; metath. 5‴; abdom. 15‴+4‴=19‴.

Fœm. Bacteria cœnosa, *Hope, MSS.*
G. R. Gray, Ent. of Austr. pl. 2. f. 2; *Syn. Phasm.* p. 18.
Mas. Bacteria tenuis, *Hope, MSS.*
Larva juvenis. Bacteria fragilis, *Hope, MSS.*
G. R. Gray, Ent. of Austr. pl. 7. f. 1; *Syn. Phasm.* p. 18.
Hab. In Australia. Mus. Hope.

The dimensions given above are taken from the typical specimen of *B. cœnosa* in the Hopean Collection, the figure above referred to being too large and robust. The mesothorax has on each side two longitudinal rows of small granules. The abdomen is gradually attenuated; the terminal segment with the two minute but rather broad anal styles exposed at its extremity. The operculum extends to the middle of the ninth dorsal segment, having a curved and acute horny detached lobe within. The legs are long and entirely destitute of spines.

The insect has the appearance of being in an immature condition, the surface of the body having shrunk in various parts.

A careful examination of the typical specimen of *B. fragilis* has satisfied me that it is only a young larva of the preceding species. It is represented in the figure above referred to much too large and robust, and with the operculum much too developed. It lies in fact quite flat, extending not more than the length of one-third of the eighth dorsal segment; the remainder of the ventral surface of this segment is occupied with two flat oval lateral lobes and a narrow ventral pointed one; and the ninth ventral segment bears two curved and rather broad appendages, and two short exserted lateral anal styles. The mesothorax has the rudiments of the lateral rows of granules. The head is dirty white, but having shrunk in the middle, it appears to be marked on each side with a white line.

Mr. Hope has applied the MS. name of *B. tenuis* to a small insect in his collection, represented in Pl. XXVII. fig. 2, which I have no hesitation in regarding as the male of *B. cœnosa*. It is very slender, cylindrical, smooth, dirty brown; the head above marked with a longitudinal pale line on each side behind the antennæ; the abdominal segments are rather narrowed in the middle, the base and extremity of each being gradually widened. The mesothorax is long, and marked on each side with two rows of small black granules placed wide apart; the eighth dorsal segment is half as long again as the ninth, which is notched at its extremity, carinated above, and furnished in the middle beneath with two long, deflexed, curved, obtuse, setose anal styles; the eighth and ninth ventral segments are swollen, especially the angulated base of the ninth, which does not extend to more than two-thirds of the length of the eighth dorsal segment. The legs are long, very slender, and simple.

PLATE XXVII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways.

42. (94.) Bacteria Samouellii.

Flavo-brunnea; antennis brevibus, juxta basin canaliculatis; capite elongato, cœlato; thorace præsertim anteriori tuberculato; abdomine brevi, apice pluri-sulcato; pedibus gracilibus, lineis elevatis striatis.

Long. corp. 3″ 3‴; anten. 1″ 2‴.

Bacteria Samouellii, *G. R. Gray, Syn. Phasm.* p. 43.
Hab. ——? B.M.

Obs. The typical specimen, probably immature, in the National Collection is mutilated, wanting the four fore-legs. The body is very slender, gradually attenuated from the head to the extremity of the abdomen; the antennæ are thickened at the base, with the basal joint depressed, conical, and with several longitudinal carinæ, and gradually setaceous and multi-articulate; the hind pair of legs are very slender and entirely destitute of spines; the basal joint of the tarsi is very long; the three terminal segments of the abdomen are marked with three slender, pale, slightly

raised lines; and the ninth dorsal segment is deeply notched, with an anal porrected lobe strongly carinated, resembling a tenth dorsal segment; the seventh ventral segment is flat, and extends to the extremity of the eighth dorsal segment, it is rounded and entire at its extremity, and is followed by a depressed membranous plate rounded at its extremity, which extends to the extremity of the ninth ventral segment. Its proportions are:—Body, unc. $3\frac{1}{4}$; head, lin. $2\frac{3}{4}$; prothorax, lin. $1\frac{1}{2}$; mesothorax, lin. 8; metathorax, lin. $6\frac{1}{2}$; abdomen, lin. $17\frac{1}{2}$+lin. $3\frac{1}{2}$=lin. 21.

The four following insects differ so materially from all the other apterous species, that I am uncertain (in the absence of males of each) whether they should be referred to the other groups of *Apterophasmina*, or be raised to the rank of separate genera. In this uncertainty I prefer leaving them under the old generic name *Phasma*.

1. (95.) **Phasma planulum**, *Westw.* Plate I. fig. 7.

Latum, depressum, valde rugosum, opacum, supra obscure luteo-albidum fusco-varium; corpore infra fusco, punctis minutis albidis obsito; capite bifoliato; meso- et metasterno planis; segmentis 2–6 abdominalibus lateraliter dilatatis (fœm.).

Long. corp. unc. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 6; metath. lin. $4\frac{1}{4}$; abdom. lin. 12+lin. 4+operc. lin. 1=lin. 17.

Hab. St. Domingo. B.M.

The upper surface of the body is entirely obscure whitish-buff varied with brown; it is flat, opake, and very rugose; and beneath it is brown covered with minute whitish points. The head is furnished on each side with a large auriform, rugose-foliaceous appendage directed backwards over the fore part of the prothorax, the hind part of the latter being wider than the head. The mesothorax is dilated, being nearly twice the width of the head; the anterior angles rounded, the sides rather contracted behind the middle, and the hind part widened in front of the insertion of the middle legs; it bears on its upper surface near its anterior part, two triangular, slightly elevated spaces, the angles of which are directed towards the anterior angles of the mesothorax. The metathorax is shorter than the mesothorax and nearly square, with the outer edges nearly straight. The abdomen is wide, but somewhat narrower at the base than the metathorax; each segment, from the second to the sixth, furnished at the sides with lateral dilatations, which gradually increase in size to those of the sixth joint, which are the largest, the upper surface of each marked with curved impressed lines; the three terminal segments small and narrowed; the ninth trifid at its extremity, exposing the extremity of the operculum. On the under side the meso- and metasternum are quite flat, and the dilated abdominal segments are marked with a raised longitudinal carina on each side; the whole surface being covered with minute white points. The legs are rather short and dilated; the fore femora externally serrated, the hind ones with two or three strong serrations near the tip; all the tibiæ flattened and slightly serrated.

Plate I. Fig. 7. The female, of the natural size. 7 *a*. The head and thoracic segments seen laterally. 7 *b*. The terminal segments of the body seen from above. 7 *c*. The same seen from the side.

2. (96.) **Phasma Havaniense.** Plate XXII. fig. 7.

Cinereum, viridi tinctum; capite, prothorace et mesothoracis lateribus granulatis; vertice tumido, utrinque tuberculo conico (recto multo majori); mesothorace in medio abdominisque segmentis 5 basalibus dilatatis; pedibus brevibus; femoribus 4 posticis subtus serratis (fœm.).

Long. corp. unc. 3; cap. lin. 2; proth. lin. 2; mesoth. lin. 8; metath. lin. $5\frac{1}{2}$; abdom. lin. 13+lin. 6=lin. 19.

Plæsiophyllum Havaniense, *MacLeay, MSS.*

Hab. In insula Havannah (*D. MacLeay*). In Mus. Hope.

Entirely of an ashy colour, tinged with pale green, obscure, subdepressed. The head very convex above, sparingly granulated; the crown with two conical tubercles near the eyes, that on the right side being considerably the larger. The antennæ are slender (mutilated at the distance of two-thirds of an inch from the base). The prothorax is smaller than the head, with a deep transverse line close to the fore margin and another across the middle; the intermediate space with two erect conical protuberances, the hinder half sparingly granulated. The mesothorax is narrowed at its anterior extremity, from whence it is gradually swollen to beyond the middle, and subsequently slightly narrowed to the hinder margin; its surface is smooth, except along the lateral margins, which are granulated, and a slender raised whitish line down the middle of the back, extending also along the metathorax; near the anterior extremity it has several smooth raised tubercles close together in the middle. The metathorax is oblong, very slightly widened at the hinder part; the five basal abdominal segments are dilated, elongate ovate, subdepressed, with several slender raised lines, two close together down the middle of

the back, one on each side, and two near each of the lateral margins; the sixth segment is quadrate; the seventh, eighth and ninth gradually narrowed to the tip, which is entire, with the two very minute caudal styles scarcely visible at the sides; the operculum is swollen in the middle, and extends beyond the extremity of the last dorsal segment. The legs are short; the anterior femora curved at the base; the tibiæ simple; the four posterior femora thickened, and serrated beneath; the tibiæ short, simple, but slightly dilated within near the base, and the middle pair have a slight dilatation on the outside towards the base.

Plate XXII. Fig. 7. The female, of the natural size. 7 *a*. The front of the body seen sideways. 7 *b*. The terminal segments of the body seen sideways.

3. (97.) **Phasma graniferum**, *Westw.*

Plate III. fig. 4, female.

Luteo-fuscum, undique granulis minutis pallidioribus nitidis obsitum; thorace elongato et abdomine breviori, linea tenuissima dorsali elevata simplici; abdomine in medio dilatato, apice pallidiori; pedibus 4 posticis longitudine mediocribus; femoribus ad apicem paulo crassioribus et infra spinula armatis (fœm.).

Long. corp. unc. $2\frac{5}{6}$; proth. lin. 2; mesoth. lin. 9; metath. lin. $5\frac{1}{2}$; abdom. lin. 11+lin. 3=lin. 14.

Hab. Philippine Islands. B.M.

The whole insect is of a pale brown colour, with the legs paler luteous brown, and the extremity of the abdomen paler; it is covered with minute pale glossy granules, and has a very fine polished line running along the middle of the thorax and abdomen on the under side; these granules are fewer on the abdomen. The head is furnished with two small raised spaces between the eyes. The mesothorax is considerably elongated, as is also the metathorax, which is strongly divided near its extremity into two parts by a transverse line. The abdomen is entire, gradually widened to the fourth segment, behind which it is gradually narrowed, the three terminal segments being narrower than the head; the last (ninth) dorsal segment is subemarginate behind, exposing a small rudimental joint, and with two small styles at its outer angles. The operculum extends nearly to the extremity of the ninth dorsal segment, between which and it are to be seen three pairs of dilated appendages, forming the internal organs of generation. The fore legs (as well as the antennæ) are broken off in the unique specimen in the National Collection. The four hind femora are slightly thickened at the tip, with two or three minute spines, and the tibiæ and tarsi are simple. The prosternum and mesosternum are divided into two parts by a transverse line across the centre of each.

Plate III. Fig. 4. The female, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

4. (98.) **Phasma guttigerum**, *Westw.*

Plate XXVII. fig. 6.

Fusco-luteum, nigro guttatum; pedibus brevioribus, nigro annulatis; capite et prothorace inermibus; mesothorace pone medium spina crassa erecta armato; metathorace ante et pone medium segmentisque tribus basalibus abdominis tuberculo conico instructis, 4to alte et rotunde cristato (fœm.).

Long. corp. $2\frac{1}{2}'''$; cap. $2'''$; proth. $3'''$; mesoth. $3\frac{1}{2}'''$; metath. $3\frac{1}{2}'''$; abdom. $12'''+4'''=16'''$.

Hab. Sarawak (Borneo) (*D. Wallace*). Mus. Saunders.

Head unarmed, convex, black above, variegated with pale luteous brown or buff marks, two more conspicuous spots between the eyes, and two broader stripes extending from the eyes to the back margin of the head; upper lip luteous; palpi pale brown. Antennæ black (more than $1\frac{1}{4}$ inch long), irregularly ringed with luteous; basal joints moderate-sized. Prothorax longer than usual, dirty luteous, with a large elongate-triangular black patch extending down the middle from the anterior margin; lateral margins with a dark stripe and an oblong dark patch near each posterior angle; anterior angles obliquely truncate for the insertion of the spiracles; lateral margins also deeply emarginate above the insertion of the fore legs. Mesothorax but little longer than the prothorax, black above, slightly varied with luteous, armed in the middle towards its hinder margin with a strong erect spine, which is swollen behind. Metathorax of the same length as the mesothorax, its anterior portion only one-third of its whole length, dirty luteous with black dots; each division armed behind with a conical tubercle, the hinder one being the largest. The abdomen is dirty luteous, with small black dots arranged symmetrically; the first and second segments with a small, the third with a conical raised tubercle, and the fourth with a large raised semicircular crest; the two anal styles short, slender, and obtuse; the operculum extending beyond the extremity of the abdomen, slender. The legs are rather short, the hind ones scarcely extending beyond the extremity of the abdomen; the fore femora rather thicker than the others, dirty luteous, with a dark patch near the end; middle and hind femora varied with small black spots; tibiæ and tarsi varied with black and luteous. Body

beneath dirty luteous, with two small dark spots between the insertion of the middle and hind legs.

PLATE XXVII. Fig. 6. The female, of the natural size. 6 *a*. The body of the insect seen sideways.

Genus 6. LONCHODES.

Lonchodes, *G. R. Gray*.
Bacteria, pt., *De Haan*.

Body very long and slender, that of the female more robust. Head small, simple, or slightly bispinose. Ocelli wanting. Antennæ long and slender. Thorax subcylindrical, as long as the abdomen, dilated at the place of insertion of the two hind pairs of legs. Abdomen short, subcylindrical, with the apex lanceolate in the male, and deeply cleft. Operculum of the female not porrected. Legs moderately long, more or less dentate, the intermediate ones shorter than the others; basal joint of tarsi long; legs of female shorter.

This genus is here made to include all those Eastern species of the family, the males of which are distinguished by having the terminal segment of the abdomen attenuated and deeply cleft. The species of which females alone are known are assigned to the group from analogy with those of which the females are known. There is, however, considerable diversity in the group, the extreme forms of which appear to be indicated by *L. brevipes*, *nematodes*, and *virgea*.

1. (99.) Lonchodes brevipes.

Mas. Brunneus; thorace scabriusculo, abdominis longitudine; capite cornubus duobus minutis armato; pedibus brevibus, mediis brevioribus, femoribus mediis crassis, subtus apice dentatis; tarsorum anticorum articulo 1mo supra dilatato.

Fœm. Brunnea; capite cornubus duobus brevibus; thorace scabriusculo; pedibus brevioribus, foliato-compressis, interruptis; tarsorum anticorum articulo 1mo elongato, dilatato, erecto.

Long. corp. maris 2″ 4‴—4″; anten. 2″.
Long. corp. fœm. 4″ 8‴; anten. 1″ 6‴.

Mas. Lonchodes brevipes, *G. R. Gray, Syn. Phasm.* p. 19.
Fœm. Lonchodes pterodactylus, *G. R. Gray, Syn. Phasm.* p. 19.

Hab. In Ora Malabariensi. B.M.

The National Museum contains three specimens of the male completely agreeing together. The two horns on the head are very small, and placed between the anterior part of the eyes. The body is entirely covered with minute white granules, which are less distinct on the abdomen. The mesothorax is strongly dilated at its extremity; the upper surface of the thoracic and abdominal segments are destitute of a fine raised longitudinal dorsal line, except the terminal segments of the abdomen, which are carinated; the seventh dorsal segment is conical, the eighth and ninth obconic, the ninth with a fine slit extending to the base, but with the edges of only the hinder half of the slit apart. The two anal styles are short, deflexed, straight, and affixed in the middle of the under side of the ninth segment. The three terminal ventral segments are gradually dilated from the base to the middle of the ninth segment, which is slightly swollen, its extremity scarcely extending beyond the base of the ninth dorsal segment. The anterior legs have one or two small spines beneath near the tip, and the basal joint of the fore tarsi is elevated, being widest towards the tip; the middle femora are considerably thickened, armed beneath near the tip with a triangular lobe, externally denticulated; the hind femora are slender, with several minute spines near the tip. The proportions of a full-grown male are—Body, unc. $4\frac{1}{12}$; head, lin. 2; proth. lin. 2; mesoth. lin. 13; metath. lin. $9\frac{1}{2}$; abdom. lin. 18 +lin. 5=lin. 23.

The typical specimen of *L. pterodactylus* is a female, in the Collection of the British Museum, and is unquestionably the female of *L. brevipes*. The two horns on the head are very minute and scarcely distinct; the mesothorax is much swollen behind, the metathorax being considerably wider than the middle of the mesothorax; the fifth abdominal segment is dilated, the sixth narrowed, the seventh nearly as long as the sixth, narrowed; the eighth and ninth are short and nearly equal in length, the last being terminated by a distinct semiovate lobe, like a tenth dorsal segment; the sixth ventral segment is furnished with a deflexed point in the middle of its hind margin; the operculum is but slightly dilated, and extends to the extremity of the ninth dorsal segment, which has its sides notched and armed with two small flattened oval anal styles. The fore tibiæ have a small spine near the extremity on the under side; the fore tibiæ have a dilatation near the base and apex on the upper edge, and the basal joint of the fore tarsi is dilated into a large rounded plate on its upper edge; the middle femora are much thickened, with an angulated toothed lobe on the under side near the tip, and an angular projection near the tip on the upper side; the middle tibiæ are very short, with a lobe on both edges near the base. The hind legs are slender, with a small triangular notched lobe near the tip beneath. The proportions of a full-grown female are—Body, unc. 4, lin. 11;

cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. $13\frac{1}{2}$; metath. lin. 11; abdom. lin. $22\frac{1}{2}$ + lin. 7 = lin. $29\frac{1}{2}$.

2. (100.) Lonchodes nodosus.

Mas. Corpore coccineo, pedibus bis vel ter crassiore; capite convexo, inter oculos bispinuloso; metathorace pone medium incrassato, uninodoso; nodo, prothorace toto et parte extrema mesothoracis et metathoracis olivacea; pedibus subhirtis; anticis corpore brevioribus, femoribus ante apicem bispinulosis, apice subincrassatis; tarsorum anteriorum articulo 1° sequentibus longiore supra marginato; abdominis articulis 5 prioribus cylindricis, ulterioribus medio carinatis latioribus, 9° usque medium fisso.

Fœm. Corpore granulato, latiore, cinereo-fusco; capite inermi; metathorace mesothorace 4‴ breviore; femoribus ante apicem 2-spinulosis, anterioribus extus convexis striatis, intus bicostatis, mediis incrassatis subincurvatis; ultra medium supra subacanthophyllis, posticis compressis tetragonis rectis; tibiis anticis margine superiore foliaceo, medio sinuato; mediis brevioribus, infra medium utrinque acanthophyllis; posticis integris longitudine anteriorum; tarsorum anticorum articulo 1° foliaceo, sequentibus tribus æquali; mediorum sequentibus duobus æquali; posticorum trigono; abdominis articulo 6° subtus spina aucto; vagina cymbiformi, carinata, apice angulata, longitudine abdominis.

Long. corp. maris 3″ 7‴; mesoth. 1″; metath. $10\frac{1}{2}$‴; ped. ant. 2″ 6‴; ped. med. 1″ $10\frac{1}{2}$‴; ped. post. 2″ 5‴.

Long. corp. fœm. 4″ 9‴; mesoth. 1″ 2‴; metath. 11‴; ped. ant. 2″; ped. med. 1″ 6‴; ped. post. 1″ 9‴.

Phasma (Bacteria) nodosum, *De Haan, Orth. Orient.* p. 133. pl. 11. f. 3, mas; pl. 13. f. 6, fœm. (P. Sumatranum).
Hab. Sumatra.

Obs. This species approaches very closely to *L. brevipes*; but the male is distinguished by the nodose metathorax, which is comparatively longer than in *L. brevipes*, the dark olivaceous colour of the prothorax and dilated extremity of the mesothorax and metathorax, as well as the metathoracic lobe, and the more slender extremity of the abdomen. The female has also the metathoracic lobe of large size; otherwise it closely resembles the female of *L. brevipes*.

3. (101.) Lonchodes geniculatus.

Elongatus, apterus, cylindricus, inermis, obscure fuscus; meso- et metathorace postice subito æqualiter dilatatis, viridibus; capite et prothorace inermibus, viridibus; thorace subglabro, abdomine toto parum longiori; abdominis apice dilatato, fisso; pedibus elongatis, viridibus, omnibus femorum apicibus læte rufis et intus spinulis nonnullis minutis armatis; pedibus intermediis reliquis parum brevioribus sed vix crassioribus; tarsorum articulo basali elongato, simplici (mas).

Long. corp. unc. $3\frac{1}{3}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 11; metath. lin. 9; abdom. lin. 14 + lin. $3\frac{1}{2}$ = lin. $17\frac{1}{2}$.

Lonchodes geniculatus, *G. R. Gray, Syn. Phasm.* p. 19.
Phasma (Bacteria) geniculosum, *Westw. Cab. Orient. Ent.* p. 80. pl. 39. f. 4.
Hab. Prince of Wales's Island (*Dr. Cantor*); Mus. Hope. India orient.; Mus. Curtis; B.M.

Long, slender, and very delicately granulated; the granules on the thoracic segments forming transverse lines. The abdominal segments with a very fine raised central dorsal line. The meso- and metathorax are equally dilated at the extremity for the insertion of the legs. The abdomen is very slender, the seventh and eighth segments forming a broad, nearly circular dilatation carinated down the centre, margined on the lateral edges; the terminal segment small, obconic, and slit to the base, furnished on the under side with two small, straight anal styles; the three terminal ventral segments are convex, the ninth not extending beyond the extremity of the eighth dorsal segment. The legs are very slender; the anterior femora armed beneath near the tip with four or five small spines gradually diminishing in size.

4. (102.) Lonchodes uniformis.

Elongatus, apterus, cylindricus, inter pedes intermedios paulo dilatatus, fuscus, opacus, inermis; thorace et abdomine longitudine fere æqualibus (mesothorace quartam partem corporis longitudine excedente); pedibus anticis elongatis, gracilibus, articulo 1mo tarsorum elevato; pedibus intermediis brevioribus, crassioribus (præsertim femoribus), his ante apicem subtus spinulosis; pedibus posticis subelongatis, gracilibus, tarsorum articulo 1mo parum elongato, abdominis apice dilatato, fisso (mas).

Long. corp. unc. $3\frac{3}{4}$; cap. lin. $1\frac{3}{4}$; proth. lin. $1\frac{3}{4}$; mesoth. lin. 12; metath. lin. 8; abdom. lin. 18 + lin. $4\frac{1}{2}$ = lin. $22\frac{1}{2}$.

Phasma (Lonchodes) uniforme, *Westw. Cab. Orient. Ent.* p. 79. pl. 39. f. 3.
Hab. Prince of Wales's Island (*Dr. Cantor*); Mus. Hope. Amboyna or Ceram (*Madame Pfeiffer*). Malacca and Sarawak, Borneo (*Wallace*); B.M.

A specimen of this species, brought from Amboyna or Ceram by Madame Pfeiffer, has the following proportions:

Head and prothorax, lin. $3\frac{2}{3}$; mesothorax, lin. $11\frac{1}{2}$;

metathorax, lin. 8; first six joints of abdomen, lin. 18; three terminal joints, lin. $3\frac{2}{3}$.

It is more uniformly fulvo-ferruginous than the type; the abdomen more granulated, and with a very fine longitudinal dorsal line (also on the mesothorax); the anterior tarsi with the first joint not longer than the three following and scarcely elevato-compressed, and the metathorax considerably swollen at the extremity of its anterior part.

5. (103.) Lonchodes luteo-viridis.

Robustior, luteo-viridis, glaber, cylindricus, mesothoracis et metathoracis parte postica parum dilatata; capite spinis 8, in coronam circulariter dispositis; thorace et abdomine longitudine fere æqualibus; prothorace inermi; mesothoracis lateribus spinulosis spinisque duabus in medio dorsi alterisque duabus approximatis ad marginem posticum; metathoracis lateribus spinulosis spinisque duabus pone medium disci armatis; abdomine tenui, marginibus segmentorum parum rugosis; apice clavato, fisso; pedibus intermediis brevioribus; femoribus dilatatis et spinulis nonnullis armatis; femoribus anticis et posticis etiam intus ad apicem bispinulosis (mas).

Long. corp. unc. 3; cap. lin. $2\frac{3}{4}$; proth. lin. 2; mesoth. lin. 8; metath. lin. 6; abdom. lin. $14\frac{3}{4}$ + lin. 5 = lin. $19\frac{3}{4}$.

Phasma (Lonchodes) luteo-viride, *Westw. Cab. Orient. Ent.* p. 78. pl. 38. f. 7.

Hab. Assam (*Lieut. Robinson*). Mus. Westwood.

6. (104.) Lonchodes Stomphax, *Westw.*

Plate IV. fig. 8.

Elongatus, gracilis, cylindricus, nitidus, omnino granulis minutis obsitus, linea tenui mediana elevata, obscure luteus; capite, prothorace et parte dilatata postica meso- et metathoracis viridibus; apicibus femorum et tibiarum nigris, illis crassioribus et apicem versus subtus denticulatis; segmento ultimo abdominis fisso, lobis intus denticulatis stylisque duobus incurvatis instructis (mas).

Long. corp. unc. $3\frac{1}{4}$; anten. unc. $2\frac{1}{3}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. 10; metath. lin. 7; abdom. lin. 15 + lin. 5 = lin. 20.

Hab. Hong Kong. B.M.

Long, slender and cylindrical, glossy, and entirely covered with minute granulations; dirty luteous, with the head and prothorax and the hinder dilated part of the meso- and metathorax dark greenish, and the tips of the femora and of the tibiæ black: a slender elevated median line extends from the front of the mesothorax to the ninth segment of the abdomen. The head is small and simple. The antennæ rather longer than the fore legs and very slender. The mesothorax long and slender, but dilated at the hind part for the insertion of the middle legs. The metathorax is gradually narrowed from the base to the middle, and then gradually dilated to the hind part. The abdomen has the segments gradually narrowed to the seventh segment, the middle of each segment being slightly narrowed, and the base and tip of each rather swollen; the eighth segment is dilated and nearly rounded, and the ninth obconic, with a longitudinal incision extending to the base, the tips being incurved and furnished within with numerous minute teeth, and beneath with two strong obtuse styles bent upwards at their tips; the eighth ventral segment is short, and the ninth scarcely extends beyond the base of the ninth dorsal segment; it is strongly angulated at the base beneath. The legs are long, slender, and simple, the femora alone being rather thickened, especially towards the tips, near to which the four posterior are furnished with a small triangular lobe finely denticulated on the outer edge. The legs are dirty pale luteous, with all the ridges formed of fine black lines; the basal joint of all the tarsi is long and simple; the two anterior femora have one or two fine teeth near the tip; the middle femora are only equal in thickness to the posterior pair. The antennæ, except the two pale luteous basal joints, are black.

Plate IV. Fig. 8. The male, of the natural size. 8 *b*. The four terminal segments of the abdomen seen sideways. 8 *a*. The terminal segments seen from behind.

7. (105.) Lonchodes Myrina, *Westw.*

Plate XXIV. fig. 7.

Elongatus, subgracilis, olivaceo-viridis, segmentis abdominalibus apice piceis; subnitidus, parce et crebre granulatus; capite inter oculos bispinoso; segmentis sex basalibus abdominis in medio constrictis, 7mo et 8vo dilatatis, 9no elongato, ad basin fisso; pedibus subgracilibus; femoribus ante apicem infra bispinosis (mas).

Long. corp. unc. $3\frac{3}{4}$; cap. lin. 2; anten. unc. $1\frac{2}{3}$; proth. lin. 2; mesoth. lin. 11; metath. lin. 7; abdom. lin. 17 + lin. 5 = lin. 22.

Hab. In partibus septentrionalibus Indiæ orient. B.M.

This species is more robust than *B. Stomphax* and several other allied species. It is cylindrical, slightly glossy, sparingly furnished with small granules. It is of a dark olive-green, with the articulations of the abdominal segments pitchy. The head is armed between the eyes with two spines. The meso- and metathorax are considerably

dilated at the insertion of the legs; the hinder portion of the metathorax occupies about one-third of its whole length. The abdomen has the six basal segments of nearly equal length, becoming gradually but slightly thinner, each with the middle rather constricted, the base and apex of each segment being widest; the seventh and eighth segments are much dilated, and the ninth is considerably elongated, and cleft from the tip to the base; the three terminal segments beneath are swollen, and only extend to the middle of the eighth dorsal segment; the two anal lobes are very small and oval. The legs are of moderate length, and have the femora (especially the two posterior pairs) armed on the under side near the tip with two spines; the tibiæ are simple, and the tarsi have the basal joint about as long as the second and third joints united together.

Plate XXIV. Fig. 7. The male, of the natural size. 7 *a*. The terminal segments of the abdomen seen sideways.

8. (106.) Lonchodes hæmatomus.
Plate XXIV. fig. 8.

Gracillimus, cylindricus, subobscurus, obscure viridis; coxis omnibus subtus sanguineis; capite inter oculos bispinoso; antennis pedibus anticis longioribus; meso- et metathorace granulosis, hoc pone medium bispinoso; abdominis segmento 7mo et 8vo parum latioribus, 9no profunde fisso; femoribus ante apicem subtus spinula armatis, intermediis crassioribus; tibiis intermediis abbreviatis (mas).

Long. corp. unc. $4\frac{1}{6}$; cap. lin. 2; anten. unc. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. $13\frac{1}{2}$; metath. lin. $9\frac{1}{2}$; abdom. lin. 20 + lin. 5 = lin. 25.

Hab. Sarawak, Borneo (*Wallace*). Mus. Saunders.

Allied to *Lonchodes uniformis*, but more slender, of a uniform dark green colour, with two short, strong, and diverging spines on the hinder part of the metathorax. The coxæ of all the legs beneath sanguineous. Entirely of a slender form; the mesothorax slightly dilated at the place of insertion of the middle legs. Head rather small, with two spines between the eyes; the clypeus and base of the antennæ pale luteous. The antennæ are longer than the fore legs, and slender, the basal joint small. The mesothorax is long and slender, and covered on the upper side with very small and very numerous granules, as is also the metathorax; the former is slightly dilated at the place of insertion of the fore legs, whilst the latter is armed, halfway between the middle and the hind margin, with two short but strong divergent spines. The abdomen is long and slender; the seventh and eighth segments but slightly dilated; the ninth slit down the middle of its whole length; the eighth ventral segment is very short, and extends to the extremity of the seventh dorsal segment, the ninth ventral segment extending to the extremity of the eighth dorsal. The fore legs are moderately long and slender; the middle femora are nearly as thick as the mesothorax; the middle tibiæ are scarcely more than two-thirds of the length of their femora; the hind pair of legs scarcely extend beyond the extremity of the abdomen, they are slender. All the femora are armed with two or three spines on the under side near the tip, largest in the middle legs, smallest in the hind legs. The basal joint in all the tarsi is about as long as the three following joints.

Plate XXIV. Fig. 8. The male, of the natural size. 8 *a*. The terminal segments of the abdomen seen sideways.

9. (107.) Lonchodes Stilpnus, *Westw.*
Plate XXV. fig. 8.

Valde attenuatus, lævis, nitidus, inermis, cylindricus, luteus; dorso meso- et metathoracis geniculisque nigris; articulo ultimo abdominis elongato, carinato, profunde bifido; pedibus valde elongatis; femoribus 4 posticis prope apicem subtus spinula armatis; antennis femoribus anticis brevioribus (mas).

Long. corp. unc. $4\frac{1}{3}$; cap. lin. $2\frac{2}{3}$; anten. lin. 15; proth. lin. 2; mesoth. lin. $10\frac{1}{2}$; metath. lin. 9; abdom. lin. 23 + lin. 5 = lin. 28.

Hab. In India orientali, Silhet, Assam, et Java. Mus. Westwood, East India House; B.M.

This species is nearly allied to *Ph. nematodes*, De Haan, p. 132. pl. 11. fig. 6, but is more robust. The head is elongate behind the eyes, smooth, and moderately convex. The antennæ are short, not extending beyond the mesothorax. The mesothorax is smooth, glossy, and slender, moderately dilated (as is also the metathorax) at the place of insertion of the legs. The metathorax is about five-sixths of the length of the mesothorax; its hinder division occupies about one-sixth of its whole length. The meso- and metathorax are shining black on the upper side; each extremity fulvous-brown. The abdomen is slender; the joints gradually but slightly narrowed from the base to the middle, and then widening again to the tip; the three terminal segments are strongly keeled, the last with the sides greatly elongated and deflexed, forming two thin appendages rounded at the tip, with the anal styles very short and obtuse. The three terminal ventral segments are moderately swollen, the last only reaching to the extremity of the eighth dorsal segment. The legs are very long and

slender, especially the anterior pair, which are quite simple; the four posterior femora are armed on the under side near the tip with a small spine, and the tibiæ are armed with minute spines beyond the middle; the tarsi are long and slender; the basal joint in the fore legs more than half the length of the whole tarsi, in the hind legs about one-half the whole length.

Another male specimen in my collection, also sent to me from Assam by Major Jenkins, differs in the more slender form of the meso- and metathorax, the head considerably shorter behind the eyes, the longer anal styles, the shorter deflexed lateral extremities of the terminal segment of the abdomen, and the almost parallel sides of the body.

Another male specimen collected by Dr. Horsfield in Java, in the Collection of the East India Company, is still more slender, with the head as long as in the type, with two small tubercles at its hinder extremity; it is of a uniform red-brown colour, except that the tips of the femora and the base and extremity of the tibiæ are black. Its total length is $45\frac{1}{2}'''$; head, $2'''$; proth. $1\frac{1}{2}'''$; mesoth. $10'''$; metath. $9'''$; abdom. $18\frac{1}{2}''' + 4\frac{1}{2}''' = 23'''$. The antennæ are $14'''$; the fore legs, $21''' + 26''' + 5\frac{1}{2}''' = 52\frac{1}{2}'''$; the middle legs, $14''' + 16''' + 4''' = 34'''$; and the hind legs $17''' + 20''' + 5''' = 42'''$.

Plate XXV. Fig. 8. The male, of the natural size. 8 *a*. The terminal segments of the abdomen seen sideways.

10. (108.) **Lonchodes Steira**, *Westw.*
Plate XXIII. fig. 5.

Luteo-brunneus, nitidus, granulosus; capite spinis duabus inter oculos; segmentis abdominalibus basi et apice paulo constrictis, segmentis tribus apicalibus parum dilatatis, ultimo obconico, fisso; pedibus brevioribus; femoribus intermediis crassioribus (mas).

Long. corp. maris unc. $3\frac{1}{12}$; cap. lin. $1\frac{3}{4}$; proth. lin. $1\frac{3}{4}$; mesoth. lin. 9; metath. lin. 6; abdom. lin. $15\frac{1}{2}$ + lin. 4 = lin. $19\frac{1}{2}$.

Hab. In Amboyna (*Madame Ida Pfeiffer*). Mus. Westwood.

This species of which I have only a single male specimen, is closely allied to *L. Praon*, Westw., but differs in having a longer body, shorter legs, dentate femora, and a shorter terminal segment to the abdomen. The body is slender and subcylindrical, glossy, and moderately covered with very fine granulations. The head is rather short, with two short erect spines between the eyes; the hind margin with a row of small elevations; the antennæ extend to the extremity of the fore tibiæ. The mesothorax is one-third longer than the metathorax; both are only slightly dilated at the base of the legs; the hinder division of the metathorax is nearly two-fifths of its whole length. The abdominal segments are slightly constricted both at the base and apex, and in the middle of the hind margin of each there is a minute elevated angle; the three terminal segments are but slightly dilated; they are strongly keeled above, of nearly equal length, the last being cleft at its extremity, the lateral posterior angles of which are produced backwards and downwards into an angulated point; the anal styles short, slender, obtuse at the tips, and deflexed; the terminal ventral segments much swollen, especially the last, which only extends to the extremity of the eighth dorsal segment. The legs are of moderate length and slender, except the middle femora, which are shorter and thicker than the rest; all are furnished with two or three small teeth near the tips on the under side.

Plate XXIII. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the abdomen seen laterally.

11. (109.) **Lonchodes Trollius**, *Westw.*
Plate XXIII. fig. 1.

Brunneo-luteus, opacus, crebrissime granulatus, gracillimus; meso- et metathoracis apicibus segmentisque apicalibus abdominis dilatatis; capite inter oculos spinis duabus minutis; segmento anali profunde fisso, lateribus in lobos duos elongatos deflexos productis; pedibus crassioribus (mas).

Long. corp. maris unc. $3\frac{3}{5}$; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. $10\frac{1}{2}$; metath. lin. 8; abdom. lin. $16\frac{1}{2}$ + lin. 5 = lin. $21\frac{1}{2}$.

Hab. In insulis Philippinensibus. B.M.

This species, of which I have only seen a single male, is closely allied to *L. geniculatus*, Curtis, but is of a more slender form; it is of a uniform luteous-brown colour, without any gloss; the surface of the thorax and basal segments of the abdomen is very finely granulose. The head is wider than the prothorax, gradually narrowed behind the eyes; the crown is armed with two small spines between the eyes; the hinder margin has two small raised tubercles; the antennæ extend to the extremity of the fore tibiæ. The mesothorax is one-fifth longer than the metathorax; both are considerably dilated at the place of insertion of the legs; the hinder division of the metathorax is about one-fifth of its whole length. The abdomen is slender and cylindrical, with a fine raised line running down its whole length; the seventh segment is gradually and the eighth considerably dilated; the ninth is cleft nearly

to the base, its sides being produced into two long narrow and deflexed processes incurved at the tips, armed within with a number of minute points, and having a longitudinal impression on the outside. The anal styles are slender, short, obtuse and deflexed. The three terminal ventral segments are moderately swollen. The legs are of moderate length; the four hind femora are considerably thickened, and armed near the tips beneath with two spines; the fore femora are thinner and the spines smaller; the basal joint of the tarsi is about half their entire length.

PLATE XXIII. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen laterally.

12. (110.) **Lonchodes Praon**, *Westw.*

PLATE VI. fig. 3.

Gracilis, subcylindricus, parce granulosus, rufo-fuscus; abdominis apice luteo, segmentis apice pallidius annulatis; capite spinis duabus inter oculos tuberculisque 4 in parte postica; pedibus fulvis, femoribus basi obscurioribus; segmento ultimo abdominis elongato, attenuato, fisso (mas).

Long. corp. unc. $3\frac{5}{6}$; anten. unc. $3\frac{3}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $8\frac{1}{2}$; metath. lin. 6; abdom. lin. 13+lin. 4=lin. 17.

Hab. In Ceylon. B.M.

Long, slender and cylindrical, sparingly granulated, red-brown; the hind part of the abdomen luteous, the extremity of the abdominal segments paler; legs fulvous, the femora red-brown at the base, the tips and the base of the tibiæ slightly darker. Head with two small erect spines between the eyes, and four small tubercles in a transverse row on the hind margin of the head; the antennæ are very long and slender. The meso- and metathorax on the upper surface and sides have a few small granules; the segments of the abdomen are slightly widened at the articulations; the seventh segment is short, but gradually dilated, its extremity being constricted; the eighth is still gradually more dilated, its extremity also constricted; and the ninth segment is nearly as long as the two preceding together, and much narrower, gradually attenuated to the tip, which is deeply cleft, with the two very short anal styles concealed beneath; the three terminal ventral segments are very short; the ninth much swollen near the base, and not extending beyond the extremity of the eighth dorsal segment. The legs are long and slender, fulvous, with the base of the femora reddish-brown; the extremity of the femora and base of the tibiæ slightly darker.

PLATE VI. Fig. 3. The male, of the natural size. 3 *a*. The head seen sideways. 3 *b*. The terminal segments of the abdomen seen sideways. 3 *c*. The same seen from beneath.

13. (111.) **Lonchodes Taprobanæ**, *Westw.*

PLATE XXIV. fig. 12, male. PLATE VI. fig. 6, female.

Elongatus, subgracilis, subcylindricus, undique granulatus; capite inter oculos foliolis duobus apice rotundatis instructo, segmentis abdominis apice latioribus; tibiis anticis apice tarsisque anticis articulo basali angulato-dilatatis; pedibus intermediis brevioribus, femoribus crassis, ante medium tuberculo magno tumido alteroque minori ante apicem instructis (fœm.). Mas multo gracilior, subfiliformis.

Long. corp. maris unc. $3\frac{3}{4}$; cap. lin. 2; mesoth. lin. 12; metath. lin. 9; abdom. lin. 16+lin. 5=lin. 21.

Long. corp. fœm. unc. $5\frac{1}{2}$; anten. unc. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. $14\frac{1}{2}$; metath. lin. 11; abdom. lin. 29+lin. 16 =lin. 35.

Hab. In Ceylon. B.M. &c.

Entirely of an obscure and opake greenish-brown, and covered, both above and below, with minute granules; the abdominal segments beneath having numerous minute white tubercles. The head is furnished between the eyes in the male with two erect spines, and in the female with two foliaceous tubercles, thin, and rounded at the top; the antennæ are nearly equal to the fore legs in length. The mesothorax in the female is considerably narrowed in its anterior half. The metathorax is slightly dilated both at the base and extremity, the middle having the sides nearly parallel. The abdomen of the male is slender, with the three terminal joints dilated, the last elongated and deeply bifid; that of the female has the two basal joints short, the four following comparatively long, the three terminal ones short, the ninth being pointed at the tip, with the lateral posterior angles slightly prominent; the first to the seventh segment having the extremity of each widened, so as to appear knotted. The operculum extends nearly to the extremity of the ninth dorsal segment; it is angulated beyond the middle, and considerably rugose. The fore legs of the male are long and slender, shorter in the female, with the femora curved at the base, slightly angulated within near the tip; the tibiæ are triangularly dilated at the tip, and the basal joint of the tarsi is also angularly elevated. The middle legs are the shortest and thickest; the femora with a large, irregular, swollen tubercle at a short distance from the base, and a smaller one beyond the middle; the tibiæ have a small dilatation within near the base, and another before the middle on the outside. The hind pair of legs is rather slender and simple.

PLATE XXIV. Fig. 12. The male, of the natural size. 12 *a*. The extremity of the abdomen seen sideways.

PLATE VI. Fig. 6. The female, of the natural size. 6 *a*. The head seen sideways. 6 *b*. The terminal segments of the abdomen seen sideways.

14. (112.) Lonchodes Nematodes.
PLATE V. fig. 7, male.

Mas. Corpore lævissimo, nitido, gracillimo, cylindrico, pedibus vix crassiore; capite convexo, inter oculos bispinuloso; pedibus valde elongatis, anticis corporis longitudinem æquantibus; femoribus apice subintegris; tarsorum articulo 1mo cæteris bis longiore.

Long. corp. 3″ 4‴; mesoth. 9½‴; metath. 9‴; ped. ant. et post. 3″ 3‴; ped. med. 2″ 9½‴; anten. 1″ 4‴.

Fœm. Capite bicornuto; thorace granulato; metathorace mesothorace 3‴ breviore; pedibus mediis et posticis æqualibus; femoribus ante apicem bispinulosis, anticis extus convexis, intus acute angulatis, mediis et posticis æqualibus, rectis, compressis; tibiis anticis margine foliaceo, infra medium dilatato, angulato, mediis et posticis prope basin infra unidentatis; abdominis articulo 6° subtus inermi.

Long. corp. 5″; mesoth. 1″ 3‴; metath. 1″; ped. antic. 2″ 8‴; ped. med. 2″; ped. post. 2″ 3‴; anten. 2″ 3‴.

Phasma (Bacteria) nematodes, *De Haan, Orthopt. Orient.* p. 133. pl. 11. f. 6. mas, pl. 13. f. 1. fœm. (Ph. Crawangense).

Hab. Buitenzorg, Sumatra (*De Haan*); Singapore. B.M.

The insect represented in Plate V. fig. 7. agrees in all its general characters with the male figured by De Haan. It is, however, from Singapore, and is in the National Collection. Its head is armed with two small spines between the eyes, which appear to be wanting in De Haan's specimen; the antennæ have a minute tubercle on one of the joints near the base of each; the anterior femora are not of equal length. The remarkable structure of the extremity of the abdomen is not represented by De Haan. The ninth dorsal segment is attenuated and deeply cleft, the two divisions incurved at the tip, with the inner edge armed with numerous minute spines, and furnished at the middle with two elongate curved styles. The three terminal ventral segments do not extend beyond the base of the ninth dorsal segment.

PLATE V. Fig. 7. The male, of the natural size. 7 *a*. The three terminal segments of the abdomen seen from the side. 7 *b*. The same seen from beneath.

15. (113.) Lonchodes Porus, *Westw.*
PLATE VII. fig. 9.

Elongatus, gracillimus, antennis valde elongatis (corporis longitudine), obscure castaneo-fuscus; tuberculis 4 meso- et metathoracis albidis; segmentis tribus apicalibus ovalibus, ultimo angulis apicalibus deflexis, intus spinigeris; femoribus omnibus spina parva subapicali subtus armatis (mas).

Long. corp. unc. $3\frac{1}{12}$; anten. unc. $3\frac{1}{6}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 9; metath. lin. 5; abdom. lin. 17 + lin. $3\frac{1}{2}$ = lin. $20\frac{1}{2}$.

Hab. In India orientali. B.M.

Long, very slender, cylindrical and glossy, of a dark chestnut-brown colour; the tarsi rather paler, with the tips of the joints darker, and the four small tubercles on the meso- and metathorax pale buff. The head is unarmed; the antennæ about as long as the entire body, and very slender; mesothorax with two small tubercles near the hind margin, and the metathorax with two prominent ones on the sides in the middle. The abdomen is long and slender; the three terminal segments form an oval mass broader than the rest of the abdomen, they are also rather recurved; the terminal segment is gradually attenuated to the tip, which is slightly notched, the lateral posterior angles being strongly deflexed, so as nearly to come in contact beneath, the edges denticulated within, and emitting the two curved, clavate anal styles, which are not visible from above. The legs are long and slender, all the femora being armed near the tip beneath with a small spine.

PLATE VII. Fig. 9. The male, of the natural size. 9 *a*. The three terminal segments seen from the side. 9 *b*. The terminal segment seen from behind.

16. (114.) Lonchodes Pseudoporus, *Westw.*
PLATE IV. fig. 6.

Gracillimus, filiformis, luteo-fuscus; antennis femoribus anticis brevioribus, 22-articulatis; pedibus gracilibus, elongatis; femoribus 4 posticis paulo crassioribus et ante apicem subtus spinulis 2–3 instructis; abdominis segmento ultimo profunde fisso (mas).

Long. corp. unc. $2\frac{1}{2}$; anten. lin. 9; proth. lin. 1; mesoth. lin. $6\frac{1}{2}$; metath. lin. 6; abdom. lin. $12\frac{1}{2}$ + lin. $2\frac{1}{2}$ = lin. 15.

Hab. Ceylon. B.M.

Very slender and filiform, smooth, and nearly cylindrical, luteous brown. Head fulvous, with a transverse brown mark between the eyes; the antennæ about as long as the mesothorax, but shorter than the fore femora, 22-jointed, the joints long and slender. Prothorax smaller than the head, with a black stripe on each side interrupted in the middle. Mesothorax long and simple. Metathorax nearly

as long as the mesothorax, and simple, each slightly dilated at its hind extremity for the insertion of the legs, and marked with a luteous lateral line edged on each side with black. The abdomen long, slender and simple, the segments rather thickened at the base and apex; the three terminal segments short, forming an elongate-ovate mass; the ninth being deeply cleft down the middle behind, its two divisions being incurved at the extremity, and their inner and under edges armed with minute transverse teeth; the three terminal ventral segments are short, scarcely extending beyond the base of the ninth dorsal segment, and exposing the insertion of the two curved setose anal styles. The legs (especially the anterior pair) are long and slender; the four posterior femora slightly thickened, and armed beneath near the tips with two or three minute spines; the two posterior tibiæ are also slightly serrated towards their tips.

PLATE IV. Fig. 6. The male, of the natural size. 6 *a*. The three terminal segments of the abdomen seen laterally. 6 *b*. The same seen dorsally. 6 *c*. The same seen from beneath.

17. (115.) **Lonchodes Bootanicus**, *Westw.* PLATE XXVI. fig. 8.

Elongatus, cylindricus, subtenuis, opacus, obscure luteus fusco subvarius; totus lævis, absque spinis, tuberculis et granulis; antennis longis, multiarticulatis; mesothorace valde elongato; metathorace vix tertiam partem mesothoracis longitudine æquali; pedibus subelongatis; femoribus omnibus angulatis et prope apicem subtus spinula armatis; tibiis simplicibus; tarsorum articulo basali tribus sequentibus subæquali.

Long. corp. circ. unc. $4\frac{1}{2}$; cap. lin. 3; anten. unc. lin. $2\frac{1}{3}$; proth. lin. 3; mesoth. lin. $13\frac{1}{3}$; metath. lin. 6; abdom. segm. 6 basal. unc. 2.

Hab. Bootan, Indiæ orientalis. In Mus. East India House.

Elongate, subcylindric, rather slender; obscure buff, with slight brown markings; entirely smooth, and destitute of spines, tubercles, or granules. The head is oblong, scarcely attenuated behind. The antennæ long, slender, multiarticulate; the basal joints subdepressed. The mesothorax is comparatively very long, and is rather narrowed towards the fore part. The metathorax is rather more than one-third of the length of the mesothorax; its hinder portion occupies about two-fifths of its whole length. The abdomen is subcylindric, with the six basal segments simple (the remainder are broken off in the unique specimen before me). The legs are moderately long; the femora of all the legs are angulated, and armed near the tips beneath with a minute spine; the tibiæ are slender and simple, and the basal joint of all the tarsi is about equal in length to the three following joints.

PLATE XXVI. Fig. 8. The insect, of the natural size.

18. (116.) **Lonchodes Amaurops.** PLATE XXIV. fig. 10.

Luteo-fuscus, obscurus, subrugosus; dorso meso- et metathoracis granulis majoribus nigris notato; capite inter oculos sinuato; abdominis segmento quarto spina acuta decumbente marginis postici armato, segmentis 5to et 6to lateribus vix dilatatis, operculi apice truncato, tuberculato; pedibus brevibus, intermediis crassioribus, femoribus omnibus ante apicem subtus spinulosis; tibiis 2 anticis extus membrana angusta instructis; tarsis anticis articulis tribus basalibus supra compresso-dilatatis, pedibus 2 posticis gracilibus (fœm.).

Long. corp. unc. $4\frac{1}{4}$; cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{4}$; mesoth. lin. 12; metath. lin. 9; abdom. lin. 20 + lin. 5 = lin. 25.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders; B.M.

Allied to *Lonchodes brevipes*, fem., but narrower, and at once distinguished by the less-developed appendages of the legs, by the black tubercles on the thorax, and by the acute decumbent spine on the fourth segment of the abdomen. The body is long, rather slender and subcylindrical, opake, obscure luteous-brown, slightly rugose; the meso- and metathorax being moreover marked with a number of moderate-sized black oval tubercles. The head has a sinuated ridge in the middle between the eyes. The antennæ are about equal in length to the fore legs. The mesothorax is but slightly dilated at the place of insertion of the middle legs. The metathorax is slightly but gradually widened from the base to the insertion of the hind legs, in front of which is a small but prominent tubercle on each side of the body. The abdomen has the sides nearly parallel, the fourth segment having a small but very acute decumbent spine in the middle of its hind margin; the fifth and sixth segments are slightly dilated at the sides; the three terminal segments are short and uniform; the ninth with the lateral apical angles prominent and directed backwards. The operculum extends rather beyond the end of the body; it is deepest at its extremity, where it is rather abruptly truncate and rugose along the edge. The legs are short; all the femora with two or three small spines on the under side near the tip; the fore femora are rugose; the fore tibiæ with a narrow membrane along the whole length of

the upper edge; the middle femora thick and rugose; the middle tibiæ short, and with two lobes on the outer edge; the hind legs are slender and nearly simple; the fore tarsi have the three basal joints crested above, the basal joint being short, especially in the middle legs.

PLATE XXIV. Fig. 10. The female, of the natural size. 10 *a*. The extremity of the abdomen seen sideways.

19. (117.) **Lonchodes Crishna**, *Westw.*
PLATE XXIV. fig. 9, female.

Elongatus, subcylindricus, abdomine crassiori, luteus, opacus; thorace granuloso; parte postica metanoti valde elongata; abdominis segmento ultimo apice deplanato, emarginato; pedibus brevioribus, crassis; femoribus anticis supra subfoliaceis (fœm.).

Long. corp. fœm. unc. 4; cap. lin. 3; proth. lin. 2; mesoth. lin. 11; metath. lin. 5; abdom. lin. 24 + lin. 4 = lin. 28.

Hab. In Insula Java (*Dr. Horsfield*). In Mus. East India House, London.

This species, of which I have only seen a single female, has the body of a dull luteous colour destitute of gloss; it is elongate, subcylindrical, with the abdomen broadest. The head is moderately elongated behind the eyes, with a few minute granules and an indistinct row of slightly raised tubercles across the hind margin. The antennæ are slender, and longer than the fore legs; the thoracic segments are granulose, the hinder part of the metathorax and the abdominal segments nearly smooth; the metathorax is scarcely half the length of the mesothorax, and its posterior division is nearly three times the length of the anterior. The abdomen is widened in the middle, finely margined, and the three terminal segments are scarcely longer than the sixth segment; the terminal one is subdepressed and emarginate at its extremity, with the very short broad styles visible at its posterior angles; the operculum is gradually swollen in the middle, and extends to the extremity of the body. The legs are rather short and thick, strongly angulated; the fore femora with the upper edge wide and very thin; the four posterior femora are armed near the tips beneath with a small angulated lobe; the basal joint of the tarsi is about as long as the three following joints in all the feet.

PLATE XXIV. Fig. 9. The female, of the natural size. 9 *a*. The terminal segments of the body seen laterally.

20. (118.) **Lonchodes Pfeifferæ**, *Westw.*
PLATE V. fig. 6.

Elongatus, robustior, subcylindricus, supra parce granulosus, fulvo-brunneus; antennis longis; capite inter oculos bispinoso; segmento ultimo abdominis angulis posticis subporrectis, lobo anali exposito; tarsorum anticorum articulo basali longo, apice dilatato; femoribus omnibus subtus ante apicem bispinosis (fœm.).

Long. corp. unc. $4\frac{1}{2}$; anten. unc. $2\frac{1}{2}$; proth. lin. 3; mesoth. lin. 13; metath. lin. 8; abdom. lin. 23 + lin. 5 = lin. 28.

Hab. Ceram (*Madame Pfeiffer*). B.M.

Long, rather robust, subcylindrical, sparingly granulose on the upper surface, and with a few very small granules on each segment beneath; entirely fulvous-brown. The head almost square, with two erect spines between the eyes, and the hind part of the crown of the head tubercled. Antennæ nearly as long as the fore legs; meso- and metathorax moderately dilated at the insertion of the legs; abdominal segments with a slender elevated line running down the middle of the back, more distinct at the hinder margin of each segment; the three terminal segments scarcely differ from the preceding except in being shorter, the eighth being the shortest; the ninth is somewhat broadly, but not deeply, emarginate on the hind margin, exposing a broad conical anal lobe, as well as the extremity of the operculum; the two caudal styles are very small and lateral; the operculum is rather swollen beyond the middle, its extremity slightly extending beyond the extremity of the ninth dorsal segment. The legs are rather short; all the femora are somewhat thickened, and have the under side near the extremity armed with two or three small spines; the anterior tarsi have the basal joint rather elongated, and compressed at its extremity.

PLATE V. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen sideways.

21. (119.) **Lonchodes Systropedon**, *Westw.*
PLATE III. fig. 8, female.

Elongatus, gracilis, cylindricus, opacus, fuscus, granulosus; abdomine fœminæ in medio dilatato; capite spinis duabus inter oculos; meso- et metathorace segmentisque abdominalibus tuberculo majori in medio marginis postici; segmento nono brevi, depresso, lobo apicali hastato; pedibus longis, gracilibus, simplicibus, femoribus subtus prope apicem spinula parva armatis (fœm.).

Long. corp. fœm. unc. $3\frac{1}{12}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 9; metath. lin. $5\frac{1}{2}$; abdom. lin. 12+lin. $4\frac{1}{2}$ + lob. term. lin. 3=lin. $19\frac{1}{2}$.

Hab. Philippine Islands. B.M.

Brown, opake and granulose, the surface being also more

or less tuberculated. The head is armed with two spines between the eyes; the crown also bears several pairs of smaller points; the basal joint of the antennæ is dilated. The prothorax is armed with a pair of small approximating spines in front and behind; the mesothorax is granulose, the points becoming larger next the mesial line, and with a large tubercle in the middle of the hind margin, the lateral part being dilated for the insertion of the middle legs; the metathorax is also granulose, with a larger tubercle in the middle of the hind margin, as is also the case with the abdominal segments, except one or two of the apical ones. One of the two female specimens in the British Museum is less rugose, and has the abdomen long and nearly cylindrical, the seventh segment being the narrowest; the ninth is short, transverse, with the apical angles deflexed, a minute central lobe, and two minute but rather broad styles beneath (fig. 8 ♂ and 8 ♂ *b*). The other female has the middle segments dilated, the ninth being suddenly depressed at a short distance from its base, the apical portion (which, although apparently soldered to the joint, appears rather to be the representative of a tenth or supplemental joint) forming a long lance-like piece, extending considerably beyond the extremity of the operculum. The legs are long and slender; the femora armed near the tips beneath with a minute spine. On the under side the female is furnished with a few granules on each segment of the body placed irregularly along the middle. The three terminal ventral segments of the variety are evidently soldered into one joint or operculum.

The difference in the structure of the terminal segments of the abdomen in the two specimens of this species in the British Museum Collection, led me at first to suppose and indicate in the lettering of the figures that the narrow one was a male and the other the female. I feel, however, now satisfied that both are females; the terminal appendage in the narrower specimen having been subjected to an arrest of development, and the width of the broader specimen being probably caused by its having been impregnated. I have nowhere else met with so remarkable a variation in the structure of these important organs in the individuals of the same sex in any species.

Plate III. Fig. 8 ♀. The female insect, of the natural size. 8 *a*. The terminal segments of its body seen sideways. 8 ♂. The abdomen of the variety of the female seen from above. 8 ♂ *b*. The terminal segments seen sideways.

22. (120.) Lonchodes Cyllabacus, *Westw.*

Plate VI. fig. 4.

Elongatus, subgracilis, undique irregulariter granulatus, obscurus, sordide fuscus, luteo paulo variegatus; capite inter oculos spinis duabus erectis; abdominis segmentis postice in medio subcarinatis, segmento 8vo supra angulato, ultimo ad apicem subtrifido; pedibus anticis irregulariter tuberculatis, articulo basali tarsorum subconico; femoribus intermediis trilobato-spinosis (fœm.).

Long. corp. unc. 2, lin. 11; cap. lin. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 8; metath. lin. $5\frac{1}{2}$; abdom. lin. 13+ lin. 4= lin. 17.

Hab. Ceylon.

Nearly allied to *Ph.* (*Acanthoderus*) *phyllopus*, De Haan, pl. 12. f. 5.

Elongate, moderately slender, convex, obscure, irregularly granulated both above and beneath, dirty brown; the body and legs variegated with dull luteous; the femora clouded with blackish. Head oblong, with two spines between the eyes; the disc granular, especially on the hind part; the meso- and metathorax are destitute of spines, but are granulated, especially at the sides, and are marked with a fine central longitudinal line. The abdomen is granulose, especially at the hind part of the segments, in the middle of which each is marked with a dark, slightly elevated space; the eighth dorsal segment is extended backwards and elevated angularly; the ninth segment being deflexed, with its lateral posterior angles prominent, but obtuse, and exposing the two minute anal styles; it is rugose, with impressed longitudinal lines. The operculum extends slightly beyond the extremity of the ninth dorsal segment. The legs are moderately long and slender; the anterior have the femora and tibiæ irregularly and obtusely lobed, the lobes small, the terminal lobe of the tibiæ being larger and angulated; the middle femora are thicker and armed with three large acute lobes; the hind femora simple; the four posterior tibiæ have a small lobe near the base on the inner edge.

Another specimen in the National Collection has the lobes and spines of the legs less strongly developed.

Plate VI. Fig. 4. The female, of the natural size. 4 *a*. The head seen sideways. 4 *b*. The three terminal segments of the abdomen seen sideways. 4 *c*. The extremity of the abdomen seen from above.

23. (121.) Lonchodes Feruloides, *Westw.*

Plate VI. fig. 5.

Elongatus, subgracilis, fuscus, opacus, parte antica cum pedibus pallidioribus; capite magno, valde convexo, inermi; pedibus longis, subgracilibus, valde serratis, rufo-brunneo nebulosis; femoribus 4 posticis apice subtus spina majori armatis; operculo elongato, apice subtruncato;

tarsorum compressorum anticorum articulo basali prælongo (fœm.).

Long. corp. unc. $6\frac{3}{4}$; cap. lin. 4; proth. lin. 3; mesoth. lin. 18; metath. lin. 12; abdom. lin. 38 + lin. $5\frac{1}{2}$ + operc. lin. $1\frac{1}{2}$ = lin. 45.

Hab. Philippine Islands; Java (*Dr. Horsfield*). Coll. East India House. B.M.

Long, moderately slender, subcylindrical, smooth, brown, opake; the anterior part of the body pale buffish-brown; the legs pale whitish-brown, clouded with reddish-brown. The head is large and very convex, without horns or spines; (the antennæ are mutilated, in the specimen in the British Museum, beyond the fourth or fifth joint; the basal joint is however very small;) the mesothorax is very long, smooth, nearly cylindrical, rather dilated behind; the metathorax is similar, but much shorter. The abdominal segments are simple, subcylindric, the middle one rather the widest; the three terminal segments short; the ninth slightly produced in the middle of the hind margin, the sides exposing the short anal styles. The operculum is long, elbowed in the middle, extending considerably beyond the extremity of the ninth dorsal segment; its extremity broad and roundly truncated. The legs are long (especially the fore pair) and strong, strongly serrated along the angles (the fore legs being less so than the four hind ones); the fore tarsi with the basal joint long and compressed; the four hind femora with a strong spine on the under side near the tips; the tibiæ of all the legs slightly dilated at the tips, and the basal joint of the tarsi moderately elongated.

Plate VI. Fig. 5. The female, of the natural size. 5 *a*. The three terminal segments of the abdomen seen sideways. 5 *b*. The head seen sideways.

Obs. A specimen in the Cabinet of the East India House, collected by Dr. Horsfield in Java, has the following proportions:—Head, $3\frac{1}{2}$ lines; anten. 15; proth. $2\frac{3}{4}$; mesoth. 13; metath. 9; six basal segments of abdomen, 25; three terminal segments of abdomen, 7; fore legs—femur 17, tibia 19, tarsus $7\frac{1}{2}$; middle legs—femur 13, tibia 13, tarsus 6; hind leg—femur 15, tibia $17\frac{1}{2}$, tarsus $6\frac{1}{2}$.

24. (122.) Lonchodes virgeus, *Westw.*

Mas. Brunneo-fuscus; tibiis anticis pallide fasciatis; corpore gracillimo, lævissimo; femoribus omnibus spinosis, tibiis anticis valde elongatis haud spinulosis, 4 posticis spinulis minutis armatis, intermediis spinula majori marginis superi prope basin; abdominis segmento 7mo incrassato, ultimo fisso.

Long. corp. maris unc. 6.

Fœm. Luteo-fusca (viva viridis?); capite ovali, macula nigra verticis postice furcata; pronoto fusco vittato; corpore omni lævi; femoribus omnibus spinosis, tibiis anticis valde elongatis, fere inermibus, 4 posticis spinulosis; intermediis spinula unica basin versus marginis superi paullo majori, tarsis omnibus articulo basali elongato, compresso; operculo valde elongato, angusto, naviculari.

Long. corp. fœm. unc. $10\frac{1}{4}$.

Mas. Bacteria virgea, *Westwood, Cab. Orient.* p. 66. pl. 32. f. 2.

Fœm. Bacteria sarmentosa, *Westwood, Cab. Orient. Ent.* p. 65. pl. 32. f. 1.

Hab. In Sylhet. In Mus. Westwood, &c. B.M.

Although represented in the work above referred to as two distinct species, I feel now quite satisfied that these two insects are the opposite sexes of one and the same species.

25. (123.) Lonchodes Niponensis.

Viridis; capite convexo, inter oculos bispinuloso; femoribus mediis et posticis apice bilamellaribus, lamellis bidenticulatis.

Mas. Tarsorum anteriorum et posticorum articulo 1mo cæteris longiore; mediorum articulo 1mo cæteris æquali; femoribus et tibiis tetragonis; abdominis apice dilatato; vagina apice emarginata.

Long. corp. $3''\ 2'''$; mesoth. $9\frac{1}{2}'''$; metath. $7'''$; ped. ant. $2''\ 1'''$; ped. med. $1''\ 7'''$; ped. post. $2''$.

Fœmina. Tarsorum anteriorum articulo 1mo cæteris longiore; mediorum et posticorum 1mo cæteris æquali; femoribus et tibiis anticis extus planis, intus bicostatis, mediis et posticis compressis; abdominis articulo 6to subtus apice gibboso; vagina carinata, apice incurvata, cymbiformi.

Long. corp. $3''\ 9'''$; mesoth. $10'''$; metath. $8'''$; ped. ant. $2''\ 1'''$; ped. med. $1''\ 6'''$; ped. post. $1''\ 11'''$.

Phasma (Bacteria) Niponense, *De Haan, Orth. Orient.* p. 134.

Hab. Japonia.

26. (124.) Lonchodes Confucius, *Westw.*

Plate VII. fig. 2, male; fig. 3, female.

Subelongatus, subcylindricus, pallide virescens, medio corporis fuscescenti; lævis, mesonoto crebre granulato; femoribus omnibus ante apicem subtus spina composita armatis; segmento ultimo abdominali maris postice elongato, attenuato et profunde bifido; pedibus brevioribus (mas et fœm.).

Long. corp. maris unc. 3; anten. unc. 2; proth. lin. $1\frac{1}{3}$;

mesoth. lin. 7 ; metath. lin. 6 ; abdom. lin. 15 + lin. 5= lin. 20.

Long. corp. fœm. unc. $3\frac{1}{4}$; anten. unc. $1\frac{3}{4}$; proth. lin. 2 ; mesoth. lin. 8 ; metath. lin. $6\frac{1}{2}$; abdom. lin. 18 + lin. 5= lin. 23.

Hab. In China.

Moderately elongated, subcylindrical, smooth, except the mesonotum, which is finely granulated ; pale green, with the middle of the body browner ; the head and pronotum with a fine impressed central longitudinal line, and the remainder of the body with a fine raised line down the back. The antennæ are moderately long and slender. The head and thoracic segments are unarmed. The abdomen of the male nearly cylindrical, the three terminal segments forming an elongated oval mass, pointed at its extremity, formed of the terminal segment, which is deeply cleft nearly to the base, and armed beneath with the two curved anal styles, which are not visible from above ; the three terminal ventral segments short, the last swollen at its base, and scarcely reaching beyond the base of the ninth dorsal segment. The abdomen of the female is gradually attenuated to the tip, the eighth and ninth segments being short, the ninth emarginate, exposing a short semicircular lobe (having the appearance of a tenth segment), with two anal styles ; the operculum is boat-shaped, swollen beyond the middle, and not reaching beyond the extremity of the ninth dorsal segment ; the legs are rather short, and all the femora on the under side are armed with a small spined lobe or compound spine on the under side.

PLATE VII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the abdomen seen from the side.

Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the abdomen seen from the side.

Genus 7. **PRISOMERA.**

Prisomera, *G. R. Gray.*

Head small, subquadrate. Antennæ long, setaceous. Thorax scabrous, sometimes spined, nearly as long as the abdomen, cylindrical. Abdomen rather short, cylindrical. Legs short, furnished with dentated perfoliated lobes.

1. (125.) **Prisomera femoratum.**

Apterum, magnum, elongatum, lineare, teres, fuscum ; capite subrotundo ; antennis brevibus, oculis prominulis ; pedibus mediocribus, foliato-compressis ; tibiis duabus anticis multo latioribus, femoribus intermediis supra bilobatis ; oviductu ensiformi, reflexo, dentato.

Long. corp. circ. unc. 5.

Phasma femorata (Le Spectre aux pattes feuilles), *Stoll, Spectr.* pl. 14. f. 54.
G. R. Gray, Syn. Phasm. p. 15 (Prisomera f.).
Phasma latipes, *Lichtenstein, Linn. Trans.* vi. p. 11.
Mantis foliopeda, *Oliv. Enc. Méth.* vii. p. 638.
Bacteria femorata, fœm., *Burm. Handb. d. Ent.* ii. 2. p. 565.
De Haan, Orth. Orient. p. 134.

Hab. In Amboina. Mus. Holthuys.

2. (126.) **Prisomera spinicolle.**

Brunneo-nigrum ; capite cornibus duobus auriformibus spinisque armato ; thorace scabro ; mesothorace 6-, metathorace 2-spinosis, spinis longis, acutis ; abdomine subbrevi, scabro ; pedibus longis, femoribus 4 posticis juxta basin late dentato-perfoliatis ; tibiis foliato-compressis, tarsorum anticorum articulo basali compresso (fœm.).

Long. corp. fœm. 4″ 4‴ ; anten. 2″ 5‴ ; cap. lin. $2\frac{1}{2}$; proth. lin. 2 ; mesoth. lin. 12 ; metath. lin. 10 ; abdom. lin. 22 + lin. 5=lin. 27.

Prisomera spinicollis, *G. R. Gray, Syn. Phasm.* p. 16.

Hab. Ceylon. B.M.

The typical specimen of this species is preserved in the National Collection ; it is a female, and is remarkable for the large foliated and dentated lobes near the base of the four strongly curved posterior femora ; the six strong spines on the mesothorax and the two on the metathorax are not arranged symmetrically in pairs. The three terminal segments of the abdomen are rather short, nearly equal, the terminal one with its apical angles produced ; the operculum extends a little distance beyond the extremity of the abdomen ; the anterior tarsi have the basal joint compressed and elevated, the tibiæ being compressed at their extremity ; the four posterior tibiæ are compressed from the base to the middle, and the tarsi are simple.

Burmeister suggests that this insect (with which, however, he was only acquainted from the description in the 'Synopsis of Phasmidæ') may be the male of his *Bacteria acanthopus*. The insect before us, however, is itself a female ; and the male of Burmeister's species, according to De Haan, is winged.

3. (127.) **Prisomera bifoliatum.**

"Fœm. Longitudo *Acanth. perfoliati* B. Corpore granulato ; capite inter oculos transversim acuto-carinato ; antennis pedibusque tomentosis ; pedibus anticis margine superiori crenulatis ; femoribus extus convexis, tibiis supra foliolis tribus 2-denticulatis, tarsorum articulo 1° cristato ; femoribus mediis lobo eroso, infra marginatis, dentibus 4 subprominentibus ; tibiis mediis infra medium infra lobo dilatato

integro et supra foliis spiniformibus 2 acutis; pedibus posticis subintegris, tibiis basi infra lobo minimo supra denticulis 2 auctis; metathorace, abdominis articulo 1° et 6° apice supra unilobato; vagina apice truncato, inæquali."

Lat. corp. 2‴. Long. corp. 3″ 3‴; mesoth. 9½‴; metath. 5‴; ped. ant. 2″ 2‴; ped. med. 1″ 8‴; ped. post. 2″ 3‴.

Phasma (Acanthoderus) bifoliatum, *De Haan, Orth. Orient.* p. 136. pl. 14. f. 2.

Hab. In Sumatra.

Obs. A specimen, which I cannot distinguish from M. De Haan's insect, is in the British Museum Collection from Western Africa. It will be a remarkable circumstance if it should be proved that this species has so wide a geographical range.

4. (128.) Prisomera verrucosum.

Fœm. Corpore rugoso; capite pone oculos convexo, parte anteriore truncata, concava, bicristata; cristis integris; mesothorace verrucis 5 subfragæformibus alternantibus, inter pedes medios transversim carinato; abdominis articulo 1mo et 2do medio biverrucoso; articulo 3°, 4°, 7°, 8° apice medio supra unilobato, lobo articuli 4ti producto concavo obtuso, lobis posterioribus verrucæformibus; vagina versus apicem arcuata, medio carinata, apice rotundata; femoribus anticis extus convexis, ante apicem infra unilobatis; tibiis lato-marginatis, margine eroso, tarsorum articulo 1° dilatato; femoribus mediis supra lobo foliaceo margine eroso, antrorsum incurvato, infra versus apicem foliis 2 auctis; tibiis mediis incurvatis; supra lobis 2 erosis; pedibus posticis integris, femoribus apice infra bidenticulatis.

Long. corp. 3″ 1‴; mesoth. 9‴; metath. 7½‴; ped. ant. 1″ 3‴; ped. med. 1″ 1‴; ped. post. 1″ 4‴.

Phasma (Acanthoderus) verrucosum, *De Haan, Orthopt. Orient.* p. 136. pl. 14. f. 1, fœm.

Hab. In Sumatra.

Genus 8. ACANTHODERUS.

Acanthoderus, *G. R. Gray.*
Rhaphiderus, *Serville.*
Phasma, p., *Duméril.*
Bacteria, p., *Percheron.*
Cyphocrania, p., *Brullé.*

Body scabrous. Head small, subquadrate. Antennæ moderately long, setaceous, with the second joint much shorter than the third. Thorax cylindrical, shorter than the abdomen, spinose. Metathorax nearly as long as the mesothorax. Abdomen rather short, cylindrical. Legs moderately long, more or less spined, or furnished with foliaceous lobes. Tarsi with the basal joint shorter than the two following.

1. (129.) Acanthoderus spinosus.

Thorace supra et infra, abdominis articulo primo pedibusque fortiter spinosis; mas filiformis, flavescenti-brunneus, linea in medio nigra; fœmina cylindrica, albida, linea dorsali ænea.

Long. corp. maris 3″ 6‴; fœm. 4″ 3‴; capit. 2¼‴; proth. 2¼‴; mesoth. 9‴; metath. 8½‴; abdom. 2″ 4‴.

Caput inerme, longitudine prothoracis; segmentum primum abdominis supra spinis 2,2; segmenta reliqua inermia, sensim attenuata; operculum oviductus ad medium segmenti ultimi extensum.

Acanthoderus spinosus, *G. R. Gray, Syn. Phasm.* p. 14.
Phasma (Bacteria) spinosum, *G. R. Gray in Trans. Ent. Soc.* i. p. 46 (nec Bacteria spinosa, *G. R. Gray, Syn. Phasm.* p. 43).

Hab. In Nova Hollandia (Swan River). Mus. Hope.

2. (130.) Acanthoderus spiniger.

Elongatus, gracilis, cylindricus, scaber; capite inter oculos bitumido; antennarum articulis apice nigris; mesothorace spinis circiter 18 validis supra et subtus armatis; metathorace supra spinis 3, subtus 8; abdominis segmento 1mo subtus spinis duabus; pedibus quatuor posticis, femoribus prope apicem bispinosis; tibiis prope basin lobo parvo triangulari instructis (mas).

Acanthoderus spiniger, *White, Voy. Erebus & Terror, Ins.* p. 24.

Hab. New Zealand? (*Dr. Sinclair, R.N.*) B.M.

"Head greenish-grey, with a broadish protuberance between the eyes, divided longitudinally in the middle; vertex smooth; antennæ greyish, with the third and following joints black at the tip (only fourteen joints remain, of which the terminal ones are long); prothorax greenish-grey, smooth; mesothorax narrow, green, cylindrical, with about eighteen strong spines, placed somewhat in pairs, nine on the upper and nine on the under side, brownish-black at the end; metathorax green, narrow, cylindrical, with three spines above and eight below; abdomen subcylindrical, the joints thickened, first segment with two spines in the middle on the under side; fore legs (broken off); two hind pairs greyish, with six wide brown bands; femora white at the base, with two short spines at the very end, and two

longer on the inside near the tip; tibiæ with a slight tooth on the outside near the base; tarsi slender."

Long. corp. unc. 3, lin. 7; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 10; metath. lin. $8\frac{3}{4}$; abdom. lin. 19+lin. 3 =lin. 22.

The unique specimen of the male in the British Museum Collection has the seventh segment of the abdomen very much but gradually dilated, with five raised longitudinal lines; the eighth is gradually narrowed, constricted beyond the middle; the ninth is rounded at the sides, the extremity straight, but with the outer lateral angles deflexed and produced into four acute spines, the tips of which overlap the opposite spines; the two anal styles broad, deflexed; the three terminal ventral segments extend to the middle of the eighth dorsal segment, the ninth being swollen at the base.

3. (131.) Acanthoderus horridus.

Elongatus, gracilis; capite inter oculos bispinoso; prothorace leviter tuberculato; meso- et metathorace longis spinosissimis; abdomine supra parum spinoso-tuberculato; femoribus anticis denticulatis, posticis 4 infra versus apicem, denticulatis, tibiis extus prope basin lobatis, tarsorumque articulo basali cristato.

Long. corp. unc. 5, lin. 9; cap. lin. 3; metath. lin. 16; mesoth. lin. 12; abdom. lin. 30+lin. 6=lin. 36.

Acanthoderus horridus, *White in Zool. of Voy. Erebus & Terror, Ins.* p. 24. pl. 5. f. 4.

Hab. In Nova Zealandia. B.M.

Head grey; a slight ridge with four sinuations behind the antennæ and between the eyes; two spines and two or three tubercles on the vertex. Prothorax grey, with several small irregular conical tubercles; meso- and metathorax brown, with many longish spines, especially on the sides and under parts; there are several tubercles on the upper parts. Abdomen on the under side with spines shorter than those on the thorax; the upper parts with several subspiniform tubercles; fourth and sixth segments dilated on the sides at the end; coxæ of the fore legs with four or five spines; coxæ of the middle and hind legs with two spines; femora sharply angled, some of the angles with a few teeth, a crested dilatation at the base of the tibiæ of the two hind pairs; basal joints of the tarsi of two hind pairs of legs crested, with a notch at the ends.

4. (132.) Acanthoderus prasinus, *Westw.*

Plate III. fig. 2.

Elongatus, antice et postice attenuatus, viridi-luteus, subglaber; capite et mesothorace supra spinosis; abdomine foliolis duobus ovalibus terminato; operculo cymbiformi, vix apicem abdominis attingente; pedibus crassioribus; femoribus basi roseis, anticis extus parce spinulosis, quatuor posticis versus basin et apicem spinosis (fœm.).

Long. corp. unc. 3, lin. 7; anten. lin. 9; cap. lin. 3; proth. lin. 2; mesoth. lin. $7\frac{1}{2}$; metath. lin. 7; abdom. lin. 17+lin. 6=lin. 23.

Hab. In Nova Zealandia (*Captain Grey*). B.M.

Luteous-green (probably vivid green whilst living), rather polished. The head considerably larger and wider than the prothorax, oval, with a number of small spines on the crown arranged symmetrically. The antennæ rather short, brown, with the broad basal and the second joint fulvous. The prothorax is entire; the mesothorax gradually dilated from the fore margin to the middle, behind which the sides are parallel; the upper surface is armed with a number of small spines placed irregularly; the metathorax is slightly wider than the mesothorax, being rather swollen in the middle on each side and in front of the base of the hind feet; its upper surface bears a few small erect spines; the hinder margin, as well as that of the basal segments of the abdomen, being slightly margined. The abdominal segments are gradually narrowed from the base to the extremity, which is furnished with two large oval foliolets; the sixth segment is constricted in the middle, with its hinder angles prominent. The fore legs moderately long; the femora bent at the base, and armed with several spines on the upper edge, the tibiæ simple; the four hind femora thickened and angulated, with a spine near the base of the upper edge; the under edge with several spines, those near the extremity being largest; the tibiæ rather dilated, with a small spine near the base. The operculum has a small spine at its base, and extends to the middle of the ninth dorsal segment. The meso- and metasternum and abdominal segments beneath are armed with a few very small tubercles.

Plate III. Fig. 2. The female, of the natural size. 2 *a*. The head and thorax seen sideways. 2 *b*. The terminal segments of the abdomen seen sideways.

5. (133.) Acanthoderus lacertinus, *Westw.*

Apterus, subcylindricus, fuscus, opacus, rugosus et spinosus, corpore in medio parum latiore; capite ovali, vertice spinuloso, spinis 8 majoribus in ovalem dispositis; prothorace spinulis duabus versus marginem posticum; mesothoracis lateribus et disco irregulariter spinosis, spinis duabus approximatis versus marginem posticum; metathorace spinulis lateralibus duabusque mediis; abdomine scabro,

singulo segmento tuberculis duobus majoribus versus marginem posticum, segmento 6to contracto, oviductu subtus dilatato et carinato; pedibus anticis elongatis, inermibus, intermediis brevioribus; femoribus crassioribus spinis dilatatis; femoribus posticis spinis minoribus armatis, tarsorum intermediorum articulo basali brevi, in posticis pedibus magis elongato (fœm.).

Long. corp. unc. $3\frac{5}{6}$; cap. lin. $3\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 11; metath. lin. $6\frac{1}{4}$; abdom. lin. 18+lin. $5\frac{1}{3}$= lin. $23\frac{1}{3}$.

Phasma (Acanthoderus) lacertinum, *Westwood, Cab. Orient. Ent.* p. 80. pl. 39. f. 6.
Hab. Assam (*Major Jenkins*). Mus. Westwood. B.M.

6. (134.) Acanthoderus bicoronatus, *Westw.*

Fuscus, spinis compositis, duplici serie per totum corpus extensa valde armatus; capitis vertice medioque mesonoti corona spinarum instructis; abdominis segmentis duobus ultimis cristatis; femoribus tibiisque lobis numerosis acutis armatis (fœm.).

Long. corp. unc. 2; cap. lin. 2; anten. lin. 21; proth. lin. $1\frac{1}{2}$; mesoth. lin. 6; metath. lin. 2; abdom. lin. 9 + lin. 5=lin. 14.

Phasma (Acanthodera) bicoronata, *Westw. Cab. Orient. Ent.* p. 15. pl. 7. f. 2.
Hab. In Himalaya. Mus. Westw.

7. (135.) Acanthoderus semiarmatus, *Westw.*

Apterus, luteo-fuscus, squalidus, subgranulosus; capite spinis duabus inter oculos; abdomine basi lato sensim ad apicem attenuato; metanoto et abdominis segmentis 4 basalibus spina reflexa acuta in medio marginis postici; femoribus omnibus lobis parvis angulatis instructis, tibiis extus parce serratis (fœm.).

Long. corp. unc. 2; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 6; metath. lin. $2\frac{3}{4}$; abdom. lin. 9+lin. 3=lin. 12.

Phasma (Acanthodera) semiarmata, *Westw. Cab. Orient. Ent.* p. 15. pl. 7. f. 1.
Hab. In Himalaya. Mus. Westwood.

8. (136.) Acanthoderus Japonicus.

Fœmina. Corpore granulato, prothoracis et mesothoracis margine antico, uti et metathorace medio bispinoso; mesothorace ceterum modo 4-, margine postico bispinoso, lateribus uti et mesothorace spinuloso; antennis pedibusque pubescentibus; femoribus anticis extus convexis, mediis et posticis tetragonis; abdominis articulo penultimo dorso apice prominente; vagina carinata, recta.

Long. corp. 2″ 7‴; mesoth. $7\frac{1}{2}$‴; metath. 4‴; ped. ant. 1″ $5\frac{1}{2}$‴; ped. med. 1″ 3‴; ped. post. 1″ $9\frac{1}{2}$‴.

Phasma (Acanthoderus) Japonicum, *De Haan, Orthopt. Orient.* p. 135. pl. 12. f. 4, fœm.
Hab. Japonia.

9. (137.) Acanthoderus Phyllopus.

Fœmina. Corpore longitudine *A. cornuti*, rugoso; capite inter oculos transversim carinato; antennis pedibusque tomentosis; femoribus anticis convexis, margine superiore denticulatis; tibiis anticis apice subdilatatis, margine superiore eroso biphyllo, tarsorum anticorum articulo 1mo carinato; femoribus mediis supra lobo foliaceo majore dentato, et duobus minoribus integris; tibiis mediis supra lobis tribus et infra prope basin unico minore auctis; pedibus posticis margine superiore denticulato; abdominis articulo 6to infra apice unituberculato; vagina apice incurvata, obliqua, spinis brevibus foliaceis aucta.

Lat. corp. $2\frac{1}{2}$‴; long. corp. 2″ 6‴; mesoth. 7‴; metath. 4‴; ped. ant. 1″ $6\frac{1}{2}$‴; ped. med. 1″ 3‴; ped. post. 1″ 10‴.

Phasma (Acanthoderus) Phyllopus, *De Haan, Orthopt. Orient.* p. 135. pl. 12. f. 5, fœm.
Hab. In Insula Java.

10. (138.) Acanthoderus Noli me tangere.

Brevis; capite bis bispinoso, spinis posterioribus duabus minutis; mesothorace spinis 2 anticis et 4 posticis validis acutis; metathorace 4-spinoso, spinis majoribus; abdominis articulo 1mo medio bispinoso.

Mas. Corpore angusto, spinis corporis acutioribus; abdominis articulo 2do medio unispinuloso (apex deest); femoribus mediis et posticis apice bispinulosis.

Long. corp. 1″ 3‴; mesoth. $3\frac{1}{2}$‴; metath. $2\frac{1}{2}$‴; ped. ant. 1″.

Fœmina. Corpore bis latiore, spinis corporis basi latioribus spinulosis; abdominis articulo 2do medio bispinoso; articulis tribus basalibus utrinque unispinulosis, articulo 8vo dorso medio carinato, 9° apice truncato; vagina incurvata, apice limbata; femoribus mediis et posticis infra ultra medium 4-spinulosis, supra infra medium 1-spinulosis.

Phasma (Acanthoderus) Noli me tangere, *De Haan, Orth. Orient.* p. 135. pl. 14. f. 6 mas, f. 7 fœm.
Hab. Pontianak; Borneo (*Wallace*). B.M.

11. (139.) Acanthoderus coronatus.

Corpore fusco, spinoso; capite conico, margine utrinque 6-spinoso; prothorace angulis extremis acutis, serie duplici spinulosa media; mesothorace medio et lateribus carinato, carina media basi et apice bispinosa, angulis externis spinosis, metathorace bis uti et abdominis articulis 7 anterioribus medio semel bispinulosis; lateribus spina simplice armatis; articulo 8vo medio carinato, lateribus dilatato; femoribus et tibiis tetragonis, angulo superiore 4-spinuloso.

Mas. Corpore lineari, articulo 9° lobis 2 obtusis terminato; vagina versus apicem gibbosa, apice marginata.

Lat. corp. $2\frac{1}{3}'''$; long. corp. $2''$; mesoth. $6'''$; metath. $4'''$; ped. ant. $11\frac{1}{2}'''$; ped. med. $9'''$.

Fœmina. Antennis $5'''$ longis, 27-articulatis; corpore latiore, spinis mediis brevioribus, articulo 9° lobis duobus acutis terminato; vagina subrecta, convexa, carina media obtusa.

Lat. corp. $3\frac{1}{2}$–$4\frac{1}{2}'''$; long. corp. $2''$; mesoth. $5\frac{1}{2}'''$; metath. $3\frac{1}{3}'''$; ped. ant. et post. $13'''$; ped. med. $1''$.

Phasma (Pachymorpha) coronatum, *De Haan, Orthopt. Orient.* p. 137. pl. 14. f. 4 mas, f. 5 fœm.

Hab. In Java, Amboina; Borneo (*Wallace*). B.M.

12. (140.) Acanthoderus Bufo, *Westw.*

PLATE II. fig. 6.

Apterus, fuscus, corpore in medio (præsertim metathorace) dilatato, granulato et spinoso; capite postice spinis 4, pronoto 6, duabus intermediis majoribus; mesothoracis lateribus spinosis, dorsoque spinis 2 ad marginem anticum, 4 aliis ante medium cum duabus majoribus elevatis versus marginem posticum; metathorace spinis 2 in medio alterisque 2 approximatis versus marginem posticum; abdominis segmentibus basalibus spinis duabus distantibus prope basin alterisque 2 approximatis versus marginem posticum; segmentis posticis tuberculo elevato longitudinali ad marginem posticum; oviductu elongato, contracto; pedibus spinosis.

Long. corp. fœm. adult. unc. 4; cap. lin. 4; proth. lin. $3\frac{1}{2}$; mesoth. lin. 8; metath. lin. 6; abdom. lin. 16+lin. $6\frac{1}{2}$+lob. apic. lin. 3=lin. $25\frac{1}{2}$.

Phasma (Acanthoderus) Bufo, *Westwood, Cab. Orient. Ent.* p. 77. pl. 38. f. 3.

Hab. In Insulis Philippinensibus (*D. Cuming*). Mus. Westwood. B.M.

I am induced to consider the insect represented in Pl. II. f. 6 as a half-grown female rather than a full-grown male of this species. Like the fully-developed female (of which the figure in my 'Oriental Entomology' gives a representation), the specimen has the exserted style at the extremity of the body resembling a tenth joint; but the operculum does not extend beyond the extremity of the ninth joint, leaving exposed at the sides the inner appendages of the organs of generation. The operculum also is not 3-jointed as in the males, although it exhibits two transverse impressions. The specimen is from the Philippine Islands, and is in the British Museum Collection.

PLATE II. Fig. 6. The insect, of the natural size. 6 *a*. The head, pro-, meso-, and anterior part of the metathorax seen sideways. 6 *b*. The terminal segments of the abdomen seen sideways. 6 *c*. The same seen from beneath.

13. (141.) Acanthoderus Mesoplatus, *Westw.*

Apterus, fuscus, granulosus et spinosus; mesothorace postice cum metathorace dilatato; capite postice spinis 8, lateralibus majoribus; prothorace spinis 2, mesothorace 8, 2 anticis, 2 ante medium, 4 posticis (2 lateralibus); metathorace spinis 2 magnis pone medium lateribusque ante pedes posticos spinosis; segmentis basalibus abdominis 6-spinosis, spinis 2 anticis majoribus; segmentis posticis sensim dilatatis, tuberculo longitudinali ad marginem posticum instructis; pedibus spinosis (mas).

Long. corp. maris unc. $2\frac{1}{4}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 6; metath. lin. 4; abdom. lin. 9 + lin. $3\frac{1}{2}$= lin. $12\frac{1}{2}$.

Phasma (Acanthoderus) Mesoplatum, *Westw. Cab. Orient. Ent.* p. 77. pl. 38. f. 4.

Hab. In Insulis Philippinensibus (*D. Cuming*). B.M.

14. (142.) Acanthoderus draconinus, *Westw.*

Apterus, fuscus, spinis magnis lateralibus horridus; corpore in medio parum dilatato; capite supra postice spinis circiter 10 armato, lateralibus majoribus; prothorace supra utrinque tuberculo plano elevato spinoso armato, mesothorace etiam supra versus marginem anticum, utrinque tuberculo lato spinoso et dentato, postice convergenti, armato; prope marginem posticum etiam tuberculo minori e spinis duabus conjunctis armato; tuberculo simili in medio metathoracis; segmentis basalibus abdominis utrinque spina porrecta medioque unica minori armatis; segmentis posticis sensim angustioribus, analibus tuberculatis; pedibus spinosis.

Long. corp. maris unc. $1\frac{1}{2}$; fœm. $2\frac{1}{4}$; hujus cap. lin. $2\frac{1}{4}$; anten. lin. 9; proth. lin. 2; mesoth. lin. $4\frac{3}{4}$; metath. lin. 4; abdom. lin. 9+lin. 5=lin. 14.

Phasma (Pachymorpha) draconinum, *Westw. Cab. Orient. Ent.* p. 78. pl. 38. f. 5.

Hab. In Insulis Philippinensibus (*D. Cuming*). Mus. Westwood. B.M.

15. (143.) **Acanthoderus Gecko**, *Westw.*

PLATE XXVI. fig. 6, male; fig. 7, female.

Fuscus, opacus, ferrugineo-granulosus et spinosus; corpore maris minus granuloso; capite brevi-spinoso; prothorace carinis duabus convergentibus granulatis spinisque duabus validis antice instructo; mesothorace spinoso, spinis duabus maximis divergentibus ante medium, duabus minoribus erectis pone medium approximatis alterisque duabus lateralibus; metathorace utrinque prope medium duabus validis porrectis; abdomine maris sublævi, fœminæ granulato; pedibus mediocribus, femoribus spinosis (mas et fœm.).

Long. corp. maris lin. 18; capit. lin. 2; proth. lin. 2; mesoth. lin. 4; metath. lin. $2\frac{1}{2}$; abdom. lin. $6\frac{1}{2}$+lin. 2= lin. $8\frac{1}{2}$.

Long. corp. fœm. lin. 27; capit. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. 3; abdom. lin. 9 + lin. 5 = lin. 14.

Hab. Sarawak, Borneo (*D. Wallace*). Mus. Saunders & B.M.

This species is well distinguished by the two large compound spines on the prothorax, and by the large triangular strongly spined space on each side of the anterior part of the mesothorax. The general colour is brownish-black in the male, with the spines and central line down the thorax ferruginous. The female is ferruginous brown, with the abdomen darker coloured, the spines and small tubercles being more ferruginous. The male has the body much less rugose, but with the spines more acute; the female is covered with small granules, and the mesothorax has the triangular lobe on each side more dilated, flattened, and spined than in the male. The head is nearly square, with two strong spines on the crown behind the middle, with several smaller tubercular spines. The anterior lateral angles of the prothorax are spiracular, surmounted by a small spine; the disc on each side is armed with a strong, obliquely erect, bifid spine, each followed, in the female, by a row of small tuberculiform spines. The mesothorax has a transverse row of small spines across the base; the flanks are armed with a row of about six small spines; the disc in the male is armed on each side near the front with a strong spine, beyond the middle with a pair of erect approximating spines, and another pair above the insertion of the middle leg. Along the middle both of the meso- and metathorax runs a slender, slightly elevated, ferruginous line; the flanks of the metathorax are also spined, and the disc of the anterior portion is armed with a pair of strong, obliquely erect spines. In the female the spines become more compound, the anterior pair of the mesothorax being united together, and to the two middle spines, by a raised transverse lozenge-shaped space, with the edges serrated; the discoidal carina is furnished with two rows of small tubercles. The thorax beneath is unarmed. The abdomen is considerably narrower than the metathorax; the segments are nearly square in the male and very finely rugose, but transverse in the female and finely granular, with a transverse ridge of tubercles near the hind margin. The terminal segments of the abdomen in the male are but little swollen; the terminal dorsal segment slightly emarginate in the middle, and the last ventral segment rounded at its extremity; the terminal dorsal segment in the female is carinated, with an impressed line running down the middle of the carina; the operculum large, but not extending beyond the extremity of the abdomen. The legs are moderately long in the male, shorter and stronger in the female; the femora, especially in the latter, are armed with small spines on the upper edges; the under edge in the four posterior femora armed with two spines towards the tip; the tibiæ are rugose rather than spined; the tarsi are short, with the basal joint small.

PLATE XXVI. Fig. 6. The male, of the natural size. 6 *a*. The head and prothorax seen sideways. 6 *b*. The terminal segments of the abdomen seen sideways.

Fig. 7. The female, of the natural size. 7 *a*. The head, prothorax and mesothorax seen sideways. 7 *b*. The terminal segments of the abdomen seen sideways.

16. (144.) **Acanthoderus deplanatus**, *Westw.*

Apterus, planus, thorace e capite ad pedes posticos sensim dilatato; ferrugineo-fuscus, opacus, granulosus; capite postice spinis 6 aliisque lateralibus parvis armato; prothorace antice utrinque tuberculo plano spinoso armato; mesothorace antice area parum elevata utrinque angulata, lateribus postice convergentibus instructo, marginibus granulosis spinisque duabus supra pedes medios armato; metathorace etiam spinis 4 supra pedes posticos utrinque armato, hoc cum mesothorace et abdomine carina media longitudinali parum elevata instructo; segmentis basalibus abdominis serie transversa spinarum parvarum versus marginem posticum armatis; pedibus brevibus, spinosis (fœm.).

Long. corp. fœm. unc. $2\frac{1}{2}$; cap. lin. 3; proth. lin. 3; mesoth. lin. $5\frac{1}{2}$; metath. lin. 4; abdom. lin. 11 + cum lob. apic. lin. 5=lin. 16.

Phasma (Pachymorpha) deplanatum, *Westw. Cab. Orient. Ent.* p. 78. pl. 38. f. 6.

Hab. In Insulis Philippinensibus (*D. Cuming*). B.M.

17. (145.) Acanthoderus ranarius, *Westw.*

PLATE IV. fig. 3.

Obscure fuscus, rugosus, opacus, setulosus, dorso carina media longitudinali; antennis capite vix longioribus; thorace e capite ad basin pedum posticorum sensim dilatato, lateribus granulatis et ante pedes posticos acute angulatis, segmentis abdominis postice tuberculatis, lobo apicali (segmentum 10um simulante) exserto; pedibus brevibus, parum denticulato-tuberculatis (fœm.).

Long. corp. lin. 20; anten. lin. 4; proth. lin. 2; mesoth. lin. 4; metath. lin. $3\frac{1}{2}$; abdom. lin. 6 + cum lob. apic. lin. 3=lin. 9.

Hab. In Insulis Philippinensibus. B.M.

Allied in general form to the preceding species. Obscure brown, opake and rugose both on the upper and under sides, finely setose. The head is rather longer than wide, with small tubercular spines between the eyes and on the hind part. The antennæ are very short and 16- or 17-jointed. The prothorax is about the size of the head, with two oblique granulated raised lines; the hinder margin also tuberculated. The mesothorax is gradually dilated, with an elevated tuberculated ridge down the middle; the lateral margins also granulated, and with lateral curved elevated granulated lines. The metathorax is gradually dilated to the front of the place of insertion of the hind legs, where it is strongly angulated and suddenly narrowed, the hinder division separated from the anterior by a curved impressed line. This portion of the body, as well as the abdomen, is marked down the middle by an elevated tubercular carina, and the hind margins of the abdominal segments are armed with larger tubercular spines, the outer posterior angles of each segment being prominent; the ninth dorsal segment is much depressed and subemarginate, exposing the anal lobe resembling an extra segment. The operculum is swollen at the base, and scarcely extends to the extremity of the exposed lobe. The legs are short, the anterior femora curved at the base; all the femora are armed with small tubercular spines. The mesosternum is flat, with a very fine raised central line, and a row of tubercles on each side, outside of which the mesosternum is angulated. The ventral segments of the abdomen are slightly tricarinated along the middle.

PLATE IV. Fig. 3. The female, of the natural size. 3 *a*. The fifth to the ninth segments of the abdomen seen sideways.

18. (146.) Acanthoderus Oileus, *Westw.*

PLATE XXVI. fig. 4.

Obscurus, griseo-fuscus, luteo-variegatus, depressus; capitis vertice postice elevato, conico, serie antica duplici tuberculorum triangulum formante; antennis brevibus; thorace inermi, capite parum latiore, lateribus parallelis; abdominis segmentis carina duplici mediana, sulcisque obliquis lateralibus; pedibus brevibus, subrugosis.

Long. corp. unc. $1\frac{1}{2}$; cap. lin. $1\frac{3}{4}$; anten. lin. 4; proth. lin. $1\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 3; abdom. lin. $5\frac{1}{2}$ + lin. 3=lin. $8\frac{1}{2}$.

Hab. In Insula Java (*Dr. Horsfield*). In Mus. Soc. Merc. Ind. orient.

I have seen only one specimen of this species, which appears to me to be a female not arrived at its full growth. The head is small, with the crown elevated behind into a conical protuberance, rugose along its edges; the anterior part of the face, with two converging rows of tubercles, running from the base of each antennæ and meeting in the middle of the face between the eyes. The antennæ are short, about 23-jointed, the basal joint robust and prismatic, flat above. The prothorax is wider than the head, with the anterior angles rounded; the disc uneven, with two tubercles near the middle. The meso- and metathorax are of equal width throughout, and furnished with an elevated ridge down the middle terminating in the anterior margin of the mesothorax in two prominent tubercles; the disc and sides are slightly uneven; the posterior division of the metathorax is very short, with two diverging raised lines in the middle. The abdomen is depressed and has the sides even and continuous, of nearly equal width throughout; the terminal segment narrowed, truncated, and serrated at the extremity; each segment has two curved elevated lines in the middle, and an oblique impression on each side; the fifth segment is marked near its base in the middle with two round black spots, the eighth dorsal segment is elevated at its hinder extremity in the middle; on the under side the body is simple and unarmed, with the middle of the thoracic and abdominal segments with a slightly raised longitudinal carina. The operculum is but slightly developed, nearly flat, and extending only to the middle of the eighth dorsal segment. The legs are short, rather thick, and slightly rugose; the basal joint of the tarsi scarcely longer than the following joint.

PLATE XXVI. Fig. 4. The female (immature?), of the natural size. 4 *a*. The head and front of the thorax seen sideways. 4 *b*. The terminal segments of the abdomen seen sideways.

19. (147.) Acanthoderus ulula, *Westw.*

PLATE XXVI. fig. 1, female.

Fuscus, opacus, rugosus, ferrugineo-granulatus et spinosus; capite postice elevato, multispinoso; antennarum articulo basali extus spina parva instructo; prothorace sub-

quadrato, lateribus antice spina obtusa serieque duplici dorsali; mesothorace postice dilatato spinisque duabus magnis compositis, alterisque duabus metathoracis spinaque valida ante pedes posticos; abdomine elongato, subplano, granulato; segmento 8vo carina valde elevata, apice ultimi emarginato; pedibus tuberculatis (fœm.).

Long. corp. maris lin. 19; cap. lin. $2\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 3; abdom. lin. $6\frac{1}{2}$+lin. 3= lin. $9\frac{1}{2}$.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders.

Dark brown, varied with ferruginous granulations, opake, rugose, and strongly spined. The head is rather short, with the crown considerably elevated and armed with about five spines, varying in size on each side. The antennæ are rather short (broken at the tips), with the basal joint flat above, with a spine on the outside at its extremity. The prothorax is rather short and square, with a strong obtuse spine on each side near the anterior angle, and the disk has two rows of small spines. The mesothorax is much swollen at the sides of its hinder portion; it has two diverging spines near its fore margin, and a large compound spine on each side behind, with a pair of corresponding spines in the middle of the metathorax, which is also armed with a pair of strong diverging spines in the middle of the lateral margins. The abdomen is much narrower than the metathorax, and is gradually narrowed from the base to the sixth segment; each segment has two tubercles at each side near the base, and four others arranged in pairs near the middle of the hind margin; the seventh and eighth segments have two stronger obtuse spines between the middle and the fore angles, the eighth being elevated in the middle into a strong crest; the ninth segment is nearly flat, obconic-truncate, tuberculated at the sides and emarginate at the extremity. The operculum is small, slightly convex, carinated down the middle, and extends to the extremity of the eighth dorsal segment; the anal styles are very short. The legs are short and tuberculated; the femora with a small spine on the upper edge at the tip; the tarsi short, with the basal joint scarcely longer than the following.

Plate XXVI. Fig. 1. The female (probably not mature), of the natural size. 1 *a*. The head and front of the thorax seen sideways. 1 *b*. The terminal segments of the abdomen seen sideways.

20. (148.) Acanthoderus Otys, *Westw.*

Plate XXVI. fig. 2, male.

Fusco-cinereus; capite oblongo, inter oculos 2-spinoso, vertice elevato, 4-spinoso; antennis brevibus, 18-articulatis, articulo basali extus bispinoso, apicalibus attenuatis; meso- et metathorace postice rotundato-dilatatis, serratis, et in medio tuberculis erectis instructis; abdomine elongato, gracili, segmento septimo latiori; angulis posticis obtuse porrectis; noni apice emarginato; pedibus brevibus, subtuberculatis (mas).

Long. corp. lin. 17; cap. lin. 2; anten. lin. $5\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. $2\frac{3}{4}$; abdom. lin. 6 +lin. $2\frac{1}{2}$=lin. $8\frac{1}{2}$.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

Entirely ashy-brown, opake, with the anterior triangular portion of the meso- and metathorax paler. The head is oblong, with two strong diverging obtuse spines between the eyes; the crown is elevated behind and armed with two pairs of erect obtuse spines. The antennæ are short, 18-jointed; the basal joint broad and flat above the outer edge, with two obtuse teeth; the five terminal joints are more slender than the preceding and pale luteous. The prothorax is subquadrate, rugose above and at the sides. The mesothorax is rugose in front, its hind part is roundly dilated (as is also the hind part of the metathorax), and each is armed with four obtuse spines; the former has also two conically elevated tubercles close together in the middle near the hind margin, and on each side of them are two smaller points. The metathorax has a central conical tubercle near the hind margin of its anterior division, the hinder division being very short. The abdomen is narrow, with the sides of the second and five following segments nearly parallel, slightly rugose above, each segment, moreover, being a little swollen near its base, as well as near its extremity on each side; the seventh segment is wider than any of the preceding, with the hinder angles considerably produced and with an obtuse tubercle on each side; the eight segment is narrower, with a strongly elevated carina in the middle, and an obtuse tubercle on each side; the ninth segment is subquadrate, with a tubercle on each side and the apex emarginate. The terminal ventral segments are very much swollen. The legs are short and thick, slightly tuberculated (the hind thighs more strongly than the rest); the tarsi with the basal joint short.

Plate XXVI. Fig. 2. The male, of the natural size. 2 *a*. The head and thorax seen sideways. 2 *b*. The terminal segments of the body seen sideways.

21. (149.) Acanthoderus Tisiphone, *Westw.*

Plate XXVI. fig. 10, male; fig. 11, female.

Fuscus, obscurus, rugosus; corpore latiori, subconvexo;

capite lobis duobus spinulosis verticalibus; prothorace spinoso; mesothorace ante medium utrinque lobo triangulari spinuloso (in mare apice acutiori) armato; metathorace necnon segmentis sex basalibus abdominis lobis duobus parvis spinulosis in fœmina, spinisque duabus metathoracis et segmentorum duorum basalium in mare armatis; segmentis tribus ultimis abdominis dilatatis; pedibus tuberculato-spinosis.

Long. corp. maris unc. $1\frac{1}{2}$; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. 3; metath. lin. $2\frac{1}{2}$; abdom. lin. 6 + lin. $3\frac{1}{2}$ =lin. $9\frac{1}{2}$.

Long. corp. fœm. lin. 20; cap. lin. 2; proth. lin. 2; mesoth. lin. 3; metath. lin. 3; abdom. lin. 7 + lin. 4 = lin. 11.

Hab. In Columbia. In Mus. Guerinii, Parisiis.

This is one of the most repulsive-looking species in the entire family, owing to its uniform dirty brown colour and strongly armed appearance. The male is considerably narrower than the female, and the spinulose lobes upon the different parts of the body are more elongated, terminating in longer and more acute spines. The head is short, with the face deflexed; it is rugose, and armed with two strong denticulated lobes on the crown, behind which are two smaller spines. The antennæ are long and slender, with long joints. The prothorax is transverse, armed with two spines in front and two smaller behind. The mesothorax is oblong in the male, nearly square in the female; it has two small spines near together in front, and two large triangular denticulated lobes at the sides, with two small spines behind in the middle; it is also spined along the edges. The metathorax is shorter than broad in the female, with a pair of small triangular denticulated lobes in front (produced in the male into acute spines); the middle is carinated, and the sides are dilated into triangular spinose lobes. The abdomen is rugose, serrated along the edges, narrower in the male, broad in the female: the first and second segments in the male with a pair of spines, and the fifth and sixth with two small denticulated lobes; in the female all the six basal segments have a pair of denticulated lobes, those on the second and third segments being the smallest, and those on the fifth largest, subovate and denticulated; the three terminal segments are broadly dilated, the last joint erect in the male, terminating in two small rounded lateral lobes in the female. The legs of the male are longer and more slender than those of the female. All the femora and tibiæ are furnished with numerous small obtuse tubercles, arranged in pairs on the femora. The tarsi are short, with the basal joint scarcely larger than the following joint. (The under side of the terminal segment had been devoured by *Anthreni* in the only two specimens which I have seen.)

Plate XXVI. Fig. 10. The male, of the natural size. 10 *a*. The profile of the body.
Fig. 11. The female, of the natural size.

22. (150.) Acanthoderus Mimas, *Westw.*

Plate I. fig. 3.

Mediocriter elongatus, corpore pedibusque spinosissimis; fuscus, lateribus luteo parum variegatis; pedibus pallide luteis fusco variis; meso- et metathorace ad apicem dilatatis; femoribus ante apicem foliolo-dentatis; tibiisque omnibus intus ante medium foliolo conico parvo instructis (mas).

Long. corp. maris lin. $18\frac{1}{3}$; anten. lin. 12; proth. lin. 1; mesoth. lin. 5; metath. lin. $3\frac{1}{4}$; abdom. lin. 7 + lin. $1\frac{1}{2}$ = lin. $8\frac{1}{4}$.

Hab. Ceylon. B.M.

The head of the unique male in the National Collection is small and armed with six erect spines arranged in pairs. The antennæ are long and slender, the labrum and mandibles pale buff, the latter black at the transverse tips; the general colour of the body is brown, slightly varied at the sides with pale buff. The mesosternum armed with two or three small deflexed spines at each side. The prothorax is armed at the base of each fore leg with two divergent spines. The mesothorax is armed with two compound spines on each side, and with several erect and diverging spines arranged across its dilated hinder part; there is also a similar arrangement of spines across the dilated hind part of the metathorax; each of the six basal segments of the abdomen is also dilated at its extremity, where it is armed in the same manner with spines; each of these abdominal segments has likewise the hinder margin beneath produced in the middle into two small contiguous lobes; the three terminal segments in the male are short, bent upwards and dilated beneath, the seventh being armed with a deflexed spine, as well as the under edge of the swollen operculum. The legs are pale buff, considerably variegated with brown; the femora of the two fore legs have two middle triangular foliaceous lobes on the inside, the four hinder femora being more strongly spined both along the front and hind edge, and all the tibiæ have a small lobe on the inner edge between the base and middle.

Plate I. Fig. 3. The male, of the natural size. 3 *a*. The same seen sideways without the limbs. 3 *b*. The four terminal segments of the abdomen seen sideways.

23. (151.) **Acanthoderus vigilans,** *Westw.*

Vertice aurito, thorace carinato corporeque scabro; femoribus mediis bis subtrifoliatis; abdominis apice lanceolato (fœm.).

Long. corp. 2″ 6‴.

Acanthoderus auritus, *Burmeister, Handb. d. Ent.* ii. p. 569 (nec Bacteria aurita, *Burm. op. cit.*).

Hab. In Brasilia.

24. (152.) **Acanthoderus oryx,** *Westw.*

Maris thorace vertice spinato, scabro, cylindrico, granulato; pedibus simplicibus, feminæ thorace carinato, scabro; femoribus mediis bis subtrifoliatis; abdominis apice lanceolato.

Long. corp. maris, 2″–2″ 4‴; fœm. 2″ 9‴.

Acanthoderus scabrosus, *Burmeister, Handb. d. Ent.* ii. p. 569 (nec Bacteria scabrosus, *G. R. Gray*).

Hab. In Brasilia.

25. (153.) **Acanthoderus cornutus.**

Fronte inter oculos bicorni; vertice et corpore scabris; pedibus brevibus, crassis.

Mas. Femoribus simplicibus; abdomine 9-annulato, in apice truncato.

Fœmina. Femoribus 4 posticis marginibus dentatis; abdomine 10-annulato apice lanceolato, libero, operculum vaginale non superante.

Long. corp. maris, 2″; fœminæ, 2″ 8‴.

Acanthoderus cornutus, *Burmeister, Handb. d. Ent.* ii. p. 569.

Hab. In Insula St. Thomæ Ind. occident.

26. (154.) **Acanthoderus rosarius,** *Perch.*

Gracilis, cylindricus, prasinus, apice femorum et tibiarum obscuriori; capite et prothorace 2-, mesothorace 2, 2, 2-, metathorace 2, 2-, segmentisque tribus basalibus abdominis 2-spinosis, spinis flavidis.

Long. corp. unc. 3; anten. unc. 2; proth. lin. 2; mesoth. lin. 10; metath. lin. 7; abdom. lin. 13 + lin. 3 = lin. 16.

Bacteria rosaria, *A. Percheron, Genera des Ins. Orth.* pl. 5.
Phasma (Bacteria) rosarium, *De Haan, Orthopt. Orient.* p. 134.

Hab. In America meridionali?

27. (155.) **Acanthoderus Euterpinus,** *Westw.*

E viridi flavescenti-brunneus; gracillimus; capite, pro- et mesothorace singulis spinis duabus acutis armatis; pedibus simplicibus longis; antennis longissimis; abdominis apice crassiori, segmento ultimo fisso.

Long. corp. unc. $2\frac{2}{3}$; anten. unc. $2\frac{1}{2}$; cap. lin. $1\frac{1}{2}$; mesoth. lin. $8\frac{1}{2}$; metath. lin. 6; abdom. lin. 10 + lin. $3\frac{1}{2}$ = lin. $13\frac{1}{2}$.

Bacteria spinosa, *G. R. Gray, Syn. Phasm.* p. 43.
Nec Phasma (Bacteria?) spinosum, *G. R. Gray in Trans. Ent. Soc.* i. 46 (=Acanthoderus spinosus).

Hab. In Brasilia. B.M.

28. (156.) **Acanthoderus Tolima,** *Westw.*

Plate XXIV. fig. 5, male.

Tenuissimus, cylindricus, olivaceo-fuscus; capite brevi, rotundato, spinoso; thorace spinoso-verticillato, spinis albidis; meso- et metathorace supra pedes postice dilatatis; segmentis abdominalibus postice lateraliter angulato-dilatatis, spinisque duabus in medio marginis postici, segmentis tribus ultimis dilatatis; ultimo infra concavo, stylis duobus analibus curvatis, in medio latis apice acutis; pedibus longissimis, spinosis (mas).

Long. corp. unc. $1\frac{1}{2}$; anten. lin. 19; proth. lin. $1\frac{1}{4}$; mesoth. lin. 5; metath. lin. $3\frac{1}{2}$; abdom. lin. 6+lin. $2\frac{1}{4}$= lin. $8\frac{1}{4}$.

Hab. In Columbia (*Pic Tolima; D. Gaudichaud*). In Mus. Saunders.

This species is closely allied to *B. Thestylis*, but it is shorter in the proportion of the different parts of its body, and is much more strongly spined. The head is short, broad, round, and very convex, armed above with two pairs of spines, the hinder pair being the largest. The antennæ are very long and slender, irregularly annulated with buff. The prothorax is armed with two erect spines at its hinder part. The mesothorax is long and slender, considerably dilated at the insertion of the legs (as is also the metathorax), armed with about twelve spines arranged in three irregular transverse series. The metathorax has about ten similar spines, four arranged transversely near the middle, two at the extremity of each of the divisions, and two lateral ones. The hind part of each of the abdominal segments is dilated and deflexed; the middle of the hind margin both dorsally and ventrally armed with two spines. The three terminal segments are widened, the last dilated at the sides, margined behind, and subtruncate; the three terminal ventral segments are much swollen, extending to the extremity of the eighth segment, which has the lateral margins emar-

ginate; the anal styles are thick, incurved, setose, and pointed at the tips. The legs are very slender; the femora with two rows of short spines on the lower angles, less distinct in the anterior pair, and the tibiæ have three small spines between the base and the middle; the tarsi are very slender, with the basal joint longer than all the rest united.

Plate XXIV. Fig. 5. The male insect, of the natural size. 5 *a*. The same seen laterally, with the limbs omitted. 5 *b*. The three terminal segments of the body seen laterally. 5 *c*. The terminal segment with the anal styles seen from behind.

29. (157.) Acanthoderus Arispa, *Westw.*

Plate XXVI. fig. 5, female.

Fuscus, capitis et prothoracis lateribus luteis; opacus, rugosus; capite brevi, gibboso, spinis duabus spinulisque nonnullis verticalibus; antennis longitudine saltem pedum anticorum; abdomine brevi segmentis quinque basalibus dilatatis, convexis, lobo medio utrinque spinoso marginis postici, lateribusque tuberculo conico armatis; pedibus tuberculatis (fœm.).

Long. corp. lin. 17½; anten. lin. 11; proth. lin. 1¾; mesoth. lin. 3½; metath. lin. 2; abdom. lin. 5½+lin. 3½= lin. 9.

Hab. In Columbia (*D. Gaudichaud*). In Mus. Saunders.

I have seen only one female individual of this species, which differs from all the others with which I am acquainted in the shape and appendages of the abdominal segments, tuberculated legs, &c. It may possibly be the female of *A. Tolima*, but I have no proof of such a fact. The head is short, very convex, with various minute spines on the crown, two being of larger size than the rest. The antennæ are at least as long as the fore legs. The prothorax is furnished with numerous small granules and two small erect points in the middle of the hinder margin. The mesothorax and metathorax are also granulose, with a central slender raised line and two short spines on the disc in front of the middle and two on the hind margin; the metathorax is short, with two small spines in the middle. The abdomen has the basal segments gradually dilated into an oval mass, convex above, rugose; the basal segment with two small spines in the middle, and two larger towards the sides on the hind margin; the second segment has the hinder margin in the middle raised into a broad thin plate, with a spine on each side and two converging carinæ in the middle; the third and two following segments are broad, with the middle raised into a much narrower lobe, the disc with converging carinæ and the lateral margins dilated behind; the sixth segment is much narrower than the preceding; and the three terminal segments are much compressed, and as long as the four preceding segments united, with an acute carina along the middle, the sides slightly rugose; the seventh segment being as long as the eighth and ninth united. The operculum extends to the extremity of the abdomen; it is but slightly swollen in the middle. The legs are of moderate length, armed with numerous small conical lobes on the femora and tibiæ, those of the fore legs being less strongly marked than in the hind legs; the tarsi have the basal joint rather longer than the three following joints united.

Plate XXVI. Fig. 5. The female, of the natural size. 5 *a*. The head seen sideways. 5 *b*. The abdomen seen sideways.

30. (158.) Acanthoderus Quindensis.

Plate XXV. fig. 3, male, fig. 4, female.

Fusco-nigricans, opacus, subrugosus; pedibus magis piceis; capite utrinque luteo; mesothoracis parte antica et lateribus subasperis, segmentis abdominalibus postice extus angulatis, singuloque supra postice in carinam parvam producto; pedibus longis, simplicibus.

Long. corp. maris, lin. 14; anten. lin. 14; proth. lin. 1¾; mesoth. lin. 2; metath. lin. 2; abdom. lin. 5 + lin. 3 = lin. 8.

Long. corp. fœm. lin. 17; anten. lin. 13; proth. lin. 2; mesoth. lin. 2½; metath. lin. 2½; abdom. lin. 5½+lin. 2½ =lin. 8.

Bacteria Quindensis, *Goudot in Guérin, Mag. de Zool. Ins.* p. 5 (sine descr.).

Hab. In regionibus frigidis Cordilleræ centralis Novâ Granada, sub truncis arborum procumbentium, ubi individua duo vel tria societate invenit *D. Goudot*. In Mus. Saunders.

Obscure blackish-brown, slightly rugose above. Legs more pitchy. Head dirty luteous at the sides. The male is much narrower than the female, with the abdomen nearly cylindric; that of the female is broader and subconvex. The head is unarmed, nearly square, shorter in the male. The antennæ long, with long slender joints. The meso- and metathorax of nearly equal length, the former with several small obtuse points in front and along the sides. The abdomen has the segments produced into small angulated points on each side of the hind margin, and there is a small elevated point forming a short ill-defined carina in the middle of the hind margin of each segment. The terminal segment of the male is produced behind at the sides into two strong deflexed points, and is concave

beneath, with the anal styles obtuse and incurved. The operculum of the female is swollen in the middle, and extends to the extremity of the abdomen. The legs are long, those of the female stronger and shorter; the basal joint of all the tarsi scarcely longer than the following joint.

PLATE XXV. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the abdomen seen laterally. 3 *b*. The terminal joint seen from behind.
Fig. 4. The female, of the natural size. 4 *a*. The terminal segments seen laterally.

31. (159.) Acanthoderus Servillei.

Mas. "Brun, très allongé, cylindrique. Pattes grêles, non épineuses; une petite épine sur chaque segment du thorax au-dessus de l'insertion des pattes, et deux autres sur les côtés du métathorax; antennes longues de seize lignes, sétacées; articles des tarses de même largeur partout."

Fœm. "Semblable au mâle mais plus grande et non munie d'épines sur le milieu de corselet."

Bacteria Servillei, *Montrouzier in Ann. Sci. Phys. et Natur. de Lyon*, 1855, t. vii. p. 80.
Hab. Woodlark Island, frequens.

32. (160.) Acanthoderus ? phyllocephalus, *Westw.*

Fœmina vertice breviori, cornibus in apice foliaceis; thorace spinoso, metathorace in medio spina crassa maxima; pedibus brevibus, elevato-carinatis; femoribus 4 posticis ante medium, omnibusque in apice biphyllis; tarsorum articulo 1mo cristato; operculo vaginali maximo, carinato, in apice bisinuato.

Long. corp. cum operculo, 9″ 5‴.

Bacteria aurita, *Burmeister, Handb. d. Ent.* ii. p. 565 (nec Acanthoderus auritus, *Burm. op. cit.* neque
Cladomorpha ceratocephalus ?, *G. R. Gray*, ut opin. *Burm.*)
Hab. In Brasilia interiori.

Genus 9. PYGIRHYNCHUS.

Pygirhynchus, *Serville.*

Body elongate, subcylindrical. Head generally furnished with auriform appendages; ocelli wanting. Antennæ long, slender; basal joint dilated, subovate. Thorax long, rugose, sometimes spined; mesothorax three times the length of the prothorax. Abdomen subcylindrical; anal styles not prominent. Terminal dorsal segment and the operculum elongated, resembling a duck's beak. Legs of moderate length; thighs not membranous; middle femora and sometimes the posterior furnished with foliaceous lobes; basal joint of the tarsi not dilated.

1. (161.) Pygirhynchus subfoliatus.

Valde rugosus, brunneo-virescens; capite appendiculis duobus auriformibus margine incisis tuberculisque duobus minoribus posticis; prothorace valde inæquali, tuberculis duobus minutis posticis; meso- et metathorace carina dorsali in abdominis segmenta basalia extensa; metathorace tuberculis minutis; metathorace mesothorace e tertia parte breviore, et similiter tuberculato; abdominis segmento 4to ad apicem supra foliolo minuto, 5to foliolo majori instructis; pedibus concoloribus; femoribus intermediis foliolis duobus basalibus parum distinctis, duobusque apicalibus, externo reliquis majori; antennis concoloribus (fœm.).

Var. Capite tantum tuberculis duobus minutis instructo.

Long. corp. unc. $2\frac{1}{2}$–$2\frac{3}{4}$.

Pygirhynchus subfoliatus, *Serville, H. N. Orth.* p. 261.
Phasma (Bacteria D.) subfoliatus, *De Haan, Orth. Orient.* p. 134.
Hab. In Brasilia. In Mus. Oxon. (*Hopeiano*), et Fry.

A specimen of this insect in the Hopeian Collection at Oxford, obtained from that of M. Marchal, and probably identical with the Dejeanian specimen described by M. Serville, has the following proportions:—Corp. unc. $2\frac{3}{4}$; cap. lin. 2; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. 5; abdom. lin. 11+lin. 7=18.

2. (162.) Pygirhynchus coronatus.

Rugosus, brunneo-viridis; capite tuberculato verticeque appendiculis rugosis auriformibus (coronam simulantibus); prothorace granuloso, granulis nonnullis majoribus fere spinosis; mesothorace prothorace triplo longiori, carina media tenui ad apicem abdominis extensa, utrinque tuberculis duobus instructo; pedibus concoloribus: anticorum angulis dilatationibus parvis denticulatis; intermediorum femoribus foliolis marginis interni, una basali rotunda, elongata, altera apicali majori, versus basin rotundata extus emarginata; tibiis intermediis foliolis duobus distinctis, primo externo, altero interno basali, horum apicibus dilatationibus parvis; femoribus posticis tibiisque supra foliolis nonnullis subrudimentalibus; antennis concoloribus brunneo annulatis (mas).

Long. corp. cir. unc. $2\frac{1}{2}$.

Pygirhynchus coronatus, *Serville, H. N. Orth.* p. 261.
Phasma (Bacteria D.) coronatus, *De Haan, Orth. Orient.* p. 134.
Hab. In America meridionali.

3. (163.) Pygirhynchus Iphiclus, *Westw.*

PLATE II. fig. 2.

Depressus, obscure fuscus, opacus, granulosus; capite

bispinoso; meso- et metanoto medio carinatis; segmentis abdominalibus lateribus emarginatis, dorso in medio et lateribus irregulariter carinatis; pedibus granulatis; femoribus posticis intus ad basin dilatatis (mas et fœm.).

Long. corp. unc. $2\frac{1}{6}$; anten. lin. 8; proth. lin. 2; mesoth. lin. $5\frac{1}{3}$; metath. lin. $3\frac{1}{2}$; abdom. lin. $7\frac{1}{3}$+lin. $5\frac{1}{2}$= lin. 13.

Hab. Colombia et Venezuela. B.M.

Obscure blackish-brown and opake, the surface irregularly granulose. The head is widened in front to the eyes with two erect spines on the crown in the middle and several smaller ones near the hind margin. The antennæ are scarcely longer than the mesothorax, with the basal joint large, oval and flattened. The prothorax has two raised longitudinal lines posteriorly dentated. The mesothorax is gradually widened from the anterior margin to the middle, behind which its sides are straight; the disc is irregularly granulated, with a central longitudinal raised line. The metathorax is oblong, with a similar raised central line. The abdomen is rather wider than the metathorax; the basal segments short, the fifth and following gradually narrowed and rather longer; the sides of each joint are emarginate, so that each side of this part of the body forms a series of scallops; each segment, moreover, is furnished down the middle of the back with two curved narrow raised lines, enclosing between them an elongate-oval space, and the sides are further marked with curved raised lines; the ninth segment is deeply impressed transversely at a short distance from its base, its apex being acuminated; beneath it bears two small oval styles, the operculum extending beneath the seventh, eighth, and base of the ninth joints. The legs are rather short; the femora with very small tubercles on the fore edge; the two hind femora dilated at the base behind. The basal joint of all the tarsi is short. The body beneath is similarly coloured, opake and carinated as above. The male is small and narrow, with the sides of the body parallel, the terminal segments of the body being dilated and angulated beneath; the head is armed with tubercles instead of spines, and the hind legs are slightly dilated at the base.

An immature specimen of a female measuring $16\frac{1}{2}$ lines in length, differs only from the female above described in having the abdominal segments wider and their emarginated sides more deeply scalloped.

Plate II. Fig. 2. The female, of the natural size. 2 *a*. Head and front of the body seen laterally. 2 *b*. Three terminal segments of the abdomen seen laterally. 2 *c*. The male, of the natural size, seen laterally.

Genus 10. CEROYS.

Ceroys, *Serville*.

Body long, subcylindrical. Head often furnished with auriform appendages. Ocelli wanting. Antennæ long, multiarticulate, setaceous. Thorax long, smooth, but spined. Mesothorax at least three times the length of the prothorax. Abdomen subcylindrical, suddenly constricted near the apex, which is swollen in both sexes, with the terminal, dorsal and ventral plates simple, and the anal styles not prominent. Legs of moderate length; femora not membranous; anterior small, four posterior femora more or less foliaceous.

1. (164.) Ceroys perfoliatus.

Brunneus, scaber; capite cornibus duobus auriformibus; prothoracis margine postico spinis duabus et mesothoracis medio duabus; abdominis segmento 4to postice foliato; femoribus 4 posticis ante et pone medium perfoliatis.

Long. corp. maris 1″ 9‴; fœm. 3″ 6‴.

Cladomorphus perfoliatus, *G. R. Gray, Syn. Phasm.* p. 15. *Serville, H. N. Orth.* p. 263 (Ceroys perf.).
Acanthoderus perfoliatus, *Burmeister, Handb. d. Ent.* ii. 2. p. 569.

Hab. In Brasilia. B.M.

Obs. The typical specimen of this species described by Mr. G. R. Gray, is a female, and is contained in the British Museum Collection. Its proportions are as follow:—Corp. unc. $3\frac{1}{12}$; anten. lin. 22; proth. lin. $2\frac{1}{2}$; mesoth. lin. 9; metath. lin. $6\frac{1}{2}$; abdom. lin. 13+lin. 5=lin. 18. The basal joint of the tarsi is as long as the second and third joints united; the three terminal dorsal segments of the abdomen are short and form a short ovate mass, the middle (eighth) joint being produced in the middle of its hind margin into an acute point, and the terminal joint deflexed; the operculum does not extend to the extremity of the ninth dorsal segment.

2. (165.) Ceroys multispinosus.

Rugosus, brunneo-virescens; vertice tuberculis spinosis; prothorace spinis duabus fortibus marginis postici; mesothorace prothorace fere 4plo longiori, carina media longitudinali per segmenta basalia abdominis extensa; lateribusque tuberculis minutis distantibus et in mare utrinque spinis duabus vel tribus fortibus; in fœmina utrinque spina unica armato; metathorace utrinque in medio spina forte etiam armato, abdominis segmentis utrinque dilatatione foliacea; 3to supra ad apicem lobo apice acuto, 4toque lobo simili at majori et rotundo; ultimoque lobo simili laminam

supra-analem excedente, segmentis duobus basalibus reliquis fere duplo latioribus; pedibus brunneo viridique annulatis; femoribus 4 posticis foliaccis, intermediis lobis tribus basalibus alterisque tribus apicalibus, infero rudimentali, femoribus posticis ad basin intus appendiculo unico distincto, ad apicem duobus; antennis concoloribus (mas).

Long. corp. unc. 2, lin 3.

Ceroys multispinosus, *Serville, H. N. Orth.* p. 264.

Hab. In Brasilia.

3. (166.) Ceroys histrinus, *Westw.*

PLATE I. fig. 5.

Mediocriter elongatus, obscure ferrugineus, opacus, granulato-rugosus, spinisque numerosis armatus; capite tuberculis compressis, elevatis, coronato; segmentis mediis abdominis foliolis rugosis postice armatis; femoribus omnibus irregulariter foliolo-tuberculatis et spinosis (fœm.).

Long. corp. unc. $2\frac{1}{4}$; (anten. deteritæ cap. lin. 2; proth. lin. 2; mesoth. lin. 5; metath. lin. 4; abdom. lin. 12 + lin. $3\frac{1}{2}$ = lin. $15\frac{1}{2}$.)

Hab. Venezuela. B.M.

The general colour is rusty-brown, the surface granulato-rugose, the under side of the body being opake, slightly rugose, with the abdominal segments simple. The head is rugose and furnished above with two large and four smaller spinose leaflets, which are elevated and laterally obliquely porrected, the larger ones being rounded on their anterior upper margin, the crown of the head is furnished moreover with two spines; the basal joints of the antennæ are rugose (the terminal joints are broken off in the unique specimen in the National Collection). The prothorax is rugose and spined at its upper side, with two diverging spines near its hind margin. The mesothorax is spined along the sides, which are gradually dilated to the base of the middle legs; the anterior part bears a triangular rugose space, armed with spines at the sides, and there is a central longitudinal elevated line with two strong spines in the centre. The metathorax is about half the length of the mesothorax, considerably dilated at the sides in front of the base of the hind legs, armed with two strong spines near its base, and the sides also spined. The abdomen is rugose above; the extremity of the basal segments with a minute compound lobe in the middle of the hind margin, which becomes foliaceous and much larger in the fourth and fifth segments, but gradually diminishes on the hind segments. The abdomen is as wide as the mesothorax, but narrowed at the base of the seventh segment. The operculum extends beneath the whole of the seventh, eighth, and ninth segments, not however extending beyond the latter. The femora are irregularly foliaceo-dentate, both along the fore and hind edges, and the tibiæ are irregularly but widely serrated on the outer edge. The tarsi have the basal joint slightly larger than the second joint.

PLATE I. Fig. 5. The female, of the natural size. 5 *a*. The head and part of the thorax seen laterally. 5 *b*. The seven terminal segments of the abdomen seen sideways.

4. (167.) Ceroys sævissimus, *Westw.*

PLATE XXVI. fig. 3, female.

Totus opacus, viridi brunneoque varius, undique tuberculis, spinis, foliolisque spiniferis armatus; capite, medio mesonoti, metanotoque antice foliolis aculeatis lateraliter porrectis instructis; segmentis abdominalibus basalibus lobis lateralibus et dorsalibus erectis spinosis (4to majori), segmentoque 8vo lobo erecto ovali serrato armatis; pedibus longis irregulariter spinulosis et serratis (fœm.).

Long. corp. unc. $2\frac{1}{4}$; cap. lin. 2; antenn. unc. 2; proth. lin. 2; mesoth. lin. $5\frac{1}{2}$; metath. lin. 5; abdom. lin. 8 + lin. $4\frac{1}{2}$ = lin. $12\frac{1}{2}$.

Hab. In Brasilia. Mus. Fry.

The whole insect is opake, and considerably varied in its colour from green to rusty-brown and lighter buff; it is covered with small granules or spines, and is armed with numerous conical leaflets, which are denticulated at the edges. The head is armed with two conical spinose lobes on the crown, behind which are two erect spines. The antennæ are long and slender, with the tips of the joints (in the basal half of the antennæ) darker-coloured than the basal portion. The prothorax is armed with two erect spines in front, and four in a transverse row behind. The mesothorax, in addition to the pair of large triangular spinose leaflets, is armed with four pairs of erect spines. The metathorax also bears a pair of smaller spinose triangular leaflets, and two pairs of dorsal spines, one pair close to the fore margin, and one pair beyond the middle. The six basal segments of the abdomen are armed at the sides with triangular spinose lobes; and on the upper surface near the base of each is a pair of small spines wide apart, with a pair of large spines approximated together in the middle of the hind margin, accompanied in the third and fourth segments by a spinose erect lobe; the three terminal segments are very much compressed, the eighth segment being furnished above with an ovate erect serrated lobe; the ninth segment is produced in a slender plate at its extremity; the operculum extending to the extremity of the abdomen, but with its extremity deflexed. The legs are

long and slender, considerably variegated in their colours; the anterior femora and tibiæ irregularly spinose and serrated; the four hind femora with five or six spines on each of their angles, that near the apex being the largest. The middle right leg in the specimen drawn had apparently been reproduced, being smaller than the opposite limb, and destitute of spines. The size of the spines of the body varies in different individuals. One specimen in Mr. Fry's collection has the abdomen destitute of the lateral lobes, whilst the dorsal lobes of the third, fourth and eighth segments are larger than in the specimen which I have figured.

PLATE XXVI. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the abdomen seen sideways.

5. (168.) Ceroys ignavus, *Westw.*
PLATE IV. fig. 7, female.

Rufo-brunneus, opacus, irregulariter granulatus et lineolatus, subcylindricus, parallelus; abdominis segmento 2do foliolo erecto postice instructo, sequentibus tuberculis parvis in margine postico, segmento 9no paullo latiori, apice 4-dentato, lobo apicali minuto detecto; femoribus intermediis foliolis tribus magnis rotundis instructis (fœm.).

Long. corp. unc. $2\frac{3}{4}$; anten. lin. 19; proth. lin. 2; mesoth. lin. 9; metath. lin. $5\frac{1}{2}$; abdom. lin. 10 + lin. 5 = lin. 15.

Hab. In Brasilia (Tapajos, *D. Bates*). B.M.

Uniformly opake, red-brown, with the sides of the body nearly parallel; the entire surface of the body covered with minute granules and short slight irregular lines. The head is oblong and simple. The antennæ nearly half the length of the body and very slender. The mesothorax long and slightly widened at its extremity, as is also the metathorax, which has its hinder division very short and slightly indicated. The second segment of the abdomen is furnished with a large erect leaflet at its hinder margin, and the following segments are also furnished on their hind margins with a series of small tubercles, from which run fine striolæ into the disc of the segment; the ninth segment is slightly wider than the rest, it has a small spine on each side, and it is notched at its extremity, a small lobe appearing between the divisions. The operculum extends beneath the seventh and eighth and base of the ninth dorsal segments. The legs are of moderate length; the anterior simple, with the femora curved at the base; the intermediate femora are furnished on the upper fore edge with three large rounded leaflets, the hind edge being tuberculated; the hind femora are irregularly and slightly serrated, as are the four posterior tibiæ. The basal joint of all the tarsi is nearly equal to the three following in length.

Obs. The specimen figured has the right middle leg simple in its joints, being evidently a case of reproduction of the limb, which had been accidentally broken off.

PLATE IV. Fig. 7. The female, of the natural size. 7 *a*. The abdomen seen laterally.

6. (169.) Ceroys Rabdota, *Westw.* PLATE XXII. fig. 6.

Mediocriter elongatus, subdepressus, opacus, totus obscure brunneus, rugosus; abdomine longitudinaliter striolato; capite bituberculato; antennis longis; abdominis segmento secundo foliolo magno semicirculari irregulari depresso, femoribusque 4 posticis supra lobis tribus rotundatis instructis (fœm.).

Long. corp. unc. $2\frac{3}{4}$; anten. unc. $1\frac{3}{4}$; proth. lin. $2\frac{1}{4}$; mesoth. lin. 8; metath. lin. 5; abdom. lin. 11 + lin. 7 = lin. 18.

Hab. In Columbia (*D. Gaudichaud*). Mus. Saunders.

Entirely obscure ferruginous brown, opake, rugose, and finely granulose, with a few larger granules dispersed irregularly. The abdomen with several slightly elevated longitudinal dorsal lines. Head with two rugose erect tubercles pointed at the tip between the eyes. Antennæ long and slender. Mesothorax gradually widened from the front margin to the middle; metathorax widest. Abdomen with a broad semicircular membranous depressed lobe, with irregular notched edges fixed on the hind margin of the second segment, and extending over the base of the third, which, as well as the fourth, fifth and sixth, has the two central dorsal lineolæ terminated in slightly produced points; the sixth segment is considerably widened at its hinder margin, and the three terminal segments are gradually narrowed; the seventh having a deep oblique impression on each side, with the two minute caudal styles beneath. The operculum is but slightly swollen, but its extremity is furnished with two slender erect points dilated in the middle of their inner edge. The fore legs are moderately long, with the femur and tibiæ slightly lobed; the four hind legs are shorter, with the femora furnished on their upper edge with three pairs of small semicircular depressed leaflets, as well as with a subbasal and subapical smaller lobe; the tibiæ are also furnished with two or three distant smaller lobes.

PLATE XXII. Fig. 6. The female, of the natural size. 6 *a*. The head and prothorax seen sideways. 6 *b*. The abdomen seen sideways. 6 *c*. The terminal segment and operculum seen from behind. 6 *d*. One of the small erect appendages of the operculum. 6 *e*. The extremity of the operculum seen obliquely downwards.

7. (170.) **Ceroys Columbina**, *Westw.*

PLATE XXIV. fig. 1.

Obscure fuscus, opacus, luteo parum varius, brevior, subdepressus; meso- et metathorace vage granulatis; abdomine linea tenui media longitudinali, aliisque lateralibus curvatis elevatis, segmentis apicalibus in medio carinatis; pedibus gracilibus, femoribus tibiisque tuberculatis; operculo apice fisso (fœm.).

Long. corp. lin. 22½; ant. lin. 13; proth. lin. 1¾; mesoth. lin. 5½; metath. lin. 3¾; abdom. lin. 7+lin. 3=lin. 10.

Hab. In Columbia (*D. Gaudichaud*). Mus. Saunders.

This species, of which I have seen only a single female individual, is entirely of a dull brown colour, slightly varied with luteous; it is finely rugose, with slender elevated lines and minute granulations wide apart. The head is elongated behind the eyes, with a dark mark down the centre of the crown. The antennæ are long and slender, the basal joint oval and depressed. The mesothorax is moderately elongated and gradually widened, with a raised central line extending also along the metathorax, which is gradually wider than the mesothorax, and about three-fifths of its entire length; its hinder division is short, with a raised, slightly curved line on each side. The abdomen is not longer than the thorax; it is wide and subdepressed, with the terminal segments gradually attenuated; on either side of the slightly raised median line is a curved line similarly raised, and another nearer the lateral margins scarcely defined. The three terminal segments are strongly carinated; the seventh joint considerably longer than the preceding; the eighth and ninth of equal length, each being nearly equal to the sixth. The operculum is swollen at its base; it extends a little beyond the extremity of the abdomen, and is deeply emarginate at its tip. The legs are slender; the fore femora with the upper edge dilated; the four posterior femora with several small rounded lobes in pairs upon the upper edges of the thighs; the tibiæ also slightly and irregularly lobed; the tarsi are short, with the basal joint not longer than the three following united.

PLATE XXIV. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen laterally, with the extremity of the operculum seen from beneath.

Genus 11. RHAPHIDERUS.

Rhaphiderus, *Serville.*
Acanthoderus, p., *G. R. Gray.*

Body of the male long and slender, of the female broad, subconvex. Head larger than the prothorax, unarmed. Ocelli wanting. Antennæ long and slender. Prothorax and disc of the mesothorax spined; sides of the latter and of the metathorax swollen in the female, and spinulose. Metathorax of the male much dilated above the insertion of the hind legs. Abdomen of the male long and slender, of the female broad, and gradually narrowed to the tip. Fore legs long and simple; hind legs with the femora and tibiæ more or less spined; the middle ones not foliaceous.

1. (171.) **Rhaphiderus scabrosus.**

Elongatus, lævis, viridis, rufo-varius, fœmina pallidior, vitta longitudinali flava; capite postice obscurius lineato, pro- et mesothorace disco spinulosis, spinisque lateralibus meso- et metanoti; abdominis lateribus in fœmina membrana tenui marginatis; femoribus quatuor posticis tibiisque duabus posticis spinosis.

Long. corp. maris, unc. 3; anten. lin. 20; proth. lin. 2; mesoth. lin. 6½; metath. lin. 6½; abdom. lin. 14 + lin. 4 =lin. 18.

Long. corp. fœm. unc. 4½; proth. 2¾; mesoth. lin. 7½; metath. lin. 7½; abdom. lin. 17½ + lin. 5=lin. 22½.

Bacteria scabrosa, *Percheron in Guér. Icon. R. An. Ins.* pl. 53. f. 4 ♂.
Griffith, An. K. pl. 110. f. 4.
G. R. Gray, Syn. Phasm. p. 14 (Acanthoderus scabrosus, mas.).
Serville, H. n. Orth. p. 246 (Rhaphiderus scabrosus).
Hab. Isle de France. ♂ ♀ in Mus. Oxon. (Hopeiano). B.M.

Obs. The female bears a strong general resemblance to *Craspedonia undulata*, Westw. Arc. Ent. i. pl. 8, and ii. p. 49 (*Diaph. gibbosa*, W. olim, nec *D. gibbosa*, Burm.); it is, however, much smaller and destitute of rudimental wing-covers.

2. (172.) **Rhaphiderus Dumerilii.**

Mesothorace scabro; femoribus quatuor posticis angulatis, spinosis; tibiis posticis dentatis.

Long. corp. unc. 2½; anten. lin. 22.

Phasme géant, *Dumeril, Consid. Ins.* pl. 23. f. 3.
Acanthoderus Dumerilii, *G. R. Gray, Syn. Phasm.* p. 14.
Hab. ——?

Genus 12. EURYCANTHA.

Eurycantha, *Boisduval, G. R. Gray.*
Karabidion, *Montrouzier, in Ann. Sci. de Lyon*, 2nde série, tom. vii. 1re partie, p. 81.

Head quadrate. Antennæ rather short, slender, multiarticulate; the basal joint large and depressed. Thorax as long as the abdomen, cylindrical. Metathorax shorter than the mesothorax, both spined at the sides. Abdomen short,

subcylindrical and attenuated at the tip in the males, broader and with the last joint long and pointed in the females. Four fore-legs short, thick; two fore-thighs straight at the base. Posterior femora greatly incrassated and spined; tibiæ spinose on the inside.

I do not consider it requisite to adopt M. Montrouzier's suggestion for suppressing Boisduval's generic name for this group, because some of the species are not so strongly spined as the type. The *Karabidion australe* which led to the suggestion, has, in fact, the hind legs of the male even more strongly, although less numerously, spined than in *E. horrida*.

1. (173.) Eurycantha horrida.

Picco-castanea, nitida, tuberculis spinisque numerosis armata; metathorace utrinque dilatato, abdominis lateribus spinosis; pedibus (præsertim duobus posticis) valde incrassatis, spinisque fortibus armatis (mas).

Fœmina multo major, minus scabra; abdomine latiore convexo, segmento ultimo dorsali valde elongato attenuato.

Long. corp. maris, unc. 4½; cap. lin. 5; proth. lin. 6; mesoth. lin. 12; metath. lin. 6½; abdom. lin. 19 + lin. 6 = lin. 25.

Long. corp. fœm. unc. 6; cap. lin. 6; proth. lin. 8; mesoth. lin. 13; metath. lin. 7; abdom. lin. 21 + lin. 17 = lin. 38.

Eurycantha horrida, *Boisduval, Voy. de l'Astrolabe, Zool. Ent.* p. 647. pl. 10. f. 2, male.
G. R. Gray, Syn. Phasm. p. 14.
Serville, H. n. Orth. p. 279.
Brullé, H. n. Ins. ix. pl. 10, male.
Phasma (Eurycantha) horridum, *De Haan, Orth. Orient.* p. 136. pl. 14. f. 8 (larva).
Karabidion horridum, *Montrouzier, op. cit.* p. 82.

Hab. Dorei, New Ireland, Woodlark Island. ♂ in B.M. Mas et fœm. in Mus. Oxon. (Hopeiano).

The figure of this fine insect given by Boisduval, as well as the much better one published by Messrs. Audouin and Brullé, represent the male. M. Serville, however, very carefully describes the structure of both sexes, which differ chiefly in the form of the abdominal segments (H. n. Orth. p. 278).

The last-named author having the *Phasma dilatatum* of Shaw in view, considered, that as that insect, although a female, was provided with rudimental wings, it might, from its large size, be supposed to be a fully developed female of the present genus, and hence that the *Eurycantha horrida* of Boisduval was most probably only a larva, which, being a male insect, would from analogy ultimately acquire more fully-developed wings than those of the female, *Ph. dilatatum*. Burmeister (Handb. d. Ent. ii. 570) also considered *Eur. horrida* to be a larva. On the contrary, I feel convinced that this species is an apterous one, and that it is already known to us in its ultimate form. Not only have the insects themselves all the appearance of maturity, but the figure of the larva of the present species, given by De Haan, as well as the analogy afforded by the new species described below (of which several specimens in various states of growth are contained in the National Collection), sufficiently prove that these insects are no longer in the larva state, whilst their want of the slightest rudiments of wings or tegmina equally proves that they are never destined to acquire organs of flight. Hence the observations of Serville and Burmeister on the probability that this genus would ultimately be found to merge into *Heteropteryx*, cannot be adopted.

M. Montrouzier gives the following account of the habits of this curious species:—"On le trouve dans les lieux ombragés, particulièrement dans les troncs des vieux arbres chargés de plantes parasites. Les naturels m'ont assuré qu'il pullulait dans les marais où croit le sagoutier. Comme tous les Phasmiens, il vit de substances végétales, mais je n'ai pu découvrir la plante dont il fait sa nourriture. Plusieurs fois j'ai observé qu'il avait touché à des feuilles de *Broussonetia papyrifera*, que je choisisssis parfaitement entières et que je trouvais ensuite échancrées, mais je ne croissais qu'il aime ce végétal. Outre qu'il n'y touchait qu'après plusieurs jours de diète, c'est à dire quand la faim le pressait, j'ai eu beau en fournir abondamment au nombreux individus que j'ai essayé d'élever, je n'ai pu en conserver longtemps aucun. Je pense que tous sont morts d'inanition. La femelle porte un très grand nombre d'œufs, de 80 à 100, longs de $0^{m}{\cdot}009$, larges de $0^{m}{\cdot}005$ oblongs, bombés des deux bouts, ressemblant à un barillet, et revêtus d'une coque calcaire, tantôt noirs, tantôt gris, mouchetés de brun. Quand éclosent-ils? Je ne le sais au juste. Mais une fois que j'avais eu en cage une femelle, avant de mourir d'inanition, comme les autres, elle déposa ses œufs: un mois après je vis paraître de petits insectes de la longueur d'un pouce et de l'épaisseur d'un fil. Je n'en pus sauver aucun. Le *Karabidion horridum* semble avoir des mœurs nocturnes; le jour il fuit la lumière et la nuit j'entendais ceux que je gardais, s'agiter et chercher à forcer la porte de leur cage pour s'évader. Il sont très forts. J'en ai vu soulever des planches assez épaisses, que j'avais placée sur un seau au-dessus d'eux pour les empêcher de sortir. Il n'est pas sans quelques dangers de les saisir sans précaution. Dès qu'ils se sentent près, ils levent perpendiculairement leurs pattes de derrière et les font retomber obliquement en dedans, de manière à blesser jusqu'au sang

avec leurs longues épines, la main imprudente que les saisit sans défiance.

"Je terminerai par une circonstance qui corrobiera celles de M. Fortuma* publiées dans le CXXV^{ème} numéro des 'Annales d'Histoire naturelles de Londres,' en Mars 1845, au sujet de la reproduction des organes. J'ai souvent remarqué chez le *Karabidion horridum* le phénomène que l'on observe chez les écrivisses et généralement tous les crustacés : chez lesquels un membre cassé ne manque jamais de repousser, mais toutefois sans atteindre la grosseur qu'il avait d'abord. Il est important de signaler ce fait parceque s'il n'est pas nouveau, il est au moins peu connu en entomologie et qu'il est même nié dans des ouvrages recents, et forts estimables, d'ailleurs, tels que 'l'introduction a l'Entomologie' de Lacordaire, page 472, tome ii."

2. (174.) **Eurycantha Tyrrhæus**, *Westw.*

PLATE II. fig. 1.

Luteo-fusca, capite et segmentis apicalibus abdominis pallidioribus ; nitida ; capite spinis quatuor occipitalibus ; thoracis lateribus valde spinosis ; abdomine inermi ; pedibus brevibus ; femoribus crassis, angulatis et serratis ; abdomine segmentis basalibus serie duplici tuberculorum versus marginem posticum ; maris subcylindrico, segmentis æqualibus ; fœminæ elongato, obconico, segmento ultimo longitudine trium præcedentium æquante (mas et fœm.).

Long. corp. fœm. unc. $4\frac{1}{6}$; anten. lin. 16 ; proth. lin. 4 ; mesoth. lin. $8\frac{1}{2}$; metath. lin. 6 ; abdom. lin. $13\frac{1}{2}$ + lin. 15 = lin. $28\frac{1}{2}$.

Hab. In Insulis Maris Pacifici : "New Hebrides" (*Mr. Mare*) ; "Loyalty Island" (*Sir Geo. Grey*). B.M.

This fine species has the surface of the body glossy and slightly irregular, with minute tubercles and unequal, small, elevated spaces. The head is of moderate size, the hinder part of the crown with four large erect spines. The antennæ are about 20-jointed, the basal joint of moderate size, the terminal joints gradually longer and more slender. The prothorax is considerably wider than the head, with a deep transverse impression before the middle ; the sides are armed with strong teeth, of which there are also several arranged in pairs on the disc. The mesothorax is nearly square, but rather longer than wide, with two strong spines near the fore end, the sides widely, and the disc more sparingly spined. The metathorax is considerably dilated, and strongly spined at the sides ; the disc with a few small spines and tubercles. The abdomen is elongate, subcylindric in the male, with the segments of nearly equal size ; the terminal one emarginate at the tip, with two oval styles ; the basal segments in both sexes have a pair of tubercles close to the hinder margin ; the abdomen of the female is long and gradually attenuated from the base to the apex, the eighth and ninth segments being carinated, and the latter as long as the three preceding segments united ; the operculum is simple, and does not extend to the tip of the ninth dorsal segment. The legs are rather short and strong, nearly alike in both sexes ; the femora thick, angulated, and serrated on each edge ; the tibiæ are strong, and widely serrated on the inner edge. The prosternum is very short ; the mesosternum separated into two parts by a transverse impression, flat, glossy, simple, with a row of six small spines on each side at the lower edge of the deflexed flanks ; the metasternum is flat, glossy, having four or five small spines on each side of the disc towards the anterior angles ; the abdominal segments in the male are rather swollen, in the female simple and convex ; the seventh segment with a longitudinal raised line down the centre.

PLATE II. Fig. 1. The female, of the natural size. 1 *a*. The three terminal segments of the abdomen seen laterally. 1 *b*. The abdomen of the male seen from above. 1 *c*. The three terminal segments seen from beneath. 1 *d*. The same seen laterally. 1 *e*. The hind leg of the male.

3. (175.) **Eurycantha micrantha.**

Mas. "Longueur 3 pouces ; antennes 2 pouces. Brun ; il a la tête, le corselet, l'abdomen dans les mêmes formes et les mêmes proportions que le *K. horridum*, mais il a les antennes plus longues, les épines plus rares et plus courtes, les cuisses non renflées, garnies par dessous de quatre petites épines ; les jambes postérieures moins arquées."

Fœm. "Longueur 4 pouces $\frac{1}{2}$. Elle ressemble plus à la femelle du *K. horridum*, mais elle s'en distingue au premier coup d'œil par ses cuisses non renflées, la briéveté de ses épines et sa couleur brune claire.

"Les mœurs de cette espèce paraissent les mêmes que celles de la précédente *K. horridum*."

Karabidion micranthum, *Montrouzier, op. cit. sup.* p. 85.

Hab. Woodlark Island.

4. (176.) **Eurycantha Scorpionides.**

Mas. "Longueur 15 lignes ; antennes 12 à 14 lignes. Filiforme, cylindrique, deux épines sur la tête, quatre sur

* The writer here evidently alludes to two articles by the late George Newport in the Annals and Magazine of Natural History, vol. xv. p. 281, No. 98, April 1845, and vol. xix. p. 145. No. 125, March 1847. The reader will observe numerous instances in the present work of the diminished size of one or other of the legs, invariably regarded by Newport in all such cases as reproductions.

le prothorax, cinq de chaque côté sur le mesothorax, et un double au milieu, vers l'extrémité, en forme de Y ; cinq en ligne transversale sur le metathorax, une derrière et une sur le milieu de chacun des cinq premiers segments de l'abdomen ; cuisses non renflées, légèrement épineuses ; antennes sétacées. Roux."

Fœm. "Facies du *K. horridum*, sauf les cuisses qui ne sont pas renflées, la taille qui n'excède pas 22 lignes, et la couleur qui varie de cendré au roux, avec une ligne longitudinale, brune sur le dos. Deux épines sur la tête, quatre sur le prothorax en deux rangs ; quatre de chaque côté sur le mesothorax, et trois doubles en Y entre elles ; six sur le metathorax et deux en dessous. Une triple rangée sur les cinq premiers segments de l'abdomen. Une seule petite épine sur le milieu des sixième et septième. Cuisses légèrement épineuses. Antennes moins longues que celles du mâle.

"Cette espèce a de grands rapports de forme chez le mâle avec les *Bacteries*, mais ses nombreuses épines et la forme de la femelle, que je suis bien sûr être la sienne, le doivent placer à côté du *K. horridum*. Je l'ai appelé Scorpionides à cause de l'habitude qui le mâle a de recourber sa queue en haut comme les Scorpions."

Karabidion Scorpionides, *Montrouzier, op. cit. sup.* p. 85.

Hab. Woodlark Island.

5. (177.) Eurycantha australis.

Plate I. fig. 1, male ; fig. 2, female.

Crassa, elongata, subcylindrica, inermis ; abdominis lateribus inermibus ; pedibus brevibus, quatuor anticis inermibus, duobus posticis in mare maximis, femoribus subtus fortiter 2- et 1-spinosis, tibiisque curvatis ; operculo fœminæ anum superante, articulum apicalem simulante ; ejusdem sexûs segmento apicali brevi postice emarginato (mas et fœm.).

Long. corp. maris, unc. 4, lin. 5 ; anten. lin. 16 ; proth. lin. 5 ; mesoth. lin. 10 ; metath. lin. 7 ; abdom. lin. 18 + lin. 7 = lin. 25.

Long. corp. fœm. unc. $5\frac{1}{4}$; anten. lin. 18 ; proth. lin. 6 ; mesoth. lin. 10 ; metath. lin. 7 ; abdom. lin. 23+lin. 9+ operc. apice lin. $2\frac{1}{2}$=lin. $34\frac{1}{2}$.

Karabidion australe, *Montrouzier, op. cit. sup.* p. 86.

Hab. Lord Howe's Island (*D. Macgillivray*). B.M.

Male pitchy, slightly varied with chestnut, and glossy ; female more chestnut-coloured, with the sides more luteous. The head is almost square, marked in the female with a dark cordate spot between the eyes, and six longitudinal dark stripes on the hinder part ; in each sex there are two minute punctures on the front part of the crown. The antennæ extend to the extremity of the fore tarsi. The prothorax is somewhat larger than the head, the mesothorax twice the length of the prothorax, and the metathorax about three-fourths of the length of the mesothorax, but wider, with the sides swollen, especially in the male, and armed with small spines. The abdomen in the male is narrower than the thorax, with the sides nearly parallel ; it is as broad as the thorax in the female, with the segments gradually attenuated from the middle to the tip ; it is bright chestnut-coloured, very glossy, with the six basal segments varied with small irregular black spots arranged in two series on each side of the median line, and an oblique impressed line on each side. The male has the body beneath pitchy, glossy, destitute of tubercles, and with the margins of the abdominal segments paler luteous. The under side of the body of the female is glabrous, destitute of tubercles, paler luteous-chestnut, with the middle and hind part of the prosternum, the hind part of the mesosternum, and the middle of the metasternum darker chestnut. The terminal segment of the body is truncate in the male, with the outer angles produced, and armed beneath with minute transverse teeth ; it is also notched in the middle, and is furnished beneath with two small oval lobes ; the three terminal ventral segments in this sex are simple. The terminal segment of the abdomen in the female is small, suboval, emarginate in the middle. The operculum extends beneath and beyond the three terminal segments. The four anterior legs are nearly similar in size in both sexes, but the hind pair in the male have the femora enormously dilated, carinated above and toothed beneath ; the tibiæ greatly bent, and shutting upon the femora beneath and between the strong teeth ; the two hind femora in the female are but slightly thickened and spined beneath.

A young specimen of the female in the British Museum Collection measures $2\frac{1}{4}$ inches in length, and has the operculum not extending beyond half the length of the ninth dorsal segment. It agrees in general form with the full-grown female, except in being somewhat more slender.

Plate I. Fig. 1. The male, of the natural size. 1 *a*. The three terminal segments of the abdomen seen sideways. 1 *b*. Ditto seen from beneath.

Fig. 2. The female, of the natural size. 2 *a*. The three terminal segments of the body seen sideways.

6. (178.) Eurycantha olivacea, *Westw.*

Plate II. fig. 8.

Obscure nigro-olivacea, parum nitida, parce granulosa ; meso- et metathorace angulato-dilatatis, singulo supra tu-

berculo magno conico prope marginem posticum instructo; abdomine angusto, subcylindrico; pedibus brevibus, crassis; femoribus 4 posticis subtus dentatis (mas).

Long. corp. unc. $2\frac{1}{8}$; anten. lin. 12; proth. lin. 2; mesoth. lin. $5\frac{1}{2}$; metath. lin. $5\frac{1}{2}$; abdom. lin. 9 + lin. $2\frac{1}{2}$ = lin. $11\frac{1}{2}$.

Hab. Ceylon. B.M.

Dark olive-green, slightly glossy, with the two large conical tubercles on the thorax glossy black; the thighs obscure luteous, with the tips olivaceous. Head subquadrate, emarginate in front, the upper surface with a few small tubercles arranged symmetrically. Antennæ not so long as the thorax, 20-jointed. Prothorax with the anterior angles acute and porrected, the disc with two small tubercles in front of the middle. Mesothorax gradually dilated to twice the width of the head, and angulated in front of the insertion of the middle legs; the lateral margins serrated, the disc rugose, with two small tubercles close to the anterior angles, two others close together on the disc in front of the middle, and a large conical erect tubercle, bifid at its top, near the hind margin. The metathorax very broad, and angulated in front of the hind legs; the lateral margins serrated, and the disc behind the middle furnished with another large, conical, erect tubercle, similarly bifid at its top. The abdomen scarcely wider than the head, with simple joints; the seventh slightly widened, the ninth slightly emarginate at its extremity. The body beneath is varied with dirty luteous, and is glossy. The mesosternum is convex, with a row of slightly elevated small tubercles on each side. The metasternum irregular and glossy, with several tubercles, and the abdominal segments simple; the seventh and eighth ventral segments are very short; the ninth large and operculiform, angulated at its base beneath; the extremity of the dorsal segment armed with two very short small styles. The legs are short and robust; the fore legs simple, the four posterior femora dilated and dentated beneath; the four hind tibiæ subcompressed and slightly angulated near the base and apex on the inner margin.

PLATE II. Fig. 8. The male, of the natural size. 2 *a*. The upper portion of the body seen laterally. 2 *b*. The terminal segments of the abdomen seen laterally.

Division II. PTEROPHASMINA.

Pterophasmina, *G. R. Gray, Syn. Phasm.* p. 21.
Phasmata subaptera, P. depressa, et P. alata, *Licht.*

Phasmodea, sect. 2 et 3, *Burm. Handb. d. Ent. o. c.*
Phasma, sect. 1 et 2, *De Haan, o. c.* 107.

Pursuing the principle laid down in the introductory observations of this work, we have now arrived at those groups which in their imago state acquire more or less perfectly developed organs of flight, either in both sexes or in the males, the females being in the latter case either entirely destitute of even rudimentary wings and wing-covers, or having them very small. In all cases, however, except indeed in the females of the singular genus *Phyllium*, the tegmina are of small size, and incapable of forming a defence to the wings; to supply which want, a provision is made in the anterior area of the hind wings being of a more coriaceous nature than the hinder portion, the former being moreover longitudinally veined, whilst in the posterior area the veins are arranged like the ribs of a fan; so that this portion of the wing alone folds up, and is then covered by the flattened costal area. In *Phyllium*, however, by a singular modification, the wing-covers of the females, when shut, are so large that they nearly cover the abdomen,—a beautiful adaptation indeed, since the delicate texture of the dorsal membrane of the hind part of the broad and flattened body, as well as the large mass of eggs which it contains, require more defence than could have been afforded either by abbreviated tegmina, or wings even of large size folded up in the ordinary manner. Hence, as well as from the sluggish habits of these insects, the inutility of a pair of membranous wings; and we accordingly find them reduced to mere rudiments (except in one species described by De Haan). The males, on the other hand, have the true wings of large size and very delicate in structure, with the costal area itself quite membranous; but yet the tegmina, preserving the true family character, are only of small size, and useless as means of defence to the wings.

Some difficulty will doubtless be experienced in respect to specimens of winged species not yet arrived at maturity, in which the wings and wing-covers only appear in a very rudimental state, as contrasted with others in which these organs, in the final state, are also merely rudimentary. I believe, however, that a careful examination of their structure will sufficiently exhibit the difference between these organs in the two different conditions of existence. In Plate XXVII. fig. 4, I have represented the pupa of a winged species, in which the rudimental wings extend as far back as the hind margin of the metanotum: they are, however, not free in their movement, and quite different in texture from the wings of, for instance, the species figured in the following Plate (XXVIII. fig. 4), or the female represented in Plate XI. fig. 2. The condition of the organs of flight in the immature states of the genus *Phyllium* is represented in Plate XXXI.

Another difficulty results from our imperfect knowledge of the opposite sexes in so great a proportion of the species described in this work. The great diversity in the sexes of many of the insects described by the earlier writers upon the family, led them not only to consider the males as distinct species from the females, but also as belonging to different genera placed in different sections of the family. Wherever it has been possible, this difficulty has been cleared up in the present work: but there are many male insects described in the following pages, especially in the genera *Necroscia* and *Phasma*, which in all probability possess wingless partners; whilst it is equally probable that many of the wingless female insects already described in the preceding pages, especially in the genus *Bacteria*, may prove to possess winged males. The study of such species as *Monandroptera inuncans*, and the remarkable insect which I have described under the name of *Prostasis*, is especially instructive — showing, in the latter case, that a female insect, which may be completely mistaken for a female *Bacillus*, possesses a winged male. The classification of the species can only therefore, at present, be regarded as approximate; nor will it be perfected until we are acquainted with a far greater number of the true pairs of the species than we are able at present to determine.

Following the order suggested by the amount of alary development, the following arrangement commences with those groups in which the wing-covers and wings are developed in the slightest degree, and terminates with those in which they are of large size, and fitted for flight in both sexes. A character connected with the organs of flight, of some importance, but which has not hitherto received so much attention as it deserves, and which must be given to it when the knowledge of the sexes of the different species is more extended, exists in the furcation or simplicity of the main vein of the costal area of the wings; the furcate character occurring occasionally in both sexes, and sometimes only in the females.

Considerably greater importance has been given to the possession or absence of ocelli, as affording sectional divisions in the family, than I am disposed to concede to this peculiarity; these organs being sometimes scarcely capable of

being distinguished from small frontal tubercles, whilst in other instances they are of large size. Species also which are otherwise closely allied together, are either furnished with, or want these organs. One instance also occurs, in *Ph. Cneius*, in which some of the male specimens possess, whilst others want, the ocelli.

The comparative lengths of the parts of the thorax, which has been relied upon as a primary divisional character in the family, in like manner appears to me to be of comparatively little generic value: that it is, on the contrary, of high specific importance, will be at once perceived from the uniform employment I have made of it in my specific characters and measurements.

Genus 13. **ANOPHELEPIS**, *Westw.*

Body elongate, depressed or subdepressed in the female, more or less spined. Head without ocelli. Mesothorax several times longer than the prothorax. Metathorax not so long as the mesothorax. Tegmina (when present) as well as the wings reduced to minute scales. Legs long, or of moderate length.

Inhabit the Old and New World and Australia.

I have here arranged together, provisionally, several species which agree in the minute size of the organs of flight, in what I regard as the final state of their existence. In the species from India and Mexico the tegmina are not at all developed, whilst they exist in a very small and rudimental state in the Australian species. In other respects the species have close relations with other groups. The female of *A. vittata* approaches *Pygorhynchus*; *A. despecta*, without regard to its rudimental wings, would be arranged in *Acanthoderus*; whilst some of the Australian species resemble *Bacilli*.

1. (179.) **Anophelepis despecta**, *Westw.*

Plate III. fig. 6, male; fig. 1, immature female?

Mas. Gracilis, cylindricus; capitis margine postico tuberculis elevatis instructo; mesothorace spinis circiter 12, per paria irregulariter dispositis; metanoto squamis duabus elytriformibus, lateribus tuberculis minutis instructis; abdomine gracillimo, apice clavato; pedibus longis, gracilibus; femoribus apicem versus subtus spinis tribus aut quatuor minutis armatis; segmento nono ventrali in medio inflato, apice rotundato, ad apicem segmenti noni dorsalis extenso; hoc angulis apicalibus deflexis, subtus stylis duobus instructo.

Fœmina. Aptera, subcylindrica, latitudine fere æquali; fusco-nigricans, opaca, subscabra; capite postice quadrato, serieque postica tuberculorum parvorum instructo; thorace fere abdominis longitudine; pronoto spinulis minutis armato; mesothorace lateribus spinulosis, dorso 12-spinoso, spinis 2 anticis majoribus et approximatis, 2, 2, 2 distantibus, et 4 posticis approximatis, ultimis 2 compositis; metathorace oblongo, lateribus spinulosis, dorso in medio spinis duabus squamisque duabus liberis elytriformibus; segmentis abdominalibus tuberculo elevato in medio marginis postici, in segmentis basalibus fere obliterato, segmento ultimo trilobo, oviductu subtus in medio carinato; pedibus mediocribus, intermediis parum brevioribus; femoribus ad apicem intus spinulosis; tarsis articulo basali abbreviato, præsertim in pedibus 4 posticis.

Long. corp. maris, unc. $3\frac{1}{6}$; anten. unc. $2\frac{2}{3}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. $9\frac{1}{2}$; metath. lin. 5; abdom. lin. 14+ lin. $4\frac{1}{2}$=lin. $18\frac{1}{2}$.

Long. corp. fœm. unc. $4\frac{1}{4}$; cap. lin. 4; proth. lin. 4; mesoth. lin. 12; metath. lin. 7; abdom. lin. 20+lin. 6= lin. 26.

Phasma (Acanthoderus) despectum, *Westwood, Cabinet Orient. Ent.* p. 80. pl. 39. f. 5 (fem.).

Hab. Northern India; Sylhet. B.M., &c.

The general colour is brunneous grey; the head, wing-scales, and femora dirty buff; the extremity of the abdomen paler coloured. The body beneath is destitute of spines or tubercles.

Plate III. Fig. 6. The male, of the natural size. 6 *a*. The terminal segments of the abdomen seen from beneath. 6 *b*. The same seen sideways.

Plate III. fig. 1 represents an insect in the British Museum Collection which I had at first regarded as the female of a distinct species, and had proposed to name *An. Cresphontes*, the operculum being as fully developed as in the full-sized females of *An. despecta*. It, however, so closely agrees in all its general characters with the females of *An. despecta* (differing only in the slighter development of the tubercles, spines, and leaflets), that I think it more prudent to consider it as a small female of that species. The body is pale luteous opake brown, with the wing-scales pale yellow with a black line on each side; the legs are slightly varied with small brown points; the body beneath is concolorous and similarly rugose; the thoracic and abdominal segments marked with two longitudinal raised lines on each side.

Plate III. Fig. 1. The insect, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

2. (180.) **Anophelepis Scythrus**, *Westw.*

Plate II. fig. 3.

Elongata, cylindrica, opaca, obscure fusca; capite postice, prothorace, mesothorace antice et postice et metathorace in medio spinosis, hoc etiam in medio tegminibus

duobus ovalibus instructo; pedibus brevibus; femoribus apicem versus crassioribus et subtus spinosis (mas).

Long. corp. unc. $2\frac{1}{4}$; anten. lin. 12; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. $3\frac{1}{4}$; abdom. lin. 11 + lin. 3 = lin. 14.

Hab. In Mexico. B.M.

Opake dull brown; elongate, cylindrical, the meso- and metathorax being rather dilated in their hind part. The head is tuberculated in its hind part. The antennæ are multiarticulate, the basal joint of moderate size. The prothorax is armed with three pairs of erect spines and smaller lateral tubercles. The mesothorax is long and slender, except at its hind part, which is dilated; it is armed with several spines at its anterior and posterior parts, two of larger size being close together and adjoining the hind margin. The metathorax bears two erect spines a little in advance of its middle, and immediately behind these are two minute elytriform scales lying close upon the back, of a pale rosy colour with a black line down the middle of each; the hind part of the metathorax is dilated, with the sides spined in front of the hind legs. The abdomen is long, slender, and cylindrical, with the seventh joint gradually widened at the hind part, and the eighth gradually narrowed to its extremity; the ninth segment is widened behind, with its outer angles deflexed and bent inwards, the inner edge being armed with strong spines set transversely, and furnished with two hirsute styles; the terminal ventral segments not extending beyond the eighth dorsal segment. The legs are rather short, with the femora thickened towards the tips; the anterior femora are curved at the base, and the inner edge is armed with three small spines near the tip; the middle and hind femora are armed with several smaller and two larger spines next the tip. All the tibiæ are simple. The body beneath is paler brown, opake, with the segments simple, covered with very minute whitish points, which are more numerous on the anterior part of the mesosternum.

Is it possible that this can be the male of the next species?

Plate II. Fig. 3. The male, of the natural size. 3 *a*. The head and thoracic segments seen laterally. 3 *b*. The four terminal segments of the body seen sideways. 3 *c*. The same seen from beneath. 3 *d*. The last segment, with its teeth and styles, seen from behind.

3. (181.) Anophelepis vittata, *Westw.*

Plate III. fig. 3.

Fusca, albido-vittata, vitta media longitudinali magis distincta, granulosa, granulis tuberculisque albidis; lata, subdepressa; mesothorace in medio elevato-biangulato; metathorace squamis duabus elytriformibus; pedibus brevibus, tuberculatis; operculo segmentum apicale abdominis superante (fœm.).

Long. corp. unc. $3\frac{1}{4}$; (anten. apice detritæ;) proth. lin. 2; mesoth. lin. $9\frac{1}{2}$; metath. lin. $4\frac{3}{4}$; abdom. lin. 14 + lin. $5\frac{1}{2}$ = lin. $19\frac{1}{2}$.

Hab. In Mexico. B.M. et Saunders.

This species is distinguished by its wide flattened form, its granulated surface, and the pale longitudinal stripes on the upper surface of its body. The head is armed with small pointed tubercles, as well as the prothorax, on which those next the median line are larger and arranged in pairs. The antennæ are broken off at the twenty-second joint. The mesothorax is considerably dilated at the sides in the middle, the lateral margins being serrated; in the widest part the disk is raised into two elevated conical tubercles; beyond the middle it is narrowed, but is again dilated at the place of insertion of the middle legs. The metathorax is oblong, serrated at the edges, dilated at the base of the hind legs, and furnished on the middle of its upper side with two small elytriform scales. The abdomen is wide, with the sides of each segment dilated, the disk with a longitudinal raised vitta and several longitudinal lateral darker lines and marks; the three terminal segments are considerably narrower than the rest; the ninth is entire, and furnished at the sides with a pair of small styles; the operculum extends beyond the ninth dorsal segment, appearing like an extra joint from above. The legs are short and robust; the two fore femora are curved at the base; the four posterior are tuberculated along the fore edge and irregularly serrated beneath; the tibiæ are slightly dilated within near the base, the outer edge slightly and irregularly lobed. The body beneath is opake and entirely covered with very minute whitish granules.

Plate III. Fig. 3. The female, of the natural size. 3 *a*. The head and thoracic segments seen from the side. 3 *b*. The terminal segments of the abdomen seen from the side.

4. (182.) Anophelepis Telesphorus.

Plate VIII. fig. 3, male; fig. 7, female.

Albido-lutea (mas) vel brunnea (fœm.), filiformis (mas) vel subfiliformis (fœm.), inermis, sublævis (mas) vel granulata (fœm.); tegminibus duobus mesothoracis lutescentibus areolatis nigro punctatis; alis brevissimis, chalybeis nitidis; area costali basi sanguinea, apice viridi, nigro maculato; pedibus quatuor posticis femoribus serratis.

Long. corp. maris, circ. unc. 3; anten. lin. 12; proth.

lin. $1\frac{1}{2}$; mesoth. lin. 7; metath. lin. 5; abdominis segm. 6 basalibus, lin. $17\frac{1}{2}$.

Long. corp. fœm. unc. $4\frac{1}{6}$; anten. ——?; proth. lin. $2\frac{1}{4}$; mesoth. lin. 11; metath. lin. $6\frac{1}{2}$; abdom. lin. $21\frac{1}{2}$+lin. 7 =lin. $28\frac{1}{2}$.

Hab. In Australia occidentali et Swan River. B.M.

The male is very slender, cylindrical, smooth, pale luteous buff. The antennæ are rather longer than the fore femora. The mesothorax is marked with two very fine black lines down each side. The tegmina are small, narrowly ovate, pale luteous-coloured, areolated, with small black dots enclosed in the areolæ. The wings are minute, steel-blue and glossy; the costal area greenish at the extremity with black dots, sanguineous at the base. The abdomen is slender (the three terminal segments are wanting in the unique male in the National Collection); the basal segments have a rudimental lobe almost indistinct in the middle of the hind margin of each. The legs are long and slender, the four hind ones finely serrated on the under side of the femora.

The female is more robust and brown, with the mesothorax and abdominal segments granulose; the tegmina and wings are coloured as in the male; the middle of the central abdominal segments is more distinctly lobed; the terminal segment is slightly notched in the middle, with the two very short thick anal styles visible at the sides. The operculum scarcely extends beyond the base of the ninth dorsal segment. The legs are shorter and more robust; the four hind femora are more strongly serrated on the under edge.

Plate VIII. Fig. 3. The male, of the natural size.
Fig. 7. The female, of the natural size. 7 *a*. The terminal segments of the abdomen seen sideways.

5. (183.) **Anophelepis Periphanes**, *Westw.*
Plate VIII. fig. 2.

Elongata, gracilis, subparallela, lutea, lævis, impunctata; abdomine e basi ad apicem attenuato; operculo brevi, stylis duobus analibus valde elongatis; mesothorace et lateribus metathoracis granulatis; tegminibus alisque minutis rudimentalibus instructis; femoribus 4 posticis infra spinulis minutis nigris inter medium et apicem armatis (fœm.).

Long. corp. unc. $3\frac{1}{4}$; cap. lin. $2\frac{1}{2}$; anten. ——?; proth. lin. 2; mesoth. lin. 7; metath. lin. $3\frac{1}{2}$; abdom. lin. 19 + lin. 5=lin. 24; styl. anal. lin. 4.

Hab. In Australia. B.M.

This species agrees so entirely in all respects, size included, with the females of *Bacillus Peristhenes*, that I was, at first, tempted to believe that the unique specimen in the British Museum Collection was one which had acquired an extra development in its transformations. The abdomen is attenuated from the base to the apex, where it is furnished with a pair of anal styles as long as the eighth and ninth dorsal segments; it is of a luteous colour, smooth, impunctate, but not glabrous. The head has a rather deep impression between the eyes. The mesothorax is finely granulated, and furnished at its hinder extremity with a pair of minute oval tegmina. The metathorax is also furnished with two minute rudimental wings, extending a very short distance beyond the extremity of the tegmina. The four hind femora are armed beneath, between the middle and the tip, with two to four minute spines; the tibiæ are slender and simple. The operculum is small, scarcely extending beyond the middle of the eighth dorsal segment. The antennæ and two fore legs are wanting in the single female specimen which I have examined.

Plate VIII. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways.

Note.—The reference made, in p. 13, of this figure to the female of *Bacillus Peristhenes* must be expunged.

6. (184.) **Anophelepis Rhipheus**, *Westw.*
Plate VIII. fig. 10.

Fusca, albido granulosa, lineisque elevatis gracilibus longitudinalibus ornata; capite tuberculis duobus parvis nigris inter oculos; antennis perbrevibus, circiter 15-articulatis; mesothorace spinis paucis irregularibus armato; tegminibus alisque brevissimis rudimentalibus; abdomine e basi ad apicem sensim attenuato, apice integro; pedibus mediocribus, femoribus anticis crassioribus, antice 5 aut 6 spinis serrulatis, quatuor posticis prope apicem spinis 2 aut 3 minutis instructis (fœm.).

Long. corp. fœm. unc. $2\frac{1}{2}$; anten. lin. $3\frac{2}{3}$; proth. lin. 2; mesoth. lin. 5; metath. lin. $3\frac{1}{2}$; abdom. lin. $13\frac{1}{2}$+lin. 5= lin. $18\frac{1}{2}$.

Hab. Swan River, Australia occidentali. B.M.

Brown, covered with minute whitish granules, and marked with slender raised longitudinal lines. The head with two small black tubercles between the eyes. The antennæ not twice the length of the head, about 15-jointed; the basal joint broad, ovate and depressed. The mesothorax is armed with several irregular spines. The tegmina and wings are very small and rudimental. The abdomen is gradually narrowed from the base to the extremity,

which is rounded and entire, exposing the two broad setose anal styles; the upper surface is varied with slender longitudinal raised lines. The operculum does not extend beyond the extremity of the eighth dorsal segment. The fore legs have the femora rather thickened, with five or six serratures on the inner edge; the four hind legs are rather slender, with two or three minute spines on the under side near the tip.

A somewhat larger specimen than the one represented in Plate VIII. fig. 10, has the fore femora armed with only three serratures, and the hind femora have three small equidistant spines between the base and middle of the upper edges.

Plate VIII. Fig. 10. The female, of the natural size. 10 *a*. The extremity of the ninth dorsal segment of the abdomen with the anal styles, seen from above. 10 *b*. The terminal segments of the abdomen seen sideways.

7. (185.) Anophelepis Xiphias, *Westw.*

Plate IV. fig. 4, male; fig. 5, female.

Elongata, gracilis (mas gracillimus), obscura, tota brunnea, lævis; mesonoto et basi metanoti creberrime granulatis; antennis pedibus anticis longioribus, albido 4-annulatis; metanoto fœminæ squamis duabus parvis ovalibus tegminiformibus; operculo (cum stylis duobus compressis apice acuminatis filamentisque duobus) apicem abdominis longe superante; articulo basali tarsorum ad basin incrassato (mas et fœm.).

Long. corp. maris, unc. $3\frac{1}{6}$; anten. unc. $3\frac{1}{3}$; proth. lin. 2; mesoth. lin. 9; metath. lin. $4\frac{1}{2}$; abdom. lin. 18 + lin. 3= lin. 21.

Long. corp. fœm. unc. $4\frac{5}{6}$; anten. unc. $3\frac{2}{3}$; proth. lin. 3; mesoth. lin. 13; metath. lin. 6; abdom. lin. 24+lin. $4\frac{1}{2}$ +operc. apic. lin. $4\frac{1}{2}$=lin. 33.

Hab. Amboyna (*Madame Ada Pfeiffer*). B.M., &c.

Long and slender; the male very slender and filiform, entirely of an obscure red-brown colour, with the surface of the body smooth, except the upper surface of the mesothorax and base of the metathorax, which are densely covered with very minute granules. The head is of moderate size and unarmed. The metanotum of the male is simple; but that of the female is furnished with two minute, free, moveable, oval, reticulated scales, resembling rudimental tegmina. The abdomen is long and simple; the terminal segments in the male are short, forming an oval mass, the last terminated by two small lobes exposing the short caudal styles. The terminal segments of the female exhibit a structure I have rarely met with in the family: the ninth segment has its apical outer angles rounded, with the short anal styles visible at the sides; the extremity is slightly emarginate, exposing a minute terminal rounded lobe. The operculum is long and deeply incised at the tip; it extends far beyond the terminal segment, and is accompanied on either side by a slender compressed elongated style, channelled externally, with a deep slit at its apical end, and with the extremity of its upper edge prolonged into a spine, detached and lying outside of the upper edge of the lower division; within the space thus formed lie two long and flattened slender filaments, nearly as long as the operculum, incurved towards their tips. The legs are long, slender, and simple; all the tarsi, however, have a small node at the base of the first joint, which is setose on the under side.

Plate IV. Fig. 4. The male, of the natural size. 4 *a*. The terminal segment of the abdomen seen from above. 4 *b*. The terminal segments of the abdomen seen sideways.
Fig. 5. The female, of the natural size. 5 *a*. The last segment of the abdomen with its appendages seen from above. 5 *b*. The three terminal segments with their appendages seen sideways. 5 *c*. The same seen from beneath.

The appendages of the operculum of the female are similar to those in *Ph. Zeuxis*, as well as in *Ph. galacpterum*, *Macklottii*, and *Hadrillus*.

Genus 14. PHIBALOSOMA.

Phibalosoma (male), Cladoxerus (male), and Cladomorphus (female), *G. R. Gray*, *Serville*.
Cladoxerus, *Burmeister*, *Serville*.

Males with wing-covers and wings. Females apterous. Head destitute of ocelli. Legs long, and generally spined.

Males very long, slender, and cylindrical. Mesothorax several times longer than the prothorax. Metathorax shorter than the mesothorax. Tegmina small, much shorter than the metathorax, oval. Wings small, or of moderate size.

Females more robust, with much shorter legs. Oviduct generally extending beyond the extremity of the abdomen.

Considering the possession of a pair of wings in the males and the absence of alary organs in the females as the leading character of this group, we find several distinct types of structure among the males as well as amongst the much fewer females with which we are acquainted. The males of *Phibalosoma serratipes* and *Hypharpax*, for instance, have the terminal dorsal segment of the body

elongated, pointed, and bifid at the tip; whereas in the Australian *Ph. Caprella*, the Manilla *Ph. longicorne*, and the New World species allied to *Ph. gracile*, it is of the usual shape, and in the Brazilian *Ph. Le Peletierii* it is greatly elongated: on the other hand, the females of *Ph. Pythonius* have the oviduct twice the length of the three terminal segments of the body, and in *Ph. Le Peletierii*, fem., it extends a short distance beyond the extremity of the abdomen; whilst in *Ph. Acanthopus*, fem., it is not visible at all from above, the terminal dorsal segment being truncated. Corresponding variations may possibly be simultaneous in both sexes of the different types of form, but they do not appear to be concurrent with the geographical distribution of the species. The males of some of the smaller species approximate very closely to some of the more slender species of *Necroscia*, and it is not improbable that it will be found necessary to remove them to that genus or to *Phasma*, should their females prove to be winged.

In the uncertainty which exists as to the apterous or winged condition of the females of the types of the genus *Cladoxerus* (*Cl. serratipes, gracilis*, &c.), I have preferred retaining the generic name given by Mr. G. R. Gray to the male of the Brazilian species (*Ph. Le Peletierii*). Hence, if these females should ultimately prove to be winged, it will be necessary to remove them from the genus and restore to them the generic name of *Cladoxerus*.

1. (186.) Phibalosoma Le Peletierii.

Mas. Gracillimus, cylindricus, cinereus; mesothorace tuberculis parvis nigris, linea tenuissima utrinque laterali pallide rosea; alis albo-hyalinis, area costali grisea, vena mediana longe ante apicem cum sequente convexa; abdominis apice clavato, segmento ultimo ventrali in operculum semicylindricum valde elongatum desinente.

Fœm. Albo-cinerea; antennis supra albidis, subtus nigris; capite thoraceque scaberrimis; pedibus longis, crassis; femoribus tibiisque 4 posticis subtus spinosis, illis subtus prope basin spinis 1 aut 2 crassis, his in medio supra foliolo instructis, segmento 4to abdominis supra ad apicem foliaceo; operculo elongato, ovali, margine multisinuato; stylis duobus filiformibus ejusdem longitudinis curvatis instructo.

Long. corp. maris, unc. $5\frac{3}{4}$; cap. lin. 2; anten. lin. 36; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. 12; abdom. lin. 27+lin. 4 + operc. lin. $7\frac{1}{2}=38\frac{1}{2}$; tegm. lin. 5; alar. expans. unc. $4\frac{1}{2}$.

Long. corp. fœm. unc. 9; cap. lin. 4; proth. lin. 5; mesoth. lin. 24; metath. lin. 16; abdom. lin. 49 + lin. 8+ operc. apic. lin. 4=lin. 61.

Burmeister, Handb. d. Ent. ii. 2. 572 (Cladoxerus phyllinus).

Charpentier, Orth. Descr. t. 34 mas, t. 35 fœm.

(Mas) Phibalosoma Lepelletierii, *G. R. Gray, Syn. Phasm.* p. 14., 42.

Serville, H. N. Orth. p. 249.

(Fœm.) Cladomorphus phyllinus, *G. R. Gray, Syn. Phasm.* p. 14.

Serville, H. N. Orth. p. 225.

Brullé, H. N. Ins. t. ix. p. 108 (*Orth.* pl. 8, haud edita).

(Larva) Cladomorphus dilatipes, *G. R. Gray, Syn. Phasm.* p. 15.

Hab. In Brasilia. B.M., &c.

I have adopted the usual plan, where the sexes of a species have been described under different names, of retaining that of the male in preference to that of the female, although the latter has been employed for both the sexes by Burmeister and Charpentier. I have the greater pleasure in doing this, as commemorative of the name of my late friend the Count Le Peletier de Saint Fargeau, one of the most ardent and laborious of entomologists.

The elongated operculum of the male, with the remarkable arrangement of the chief veins of the costal area, are characters which I have not observed in any other species of the family.

2. (187.) Phibalosoma ceratocephalum.

PLATE XXXVI. fig. 2.

Albo-cinereum, rugosum; capite bifoliaceo; thorace scabro; pedibus brevibus, anticorum femoribus et tibiis foliato-compressis; femoribus 4 posticis crassis dentatis, apice tibiisque foliolis instructis, tarsorum articulo primo dilatato erecto; mesonoti margine postico, medio metanoti, segmentoque 4to abdominali foliolis parvis instructis; operculo ex $1\frac{1}{2}$ linea apicem abdominis superante (fœm.).

Long. corp. fœm. unc. 6; cap. lin. $3\frac{3}{4}$; anten. lin. 13; proth. lin. $3\frac{1}{2}$; mesoth. lin. 12; metath. lin. 10; abdom. lin. 35+lin. 6+operc. apic. lin. 2=lin. 43.

Cladomorphus ceratocephalus, *G. R. Gray, Syn. Phasm.* p. 15.

Hab. In Brasilia. In Mus. Hopeiano Oxoniæ.

Burmeister suggests the possibility of this insect being identical with the following, which he has described under the name of *Bacteria aurita*. No two species can, however, be more distinct, as will appear from the amended diagnoses which I have given of each.

PLATE XXXVI. Fig. 2. The female, of the natural size. 2 *a*. The head seen sideways. 2 *b*. The terminal segments of the body seen sideways.

3. (188.) **Phibalosoma phyllocephalum.**

PLATE XXXIII. fig. 1.

Valde elongatum, cylindricum; capite antice deflexo, cornubus duobus verticalibus magnis compressis, apice rotundato-foliaccis; mesonoto spinis duabus parvis acutis erectis in medio; metanoto duabus similibus ante medium alteraque maxima media erecta antrorsum curvata apice nigra, armatis; abdomine simplici; pedibus gracilibus, femoribus 4 posticis curvatis; operculo vaginali ultra apicem abdominis longitudine segmentorum 4 posticorum extenso, stylis duobus gracillimis fere ejusdem longitudinis adjectis, stylis ordinariis analibus brevibus gracilibus acutis (fœm.).

Long. corp. cum operc. unc. 9, lin. 8; cap. lin. 3; anten. lin. 22; proth. lin. 3; mesoth. lin. 20; metath. lin. 16; abdom. unc. 4, lin. 5+lin. 6+operc. unc. 1, lin. 3= unc. 6, lin. 2.

Acanthoderus phyllocephalus, *Westw. ante*, p. 58. no. 32 (160).

Bacteria aurita, *Burmeister, Handb. d. Ent.* ii. p. 565; (nec Acanthoderus auritus, *Burm.*; nec Phasma auritum, *Fabricius*).

Hab. In Brasilia. In Mus. reg. Berol., Westermanniano, et Hopeiano Oxoniæ.

Having obtained a specimen of this fine insect for the Hopeian Museum through the kindness of M. Westermann during my visit to Copenhagen in the summer of 1858, I am induced, from its analogy with the females of the two preceding species, to infer that its male must be a winged insect, and that it will here find its proper generic position. The characters above given will serve, in addition to those from Burmeister, copied in page 58, to distinguish it from every other known species of the family.

PLATE XXXIII. Fig. 1. The female, of the natural size.

4. (189.) **Phibalosoma Pythonius,** *Westw.*

PLATE XXXV. fig. 3, male. PLATE XII. fig. 1, female.

Pallide lutescens; pedibus virescentibus; capite et prothorace parvis, inermibus; mesothoracis dorso utrinque serie spinarum (in fœmina minorum), hujus et metanoti marginibus lateralibus breviter nigro spinosis; abdomine longo; pedibus longis serratis, antennis vix medium tibiarum anticarum attingentibus (mas et fœm.).

Mas. Filiformis; capite ocellis destituto; mesothorace cylindrico, spinis dorsalibus nigris majoribus, tegminibus vix medium metanoti attingentibus; alis magnis, area costali pallide lutea, basi virescenti linea flava; postice maculis minutis fuscis; area postica hyalina venis longitudinalibus luteis; abdomine gracillimo, segmentis tribus ultimis ventralibus abbreviatis vix inflatis, ultimo medium segmenti 8^vi^ dorsalis attingente.

Fœm. Multo robustior; abdomine thorace toto dimidio longiori; subcylindrica; mesothorace prothorace triplo longiori, ante medium lateraliter inflato; operculo elongato, apicem abdominis longe superante, appendicibus duabus ensiformibus ejus longitudine instructo.

Long. corp. maris, unc. $5\frac{1}{8}$; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. $11\frac{1}{2}$; metath. lin. 8; abdom. lin. 31+lin. 5= lin. 36. Tegm. lin. 4; alæ, lin. $29\frac{1}{2}$; alar. expans. unc. $4\frac{5}{8}$.

Long. corp. fœm. unc. 9; cap. lin. 7; anten. unc. $3\frac{1}{8}$; proth. lin. 6; mesoth. lin. 18; metath. lin. 13; abdom. unc. 4+lin. 9=unc. 4, lin. 9; operc. apic. lin. $7\frac{1}{2}$.

Hab. Feejee Islands (*D. Macgillivray*). B.M., &c.

This fine species, which is one of the most striking recent acquisitions in the family, was collected by Mr. Macgillivray in Ngau, one of the Feejee Islands.

The male, of which I have only seen a single specimen, quite recently sent home by Mr. Macgillivray, is very long, slender, and cylindrical. The head is destitute of ocelli. The mesothorax long, and slightly dilated at the insertion of the fore legs. It is luteous, with a greenish tinge; the two rows of dorsal spines are much stronger than in the females, and black; there are also two rows of minute spines on each side, and two still smaller along the prosternum. The metathorax has a row of very small points along the flank, with a deep double impression near the hind extremity of the metasternum, beyond which is a point on each side. The abdomen is long and filiform; the three terminal segments small. The tegmina small and truncate, greenish, with the lateral margin yellow. The wings are large; the costal area pale luteous buff, greenish at the base, with a yellow line, the hind part with a row of small brown dots; the principal vein is furcate in the left wing; the hinder area is very pale buff, rather darker at the tip, the veins pale reddish brown. The legs are long, with the femora rather strongly serrated.

The female has the head small, oval, convex, and destitute of spines or tubercles, with a small transverse impression between the eyes. The antennæ are long and slender, and consist of about twenty-nine or thirty joints, gradually becoming very long after the eighth joint. The prothorax is small, oblong, the surface irregular, the fore margin excised, the anterior angles truncate, a small deep puncture within each angle. The mesothorax is the widest part of the body, being much dilated before and slightly contracted behind the middle; the upper surface is entirely smooth, except towards its sides, where it is slightly punctured; the connecting lateral membrane with a row of small black spines.

The metathorax is about two-thirds of the length of the mesothorax, oblong convex, smooth, with the lateral margin on each side armed with a similar row of small black spines; the six basal abdominal segments are large, smooth, convex, and destitute of spines, with an acute lateral margin; the three terminal segments are small and narrowed, the eighth segment being the shortest, the ninth gradually attenuated and rounded behind, and with the two short caudal styles scarcely visible at its sides. The operculum is very long and boat-shaped, extending the length of the three terminal dorsal segments; beyond the extremity of the abdomen it is furnished within with two compressed, narrow, sabre-shaped appendages, as long as the operculum itself. The legs are moderately long, the thighs strongly, and the under edge of the tibiæ less strongly serrated.

A female specimen in the National Museum, smaller than the usual-sized individuals, has the sides of the mesothorax almost parallel.

Plate XXXV. Fig. 3. The male, of the natural size. 3*a*. The terminal segments of the abdomen seen sideways.
Plate XII. Fig. 1. The female, of the natural size. 1*a*. The terminal segments of the body seen from beneath. 1*b*. The same seen sideways.

4*. (189*.) **Phibalosoma Apollonius.** *See* Supplement.

5. (190.) **Phibalosoma Acanthopus.**

Mas. Valde elongatus; tegminibus fusco-viridibus, medio mucronatis apice truncatis sextam partem alarum metientibus, alis pellucidis elongatis usque ad apicem abdominis articuli 4ti productis; area antica grisea nebulosa, margine anteriori viridi; tibiis mediis margine superiori medio acanthophyllis. (Caput, prothorax et vagina desunt.)

Fœm. Pedibus anticis longissimis, omnibus in margine serratis; femoribus mediis tibiisque 4 posticis supra acanthophyllis; corpore glabro, nitido.

Lat. corp. maris, 2‴. Long. corp. 4″ 6½‴; proth. 2⅔″; mesoth. 1″ 2‴; metath. 9‴; ped. ant. 3″ 3‴; ped. post. 3″ 2‴.

Long. corp. fœm. 9″ 8‴–10″ 4‴; cap. individ. maj. lin. 5½; proth. lin. 4; mesoth. lin. 28; metath. lin. 21; abdom. unc. 4, lin. 6+unc. 1=unc. 5½.

Bacteria acanthopus, *Burmeister, Handb. d. Ent.* ii. p. 565 (fœm.).
Phasma (Cladoxerus) Acanthopus, *De Haan, Orth. Orient.* p. 131 (mas et fœm.).
Hab. India Orientali; Singapore, Buitenzorg, et Java.

The only known male of this species is a mutilated individual, which I have examined and sketched, from the Leyden Collection. The type of the female in the Berlin Museum is a gigantic insect, of which I have given the proportions above. The sixth ventral segment has a small spine in the middle of its hind margin; the terminal dorsal segment is truncated or rather slightly trilobed, and the operculum is boat-shaped, and extends nearly to the extremity of the last dorsal segment. The anal styles are very minute.

In general form this female bears a close resemblance to the female figured in my Pl. VI. fig. 5.

6. (191.) **Phibalosoma Cantori,** *Westw.*

Plate XXXVII. fig. 1, male.
Plate XXXVIII. fig. 1, female.

Valde elongatum, lævе, fusco-luteum, mas obscurior; capite postice valde convexo; mesothorace metathoraci maris æquali, fœminæ e tertia parte longiori; abdominis maris articulo 7mo dilatato, 9ni apice fisso, stylis analibus brevibus, fœminæ segmento 6to abdominali utrinque lobato, apicali truncato; operculo abdominis apicem vix attingente; pedibus omnibus valde serratis, tarsorum articulo basali supra valde compresso (mas et fœm.).

Long. corp. maris, unc. 5⅝; cap. lin. 3; proth. lin. 2½; mesoth. lin. 12; metath. lin. 12; abdom. lin. 32+lin. 8 =lin. 40; tegm. lin. 6; alar. expans. unc. 6⅓.

Long. corp. fœm. unc. 8; cap. lin. 6; proth. lin. 4; mesoth. lin. 16½; metath. lin. 13; abdom. unc. 3, lin. 7 +unc. 1=unc. 4, lin. 7.

Hab. Malacca (*D. Cantor*). In Mus. Hopeiano Oxoniæ.

The male is long and very slender, destitute of spines, except on the legs. The head is much broader than the prothorax, oval, very convex in its hinder part, the middle of which is elevated into two minute conical tubercles of unequal size. The mesothorax is long, smooth, and of equal width, except at the hind part; it is of the same length as the metathorax. The tegmina are obovate, much constricted towards the base, the middle being raised into a large rounded tubercle; they are dirty ashy brown, with the base of the outer margin luteous. The wings are large, but narrow, very slightly tinged with brown, and with darker brown longitudinal veins. The costal area is pale greenish brown, pale luteous along the base of the outer margin; the chief vein is furcate in both wings at half an inch from the base; the transverse veinlets are very numerous, straight, and distinct. The abdomen is long, cylindrical, and smooth; the seventh segment gradually widened, and the ninth deeply slit at its extremity; the

anal styles short; the terminal ventral segments short and much swollen.

The female has the body smooth, but much thicker than that of the male. The head is very convex behind, but without the two tubercles. The mesothorax widened gradually. The metathorax is one-third shorter than the mesothorax; it has a minute tubercle in the middle. The abdomen is long and thick; the sixth segment is lobed on each side; the seventh longer than the sixth; the eighth and ninth short, the latter emarginate—truncate at its extremity; anal styles short and deflexed. The operculum does not quite extend to the extremity of the body. The legs in both sexes are strongly serrated along their different angles, those of the male being longer and more slender; the basal joint of all the tarsi is compressed along its upper edge.

Plate XXXVII. Fig. 1. The male, of the natural size. 1 *a*. The head seen sideways. 1 *b*. The terminal segments of the body seen sideways.

Plate XXXVIII. Fig. 1. The female, of the natural size. 1 *a*. The head. 1 *b*. The terminal segments of the abdomen seen sideways.

This fine and distinct species is named after Dr. Theodore Cantor, an accomplished naturalist, by whom it was collected.

7. (192.) Phibalosoma serratipes.

Fusco-cinereum; tegminibus areaque costali cinereis, margine anteriori flavescenti-albo, interne nigro-marginatis; alis cinereis; pedibus anticis femoribus serratis, posticis dentatis, denticulis nonnullis majoribus tibiarum 4 posticarum (mas).

Long. corp. unc. 6, lin. 10½; cap. lin. 3; anten. unc. 4; proth. lin. 2; mesoth. lin. 19; metath. lin. 12; abdom. unc. 3 + lin. 9½ = unc. 3, lin. 9½; tegm. lin. 5; alar. expans. unc. 3¼.

Cladoxerus serratipes, *G. R. Gray, Syn. Phasm.* p. 42.

Hab. Pulo Penang (*Westermann*); Borneo (*Wallace*); Malabaria. B.M., &c.

The type of this species is preserved in the British Museum Collection. A male specimen, three-fourths of an inch shorter, was captured by Mr. Wallace in Borneo.

The body is extremely slender; the abdominal segments are slightly dilated at each end; the seventh is much dilated and conical, the eighth shorter and obconic, the ninth nearly as long as the two preceding united, slender and bifid, with the base swollen above; the anal styles deflexed, and arising in the middle of the last segment; the three terminal ventral segments swollen, and not extending beyond the middle of the eighth dorsal segment.

8. (193.) Phibalosoma Hypharpax, *Westw.*

Plate XIII. fig. 6, male.

Gracile, cylindricum, inerme; abdomine longissimo, articulo apicali longe bifido; tegminibus parvis, alte carinatis; alis pallide fuscis, costa obscuriori; antennis pallide luteis; pedibus elongatis, serratis (mas).

Long. corp. unc. 4⅔; cap. lin. 2½; proth. lin. 2; mesoth. lin. 10; metath. lin. 8; abdom. lin. 26 + lin. 8 = lin. 34; tegm. lin. 4; alæ, lin. 23; alar. expans. unc. 4.

Hab. In Ceylon. B.M.

A unique male of this species forms part of the National Collection. It is remarkable for the great length of the abdomen, spinose legs, and especially the structure of the terminal segments of the abdomen. It is slender and cylindrical, the body being destitute of spines. The head rather large, oval, and subdepressed, nearly smooth, with a pale patch in front, and another on each side behind the antennæ pale yellow. The antennæ have the extremity broken off at about 1⅓ inch from the base; the joints remaining are long and finely hairy. The mesothorax is slender and cylindrical. The tegmina are small and narrow, with a strong carina elevated considerably in the middle. The wings are moderately large, but not wide; they are pale brown, with the costal area rather darker brown; the chief vein is furcate at a short distance from the base. The abdomen is very long and filiform; the seventh dorsal segment gradually widened, the eighth gradually narrowed, the ninth elongated and deeply bifid, the two divisions gaping considerably and denticulated on their inner surface, with the two anal styles inserted on the under surface, and not so long as the divisions of this terminal segment; the three terminal ventral segments are abbreviated, not extending to the extremity of the eighth dorsal segment. The legs, especially the anterior pair, are elongated and rather slender; all the femora rather strongly serrated on all their edges; the tibiæ less strongly serrated, the four posterior with a more conspicuous spine on the outer edge towards the base; the basal joint of the tarsi rather flattened and dilated.

Plate XIII. Fig. 6. The male, of the natural size. 6 *a*. The terminal segments of the abdomen seen laterally. 6 *b*. The same seen from beneath.

9. (194.) Phibalosoma Tirachus, *Westw.*

Plate XXXVII. fig. 3, male.

Gracillimum, lineare, cylindricum, fusco-brunneum; capite oblongo, margine postico abrupte declivi; mesonoto tereti; tegminibus elongato-ovalibus, ante medium constrictis;

margine laterali luteo ; alis longis, angustis, hyalinis, brunneo vix tinctis, area costali brunnea, antice obscuriori ; margine tenui basali lutescenti, vena mediana simplici, venulis transversis valde distinctis ; pedibus perlongis, omnibus serratis, tibiis 4 posticis ante medium lobo parvo instructis, segmento ultimo abdominis truncato, stylis inferis (mas).

Long. corp. maris, unc. $4\frac{2}{3}$; cap. lin. $2\frac{1}{2}$; anten. lin. 20 ; proth. lin. 2 ; mesoth. lin. 12 ; metath. lin. 9 ; abdom. lin. $26\frac{1}{2}$+lin. 6=$32\frac{1}{2}$; tegm. lin. 5 ; alar. expans. unc. $4\frac{2}{3}$.

Hab. Malacca (*D. Cantor*). In Mus. Hopeiano Oxoniæ.

The unique male of this species in the Hopeian Collection is considerably more slender than that of *Ph. Pythonius*, with longer legs, the head larger and flatter, and the mesothorax unarmed. It is also closely allied to *Ph. Hypharpax*, but has the wings and mesothorax considerably longer, and the terminal abdominal segments differently constructed. The head is oblong, wider than the prothorax, flattened above, the posterior angles rounded, and the hind margin suddenly deflexed ; between the eyes in front is a short transverse curved impression. The eyes are large and prominent. The antennæ moderately long, with about twenty-four joints, the middle ones long. The mesothorax long, very slender, and simple. The tegmina are elongate-ovate, constricted before the middle, with the median carina elevated into a strong obtuse conical lobe. The wings are long and narrow ; they are hyaline, slightly tinged with brunneous, with dark brown longitudinal veins ; the costal area darker, especially towards the anterior margin, the margin itself towards the base with a luteous stripe ; the transverse veins are very distinct, and the median one simple. The abdomen is long, slender, and simple ; the seventh joint two-thirds of the length of the sixth, and gradually widened ; the eighth gradually narrowed ; the ninth more attenuated, compressed, longitudinally cleft ; the apex truncate, the two divisions spinulose within, and the anal styles deflexed ; the three terminal ventral segments are short and gradually thickened, extending only to the middle of the eighth dorsal segment. The legs are long and slender, the whole being serrated ; the four posterior tibiæ with a small lobe near the middle of the upper margin ; the basal joint of the tarsi longer than the rest united.

Plate XXXVII. Fig. 3. The male, of the natural size. 3 *a*. The head seen sideways. 3 *b*. The terminal segments of the body seen sideways.

10. (195.) Phibalosoma Diardi.

Capite pone oculos cylindrico, oculis prominentibus ; antennis pallidis ; mesothorace cylindrico, spinuloso ; metathorace dimidio breviore quam mesothorax ; pedibus tenuibus lævibus submarmoratis, pubescentibus, anticis paullo crassioribus ; tarsorum anticorum articulo 1mo lato foliaceo, reliquis longiore ; elytris fuscis $\frac{1}{8}$ vel $\frac{1}{9}^{\text{am}}$ partem alarum metientibus ; alis usque ad apicem articuli 3tii abdominis vergentibus, area antica olivacea ; area postica iridescenti, vagina articulo penultimo breviore.

Long. corp. 3″ 9‴ ; proth. 2‴ ; mesoth. $9\frac{1}{2}$‴ ; metath. $5\frac{1}{2}$‴ ; elytr. 3‴ ; alar. 2″ 4‴ ; ped. post. 2″ $6\frac{1}{2}$‴ ; anten. 2″.

Phasma (Cladoxerus) Diardi, *De Haan, Orth. Orient.* p. 131. pl. 12. f. 6 (mas).

Hab. Pontianak.

11. (196.) Phibalosoma Caprella, *Westw.*

Plate XXI. fig. 3, male.

Valde elongatum, filiforme, cylindricum ; capite rotundato, convexo, inermi ; mesothorace tuberculis numerosis prædito ; tegminibus parvis, truncatis ; alis subhyalinis, costa luteo-grisea, linea post-costali albida ; pedibus inermibus ; tarsorum articulo basali longo cristato (mas).

Long. corp. maris, unc. 4 ; cap. lin. 2 ; anten. lin. 28 ; proth. lin. 2 ; mesoth. lin. 9 ; metath. lin. 9 ; abdom. lin. 23+lin. 3=lin. 26 ; tegm. lin. 3 ; expans. alar. unc. $4\frac{1}{3}$.

Hab. In Nova Hollandia ? In Mus. Hopeiano Oxoniæ.

Very long, slender, filiform and cylindrical ; luteous brown, beneath greyish white. Head rounded and very convex, destitute of spines. Eyes prominent. Antennæ long, slender, finely setose ; joints short and very numerous. Mesothorax much thinner than the width of the head, covered both above and beneath with numerous minute black points. Tegmina small, oval, subtruncate at the tip, with a strong rounded elevation between the base and the middle of the central carina ; the inner angle of the extremity is marked by a triangular brown patch. Wings long, rather narrow, subhyaline and whitish, slightly stained with dusky along the margin and at the extremity ; longitudinal vein light brown ; costal area luteous grey, varied with minute darker cloudings, and with a long whitish streak extending from the base to about the middle of the costa, with the first and second post-median veins uniting with the median before the extremity of the wing. Legs long and simple, mottled with grey and brown ; four posterior femora with the apical angles dilated and terminating in a small acute point on each side ; all the tarsi have the basal joint long and carinated on its upper edge, the carina being emarginate near its extremity. Abdomen long and slender ; three terminal joints short, scarcely wider than the rest, the last joint subtruncate at the tip, with the angles rounded

off; anal styles short and obtuse; three terminal segments beneath very much swollen, the seventh and eighth joints very short and almost indistinct, the ninth almost cup-shaped.

PLATE XXI. Fig. 3. The male, of the natural size. 3*a*. The terminal segments of the body seen sideways.

12. (197.) Phibalosoma longicorne.

Corpore glabro; antennis dimidio corpore longioribus.

Mas. Antennis pedibusque nigro-annulatis; corpore alarumque area antica nigro-maculatis.

Fœm. (Larva.) Antennis pedibusque annulatis; abdominis segmento ultimo longissimo, lanceolato; pedibus simplicibus.

Long. corp. maris, unc. 2, lin. 7; cap. lin. $1\frac{1}{2}$; anten. unc. 3; proth. lin. $1\frac{1}{2}$; mesoth. lin. 6; metath. lin. 4; abdom. lin. 16+lin. $2\frac{1}{2}$=lin. $18\frac{1}{2}$.

Cladoxerus longicorne, *Burm. Handb. d. Ent.* ii. p. 572.

Hab. In Manilla.

The male of this species in the Royal Museum at Berlin bears a very close general resemblance to the following species; but the fore legs are much longer. The head is fulvous buff, with a round spot in the middle, and three black lines on each side of the hind part; the pronotum is marked with black lines; the mesothorax with irregular black marks; the costal area is green along the outer margin, and is spotted with black. The wings are closed in the unique male in the Berlin Museum, and extend to the extremity of the fourth abdominal segment.

13. (198.) Phibalosoma filum.

Filiforme, antennis pedibusque longis gracillimis; viridi-fuscum; capite luteo, inermi; antennis fuscis, albido 5-annulatis; prothorace luteo, fusco-vario; mesothorace gracillimo, subscabro; tegminibus brevibus, nigris, marginibus interno et externo viridibus, versus humeros parum angulato-elevatis; alis abdomine brevioribus, fuscis, area costali nigricanti venis transversis pallide viridibus; abdomine cylindrico, apice stylis duobus divergentibus instructo; pedibus inermibus; femoribus tibiisque ad apicem pallide viridi læte-annulatis, articulo 1mo tarsorum elongato (mas).

Long. corp. unc. 2, lin. 10; cap. lin. $1\frac{1}{4}$; proth. lin. $1\frac{1}{4}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. $4\frac{1}{2}$; abdom. lin. 18+lin. $3\frac{1}{2}$ =lin. $21\frac{1}{2}$; tegm. lin. 2; alar. expans. unc. $3\frac{1}{8}$.

Phasma (Necroscia) filum, *Westw. Cab. Orient. Entom.* p. 79. pl. 39. f. 2.

Hab. Prince of Wales's Island (*Dr. Cantor*); Malacca (*Wallace*). In Mus. Saunders et Hopeiano Oxoniæ.

The antennæ are annulated with pale green, the annuli placed about half an inch apart. The carina of the tegmina is conically elevated near the middle. The longitudinal veins of the wings are green; the median vein of the costal area is simple; the hind portion of the wings is slightly smoky.

14. (199.) Phibalosoma Davidis.

Brunneo-viride; capite sulco obsoleto longitudinali impresso; prothorace sulco transversali diviso; mesothorace obsolete carinato; elytris brevissimis, vix prothoracis longitudine; alis ad anticam crassis, opacis, viridibus, ad posticam marginem translucidis.

Long. 55 mill.; lat. 2 mill.

Cladoxerus Davidis, *Le Guillou, in Guérin, Rev. Zool.* 1841, p. 293.

Hab. In Insulis Salomonis.

15. (200.) Phibalosoma gracile, *Serv.*

Brunneum, læve; capite lineis nonnullis pallidis; tegminum margine externo cæruleo-viridi; alis translucidis; pedibus anticis corporis longitudine (mas).

Long. corp. "3 pouces au moins," *Serv.*

Cladoxerus gracilis, *Lepel. & Serville, Enc. Méth.* x. p. 445.
Serville, Ann. Sci. Nat. xxii. p. (32).
G. R. Gray, Syn. Phasm. p. 42.
Serville, H. N. Orth. p. 255.
Burmeister, Handb. d. Ent. ii. 2. p. 572 (Cladomorphus gracilis).

Hab. In Brasilia. In Mus. Berol. et Hopeiano Oxoniæ.

A specimen of the male of this species, obtained by me from the Royal Collection at Berlin, has the following proportions:—

Long. corp. unc. 3, lin. 1; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 9; metath. lin. 7; abdom. lin. 17 + lin. 3= lin. 20; tegm. lin. 2; alar. expans. unc. 2, lin. 7.

Serville's figure above referred to represents the insect at least double the natural width, although of the proper length; the fore legs are also too short.

The tegmina are very small, narrowed and depressed between the base and middle, the hinder portion being swollen, and the carina in this part rounded. The terminal segments of the abdomen are shorter than in *Cl. Cryphaleus*, and destitute of dark dots. The hind legs are also shorter than in that species.

I have examined and drawn the insect in the Berlin Museum, described by Burmeister as the female of this species thus:—"Unicolor; femoribus anticis in marginibus

serratis; tibiis posticis supra nunc lobatis nunc integris; operculo vaginali longissimo, lanceolato, canaliformi. Long. corp. cum operc. 5″ 10‴; anten. 5‴." The insect, in fact, closely resembles my Plate XXV. fig. 9; the abdomen is, however, considerably broader, the metathorax as well as the legs rather shorter, and the middle femora have two or three serrations on the under side. I do not understand on what grounds Burmeister considers this as the female of this species, there being, as it appears to me, no analogy in the structure of the body or legs to warrant such a conjecture.

16. (201.) **Phibalosoma Cryphaleus**, *Westw.*
PLATE XI. fig. 3, male.

Valde elongatum, filiforme, inerme, obscure luteum; abdominis apice lanceolato; pedibus fusco-annulatis, elongatis, simplicibus; alis pallide lutescentibus, costa obscuriori, margine antico albido ad basin linea tenui nigra marginali, venulis transversis abbreviatis; tarsorum articulo basali valde elongato.

Long. corp. unc. $3\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 9; metath. lin. $6\frac{1}{2}$; abdom. lin. 18+lin. $3\frac{1}{2}$=lin. $21\frac{1}{2}$; tegm. lin. 2; alæ, lin. 16; alar. expans. unc. $2\frac{5}{6}$.

Hab. In Brasilia. B.M.

The unique male of this species in the National Collection is of a dull luteous colour, with slightly defined blackish markings; the legs dirty brown, with paler annulations. The head is marked with two short stripes on the crown, followed by two lines posteriorly diverging, and two longitudinal lines behind the eyes. The antennæ are rather short, 21-jointed; the joints from the fifth to the tip long and slender. The prothorax has a triangular black spot in the middle in front, and two lateral dark lines. The mesothorax is long, slender, and cylindrical, with a slender black line on each side. The tegmina are small, with the outer apical angle slightly produced, the central carina dark and rather strong. The wings are pale, slightly stained with yellowish brown; the costal area rather darker, its fore margin dirty white, with the extreme edge for a short distance from the base black; the transverse veinlets abbreviated. The abdomen is long and nearly filiform; the three terminal segments hastate; the mouth slightly emarginate at its apex, exposing the two porrected anal styles; the seventh and eighth dorsal segments with small black dots; the three terminal ventral segments short, swollen, not extending to the extremity of the eighth dorsal segment. The legs are very long, slender, and simple; the basal joint of the tarsi, especially in the fore legs, very long.

PLATE XI. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the abdomen seen from beneath. 3 *b*. The same seen laterally.

Obs. The specimen above described has one of the hind legs not fully developed, probably the result of an accident, attended with reproduction of the limb.

17. (202.) **Phibalosoma longipes.**

Brunneum; capite, mesothorace juxta basin, tegminibus areaque costali albo-marginatis.

Long. corp. 4″ 5‴; anten. 3″ 9‴; exp. alar. 2″ 3‴.

Cladoxerus longipes, *G. R. Gray, Syn. Phasm.* p. 42.

Hab. In Demerara (olim in Coll. D. Children).

I have seen no specimen of this species, and can therefore add nothing to the description given by Mr. G. R. Gray of the species.

18. (203.) **Phibalosoma Ditomus**, *Westw.*
PLATE XIII. fig. 1, male.

Gracillimum, filiforme, inerme; antennis 24-articulatis, articulis longis, setosis; abdomine longo, cylindrico, segmento 7mo postice paullo latiori: fusco-virescens; tegminum margine costali pallide virescenti; alis fere hyalinis, costa subhyalina virescenti paullo tincta; pedibus longissimis, gracilibus, tibiis 4 posticis versus basin spina extus armatis.

Long. corp. unc. 4; cap. lin. 2; proth. lin. 2; mesoth. lin. 10; metath. lin. 9; abdom. lin. 23+4=lin. 27; tegm. lin. $2\frac{3}{4}$; alæ, lin. 20; alar. expans. unc. $3\frac{1}{2}$.

Hab. In Brasilia. B.M.

Closely allied to *Cl. Cryphaleus*, Westw., but considerably larger, with the tibiæ spined on each side near the base. I have, however, only seen a single specimen of each, not in fine condition, and can scarcely decide on its true difference from that species. The head is rather broad; eyes large, with a dark mark between them. The antennæ are rather more than 2 inches long, 24-jointed; the joints long and finely hairy. The mesothorax is very long, slender, and cylindrical. The tegmina are small, narrow, and rounded behind, with a strong angulated carina; the fore margin is pale greenish. The wings are of moderate size and rather narrow, nearly transparent; the costal area with a very slight greenish-brown tint. The abdomen is long and filiform; the three terminal segments broadly dilated, the seventh segment being gradually widened from the base to the extremity; terminal segment small, emarginate in the middle, exposing the two porrected obtuse anal

styles; the three terminal ventral segments are considerably swollen. The fore legs are wanting; the middle and hind ones are long and slender; the middle tibiæ with a small spine near the base, both on the outer and inner edges, also a similar spine on the outer edge of the left tibia, that on the opposite side wanting the spine. Tarsi with the basal joint very long.

PLATE XIII. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments seen laterally.

19. (204.) Phibalosoma Ploiaria, *Westw.*
PLATE XIII. fig. 4, male.

Gracillimum, cylindricum, filiforme, virescenti-fuscum, læve; antennis pedibusque rufo-brunneis; mesothorace valde elongato; alis fusco vix tinctis, area costali obscuriori; tegminibus fuscis, margine antico albo; pedibus longissimis, gracilibus.

Long. corp. unc. $4\frac{1}{2}$; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 14; metath. lin. 10; abdom. lin. 23 + lin. 4 = lin. 27; tegm. lin. 2; alæ, lin. 15; alar. expans. unc. $2\frac{2}{3}$.

Hab. In plagis occid. Amer. Septentrion. B.M.

The great length of the mesothorax and its very slender proportions render this a very conspicuous species, of which, however, I am only acquainted with the single male represented in the accompanying figure. It is very long and slender, destitute of spines, smooth, of a greenish-brown colour, with the antennæ and legs red-brown. The head is wide, with two very small conical tubercles between the eyes, and a small circular impression behind the clypeus; it is fulvous-coloured. Eyes very prominent. Antennæ long, filiform; the joints scarcely distinguishable and very numerous, rather long in the middle and short towards the tips. Mesothorax very long and filiform. Tegmina small, rather oblong, with the carina strongly elevated towards the base, brown, with the anterior margin white. Wings moderate-sized, slightly stained with dusky; costal area browner. Abdomen long and slender; the seventh and eighth joints widest; the ninth square, subtruncate behind, with a raised semicircular space towards the extremity; a white spot on each side of the eighth segment, and the upper side of the ninth also white; terminal ventral segments abbreviated and very much swollen, scarcely extending beyond the extremity of the eighth dorsal segment; anal styles curved, obtuse, not extending beyond the extremity of the ninth dorsal segment, the under surface of which is set with numerous short points. Legs long, slender, and simple; basal joint of the tarsi more than half the length of the entire tarsus.

PLATE XIII. Fig. 4. The male, of the natural size. 4 *a*. Terminal segments of the abdomen seen laterally. 4 *b*. The same seen from beneath. 4 *c*. The terminal segment seen from above.

Genus 15. MONANDROPTERA, *Serville*.

Male with moderate-sized oval tegmina and large wings.

Female apterous.

Male long, slender, cylindrical, with the metathorax dilated and spined along the sides.

Female broad, depressed.

Antennæ of moderate length. Ocelli obsolete. Metathorax nearly as long as the mesothorax. Legs robust; hind legs strongly spined; basal joint of the tarsi short.

Burmeister, in his Revision of the Order in Germar's 'Zeitschrift' (ii. p. 41), and De Haan (p. 131), have referred this genus to *Cladoxerus*, Serv. (*Phibalosoma*, supr.), evidently, however, without having had an opportunity of seeing the insects in nature; the former, at least, had failed to recognize the species, as I found the male in the Berlin Museum, described by him under the name of *Cyphocrania acanthomera*; thus proving, in effect, its generic distinction from *Cladoxerus*, and its much closer affinity to *Cyphocrania*.

The fine female insect figured by me in the 'Arcana Entomologica,' pl. 49, is so closely allied to the female of *M. inuncans*, that I do not hesitate to refer it to the genus, although it possesses extremely minute rudimental tegmina; as is also the case with the insect in the Berlin Museum from the coast of Africa, described below under the name of *M. parallela*.

It is with much greater doubt that I refer the large apterous Brazilian female insect, also figured in my 'Arcana,' ii. pl. 61 (*D. gibbosa*, Burm.), to this genus: not only its geographical range, but also its unarmed legs and peculiar-shaped thorax separate it from the Old World species.

1. (205.) Monandroptera inuncans.

Mas. Filiformis, virescens; capite lævi, postice lineis 6 nigris; mesothorace lævi, prothorace triplo longiori; tegminibus ovalibus mesothorace paullo longioribus, griseo-viridibus, costa lata albida; alis fere abdominis longitudine hyalinis brunneo maculatis, costa subopaca rufo-brunnea basi nigra; metasterno macula rotunda nigra nitida notato; pedibus corpore concoloribus, anticis longioribus simplicibus; femoribus intermediis ad apicem spinis nonnullis, posticis subtus fortiter spinosis, tibiisque 2 posticis subtus spinosis.

Fœm. Thorace et abdomine multo latioribus, subviridibus; metathoracis lateribus spinulosis, pedibus griseo-cinereis; femoribus tibiisque nigro fasciatis; tegminibus et alis obsoletis.

Long. corp. maris, unc. $4\frac{1}{8}$; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. $6\frac{1}{2}$; metath. lin. $10\frac{1}{2}$; abdom. lin. 22+lin. 4 =lin. 26; tegm. lin. 11; alar. expans. unc. 4, lin. 5.

Long. corp. fœm. unc. $4\frac{5}{8}$; cap. lin. 4; anten. lin. 24; proth. lin. 3; mesoth. lin. 10; metath. lin. $9\frac{1}{2}$; abdom. lin. 21+lin. 5=lin. 26.

Monandroptera inuncans, *Serville, H. N. Orth.* p. 244 (male and female).
Cyphocrania acanthomera, *Burm. o. c.* ii. p. 579. (Mas in Mus. Berol.; roseo-fusca, pruinosa; mesosterni lateribus, coxis, femoribus et tibiis posticis grosse spinosis.)

Hab. Ile de France. (Mas et fœm. in Mus. Hopeiano Oxoniæ.) ♀ B.M.

Having examined and drawn Burmeister's typical specimen of the male in the Berlin Museum, I have no doubt as to its identity with Serville's insect, and the consequent mistake of De Haan in supposing that Burmeister's insect might be the male of his *Cyphocrania Reinwardtii* (Orth. Orient. p. 130).

2. (206.) **Monandroptera undulata**, *Westw.*

Fœm. Magna, plana, subaptera; thorace sensim latiori; abdominis segmento basali metathorace latiori, reliquis segmentis sensim angustioribus, singulo extus rotundato, marginato; lateribus mesothoracis postice, metathoracis totis spinosis; tegminibus minimis, ovalibus, liberis; alis minutissimis vix distinguendis; tibiis posticis intus serrato-spinosis: tota prasina, lateribus thoracis pedibusque magis luteo-brunneis.

Long. corp. fœm. unc. $5\frac{1}{2}$; cap. lin. $5\frac{1}{2}$; anten. lin. 20; proth. lin. $4\frac{1}{2}$; mesoth. lin. $10\frac{1}{2}$; metath. lin. $11\frac{1}{2}$; abdom. lin. 31+lin. 7=lin. 38.

Diapherodes (Craspedonia) undulata, *Westw. Arc. Ent.* ii. pl. 49.
Craspedonia gibbosa, *Westw. o. c.* i. p. 26. pl. 8 (nec *Burmeister*).
Partes anatomicæ oris, *Westw. Introd. Mod. Class. Ins.* i. 431. f. 53—2-6.

Hab. —— (Africa?). Mus. Oxoniæ (olim *Westw.*).

3. (207.) **Monandroptera parallela**, *Westw.*

PLATE XXXVI. fig. 3.

Præcedenti simillima at multo angustior, segmentis abdominalibus vix rotundato-dilatatis, pedibus (præsertim posticis) longioribus tenuioribus, meso- et metathoracibus fere parallelis, mesosterni lateribus postice, metasterni omnino spinulosis (fœm.).

Long. corp. unc. $5\frac{1}{2}$; cap. lin. 4; anten. lin. 17; proth. lin. $4\frac{1}{2}$; mesoth. lin. 10; metath. lin. 12; abdom. lin. 28 +lin. 7=lin. 35.

Hab. In "Africa littorali." In Mus. Berol.

PLATE XXXVI. Fig. 3. The female, of the natural size.

4. (208.) **Monandroptera Pumilio.**

Lutescens (viva viridis?); capite inermi; mesothoracis lateribus sensim dilatatis vix serrulatis, disco in carinam mediam valde elevato; abdomine elongato vix dilatato, supra carinato, apice acuminato; pedibus gracilibus, simplicibus; alis nullis (fœm.).

Long. corp. unc. 2; cap. lin. 2; proth. lin. $1\frac{1}{3}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. 3; abdom. lin. 9+lin. 4=lin. 13.

Diapherodes (Cranidium) Pumilio, *Westw. Arc. Ent.* ii. p. 50. pl. 61. f. 2.

Hab. In Africa tropicali? In Mus. Bristol Philos. Institution.

5. (209.) **Monandroptera? gibbosa.**

Viridis, glabra; capite integro, gibbo; mesothoracis margine, mesonoti dorso gibboso, mesosternoque longitudinaliter obtuse spinosis; abdomine dilatato, distincte marginato, margine tenui continuo, striato; pedibus omnibus gracilibus, inermibus, tegminibus alisque nullis (fœm.).

Long. corp. fœm. unc. $4\frac{3}{4}$—unc. $5\frac{1}{2}$; cap. lin. $3\frac{1}{2}$; anten. lin. 24; proth. lin. 2; mesoth. lin. 11; metath. lin. 8; abdom. lin. $25\frac{1}{2}$+lin. 6=lin. $31\frac{1}{2}$.

Lat. abdom. unc. 1.

Diapherodes gibbosa, *Burm. Handb. d. Ent.* ii. 575.
Diapherodes (Cranidium) serricollis, *Westw. Arc. Ent.* ii. p. 49. pl. 61. f. 1 (fem.).

Hab. In Brasilia. Mus. Hopeiano Oxoniæ, et B.M.

Genus 16. **DIMORPHODES**, *Westw.*

Body of the male slender, furnished with oval tegmina and moderate-sized wings. Body of the female apterous, elongate, robust, subdepressed. Head oblong, without ocelli. Antennæ very short, basal joint flat. Pro- and mesothorax of the male, as well as the entire upper surface of the body of the female, armed with fine spinose granules and larger spines. Legs serrated, with the four hind femora with lobed spines. Operculum of the female rugose, not extending beyond the extremity of the abdomen.

I have been compelled to propose a new genus for a

curious species, of which both sexes have recently been sent to this country by Mr. Wallace from Aru; the female of which bears a close general resemblance to the species of *Ceroys*, but the antennæ are those of *Bacillus*; whilst the male is slender and winged, with the legs spined as in the female, but having the lobes of the four hind legs reduced to dilated spines.

1. (210.) **Dimorphodes Prostasis**, *Westw.*

Plate XXXIV. fig. 4, male; fig. 5, female.

Luteus (mas alatus) aut fuscus (fœmina aptera); capite quadrato, postice rugoso; pro- et mesonotis rugulosis, singulo ad medium marginis antici bispinoso, angulis duobus superis femorum 4 posticorum 4-spinosis, spina 3ª foliacea; antennis brevibus, articulo basali dilatato.

Mas. Elongatus, subcylindricus, granulis mesonoti albidis; tegminibus ovalibus, luteis, carina elevata intus nigra; alis albidis, apice paullo obscurioribus, area costali sublutea, linea media nigra; abdomine nitido.

Fœm. Latior, fusca, rugosa, opaca; metanoto utrinque ante medium serie obliqua spinarum parvarum tuberculoque conico porrecto ante coxas posticas, segmentis basalibus abdominis in medio marginis basalis et ad latera marginis postici bispinosis.

Long. corp. maris, unc. $2\frac{5}{6}$; cap. lin. 2; anten. lin. 8; mesoth. lin. $5\frac{1}{2}$; metath. lin. 5; abdom. lin. $14\frac{1}{2}$+lin. 5= lin. $19\frac{1}{2}$; tegm. lin. 3; alar. expans. unc. $2\frac{3}{4}$.

Long. corp. fœm. unc. $3\frac{3}{4}$; cap. lin. 3; anten. lin. 8; mesoth. lin. 9; metath. lin. $6\frac{1}{2}$; abdom. lin. $17\frac{1}{2}$+lin. 6= lin. $23\frac{1}{2}$.

Hab. Insula Aru prope Novam Zealandiam (*D. Wallace*). In Mus. W. W. Saunders.

The male of this curious species is slender and subcylindrical, of a brownish luteous colour, with the abdomen glossy. The head is rather longer than wide, rugose above, especially behind, with large eyes. The antennæ are short, about 20-jointed; the basal joint broad and flat. The prothorax is rugose, and armed in front with two short spines; two larger spines also arm the middle of the front margin of the mesonotum, which is covered with minute whitish granules, as is also the mesosternum. The tegmina are small, oval, and with the middle of the carina moderately elevated, the disc of the tegmina within the carina being marked with a black spot. The wings are of moderate size, opake whitish, with a rather darker outer margin; the costal area pale luteous, with the fore margin browner, and with the chief veins (especially the median one) marked with black lines; the latter is furcate near the base. All the legs are finely serrated, with the four posterior femora armed along each of the two upper angles with four equidistant spines, the third being the largest and subfoliaceous. The extremity of the abdomen in the unique male which I have seen is distorted, but the terminal ventral segments are but slightly swollen and very short. The tarsi are short, with the basal joint not so long as the remaining joints.

The female is opake brown, more rugose than the male. The head subquadrate, with the hind margin very rugose. The antennæ are still shorter than those of the male, with the basal joint more dilated. The pro- and mesothorax are spined as in the male. The metanotum has on each side, near the middle, an oblique row of short diverging spines; and there is a conical rugose lobe just in front of each of the posterior coxæ. The abdomen is cylindrical and rugose; the anterior segments have two small erect spines in the middle of the anterior margin, and a diverging one at each side of the posterior margin; the three terminal segments have a raised and flattened irregular carina along the middle, which in the eighth segment is prolonged and furcate, and the last joint is spinose above; the whole under-surface is armed with small spines. The operculum is swollen at its base, and extends to the extremity of the body. The legs are short and rugose; the spines larger than those of the males. The tarsi are very short, with the basal joint not longer than the two following joints.

Plate XXXIV. Fig. 4. The male, of the natural size.
Fig. 5. The female, of the natural size. 5 *a*. The terminal segments of the body seen laterally.

Genus 17. **HETEROPTERYX.**

Heteropteryx, *G. R. Gray*, *De Haan* (p. 108).
Diapherodes, Sect. A., *Burmeister* (p. 574).
Eurycantha, ♀?, *Serville* (p. 280).

Body spinose, furnished in both sexes with moderate-sized tegmina, and small wings of nearly equal size in both sexes; costal area not distinct, covered by the tegmina when at rest.

Body of the male rather slender, with the metathorax swollen; of the female broad, with the basal segments of the abdomen dilated; the terminal segment with a corneous elongated joint-like appendage, extending considerably beyond the extremity of the operculum. Legs robust and spined, but not lobed. Anterior femora not sinuated at the base. Tarsi with the basal joint short.

The discovery of the male of a species, of which the female agrees in general character with the insect of the latter sex long known by Parkinson's figure in the 'Linnæan Trans-

actions,' as well as the capture of both sexes of another closely allied species in Borneo by Mr. Wallace, have proved that Serville's speculations as to Parkinson's insect being a female of the genus *Eurycantha*, of which males only, supposed to be in an immature state (ultimately to become winged), had been described, are entirely groundless, and lead us to conclude, without doubt, that the male of *H. dilatata* will be found to possess short tegmina and wings.

1. (211.) Heteropteryx dilatata.

Fusca; mesonoto et abdomine pallidioribus; tegminibus viridibus, alis puniceis hyalinis, apice viridibus, venis brunneis; pedibus olivaceis; prothorace cordato-truncato; lateribus spinosis, pedibusque spinis armatis.

Long. corp. unc. $6\frac{1}{4}$; expans. tegmin. unc. 4.

Phasma dilatatum, *Parkinson, in Linn. Trans.* iv. pl. 18; *Shaw's Nat. Misc.* pl. 347, 348; *id. Gen. Zool. Ins.* vi. t. 45, 46.
G. R. Gray, Syn. Phasm. p. 32.
Serville, H. N. Orth. p. 280.
Burmeister, Handb. d. Ent. ii. 2. 574 (Diapherodes dilatata).

Hab. In India.

2. (212.) Heteropteryx Mülleri.

Capite convexo, 10-spinoso, spinis acutis triseriatis; mesothorace prothorace bis longiore, apice corona 6-spinosa armato; alis oblongo-tetragonis, fuscis, hyalino variegatis; elytris obtectis.

Mas. Mesothorace et abdomine subcylindricis; elytris olivaceis, margine exteriore viridi; tarsis anticis et postremis articulo 1° tribus sequentibus æquali.

Fœm. Mesothorace conico; abdomine oblongo, supra plano, infra convexo, apice acuto; elytris fuscis; femoribus linearibus, non incrassatis; tarsis anticis et postremis articulo 1° et 2° longitudine æquali.

Long. corp. 2″ 3‴, lat. 2‴; long. proth. $2\frac{1}{2}$‴; mesoth. 5‴; ped. postr. 2″ 2‴; elytr. $4\frac{1}{2}$‴; alar. 3‴.

Long. corp. 3″ 2‴; proth. 4‴; mesoth. 7‴; ped. postr. 2″ 6‴; elytr. 8‴; alar. 7‴.

Var. fœm. Capite 8-spinoso, spinis duabus anticis minimis vel nullis, mesothoracis apice spinis duabus sejunctis armato.

Phasma (Heteropteryx) Mülleri, *De Haan, Orth. Orient.* p. 108. pl. xi. f. 4. male, f. 5. fem.

Hab. In Sumatra in silvis, sub foliis emortuis. In Mus. Lugdunensi et Hopeiano Oxoniæ (mas et fœm.).

3. (213.) Heteropteryx Grayii, *Westw.*

Plate XXX. fig. 2, male; fig. 3, female.

Brunneo-fusca, spinulosa; capite postice spinis 4, 4; pronoti angulis antico spinis 2, postico 2, discoque antice 2; mesonoto 6, 4, 2, coronaque media postica 4-spinosa, armatis; lateribus metathoracis dilatatis et valde spinosis; pedibus præsertim posticis valde spinosis; tegminibus nigricantibus albido variegatis.

Mas. Gracilior, spinis majoribus; mesothorace oblongo-conico; tegminibus ovalibus, vix ultra basin abdominis extensis; abdomine gracili, subcylindrico, segmentis basalibus spinosis.

Fœm. Latior, subdepressa; mesothorace conico; tegminibus ovalibus, ad medium segmenti basalis abdominis extensis; abdomine spinis minutis, lateribus segmentorum serratis, segmentis tribus ultimis simplicibus, ultimo appendice oblongo, apice 8-denticulato instructo.

Long. corp. maris, unc. 3, lin. 7; cap. lin. $3\frac{1}{2}$; proth. lin. 4; mesoth. lin. 7; metath. lin. $6\frac{1}{2}$; abdom. lin. 18 + lin. 6=lin. 24; tegm. lin. 8.

Long. corp. fœm. fere unc. 5; cap. lin. $5\frac{1}{2}$; proth. lin. 6; mesoth. lin. 10; metath. lin. 7; abdom. lin. $19\frac{1}{2}$+lin. 9+ app. apical. lin. 3=lin. $31\frac{1}{2}$; tegm. lin. $12\frac{1}{2}$.

Hab. Borneo. Mus. Saunders, Hopeiano Oxoniæ (olim nostr.), et B.M.

This species approaches as closely to *H. De Haanii* as the latter does to *H. Mülleri*, De H. It is, however, very much larger (a number of specimens being uniform in size), and is distinguished by the group of four spines at the base of the tegmina, and the mottled appearance of the latter.

The general colour is reddish brown, obscure, slightly rugose, and armed with numerous small and a considerable number of larger spines, those upon the body of the male being much stronger than those of the female, while the legs of the latter are shorter, stronger, and more strongly spined. The head is armed on its hind part with eight strong spines, arranged in two rows; the anterior lateral angles of the prothorax have two strong spines, and there are two near the hinder angles; on the middle of the disc in front are two erect diverging spines, and a transverse row of spinelets near the hind margin. The upper surface of the mesothorax has a somewhat elevated triangular space, bearing a strong pair of spines in front, a pair in the middle, and an elevated group of four between the places of insertion of the tegmina; a raised line also runs obliquely on each side from the fore angles to the base of the tegmina bearing a row of minute spines, and the extreme lateral margin bears about six spines on each side. The

mesothorax of the male is conical; of the female considerably wider at the base than the hind part of the prothorax, and gradually widened backwards. The metathorax has the sides much swollen and rounded, and strongly spined on the margin, with a very strong spine on each side opposite the middle of the tegmina. The abdomen of the male is subcylindrical, gradually narrowed to the fifth segment, the edges spined as well as the upper surface, a pair of spines in the middle of the disc of each being the largest. The female has the abdomen broad, subdepressed, narrowed from the fifth segment, the lateral margins finely spined, the upper surface armed with very minute spines, the three terminal segments spineless, the ninth carinated, and furnished at the tip with an oblong joint-like appendage with four small teeth on each side; the three terminal ventral segments in the male are much swollen. The operculum of the female extends to the extremity of the anal appendage. The tegmina are oval, the extremity being more pointed, the base with a strong pale carina extending one-third of their length: the wings extend to the base of the abdomen. The legs of the male are moderately long; those of the female shorter and more robust, strongly spined throughout, the spines of the inner edge of the hind tibiæ very strong and curved. The mesosternum is armed with three small spines on each side, and the metasternum with two; the basal segments of the abdomen with four longitudinal rows of spines; the coxæ of all the legs are also strongly spined.

The species is named in honour of G. R. Gray, Esq., whose writings upon the family have so greatly contributed to our knowledge of the species.

Plate XXX. Fig. 2. The male, of the natural size. 2 *a*. The meso- and metasterna and basal segment of the abdomen of the male. 2 *b*. The terminal segments of the abdomen seen sideways.

Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the abdomen seen sideways.

4. (214.) Heteropteryx De Haanii, *Westw.*

Plate III. fig. 7.

Piceo-nigricans, castaneo parum tincta, opaca, spinosissima, spinis apice fulvis; capite spinis 8 majoribus; prothorace antice 4, postice 2, mesonoto antice 6, in medio 2, postice 4, hujus et metathoracis lateribus valde spinosis, his inflatis; tegminibus ovalibus, longitudine metathoracis et alas tegentibus; abdomine obconico, segmentis 6 basalibus dorso et lateribus spinulosis, 9no emarginato, lobum magnum dorsale apice spinoso instructo (fœm.).

Long. corp. unc. 4; cap. lin. 4½; anten. lin. 27; proth. lin. 5; mesoth. lin. 8; metath. lin. 8; abdom. lin. 14 + lin. 7+app. lin. 3=lin. 24.

Hab. Borneo. B.M.

Pitchy black, opake, with a chestnut tinge; strongly spined on the head, thorax and legs; the abdomen with smaller spines, the spines tipped with dark fulvous. Head nearly square, with two small spines between the eyes, and eight larger on the hind part in pairs. Antennæ 26-jointed, the basal joint of moderate size, the last joint rather longer than the two preceding together. Prothorax wider than the head, widest behind, divided into two parts by a transverse impression; the anterior part with four strong spines, the posterior with two. The metathorax is gradually dilated; its dorsal portion is raised and narrowed behind to the base of the tegmina, it is rugose, with a transverse row of six strong spines in front, two wide apart in the middle and two close together behind, and two smaller ones close to the origin of the tegmina; the lateral deflexed part is armed with numerous strong spines. The tegmina are oval, extending rather beyond the hind part of the metathorax, and entirely covering the short wings; the sides of the metathorax are swollen and strongly spined. The abdomen is nearly as broad as the metathorax in front, and gradually narrowed to the extremity; the six basal segments are armed with small spines in the middle of the upper surface as well as along their lateral margins; the ninth segment is carinated down the middle, emarginate behind, terminated by an oblong carinated appendage notched at its sides and apex. The operculum is swollen, and extends beyond the end of the ninth segment, but not beyond the exposed anal lobe. The legs are of moderate length, the anterior femora not curved at the base; all the femora angulated, and strongly spined along each angle; the tibiæ are strongly serrated, the hind ones with incurved spines on the inner edge.

The body beneath is opake; the mesosternum on each side with a row of three short spines, and two more in the middle behind; the metasternum has two spines on each side, two in the middle, and two in the middle of the hind margin, which extends backwards between the hind legs; the three basal abdominal segments are also furnished with two spines on each side near the middle.

Dedicated to the memory of De Haan, one of the most profound of modern entomologists.

Plate III. Fig. 7. The female, of the natural size. 7 *a*. The four terminal segments of the abdomen seen laterally.

Genus 18. DIAPHERODES.

Diapherodes, pars, *G. R. Gray*.
Diapherodes, *De Haan* (p. 109).
Diapherodes, Sect. B., pars, *Burmeister* (p. 574).

Body more or less spined; that of the male long and slender, furnished with oval tegmina nearly as long as the metathorax, and large wings. Body of the female broad and subdepressed, with oval tegmina and rudimental wings. Legs strong and angulated. Ovipositor of the female boat-shaped, and extending beyond the extremity of the abdomen. Anal styles very minute. Ocelli wanting.

Natives of tropical parts of the New World.

I have here restricted the genus to the large species, of which an excellent figure of the female was first published by Drury under the name of *Mantis gigas*, the natural history of which has since been investigated in the Island of St. Vincent's by the late Rev. Lansdown Guilding, whose specimens of both sexes, with the eggs and larvæ, are preserved in the British and Hopeian Museums; to this is added the *Platycrana venustula* of Serville, and a third West Indian species.

The other species introduced into the genus by Gray appear to differ in no generic respect from his *Aplopus micropterus*. It seems to me to be most probable that the *Plæsiophyllum Havaniense* of MacLeay's MSS. (*Phasma H., ante*, p. 34, Plate XXII. fig. 7) may be the full-grown female of *Pl. venustula*, or an allied species; in which case, we shall have females of the group without any rudiment of wings or wing-covers. The peculiar manner in which the horns of the head are developed in the female of this insect indicates an intimate relationship with the females of *Haplopus*.

1. (215.) Diapherodes gigas.

Mas. Olivaceus; capite cornuto; pro- et mesothoracibus scaberrimis; tegminum lateribus albidis, carina ante medium elevata; alis albo-sub-pellucidis, area costali brunnea, apice pallidiori, venis nigro-brunneis, mediana furcata; pedibus anticis lineis elevatis striatis, femoribus quatuor posticis subtus angulatis, omnibus serratis.

Fœm. Prasina; thorace spinoso, spinis lateralibus numerosis, apice nigris; tegminibus viridibus; femoribus crassis, posticis subtus angulatis.

Long. corp. maris, unc. $4\frac{1}{2}$; cap. lin. 2; anten. unc. 2; proth. lin. $2\frac{1}{2}$; mesoth. lin. 8; metath. lin. $7\frac{1}{2}$; abdom. lin. 26+lin. 5=lin. 31; tegm. lin. $6\frac{1}{2}$; alar. expans. unc. $4\frac{1}{2}$.

Long. corp. fœm. cum operc. unc. $7\frac{1}{2}$; cap. lin. 5; anten. unc. $2\frac{1}{2}$; proth. lin. 4; mesoth. lin. 16; metath. lin. 12; abdom. unc. $3\frac{1}{4}$+unc. $\frac{3}{4}$+operc. unc. $\frac{1}{2}$=unc. $4\frac{1}{2}$; tegm. lin. 7; alæ, lin. 4.

Mantis gigas, *Drury, Exot. Ins.* ii. pl. 50.
Diapherodes gigas, *G. R. Gray, Syn. Phasm.* p. 33.
Mantis angulata, *Fabricius, Ent. Syst.* ii. p. 13; *id. Ent. Syst. Suppl.* p. 187 (Phasma a.).
Lichtenstein, Linn. Trans. vi. 11.
Latreille, Gen. Cr. et Ins. iii. 87.
Cyphocrana cornuta, *St. Farg. et Serv. Enc. Méth.* x. p. 445.
Cyphocrana angulata, *Serv. Ann. Sc. Nat.* xxii. p. 61.
Diapherodes angulata, *Burm. Handb. d. Ent.* ii. 2. 574.
Mantis gigantea, *Gmelin, Syst. Nat.* (*Linn.*) p. 2055.

Hab. Isles of St. Vincent and Guadaloupe. In Mus. Hopeiano Oxoniæ et B.M.

2. (216.) Diapherodes venustula.

Mas. Gracilis, supra viridis, lævis, subtus brunneus; lateribus metathoracis virescentibus, infra albo-notatis; capite supra virescenti, lateribus et antice albidis, vertice bituberculato et parum granulato; prothorace lateribus albis, antice bituberculato et postice bisubtuberculato; mesothorace prothorace quadruplo longiori, lateribus antice et postice albidis, 3-tuberculato, tuberculis duobus anticis approximatis; tegminibus dimidio mesothoracis breviori, virescentibus, opacis, costa brunnea, basi albida, medio carinatis; alis (longitudine abdominis?) albidis, translucidis, venis longitudinalibus viridibus, costa viridi opaca linea alba longitudinali; pedibus corpore concoloribus, femoribus intermediis subtus ad apicem spinosis; antennis (basi) viridibus.

"Fœm. Corpore ter latiore; mesothorace convexo, margine arcuato, antrorsum angustato; metathorace posterius latiore; abdomine in longitudinem striato; vagina 2‴ ultra abdominis apicem producta, obtusa; tegminibus alisque nullis (an larva)." Conf. *Ph. Havaniense*, ante p. 34.

Long. corp. maris, unc. 2, lin. 5; cap. lin. $1\frac{1}{2}$; anten. lin. 16; proth. lin. 2; mesoth. lin. 5; metath. lin. 5; abdom. lin. $13\frac{1}{2}$ + lin. 3 = lin. $16\frac{1}{2}$; tegm. lin. $3\frac{1}{2}$; alar. expans. unc. $2\frac{2}{3}$.

Lat. corp. fœm. 3‴; long. corp. 2″ 7‴; mesoth. 8‴; metath. 5‴; ped. med. 13‴; ped. post. 1″ 4‴.

Platycrana venustula, *Serville, H. N. Orth.* p. 242.
Phasma (Diapherodes) venustulum, *De Haan, Orth. Orient.* p. 109.

Hab. In insula Cuba. In Mus. Berol. et Hopeiano Oxoniæ (mas).

3. (217.) Diapherodes Christopheri, *Westw.*

PLATE XXXIII. fig. 4, female.

Fœm. Elongata, subdepressa, fulva (viridis?); capite spinuloso, tuberculis duobus verticalibus (recto majori);

antennis circiter 54-articulatis, articulis subtus nigris; pronoto postice transversim spinuloso; mesothorace sensim dilatato, supra parce granuloso, spinis duabus anticis lateribusque spinulosis; tegminibus brevibus, subtriangularibus; alis minoribus, area costali viridi, coriacea, postica membranacea, hyalina; pedibus brevibus, crassis, femoribus 4 posticis subtus spinosis; abdomine elongato, operculo longe protenso (fœm.).

Long. corp. fœm. majoris, unc. $4\frac{7}{8}$; cap. lin. $2\frac{1}{2}$; anten. lin. 19; proth. lin. $2\frac{1}{2}$; mesoth. lin. 11; metath. lin. 7; abdom. lin. 24 + lin. 6 + operc. lin. 7 = lin. 37; tegm. lin. 4; alæ long. lin. 3.

Hab. In Indiæ occidentalis insula St. Christopheri (*D. Shepherd*). In Mus. Hopeiano Oxoniæ.

The general colour of the specimens of this insect in the Hopeian Museum is greenish yellow; when alive, it was probably uniform green, the specimens having been preserved in spirits. The surface of the body is smooth, but not glossy. The head is deflexed in front, the crown furnished with two tubercles, the right-hand one being the larger; the hind part of the head has several small spines. The antennæ are of moderate length, the joints beneath are black, beyond the middle also every fourth or fifth joint is dark at the tip. The prothorax has two small spines at its hind margin; the mesothorax is gradually widened, with a few minute tubercles or spines on its disc, two near the fore margin being more distinct; the sides of the mesothorax and metathorax are white, the former also armed with a row of small spines. The tegmina are small and somewhat triangularly ovate, green, with the costal margin beneath black; the wings are very small and hyaline; the costal area broad, coriaceous, green, with a black spot beneath. The abdomen is long, the anterior segments rather broad, the remainder gradually narrowed to the end, the three terminal ones being more suddenly narrowed. The operculum is boat-shaped, as long as or longer than the two or three terminal segments of the abdomen. The legs are short and robust; the anterior femora with two or three and the four posterior femora armed beneath with six or eight spines; the tibiæ dilated near the base, the tips with several small spines; the basal joint of the tarsi short.

PLATE XXXIII. Fig. 4. The female, of the natural size. 4 *a*. The head seen sideways. 4 *b*. The terminal segments of the abdomen of the larger specimen seen sideways.

Genus 19. HAPLOPUS.

Aplopus, *G. R. Gray* (*Syn. Phasm.* p. 34).
Haplopus, Sect. A., *Burmeister* (p. 576).
Haplopus, Sect. C., *De Haan* (p. 127).

Males with the body elongate and slender, the metathoracic portion more robust.

Females broader, subdepressed, with the abdomen greatly elongated, and the oviduct extending considerably beyond the extremity of the abdomen.

Head in both sexes with two unequal-sized tubercles, that on the right side generally the larger. Ocelli wanting. Antennæ of moderate length. Mesothorax considerably elongated, often spinose. Tegmina small, oval, shorter in the females. Wings of the male large; those of the female very small, not longer than the tegmina, not reaching to the extremity of the metathorax, with but few longitudinal veins. Legs comparatively short, thick in the female, and often spined. Anal styles very small in the female, more elongated and deflexed in the males.

The species of this group, as here restricted, are natives of the West Indian Islands, the habitat of Amboyna given by Stoll to *H. micropterus* being clearly erroneous. As a group, they are very closely allied to *Diapherodes gigas* of Drury; indeed Gray unites several of them generically with that insect. I cannot, however, separate them from *H. micropterus*. It would therefore perhaps be more natural entirely to sink the genus *Diapherodes*, uniting its species with the others.

1. (218.) Haplopus Evadne, *Westw.*

PLATE XVIII. fig. 6, male.

Elongatus, cylindricus; capite convexo, bituberculato; mesonoto valde elongato, nigro-spinoso; tegminibus ovalibus, areaque costali alarum læte flavis viridi-lineatis, area postica alarum opaco-alba, puniceo parum tincta; pedibus brevibus, crassis; femoribus quatuor posticis subtus spinosis (mas).

Long. corp. maris, unc. 4; cap. lin. 2; anten. unc. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. $8\frac{1}{2}$; metath. lin. 7; abdom. lin. 24 + lin. 5 = lin. 29; tegm. lin. 6; expans. alar. circ. unc. $4\frac{1}{4}$.

Hab. In insula St. Domingo. B.M.

The elegant coloration of the wing-covers and wings at once distinguishes the present species. It is very long, slender and cylindrical; the general colour luteous brown, but the head, prothorax, and extremity of the abdomen, as well as the antennæ and legs, are tinged with green. The head is convex, with two slightly raised tubercles on the crown

behind the eyes. The antennæ are rather thick, with about fifty-six short joints. The mesothorax is long, with about a dozen small black conical spines disposed in irregular rows along two-thirds of the anterior length. The tegmina are elongate ovate, not strongly angulated before the middle; they are of an elegant yellow colour, with five bright green longitudinal streaks along the chief veins. The wings are opake white, with a delicate pinkish tint, especially towards the anal margin; the longitudinal veins almost colourless; the costal area is coloured in the same manner as the tegmina, the chief vein being furcate at the distance of about half an inch from the base. The abdomen is very long and cylindrical, slightly widened at the base; the three terminal segments widened, the extremity rather angularly emarginate in the middle; the three terminal ventral segments moderately swollen, not extending beyond the eighth dorsal segment; the anal styles extending backwards, and forming a small forceps. The legs are short and rather thick, especially the four posterior femora, which are spined beneath; the basal joint of the tarsi is about as long as the three following joints.

PLATE XVIII. Fig. 6. The male, of the natural size. 6 *a*. The front part of the body seen sideways. 6 *b*. The terminal segments of the body seen sideways.

2. (219.) Haplopus Cytherea, *Westw.*

PLATE XVIII. fig. 5, male.

Valde elongatus, cylindricus, lutescens; capite valde convexo, vertice bispinoso (spina recta majori); prothorace bi-, mesothorace 6–7-spinoso; tegminibus fuscis albido maculatis; alis puniceo-albis, venis omnibus fuscis, area costali fusca albido maculata, basi nigra; pedibus viridibus; femoribus quatuor posticis subtus spinosis (mas).

Long. corp. unc. 4; cap. lin. $2\frac{1}{2}$; anten. unc. $2\frac{1}{3}$; proth. lin. 2; mesoth. lin. 9; metath. lin. 7; abdom. lin. 22 + lin. 6 = lin. 28; tegm. lin. 6; alar. expans. unc. $4\frac{1}{6}$.

Hab. In insula "St. Domingo," Haiti. In Mus. Saunders et Hopeiano Oxoniæ (olim nostr.).

This species is very closely allied to *H. Evadne*, but is at once distinguished by its longer limbs, narrower wings, and peculiar coloration. The head is very convex, and armed on the top of the crown with two acute conical points, black at the tip, the right one being the larger; the sides of the head are whitish. The antennæ are very long, rather thick, composed of about sixty short joints. The prothorax is armed with two small spines near its anterior margin. The mesothorax is slender and cylindrical, armed with six or seven spines placed in two rows irregularly. The tegmina are elongate ovate, brown, glossy, with a strongly raised conical tubercle near the base; the outer margin and two elongated patches beyond the middle are white. The wings are opake white, slightly tinged throughout with pink, the whole of the veins being dusky coloured; the costal area is pale brown, with a number of small elongated whitish patches; the base is black. The mesosternum is armed with six small spines arranged in two longitudinal series, and the metasternum with two pairs of similar but rather larger spines; the sides of the latter are marked with a narrow fulvous stripe. The abdomen is long, slender and cylindrical; the terminal segments white at the sides, and scarcely dilated; the three ventral segments short, not extending to the extremity of the eighth dorsal segment, and but little swollen, and the anal styles are rather thick and obtuse at the tips. The coxæ of all the legs are fulvous, the legs themselves green, moderately long and slender, with the four posterior femora armed beneath with a few small spines.

PLATE XVIII. Fig. 5. The male, of the natural size. 5 *a*. The anterior part of the body seen sideways. 5 *b*. The terminal segments seen sideways.

3. (220.) Haplopus Jamaicensis.

Elongatus, gracilis, viridis; tegminibus viridi-striatis, margine antico flavo; antennis fuscis; mesothorace antice bispinoso, spinis sæpe bifidis, nigris; alis pallide puniceis, area costali viridi; pedibus viridibus, articulationibus flavescentibus; femoribus spinosis, spinis anticorum minoribus (mas).

Long. corp. unc. $3\frac{1}{4}$; expans. alar. unc. 3, lin. 7.

Mantis Jamaicensis, *Drury, Exot. Ins.* ii. pl. 49. f. 1.
Fabricius, Ent. Syst. ii. p. 15; *Ent. Syst. Suppl.* p. 188 (Phasma J.) (exclus. *Syn. Stoll*, ii. f. 20, 21, = Cyph. viridana).
Olivier, Enc. Méth. vii. 634 (Mantis J.).
Lepeletier et Serv. Enc. Méth. x. p. 101 (Phasma J.); *ibid.* p. 445 (Cyphocrana J.).
Gray, Syn. Phasm. p. 38 (Platycrana J.).
Phasma edule, var. β, pars, *Lichtenstein, Linn. Tr.* vi. 13.

Hab. In India occidentali; Jamaica. Mus. Hopeiano Oxoniæ et B.M.

Neither Drury nor Fabricius mention the two mesothoracic spines (indeed Fabricius says that the character of the thorax constitutes the chief difference between this species and *H. bispinosus*). Drury's figure, however, clearly exhibits the two erect black spines in front of the mesothorax. According to his figure, the head is also destitute of the two tubercles, which are likewise unnoticed by Fabricius, who expressly describes them in *H. bispinosus*. Another character apparently distinguishing *H. Jamaicensis* from the latter species, are the green stripes of the teg-

mina, which have the outer margin yellow. The habitat also (although vaguely indicated by Fabricius), as respects *H. bispinosus*, seems different. With these exceptions, I should have regarded the two insects as identical.

4. (221.) Haplopus bispinosus.

Elongatus; thorace viridi, dorso flavescenti, teretiusculo, antice bispinoso, spinis validis nigris; tegminibus brevibus, medio gibbosis, viridibus, margine exteriore flavo; antennis flavescentibus; capite viridi, vertice utrinque spina elevata brevi obtusa; alis magnis, rufescentibus, margine exteriore viridi; abdomine lineari, virescenti; pedibus virescentibus, spinosis (mas).

Long. corp. unc. $3\frac{1}{8}$; expans. alar. unc. 3, lin. 7.

Mantis bispinosa, *Fabricius, Syst. Ent.* p. 275; *Ent. Syst.* ii. p. 15; *Ent. Syst. Suppl.* p. 188 (Phasma b.).
Gmelin, Syst. Nat. (*Linn.*) p. 2054.
Olivier, Enc. Méth. vii. 633. no. 41 (Mantis b.).
Rees, Enc. Nat. Hist. Ins. Hem. pl. 1. f. 1.
Shaw's Nat. Misc. pl. 323; *Enc. Brit.* t. 204. f. 20.
Phasma bispinosa, *Serville, Ann. Sc. Nat.* xxii. p. 58.
Latreille, Gen. Crust. et Ins. iii. 87.
G. R. Gray, Syn. Phasm. 24.

Hab. In America (*D. Hunter*; *Fabr.*); Brasilia (*Gray*). B.M.

I have noticed the apparent points of distinction between this insect and *H. Jamaicensis* under the latter species.

5. (222.) Haplopus micropterus.

Fusco-luteus, meso- et metanotis griseo tinctis; capite bicorni; thorace scabro; tegminibus et alarum area costali fusco-violaceis, hac prope basin macula rotunda alba notata, area postica pallidis, venis longitudinalibus crassis nigris; pedibus 4 posticis dentatis; operculo ultra apicem abdominis longe extenso (fœm.).

Long. corp. fœm. cum operc. unc. 5, lin. 1.

Phasma angulata (Spectre à ailes petites), *Stoll, Spectr.* pl. 21. f. 77. p. 61.
Haplopus angulatus, *Burmeister, Handb. d. Ent.* ii. 2.577 (nec angulata, *Fabr., Latr., Lichtenst., Serv.* = gigas, *Drury*: nec angulata, *Pal. Beauv.* = spinipes, *G. R. Gray*).
Cyphocrana microptera, *Lepel. et Serv. Enc. M.* x. p. 445; *Ann. Sc. Nat.* xxii. p. 61.
Aplopus micropterus, *G. R. Gray, Syn. Phasm.* p. 34.
Phasma (Haplopus) micropterum, *De Haan, Orth. Orient.* p. 128.

Hab. Indiæ occident. insulis St. Thomas et St. John (*Burmeister*); nec Amboyna (*Stoll*).

Stoll incorrectly considered that the insect which he represented in his figure 77 was a male in the pupa state, and also that it came from Amboyna. There is no doubt, however, that it is a female arrived at the perfect state, and that it is a native of the West Indies. The insect considered as this species in the Berlin Museum by Burmeister is a female, with the following proportions:—

Long. corp. cum operc. unc. $5\frac{5}{6}$; cap. lin. 3; proth. lin. 3; mesoth. lin. 12; metath. lin. $8\frac{1}{2}$; abdom. lin. 28 + lin. $6\frac{1}{4}$ + operc. lin. $8\frac{1}{2}$ = unc. 3, lin. 7; tegm. lin. 5; alæ long. lin. 5.

It has the legs shorter and thicker than is represented by Stoll. The two tubercles on the head are obtuse, the right one being larger than the left. The prothorax has two pairs of tubercles in front; the mesothorax is armed with numerous but small spines; the four hind femora have three or four strong teeth along their hinder edge; the sixth abdominal segment is a little dilated on each side behind, and the operculum is considerably broader at the extremity of the body than the ninth ventral segment. Burmeister describes the larva as having "auf den 4 Hinterschenkeln 2 Hautlappen und einen erhabenen Hinterrand am 1sten und 2ten Rückensegment."

6. (223.) Haplopus spinipes.

Viridis, corpore pallidiori; capite thoraceque spinosis; femoribus posterioribus quatuor dentatis tibiisque angulatis et spinosis; alis brevissimis, tegminibus paullo longioribus (fœm.).

Long. corp. (apice mutil.) 5″ 3‴; anten. 2″.

Phasma angulata, *Pal. Beauv. Ins.* pl. 14. f. 4; *Encycl. Port. Ins. Orth.* pl. 27. f. 2 (nec. Ph. angulata, *Stoll*, nec angulata, *Fabr., Latr.*).
Diapherodes spinipes, *G. R. Gray, Syn. Phasm.* p. 34.
Haplopus spinipes *De Haan, Orth. Orient.* p. 127.

Hab. In India occidentali (St. Domingo).

The figure given by Palisot Beauvois evidently represents a female of this genus, of which the extremity of the abdomen has been mutilated. This circumstance evidently induced Mr. G. R. Gray to regard it as a male pupa. I am sorry that I am unable to offer more precise characters of the species.

7. (224.) Haplopus bicuspidatus.

Pallide fuscus; tuberculis capitis peracutis; mesothorace 1″ 2‴ metiente; vagina sensim angustiore, $7\frac{1}{2}$″ ultra abdomen producta; abdominis articulo 6to parallelo; tegminibus 5‴ longis; pedibus pallide fuscis, latere inferiore spinosis, spinis æquidistantibus.

P. (Haplopus) bicuspidatum, *De Haan, Orthopt. Orient.* p. 128.

Hab. ——?

I have examined and sketched the typical specimen of this species in the Museum at Leyden. It is a female, having the following proportions :—

Long. corp. cum operc. unc. $5\frac{3}{4}$; cap. lin. 3; proth. lin. 3; mesoth. lin. 14; metath. lin. 8; abdom. lin. 26+ lin. 7+operc. lin. 8=lin. 41; tegm. lin. 5; alæ long. lin. 6.

The two tubercles of the head are unequal in size, the right-hand one being the larger. The legs are longer and more slender than those of the Berlin specimen of *H. micropterus*. The membranous portion of the wings has strongly marked transverse veins.

8. (225.) Haplopus bituberculatus.

Obscure fuscus; tuberculis capitis obtusis; mesothorace $9\frac{1}{2}'''$ metiente; vagina lineari $9'''$ ultra abdomen producta; abdominis articulo 6to subparallelo; elytris $3\frac{1}{2}'''$ longis; pedibus fusco-marmoratis, femorum spinis inæqualiter distantibus (fœm.).

Phasma (Haplopus) bituberculatum, *De Haan, Orth. Orient.* p. 128.
An H. pulverulentus, *G. R. Gray*?
Hab. ——?

The typical specimen of this species in the Leyden Museum is a female, having the following proportions :—

Long. corp. cum operc. unc. 5, lin. 5; cap. lin. $2\frac{3}{4}$; anten. lin. 10; proth. lin. $2\frac{1}{3}$; mesoth. lin. $9\frac{1}{2}$; metath. lin. $7\frac{1}{2}$; abdom. lin. 26+lin. 9+operc. lin. 9=lin. 44; tegm. lin. $3\frac{1}{2}$; alæ long. lin. 4.

The legs are shorter and more robust than in the preceding species; the two tubercles of the head are unequal in size, the right-hand one being the larger. The wings do not extend beyond three-fourths of the length of the metathorax.

9. (226.) Haplopus pulverulentus.

Fœm. Brunneo-nigra pulvere albo superinduta; thorace scaberrimo; pedibus brevibus, intermediis paullo dilatatis, femoribus posticis angulatis.

Long. corp. fœm. cum operc. fere unc. 5; cap. lin. 3; anten. lin. 18; proth. lin. $2\frac{3}{4}$; mesoth. lin. 9; metath. lin. 7; abdom. lin. 27+lin. $5\frac{1}{2}$+operc. lin. 6=lin. $38\frac{1}{2}$; tegm. lin. $3\frac{1}{2}$; alæ long. lin. 3.

Diapherodes pulverulentus, *G. R. Gray, Syn. Phasm.* p. 34.
An Haplopus bituberculatus, *De Haan*?
Hab. ——? B.M.

The type of this species is preserved in the National Collection. The head is furnished with two large tubercles of unequal size, the right-hand one being larger than the left. The mesothorax has three pairs of spines larger than the remainder at its anterior extremity. The wings are very small. The legs short and robust; the middle femora with a strong spine on the upper side near the extremity; the sixth abdominal segment is dilated at its sides.

10. (227.) Haplopus glabricollis.

Fœm. Viridis; mesonoto glabro, margine antico spinis 4, lateribus scabris; tegminibus alisque viridibus; pedibus brevibus, lineis elevatis striatis, posticis vix angulatis.

Long. corp. fœm. cum operc. unc. $5\frac{1}{2}$; cap. lin. $3\frac{1}{4}$; proth. lin. 3; mesoth. lin. 11; metath. lin. $7\frac{1}{2}$; abdom. lin. 27+ lin. 7+operc. lin. 7=lin. 41; tegm. lin. 4; alæ long. lin. 5.

Diapherodes glabricollis, *G. R. Gray, Syn. Phasm.* p. 33.
Burmeister, Handb. d. Ent. ii. 2. 575.
Hab. ——? B.M.

The original type of this species is contained in the British Museum Collection. It is a female, and is wider and more robust than the preceding. The head is armed with one strong tubercle on the right-hand side of the crown, and there are two pairs of small spines in front of the mesonotum. The wings do not extend to the extremity of the metanotum; they are, however, considerably larger than those of the preceding species. The legs are also longer than in that species; the sixth abdominal segment has the sides rounded and rather dilated.

11. (228.) Haplopus scabricollis.

Maris pupa. Flavescens, lateribus fasciis albis interruptis, pro- et mesothorace spinis nigris acutis; pedibus subtus omnibus angulatis femoribusque spinosis; tegminibus alisque rudimentalibus.

Fœm. Subcylindrica, pro- et mesothorace spinis minoribus, tegminibus alisque minutis.

Long. corp. maris, unc. $4\frac{3}{4}$; cap. lin. 3; mesoth. lin. $13\frac{1}{2}$; metath. lin. 8; abdom. lin. 21+lin. 7=lin. 28.

Long. corp. fœm. cum operc. unc. $7\frac{1}{3}$; cap. lin. $3\frac{1}{2}$; mesoth. lin. 18; metath. lin. $10\frac{1}{2}$; abdom. lin. 35+lin. 9+ operc. lin. 9=lin. 53.

Diapherodes scabricollis, *G. R. Gray, Syn. Phasm.* p. 34.
Hab. ——? Mus. Soc. Linn. Lond.

I am unable to satisfy myself whether the insect in the Cabinet of the Linnæan Society, described as above by Mr. G. R. Gray as a male pupa, is not in reality a male imago with rudimental tegmina and wings. The specimen whilst living has evidently undergone some accident, as the left hind leg is scarcely more than half an inch long, whilst the right-hand one is longer than the entire abdomen. The head in this specimen, as also in the female, is armed with

two spines, the prothorax with several pairs of smaller spines, and the mesothorax with numerous spines placed irregularly; the sides of the metathorax in the female are also spined, as well as the under side of all the femora in the male and female. The male has the three terminal segments of the body thicker than the preceding; the female has the sixth abdominal segment rounded, and rather dilated at the sides; and the operculum of the same sex extends nearly an inch beyond the extremity of the abdomen.

12. (229.) **Haplopus dubius.**

Fœm. cylindrica, nigrescens, pulvere albo superinduta, pro- et mesothorace spinis minoribus.

Long. —— ?

Diapherodes dubius, *G. R. Gray, Syn. Phasm.* p. 34.

Hab. In Cayenna. Mus. Soc. Linn. Lond.

Not having found the type of this insect in the Collection of the Linnæan Society, I am unable to add anything to the short description given by Mr. G. R. Gray.

13. (230.) **Haplopus Ligia,** *Westw.*

Plate XI. fig. 1, male. Plate XI. fig. 2, female.

Valde elongatus et gracilis; capite bicorni, cornubus inæqualibus, recto majori; pronoto maris bi-, mesonoto 8-spinosis, fœminæ multi-granulatis; tegminibus maris ovalibus, metathorace fere æqualibus, griseis albo-maculatis, fœminæ multo brevioribus subrotundatis obscuris; alis maris corporis dimidio longitudine æqualibus, pallidis, parte antica grisea albo-maculata, fœminæ brevissimis nigro-reticulatis; abdomine maris cylindrico, segmento sexto utrinque appendiculato, fœminæ e basi sensim attenuato, oviductu longissimo; pedibus brevioribus, femoribus subtus denticulatis (mas et fœm.).

Long. corp. maris, unc. 3, lin. 7; cap. lin. 2; anten. lin. 23; proth. lin. 2; mesoth. lin. $7\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. 20 + lin. 5 = lin. 25; tegm. lin. 6; expans. alar. unc. $3\frac{1}{3}$.

Long. corp. fœm. cum operc. unc. 6; cap. lin. 3; proth. lin. 3; mesoth. lin. 13; metath. lin. 8; abdom. lin. 27+ lin. 7+operc. lin. 10=lin. 44.

Hab. St. Domingo. B.M.

The male of this species is quite slender and subcylindric, with a glossy surface, and in its dried state of a light brightish brown colour, with the sides of the head and of the terminal segments of the abdomen white. The head is oblong, very convex, with two strong short horns in the middle of the crown, that on the right side being the larger; they are tipped with a short acute black point; there are also two small black granules on the hind part of the crown of the head. The antennæ are long and slender; the joints are about twice as long as thick, there being sixty-four joints in each antenna. The prothorax is furnished near its fore margin with two black points; and the mesothorax has four pairs of similar points, the hinder part being quite smooth. The tegmina are about two-thirds of the length of the mesothorax, oval, with a strongly elevated protuberance in the middle; they are of a dirty glaucous-grey, with the edges varied with white markings. The wings are about half the length of the entire body, milk-white, with a slight rosy-brownish tinge; the anterior part dull glaucous-grey, darker at the base, with white markings, especially on the fore margin. The abdomen is very long and slender; the sixth segment with a small lobe on each side; the three terminal segments rather wider than the rest, and short; the terminal ventral segment not extending beyond the eighth dorsal segment, and considerably dilated at its base; the two terminal styles porrected and obtuse. Legs short and strong; the anterior pair simple; the four posterior femora slightly spined along the under edge; basal joint of the tarsi about as long as the three following joints. Meso- and metasterna with a few black points.

The female is of an opake dirty glaucous-white colour. The horns of the head of unequal size, as in the male. The pro- and mesothorax much more thickly marked with small points, black at the tip. The tegmina are short and nearly rounded, thickly reticulated with paler nervures, and with a moderately raised tubercle beyond the middle. The wings are nearly equal in length to the tegmina; their anterior portion is dirty greenish-brown; the hind part thickly reticulated with black veins. The abdomen is very long and gradually attenuated to the tip; the oviduct is very long and boat-shaped, the exserted portion being nearly equal to the four preceding segments in length.

Plate XI. Fig. 1. The male, of the natural size. 1 *a*. The head and prothorax seen sideways. 1 *b*. The terminal segments of the abdomen seen sideways.

Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the body seen sideways.

Genus 20. **PTERINOXYLUS.**

Pterinoxylus, *Serville, o. c.* p. 226.
Haplopus, A. pars, *Burm. o. c.* p. 577.
Haplopus, B. pars, *De Haan, o. c.* p. 127.

Female only yet known. Body long, rugose; abdomen but slightly longer than the head and thorax; mesothorax one-third longer than the metathorax. Tegmina half the

length of the metathorax. Wings twice the length of the tegmina, scarcely extending beyond the extremity of the metathorax, with a large pale semitransparent patch, destitute of veins, near the base of the costal area. Legs, especially the four posterior, short; the anterior pair strongly dilated and foliaceous; the femora strongly emarginate on the inner margin; the four posterior lobed; tarsi with small compressed joints. Abdomen of the female with the sixth segment strongly dilated on each side; oviduct extending far beyond the extremity of the body.

I am induced to follow M. Serville in separating the curious insect upon which he has founded this genus from the preceding group, although it is certainly very closely allied to such species as *Haplopus micropterus* (*angulatus*, Burm.) and *H. spinipes*, G. R. Gray (*Ph. angulata*, Pal. B.); the dilatation of the legs, the lobed condition of the hind ones, the curious mirror-like patch at the base of the costal area of the wings, and the dilated sides of the sixth abdominal segment seem to warrant this step, which will, I have no doubt, be fully confirmed when the male shall be discovered.

1. (231.) Pterinoxylus difformipes.
PLATE XXXVI. fig. 1.

Rugosus, cinereo-brunneus; capite tuberculato, tuberculis majoribus 2, 2, 2; prothorace fere capitis longitudine; mesothorace prothorace triplo longiori, medio inflato et rugoso-bituberculato; metathorace mesothorace breviori, lævi; tegminibus tertiam partem mesothoracis longitudine æquantibus, ovalibus, opacis, viridibus brunneo maculatis; alis tegminibus duplo longioribus, area costali viridi-flava, brunneo submaculata, postica obscura, venis nigris longitudinalibus; abdominis segmento 2ndo supra bifoliaceo, 6toque ad apicem utrinque dilatato et 4-spinoso; pedum anticorum femoribus dilatato-foliaceis marginibus irregulariter incisis tarsisque dilatatis; femoribus intermediis foliolis numerosis irregularibus minoribus, tibiis ad basin extus et ad apicem foliolo instructis; femoribus posticis apicem versus supra dilatatione foliacea, subtus spinosis (fœm.).

Long. corp. cum operc. unc. $6\frac{3}{4}$; cap. lin. 4; proth. lin. $4\frac{1}{2}$; mesoth. lin. 16; metath. lin. 11; abdom. lin. 32 + lin. 8 + operc. apic. lin. 6 = lin. 46; tegm. lin. 6; alar. expans. lin. 24.

Pterinoxylus difformipes, *Serv. H. N. Orth.* p. 227.
Haplopus Eucnemis, *Burm. Handb. d. Ent.* ii. 2. 577.
De Haan, Orthopt. Orient. p. 127.

Hab. In America meridionali. In Mus. Berol. et olim in Mus. Serville.

The accompanying figure was made by me from the type specimen described by Burmeister in the Royal Museum of Berlin. The male is unknown.

PLATE XXXVI. Fig. 1. The female, of the natural size.

Genus 21. PALOPHUS, *Westw.*

Ctenomorpha, pars, *G. R. Gray, Syn.* p. 41.
Haplopus, B, *Burmeister, o. c.* p. 577.
Haplopus, A, *De Haan, o. c.* p. 127.

Body elongate; abdomen much longer than the head and thorax. Head armed with two long compressed porrected horns in both sexes; ocelli distinct. Tegmina elongate-ovate. Wings of the male very large, of the female more than half the length of the abdomen. Legs long; tibiæ armed on the outer edge, with a small spine before and another beyond the middle. Abdomen of the female truncate at the tip; oviduct not extending to the extremity of the dorsal segments; anal styles minute.

I have been compelled to establish a new genus for the reception of the two African insects described below, as I cannot perceive their close affinity with *Haplopus*, suggested by Burmeister and De Haan.

1. (232.) Palophus Haworthii. PLATE X. fig. 5, male.

Elongatus, gracilis, cinereus; abdomine fusco; capite antice cornubus duobus foliaceis longis porrectis inter oculos armato, ocellis tribus magnis; mesothorace abbreviato; tegminibus oblongo-ovalibus, in medio paulum elevatis; alis maris magnis, fœminæ mediocribus, area costali albido-lutescente macula nigricante basali, area postica fusca, maculis numerosis albis in venas longitudinales nigras dispositis; antennis et pedibus longis, his fusco fasciatis; femoribus 4 posticis basi sublobatis, tibiis omnibus extus bidenticulatis (mas et fœm.).

Long. corp. maris, unc. $4\frac{5}{6}$; cap. cum corn. lin. 4; proth. lin. 2; mesoth. lin. 7; metath. lin. $9\frac{1}{2}$; abdom. lin. 30 + lin. 6 = lin. 36; tegm. lin. 7; expans. alar. unc. $5\frac{1}{4}$.

Long. corp. fœm. unc. $5\frac{1}{2}$; cap. cum corn. lin. 5; proth. lin. 3; mesoth. lin. 11; metath. lin. 9; abdom. lin. 31 + lin. 7 = lin. 38; tegm. lin. 9; alar. expans. unc. $3\frac{3}{4}$.

Mas. Ctenomorpha Haworthii, *G. R. Gray, Syn. Phasm.* p. 41.
Fœm. Haplopus ceratophyllus, *Burmeister, Handb. d. Ent.* ii. 2. 577.
De Haan, Orth. Orient. p. 127.

Hab. In Africa australi (nec Australia). In Mus. Hopeiano Oxoniæ et B.M.

Deceived by the locality of Australia given to this species by Mr. G. R. Gray, as well as by his short, incomplete, and not quite accurate description, I had regarded the male in the British Museum Collection as a distinct species; but an examination of the typical specimen in the Hopeian Collection at Oxford has convinced me that it is identical with it. Mr. Hope's specimen is also a male, and it has no locality attached to it; so that the locality of Australia given to it must have been conjectural. Both sexes are contained in the Royal Museum at Berlin, and the female is also in the Leyden Museum.

The following is Mr. G. R. Gray's description of this species:—"Brunneus, cornubus inter oculos duobus longis, compressis; thorace rugoso; alis brunneis, margine superiori nigrescentibus, basi nigris, nervis obscuris et albo maculatis; tegminibus in medio paulum elevatis; pedibus longis gracilibus simplicibus hirsutis."

The male is very slender, with a disproportionately long abdomen, the hind legs not extending beyond its extremity, and with a comparatively short mesothorax. It is ashy-coloured, with the abdomen brown, and the legs obscurely fasciated. The head and anterior parts of the thorax are granulated; the former with a large double setose horn, porrected in front, arising between the eyes. The ocelli are large; the anterior placed in front of the frontal horns, and the lateral ones at their sides. The antennæ are upwards of $2\frac{1}{2}$ inches in length, finely setose; they consist in the British Museum specimen of thirty-eight joints, but some at the tip are probably broken off; the joints are elongated, the base of each pale, and the apex darker. There is a small spine on each side of the head between the eyes and mandibles. The mesothorax is not longer than the head and prothorax united; it is slender and subcylindrical. The abdomen is very long; the three terminal joints short, the last emarginate at the tip, exposing the ends of the short anal styles; the three terminal ventral segments are abbreviated, the last not extending beyond the middle of the eighth dorsal segment, it is moderately swollen. The tegmina are elongate-ovate, with a strongly elevated tubercle between the base and the middle; the fore margin is whitish, with a black oblong patch. The wings are large; the costal portion pale brownish-buff, with a dark brown spot at the base; the hind portion brown, with pale buff spots irregular in size, but mostly circular and arranged on the longitudinal veins. The legs are slender and setose; the anterior pair considerably elongated; the fore femora with a small spine on the upper edge in the middle; the middle and hind femora with a small spine near the base beneath, and a little further removed from the base, above; all the tibiæ have two small spines on the outer edge, one before and the other beyond the middle; the tarsi are short, with the basal joint of the fore legs rather dilated.

The female has the wings half the length of the abdomen. The mesothorax is proportionably longer and much wider than in the male, with two pairs of tubercles on its upper surface. The third, fourth and fifth segments of the abdomen are produced on the hind dorsal margin into two small pointed lobes; the eighth segment is very short; the ninth longer, truncate at its extremity; and the operculum does not extend beyond the middle of the ninth dorsal segment.

PLATE X. Fig. 5. The male, of the natural size. 5 *a*. The head seen sideways. 5 *b* (in the middle at the bottom of the plate). The terminal segments of the abdomen seen sideways.

2. (233.) Palophus Centaurus, *Westw.*

PLATE XXXII. fig. 1, female.

Valde elongatus, gracillimus, fusco-cœnosus, subrugosus; capite spinuloso laminisque duabus compressis antice porrectis armato; mesonoto cinereo, maculis nonnullis nigris; tegminibus elongato-ovalibus, fuscis, basi cinereis, tuberculo oblongo submedio instructis; abdominis segmento 4to supra ad apicem bifoliaceo; alis chalybeo-fuscis albido tessellatis, area costali fusca, basi nigra; femoribus 4 posticis curvatis prope basin bifoliaceis, tibiisque ante apicem supra foliolo minuto instructis; tarsorum anticorum articulo basali cristato (fœm.).

Long. corp. unc. 9; cap. cum corn. lin. 6; proth. lin. 5; mesoth. lin. 18; metath. lin. $13\frac{1}{2}$; abdom. unc. 4, lin. 9 + lin. $10\frac{1}{2}$ = unc. 5, lin. $7\frac{1}{2}$; tegm. lin. 11; alar. expans. unc. $5\frac{3}{4}$.

Hab. Old Calabar (*D. A. Murray*). In Mus. Hopeiano Oxoniæ (olim nostr.).

Very long and slender, subrugose, brown, varied with ashy. Head subquadrate, armed above with several small spines, and with two small rounded tubercles near the hind margin; the front of the head armed with two elongated compressed laminæ, porrected obliquely, the tips emarginate. Ocelli wanting. The pro- and mesonotums are opake ashy-brown, the latter with several oblong small black spots. The abdomen is very long; the fourth segment with two small oblong lobes on its upper side at the extremity; the seventh segment half the length of the sixth, the eighth half the length of the seventh, and the ninth as long as the seventh, the ninth truncate at its extremity; the anal styles short and obtuse. The operculum extends to about one-third of the length of the ninth dorsal segment; the posterior half finely keeled; with a small

notch at its tip. The tegmina are elongate-ovate, with an oblong tubercle in the middle. Wings chalybeate-brown, with numerous luteous oval spots forming irregular fasciæ; costal area ashy-brown; the base with a black spot. Legs of moderate length; anterior tibiæ with the lower edge rather dilated, the upper with three small lobes; fore tarsi compressed, the basal joint cristate; four hind femora strongly curved, furnished near the base with two diverging lobes; tibiæ towards the extremity with several small lobes.

PLATE XXXII. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

Genus 22. **ASCHIPASMA**, *Westw.*

Aschiphasma, *Westw. Zool. Journ.* v. 442.
Ascephasma, *Burm., De Haan.*
Perlamorphus, *Curtis, G. R. Gray* (*o. c.* p. 21).
Perlamorpha, *Serville.*

Body long, slender and cylindric, winged in both sexes. Head rounded; ocelli wanting. Mesothorax scarcely twice the length of the prothorax. Tegmina obsolete or minute, spiniform or stipuliform. Wings in both sexes large, those of the females smaller than those of the males. Legs short, simple. Abdomen slender. Oviduct of the females not extending beyond the extremity of the abdomen.

Inhabit the Islands of the Eastern Ocean.

The original type of this curious genus and following species differ from the remainder in not possessing the slightest rudiments of the anterior pair of alary organs,—being, so far as I yet know, the only instances of such a departure from the ordinary conditions of insect development. In the other species the tegmina are represented by two minute spines, or two small scales incurved at the sides.

1. (234.) **Aschipasma annulipes.**

PLATE XV. fig. 2, male, var.

Luteo-sericeum, viridi-nitens, brunneo variegatum; tegminibus obsoletis, alis infumatis, area costali viridi, maculis inter venas nigricantibus; abdomine griseo-brunneo, subtus hirsuto; pedibus flavescenti-viridibus, nigro fasciatis, stylis analibus maris incurvis, apice dilatatis, subfurcatis (mas et fœm.).

Long. corp. maris, unc. 2; cap. lin. 2; anten. ?; proth. lin. $2\frac{1}{4}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 11 +lin. 4=lin. 15; alar. expans. lin. 34.

Long. corp. fœm. unc. 2, lin. 7; cap. lin. $2\frac{3}{4}$; anten. lin. 24; proth. lin. $2\frac{2}{3}$; mesoth. lin. 3; metath. lin. 5; abdom. lin. 13+lin. 4=lin. 17; alar. expans. unc. $3\frac{1}{4}$.

Aschiphasma annulipes, *Westw. in Zool. Journ.* v. p. 442.
Perlamorphus hieroglyphicus, *Curtis, MS.*
G. R. Gray, Syn. Phasm. p. 21.
Serville, H. N. Orth. p. 276.
Burmeister, Handb. d. Ent. ii. 2. p. 583.
Phasma (Ascephasma) annulipes, *De Haan, Orth. Orient.* pp. 113, 114.
Hab. In Java. B.M., &c.

"Pupa (in Mus. Hopeiano Oxoniæ) imagini similis nisi quoad abdomen maculatum, alasque rudimentales flavas inter nervos striatas."—*G. R. Gray, l. c.*

Var. Pallide virescenti-lutescens, fusco variegatum et maculatum; tegminibus obsoletis; alis fuscis, area costali viridi nigro maculata; pedibus fasciatis; antennis corporis longitudine (mas et fœm.).

Long. corp. maris, lin. 27; cap. lin. 2; anten. lin. 26; proth. lin. 2; mesoth. lin. 3; metath. lin. 4; abdom. lin. 12+lin. 3=lin. 15; alar. expans. unc. 3.

Long. corp. fœm. unc. 3, lin. 1; cap. lin. $2\frac{1}{2}$; anten. ?; proth. lin. $2\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 6; abdom. lin. 18+lin. 5=lin. 23; alar. expans. unc. 4.

Hab. In Malacca (*D. Wallace*). In Mus. Saunders.

Specimens of this species of large size have been collected by Mr. Wallace in Malacca, which I at first considered sufficiently distinct to form a separate species. I can, however, after more mature consideration, only regard them as forming a local variety, in which the body is quite smooth, the head broad, and the eyes large. The antennæ are long and slender, upwards of 70-jointed, the joints beyond the middle becoming more and more indistinct, except at intervals of four or five joints, which gives the appearance of long compound joints. The head is pale luteous, with seven longitudinal dark streaks on its hinder portion, the middle ones being transversely united between the eyes. The prothorax is square, the anterior angles spiraculiferous, transversely impressed across the middle, and marked with blackish stripes, two of which form a V in the middle of the front half; the mesothorax is also considerably varied with blackish, which colour leaves a pale frontal hastate and two reniform lateral patches of luteous. The metathorax is nearly as long as the pro- and mesothorax united. The abdomen is long, narrow and convex in the male, wider in the female, with a dark longitudinal median stripe, having two larger oval and several smaller dark spots on each side of it. The legs are moderately long and simple, luteous-coloured; the femora and tibiæ with the extremity and a fascia across the middle black; the tarsi black, except the pale basal joint. The wings are brown; the costal area pale green, with numerous

black spots and dots, leaving the veins green; median vein simple. The terminal segments of the abdomen of the male are very much swollen both above and below, and the anal styles are deflexed, broad, and emarginate at the extremity. The female has the terminal joint rounded and entire, the operculum very much swollen, and the anal styles short and oval.

PLATE XV. Fig. 2. The variety of the male, of the natural size. 2 *a*. The terminal segments of the body seen from beneath. 2 *b*. The same seen sideways. 2 *c*. The same parts in the female, seen sideways. 2 *d*. The extremity of the female abdomen seen from behind.

2. (235.) Aschipasma nebulosum, *Westw.*

PLATE IX. fig. 4, male.

Gracile, pallide fuscum, inerme; antennis longis, gracillimis, multiarticulatis; tegminibus obsoletis; pedibus longioribus, parum hirtis, fusco obscurius annulatis, intermediis subtus spinis minutis armatis; alis angustioribus, pallide fuscis, costa luteo-fusca, obscure nebulosa (mas).

Long. corp. lin. 18½; cap. lin. 1½; anten. lin. 18; proth. lin. 1½; mesoth. lin. 2; metath. lin. 3; abdom. lin. 9 + lin. 2=lin. 11; alar. expans. lin. 24½.

Hab. Ceylon. B.M.

This species is allied to the preceding in being entirely destitute of the rudiments of tegmina; it has the antennæ very long and slender, the legs annulated, especially near the extremity of the femora, and the costa of the wings obscurely clouded. It agrees in size with the male of *A. affine*, De Haan; but the wings are at least one-third larger, and the last segment of the under side of the body shorter. The general colour is pale brown. The body is narrow and subcylindrical. The head is rather wider than the prothorax, and is marked in the middle of the crown behind with a small dark spot. The prothorax is rather longer than the head, and the mesothorax is about one-third longer than the prothorax. The antennæ are long and slender, with the joints short; beyond the middle they are marked at irregular distances with a dusky ring at the extremity of one of the joints, leaving two, three, or even four joints between the dusky and slightly incrassated joints. The tegmina are entirely obsolete. The wings are very pale brown, and rather opake, with the costal area darker luteous-brown, slightly clouded with irregular ill-defined paler patches; all the veins are pale brown, the principal longitudinal vein darker than the rest, and slightly spotted with pale dots towards the base. The legs are slender; the fore femora nearly straight at the base; all of them are obscurely annulated with dusky, and with a more decided ring near the tip; the intermediate tibiæ are armed beneath with several minute spines. The abdomen is long and slender, slightly clavate at the tip, the last joint deflexed and emarginate at its extremity; the two anal styles rather long, deflexed and incurved; the seventh ventral segment is distinct, but the two following are coalesced into a somewhat conical segment, scarcely swollen beneath, and extending nearly to the extremity of the ninth dorsal segment.

PLATE IX. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the abdomen seen from beneath. 4 *b*. The extremity of the abdomen seen from behind. 4 *c*. The terminal segments seen sideways.

3. (236.) Aschipasma Forstenii.

Alis utriusque sexus orbiculatis; tegminibus stipulæformibus, obtusis, aurantiacis; corpore, antennis pedibusque nigris; femoribus anticis rectis; capite lato.

Mas. Alarum area postica obscuro-fusca, antica nigra, aurantiaco-marginata, stylis analibus incurvatis, vagina convexa.

Fœm. Alarum area postica fuscescente, antica viridi, areolis fuscis; stylis analibus rectis tenuioribus, vagina compressa.

Long. corp. maris, lin. 16½; cap. lin. 1; anten. lin. 7?; proth. lin. 1½; mesoth. lin. 2½; metath. lin. 2½; abdom. lin. 7+lin. 2=lin. 9; alar. expans. lin. 17; lat. alæ, lin. 5½.

Long. corp. fœm. lin. 20; cap. lin. 1¾; anten. lin. —?; proth. lin. 2; mesoth. lin. 3; metath. lin. 2¾; abdom. lin. 8 + lin. 3 = lin. 11; alar. expans. lin. 20; lat. alæ, lin. 7.

Phasma (Ascephasma) Forstenii, *De Haan, Orth. Orient.* p. 114.

Hab. Celebes. In Mus. Lugdunensi.

The above dimensions are derived from an examination of the typical specimens in the Leyden Museum.

4. (237.) Aschipasma Pandora, *Westw.*

PLATE IX. fig. 2, male.

Obscure nigrum, cylindricum, inerme; tegminibus minutis stipulæformibus luteis, alis oblongis, apice rotundatis, nigris, areæ costalis margine antico venis venulisque luteis; pedibus brevibus, crassioribus, rectis; abdomine elongato, apice parum clavato, segmentis 8 et 9 ventralibus coalitis convexis, stylis analibus incurvatis latis, apice oblique truncatis (mas).

Long. corp. lin. 22; cap. lin. 1; anten. lin. 19; proth. lin. 1½; mesoth. lin. 3½; metath. lin. 3½; abdom. lin. 9+

lin. $2\frac{1}{2}$=lin. $11\frac{1}{2}$; tegm. sing. lin. $\frac{1}{2}$; alar. expans. lin. $26\frac{1}{2}$; lat. alæ, lin. 7.

Hab. In Insulis Philippinensibus et Ceram. B.M.

This species seems, at first sight, closely allied to *Ph. Forstenii* of De Haan; but the very peculiar shape of the wings and the dilated anal styles of the male, together with the reticulated costal area of the wings of the male (not noticed in this sex by De Haan, although he describes it in the characters of the female of his *Forstenii*), the much larger size of the insect, and smaller head, prove it to be a distinct species. The general surface of the body is smooth, opake, and black. The head as wide as the metathorax, with the eyes large. The tegmina are minute, stipuliform, with the outer angle of the apex slightly produced. The wings are dark brown, with black longitudinal veins; the costal area is of the same colour, but its anterior margin is luteous, and it is thickly reticulated with veins of the same colour. The abdomen is long and slender, clavate at its extremity; the anal styles deflexed and incurved, gradually widening to beyond the middle, and with the apex obliquely truncate; the seventh ventral is distinct; but the eighth and ninth are coalesced into a convex joint, not suddenly swollen at the base. The legs are short and rather thick; the anterior femora straight at the base.

Plate IX. Fig. 2. The male, of the natural size. 2 *a*. The extremity of the body seen from beneath, showing the dilated anal styles. 2 *b*. The same seen sideways. 2 *c*. The same seen from behind. 2 *d*. One of the tegmina.

5. (238.) Aschipasma Catadromus, *Westw.*

Plate XVIII. fig. 3, female.

Cylindricum, crassius, læve, inerme, fuscum, immaculatum; tegminibus minutis stipulæformibus, alis mediocribus subrotundis, fuscis, area costali lutea fusco-maculatissima; pedibus brevibus, simplicibus (fœm.).

Long. corp. unc. $2\frac{1}{4}$; cap. lin. $2\frac{1}{3}$; anten. lin. 15; proth. lin. $2\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 11+lin. $3\frac{1}{2}$=lin. $14\frac{1}{2}$; alar. expans. lin. 23; lat. alæ, lin. 8.

Hab. Sumatra (*D. Raffles*). Mus. Hopeiano Oxoniæ (olim nostr.) et B.M.

This is more robust than several of the closely allied species, and is further distinguished by the shorter rounded wings, unicolorous body, and very numerously dotted costal area of the wings. The head is rather broad and convex. Antennæ about 50-jointed, moderately long and slender, especially at the tips, where the joints are almost indistinct. Prothorax about two-thirds of the length of the mesothorax, its anterior division convex. Mesothorax nearly cylindrical, with a fine line on each side within the lateral margin. Tegmina minute, erect, stipuliform, pale luteous. Wings of moderate size, broad, each covering more than half a circle, pale brown, with darker longitudinal veins, the transverse ones semitransparent; costal area pale luteous buff, with the cells (formed by the minute transverse veins) brown; median vein simple. Abdomen rather long, convex, smooth, slightly constricted at the sixth segment; the three following slightly swollen; terminal one rounded at the extremity; anal styles minute, obtuse. Operculum compressed, nearly extending to the extremity of the ninth dorsal segment. Legs rather short, simple, finely setose; fore femora nearly straight.

Plate XVIII. Fig. 3. The female, of the natural size. 3 *a*. One of the stipuliform tegmina. 3 *b*. The extremity of the body seen sideways.

6. (239.) Aschipasma Alexis, *Westw.*

Plate XXVIII. fig. 3, female.

Elongatum, gracile, pallide luteo-fuscum, inerme; capite, pro- et mesothoracis lateribus linea nigra notatis; tegminibus minutis, stipulæformibus, erectis, nigris, linea viridi notatis; alis luteis limbo lato marginali fusco, area costali virescenti-albida striga antica longitudinali fusca; pedibus subbrevibus, nudis, femoribus anticis nigro-fasciatis (mas et fœm.).

Long. corp. maris, lin. $16\frac{1}{2}$; cap. lin. 1; anten. lin. 14; proth. lin. $1\frac{1}{3}$; mesoth. lin. 2; metath. lin. $2\frac{3}{4}$; abdom. lin. 8+lin. 2=lin. 10; alar. expans. lin. 22.

Long. corp. fœm. lin. 25; cap. lin. 2; anten. lin. 13; proth. lin. 2; mesoth. lin. 3; metath. lin. 4; abdom. lin. 12 +lin. 2=lin. 14; alar. expans. lin. 31.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders, Hopeiano Oxoniæ, et B.M.

Slender, cylindrical, smooth, and destitute of spines or tubercles; general colour luteous-buff. Head nearly rounded, convex, with a black stripe on each side behind the eyes; upper lip dark brown; lower parts of the mouth and palpi green. Antennæ long and slender; joints long and thin; base luteous-buff, gradually becoming dark brown to the tip. Mesothorax about half as long again as the prothorax, both with a slender lateral black line. Tegmina minute, erect, stipuliform, rounded at tip, incurved, blackish, with a narrow green stripe in front. Wings pale luteous-buff, with a broad marginal border of brown; costal area pale buff with a greenish tint, with a broad anterior dark brown border enclosing a pale dash at the base, and followed by a brown longitudinal stripe formed of small square spots in the cells. Abdomen slender, rather dilated

at the extremity in both sexes; the terminal ventral segment moderately swollen, setose, widely gaping at the tip, with the anal styles thick, setose, deflexed, incurved, and obtuse at the tips; oviduct moderately swollen, extending to the extremity of the ninth dorsal segment. Legs moderately short, naked, slender; fore femora straight; four hind femora destitute of spines, anterior pair with a broad black fascia before the extremity.

PLATE XXVIII. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the female, seen sideways.. 3 *b*. The same of the male, seen sideways.

7. (240.) Aschipasma affine.

Corpore pedibusque fuscis; tibiis posticis tomentosis; alis fœminarum minoribus, area antica fusca punctis pallidis, nervo tertio viridi; antennis fuscis; tegminibus spinæformibus, apice acutis, solutis; femoribus anticis basi sinuatis.

Long. corp. maris, lin. 18; cap. lin. 1; anten. lin. 11; proth. lin. $1\frac{1}{3}$; mesoth. lin. $2\frac{3}{4}$; metath. lin. $2\frac{1}{2}$; abdom. lin. 9+lin. 2=lin. 11; alar. expans. lin. 19; lat. alæ, lin. 5.

Long. corp. fœm. lin. 22; cap. lin. $1\frac{1}{4}$; anten. —?; proth. lin. $2\frac{1}{3}$; mesoth. lin. 3; metath. lin. 3; abdom. lin. 10+lin. $2\frac{1}{2}$=lin. $12\frac{1}{2}$; alar. expans. lin. 15; lat. alæ, lin. 4.

Phasma (Ascephasma) affine, *De Haan, Orth. Orient.* p. 115.
Hab. In Insula Java. In Mus. Lugdunensi.

The above dimensions are given from a careful examination of the original types preserved in the Leyden Museum.

8. (241.) Aschipasma flavicorne.

Corpore pedibusque fuscis; tibiis posticis tomentosis; alis utriusque sexus æqualibus, oblongo-arcuatis, area antica fusca maculis pallidis, nervo tertio viridi; antennis flavis; tegminibus spinæformibus, apice acutis, solutis; femoribus anticis basi sinuatis.

Long. corp. maris, lin. 22; cap. lin. 1; anten. lin. 14; proth. lin. $1\frac{1}{2}$; mesoth. lin. 3; metath. lin. $3\frac{1}{2}$; abdom. lin. 10+lin. 3=lin. 13; alar. expans. lin. 29; lat. alæ, lin. 8.

Long. corp. fœm. lin. 26; cap. lin. $1\frac{1}{2}$; anten. —?; proth. lin. $2\frac{3}{4}$; mesoth. lin. 3; metath. lin. $4\frac{1}{2}$; abdom. lin. 12 + lin. 3 = lin. 15; alar. expans. unc. 3; lat. alæ, lin. 11.

Phasma (Ascephasma) flavicorne, *De Haan, Orth. Orient.* p. 114.
Hab. Borneo. In Mus. Lugdunensi.

The above dimensions are taken from the original types still preserved in the Museum at Leyden.

9. (242.) Aschipasma viridimarginatum.

Valde elongatum; corpore pedibusque fuscis; tibiis posticis tomentosis; alis in utroque sexu inæqualibus, area antica pallida, latiore nervis anticis viridibus; tegminibus spinæformibus, apice acutis, solutis; femoribus anticis basi sinuatis.

Long. corp. maris, lin. 20; cap. lin. $1\frac{1}{3}$; anten. lin. 12; proth. lin. $1\frac{2}{3}$; mesoth. lin. 3; metath. lin. 3; abdom. lin. 10+lin. 2=lin. 12; alar. expans. lin. 21; lat. alæ, lin. $5\frac{1}{2}$.

Long. corp. fœm. lin. 28; cap. lin. $1\frac{1}{2}$; anten. lin. 12; proth. lin. $2\frac{1}{2}$; mesoth. lin. 4; metath. lin. $3\frac{1}{2}$; abdom. lin. 13+lin. $3\frac{1}{2}$= lin. $16\frac{1}{2}$; alar. expans. lin. 23; lat. alæ, lin. 7.

Phasma (Ascephasma) viridimarginatum, *De Haan, Orth. Orient.* p. 115.
Hab. In insula Java. In Mus. Lugdunensi.

The above dimensions are derived from a careful examination of the original types preserved in the Museum at Leyden.

10. (243.) Aschipasma pilosipes.

Corpore pedibusque fuscis; tibiis posticis pilosis; alis æqualibus in utroque sexu, areæ anticæ nervo 3° fusco punctato; tegminibus spinæformibus, apice acutis, solutis; femoribus anticis basi sinuatis.

Long. corp. maris, unc. $1\frac{1}{2}$; cap. lin. 1; proth. lin. $1\frac{1}{4}$; mesoth. lin. $2\frac{1}{4}$; metath. lin. $2\frac{1}{4}$; abdom. lin. 10 + lin. 3 = lin. 13; alar. expans. lin. 24; lat. alæ, lin. 6.

Phasma (Ascephasma) pilosipes, *De Haan, Orth. Orient.* p. 115.
Hab. Borneo. In Mus. Lugdunensi.

The male only of this species is preserved in the Leyden Museum.

11. (244.) Aschipasma iridescens.

Corpore, pedibus, alarum area antica viridibus; tegminibus spinæformibus, apice acutis, solutis; femoribus anticis basi sinuatis.

Long. corp. 1″ 2‴; proth. 1‴; mesoth. $2\frac{1}{2}$‴; lat. mesoth. $\frac{3}{4}$‴; long. alar. 10‴; lat. alar. 5‴.

Phasma (Ascephasma) iridescens, *De Haan, Orth. Orient.* p. 116.
Hab. In Sumatra. In Mus. Lugdunensi.

The original type of this species in the Leyden Museum is considerably damaged, and has lost the greater portion of the abdomen.

12. (245.) Aschipasma Peleus.

PLATE XV. fig. 4, female.

Elongatum, parallelum, cylindricum, inerme, fuscum, nigro-sublineatum; pro- et mesothorace oblongis; tegminibus spinæformibus; alis fusco-albidis, area costali luteo-fusca, albido-tessellata; pedibus brevibus, hirsutis, tibiis obscure annulatis (fœm.).

Long. corp. fœm. lin. 24; cap. lin. $1\frac{1}{2}$; anten. lin. 16; proth. lin. 2; mesoth. lin. $3\frac{1}{2}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 11+lin. 3=lin. 14; alar. expans. lin. 25–27; lat. alæ, lin. 7–8.

Perlamorpha Peleus, *G. R. Gray, Syn. Phasm.* p. 22 (nec *Serville, H. N. Orth.* p. 277=A. Servilleanum).
Burmeister, Handb. d. Ent. ii. 2. p. 583.
Phasma (Ascephasma) Peleus, *De Haan, Orth. Orient.* pp. 113, 115.

Hab. In Malabar et Malacca (*D. Wallace*). In Mus. Saunders et B.M.

This species is considerably elongated, and is further distinguished by the minute spiniform tegmina. It is closely allied to *A. Daunus*, but has shorter legs and larger wings. The accompanying figure is taken from a specimen from Malacca, which agrees with the original type in the British Museum, except that the wings are slightly longer and broader. The head is small, luteous brown, obscurely marked with brown spots and lines. The antennæ are rather short and very slender; the joints pale at the base, dark at the extremity. The prothorax is about one-fourth longer than wide, cylindrical, with a slightly impressed median line. The mesothorax is rather wider than the prothorax, and about twice as long as it is broad; its surface is slightly granulose, and varied with paler dots and small dark spots in front and behind. The tegmina are reduced to two small, acute, obliquely elevated black spines. The metathorax is about the length of the mesothorax, its hinder division occupying about two-thirds of its whole length. The abdomen is long and slender; the basal segments with two black spots in front of each; the three terminal joints short. The operculum swollen at the base; the apex much compressed, extending to the middle of the ninth dorsal segment. The wings are moderate-sized, pale brown, with the longitudinal veins rather darker, the transverse ones scarcely visible; the costal area is luteous brown, with numerous small, irregular, more or less distinct whitish spots. The legs are short, setose, single; the fore femora thick, scarcely excavated at the base; the tibiæ slender, and slightly ringed with pale luteous; hind legs uniformly coloured beneath.

PLATE XV. Fig. 4. The female, of the natural size. 4 *a*. The extremity of the abdomen seen sideways.

13. (246.) Aschipasma crudele, *Westw.*

PLATE IX. fig. 7, female.

Obscure luteum fusco variegatum; meso- et metanotis antice macula lutea notatis; tegminibus brevibus, erectis, spinæformibus; alis pallide fuscescentibus, costa fusco-lutea albo maculata striolaque media obscura; pedibus brevibus, hirtis, femoribus anticis basi paulo curvatis, omnibus ante apicem annulo obscuro tibiisque apice nigris (fœm.).

Long. corp. fœm. lin. 26; cap. lin. $6\frac{3}{4}$; proth. lin. 2; mesoth. lin. 3; metath. lin. 4; abdom. lin. 13+lin. $2\frac{1}{2}$= lin. $15\frac{1}{2}$; alar. expans. lin. 35; lat. alæ, lin. 11.

Hab. In insula Ceylon. B.M.

This is one of the largest species of the genus, and is well distinguished by its short mesothorax, spiniform tegmina, setose legs, and the round spots of the costa of the wings. The head is small; the eyes prominent, but not so wide as the mesothorax; it is dirty luteous, with a square black patch in the middle of the hind part, and with two blackish streaks behind the eyes. The antennæ are slender, with the joints gradually elongated, and with the tips of the joints dusky; they are nearly destitute of hairs (the tips are broken off in the only specimen I have seen). The prothorax is longer than the head, dirty luteous, with a dark patch in the middle of the fore margin, and a dark lateral spot behind the eyes. The mesothorax, as well as the metathorax, has a large pale luteous spot in the middle of its anterior dorsal portion. The abdomen is dirty luteous, considerably varied with dusky markings; the three terminal dorsal segments are short, the seventh being constricted at the base. The operculum is slightly boat-shaped, and extends nearly to the extremity of the last dorsal segment; the anal styles are deflexed and obtuse. The tegmina are small, erect, and spiniform at the extremity, the base of each curved and dilated. The wings are very pale brown, slightly darker along the apical margin; the costa darker luteous brown, varied with a considerable number of white spots, the principal longitudinal vein being clouded with black for about half its basal length; the other veins, transverse as well as longitudinal, are whitish. The legs are short, rather thick, and hirsute; the fore femora are slightly curved at the base; the femora are all dirty pale luteous, with a dusky ring near the extremity; the tibiæ are also black at the tips, which are slightly dilated; the tarsi are also annulated with dusky, the basal joint being about as long as the three following.

PLATE IX. Fig. 7. The female insect, of the natural size. 7 *a*. One of the tegmina. 7 *b*. The terminal segments of the abdomen seen sideways.

14. (247.) **Aschipasma Dulichia**, *Westw.*
PLATE XXXIII. fig. 2, male.

Elongatum, gracile, fuscum; capite pone oculos flavo-bilineato; pro- et mesothoracis lateribus rufo-luteis; tegminibus minutis, nigris, spinæformibus; alis vix fumosis, area costali fusca, margine antico basali fasciisque 4 irregularibus albidis; pedibus fusco luteoque variis, segmentis apicalibus ventralibus maris haud dilatatis (mas).

Long. corp. lin. 17; cap. lin. 1; proth. lin. $1\frac{1}{3}$; mesoth. lin. 2; metath. lin. $2\frac{1}{6}$; abdom. lin. 8+lin. 2 = lin. 10; alar. expans. lin. 20.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders.

Nearly allied to the male of *A. Daunus*, but with the tegmina much shorter, and the terminal segments of the underside of the body not swollen in the male. It is slender, with the abdomen elongated and subcylindrical. The head is blackish above, slightly varied with luteous; the sides of the head behind the eyes with two luteous lines. Antennæ slender and blackish. The prothorax with the sides dirty reddish; the upper side with a large central black spot contracted in the middle. The mesothorax not twice the length of the prothorax, blackish above, and with the sides dirty reddish. Tegmina very small, and resembling two minute, acute, erect black spines. Wings hyaline, very slightly stained with blackish brown along the edges; the costal area brown, with the base of the fore margin, several spots near the base, and four very irregular fasciæ hyaline. The legs are slender and short, very slightly setose; the fore femora slightly sinuated at the base; they are all varied with dark brown and luteous; the femora black at the extremity, and the posterior pair of tibiæ entirely luteous on the upper surface. The abdomen is elongate, slender, and subcylindrical; the terminal segments not swollen, and but slightly wider than the preceding.

PLATE XXXIII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways.

15. (248.) **Aschipasma Eryx**, *Westw.*
PLATE XIX. fig. 3.

Gracile, cylindricum, inerme, viridi-fuscum; antennis elongatis, meso- et metathoracis lateribus femoribusque viridibus; tegminibus spinæformibus; alis fuscis, area costali lutea maculis minutissimis fuscis; femoribus anticis fere rectis, quatuor posterioribus subtus spinis minutis nonnullis armatis (mas).

Long. corp. lin. $17\frac{1}{2}$; cap. lin. 1; anten. lin. 13; proth. lin. 1; mesoth. lin. $2\frac{1}{3}$; metath. lin. $2\frac{3}{4}$; abdom. lin. $8\frac{1}{2}$+lin. $1\frac{1}{2}$=lin. 10; alar. expans. lin. 22.

Hab. In Malacca (*D. Wallace*). In Mus. Saunders.

Slender, obscure, greenish brown. Body destitute of spines or tubercles. Eyes with a transverse black line. Crown of head with a slender pale line on each side behind the eyes, and a central impressed longitudinal line. Antennæ long, slender, with about thirty-five slender joints, slightly setose. Mesothorax about half as long again as the prothorax, widened behind; its sides, as well as those of the metathorax, obscure green. Abdomen long, slender, cylindrical, slightly dilated at the extremity; terminal joint rounded behind; the anal styles deflexed, obtuse at the tip, setose. Tegmina in the shape of two minute erect black spines. Wings brown; costal area pale luteous; the cells formed by the transverse veins pale brown; principal vein entire, pale green towards the base, preceded by a longitudinal brown stripe. Legs slender, rather short, tinged with green, finely setose; anterior femora nearly straight; four posterior femora with several minute spines along the under surface; terminal ventral segments of the abdomen scarcely swollen, the last narrow and compressed.

PLATE XIX. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the body seen laterally.

16. (249.) **Aschipasma Darnis**, *Westw.*
PLATE XX. fig. 3, male.

Elongatum, gracile, læve, inerme, tenue villosum; abdomine tenui, fusco; capite, pro- et mesothorace piceis; antennis gracilibus; tegminibus minutis, spinæformibus; alis fuscis, area costali lutescente, pallide fusco maculatissima; pedibus fulvo-fuscis, femoribus anticis ad basin parum emarginatis, stylis analibus elongatis, forcipiformibus (mas).

Long. corp. lin. 23; cap. lin. 2; anten. lin. 14; proth. lin. $2\frac{1}{3}$; mesoth. lin. 3; metath. lin. 3; abdom. lin. 10+lin. $2\frac{1}{2}$=lin. $12\frac{1}{2}$; alar. expans. lin. $19\frac{1}{2}$.

Hab. In insula Java (*Dr. Horsfield*). In Mus. Soc. Merc. Ind. Orient.

Of this species I have only seen a single perfect male, of which the wings are comparatively smaller than those of the supposed male of *Asc. Daunus*; they are, in fact, more analogous to those of the female. It is rather longer than the male of *A. flavicorne*, De Haan; but the uniform minute maculation of the costal area of the wings at once distinguishes it from that species. The head, pro- and mesothorax are pitchy-coloured, the remainder of the body being reddish brown. The head is small and rounded,

flattish on the crown. The antennæ are slender, with the joints numerous and very indistinct. The surface of the body is very finely villose. The prothorax has an impressed line down the middle of the anterior half. The metathorax has the sides nearly parallel. The abdomen is slender and cylindrical, the terminal segments very much swollen; the eighth segment rounded beneath at the sides and emarginate towards the ninth joint, which is rounded; the terminal ventral segment is very concave and swollen, rounded at its extremity, which extends beyond the ninth dorsal segment; the anal styles are elongated, deflexed, incurved, obtuse at the tips, and setose. The tegmina are minute, spiniform, black, with a fine luteous line at the base in front. The wings are pale brown; the costal area pale luteous, with the spaces enclosed by the small transverse veins brown. The legs are reddish brown, slender, simple, and moderately long; the fore femora slightly emarginate at the base, pitchy brown beyond the middle.

PLATE XX. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the body seen sideways.

17. (250.) Aschipasma Daunus, *Westw.*

PLATE XX. fig. 2, male.
PLATE XVIII. fig. 2, female.

Elongatum, cylindricum, parallelum, læve, inerme, fusco-luteum fusco plus minusve varium; capite utrinque linea tenui lutea pone oculos; tegminibus minutis, erectis, spinæformibus; alis maris mediocribus, fœminæ minoribus, angustis, pallide fuscis, apice parum obscurioribus, area costali albido fuscoque nebulosa; pedibus subbrevibus, simplicibus, fusco luteoque variegatis (mas et fœm.).

Long. corp. maris, lin. 19; cap. lin. $1\frac{1}{2}$; anten. lin. 13; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{3}$; metath. lin. $2\frac{1}{2}$; abdom. lin. 9 + lin. 2 = lin. 11; alar. expans. lin. 22.

Long. corp. fœm. lin. 24; cap. lin. $1\frac{2}{3}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. $11\frac{1}{2}$ + lin. $2\frac{1}{2}$ = lin. 14; alar. expans. lin. 19.

Hab. Java (*Dr. Horsfield*). In Coll. Soc. Merc. Ind. Orient.

Most nearly allied to *A. affine*, De Haan, but larger, and with comparatively larger wings in the female; the thorax and costal veins of the wings differently coloured. Long, slender, of equal width throughout, smooth, very finely villose, destitute of spines or tubercles, of a brownish luteous colour varied with dark brown spots and streaks. Head slightly convex, with a fine impressed longitudinal line in the middle of the hind part; on each side behind the eyes is a slender luteous line, and several others less distinct. The antennæ are of moderate length and slender. The prothorax is about two-thirds of the length of the mesothorax; the surface of both is smooth, and varied with dark longitudinal stripes on a paler ground, the central dark line being the broadest, and interrupted in the middle by a small bilobed pale oval spot. The tegmina are small, erect, and spiniform. The wings of the male are of moderate size, those of the female reaching to the middle of the fourth dorsal segment of the abdomen; comparatively narrow, of a very pale brown colour, slightly darker along the outer margin, with rather darker longitudinal veins; the costal margin brown along the anterior portion, the hinder portion irregularly clouded with whitish and brownish-buff markings; the median vein simple. The abdomen long and simple, varied with dark longitudinal marks; the three terminal joints very much swollen in the male, those of the ventral surface large, extending beyond the ninth dorsal segment; the apex bent upwards, obtuse at the tip, and slightly emarginate, widely gaping, enclosing the dilated male organ terminating in an acute point; the anal styles thick and deflexed, dilated, oval, pointed, setose. The operculum very compressed, extending to the extremity of the ninth dorsal segment, widely gaping at the extremity, exposing four slender curved appendages dilated at the base. Four fore legs simple, short; fore femora slightly sinuated at the base; hind pair longer, slender, scarcely setose.

PLATE XX. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways.
PLATE XVIII. Fig. 2. The female, of the natural size. 2 *a*. One of the spiniform tegmina. 2 *b*. The extremity of the body seen sideways.

Obs. It is only from conjecture that I have given the two insects above described as the sexes of the same species.

18. (251.) Aschipasma infumatum.

Pallidum, brunneo-maculatum, alarum area antica hyalino brunneoque tessellata (maris plaga viridi), postica infumata.

Ascepasma infumatum, *Charpentier, Orth. Descript.* pl. 41.
Hab. In Java.

From Charpentier's figures, this species seems to approach nearly to *A. Daunus*, but has the costal area of the wings more spotted (and marked with a green patch in the males); and also to have the legs more variegated.

19. (252.) Aschipasma Servilleanum.

Viridi-fuscum; capite et thorace lineis nigris longitudinalibus plus minusve distinctis notatis; tegminibus minutis,

foliolum angustissimum acutum simulantibus; alis in utroque sexu valde inæqualibus, maris longitudine abdominis, fœminæ fere dimidio brevioribus et magis rotundatis, hyalinis, subobscuris, venis transversis apicibusque fusco parum tinctis; costa subopaca, brunneo pallide undulata; pedibus [posticis tantum ?] valde pubescentibus, brunneo-viridibus nigro-maculatis (mas et fœm.).

Long. corp. unc. $1\frac{1}{2}$; abdom. maris, lin. 9 + lin. 2 = lin. 11; expans. alar. maris, lin. 23; expans. alar. fœm. lin. 13.

Perlamorpha Peleus, *Serville, H. N. Orth.* p. 277. pl. 8. f. 1, female (nec *G. R. Gray*).

Hab. In insula Java. Olim in Mus. Serville. B.M.

This species was regarded by M. Serville as identical with the *P. Peleus* of Mr. G. R. Gray. Having, however, fortunately obtained in Paris the fragments of the three typical specimens described by Serville, I have ascertained its distinctness not only from that species, but also from any of the preceding. In the very pilose legs it approaches *P. pilosipes* of De Haan; but that author's description of the identity in the size of the wings of both sexes, and the maculation of the third vein of the costal area, sufficiently distinguish it from De Haan's species. It also approaches *A. affine* of De Haan, but the shorter wings and swollen terminal segments of the abdomen of that species sufficiently separate the two; the latter character also, as well as the simple anal styles and larger size, distinguishes *P. Daunus* from Serville's insect, although they agree in the dissimilar size of the wings in the opposite sexes.

The Servillean specimens are in a deplorable condition; but the abdomen of the male is perfect, and shows that the terminal ventral segments are not in the least swollen, and that the anal styles are short, but very broad and deflexed, with the extremity emarginate-truncate. Serville describes the legs generally as very pubescent; but I can only discover this character in one pair of legs, and suppose them to be the posterior.

Genus 23. LOPAPHUS, *Westw.*

Group xv., *De Haan, o. c.* p. 125.

Body long, winged in both sexes. Mesothorax very much elongated. Wings similar in form in both sexes, arcuated, abbreviated, varying in length from the extremity of the metathorax to the fourth abdominal segment. Tegmina much smaller than the wings. Abdomen long in both sexes. Legs long, unarmed, or with but small lobes or leaflets.

Inhabit the Eastern Archipelago and Northern Australia.

This group is evidently an artificial one, containing several distinct types of form,—all, however, distinguished by possessing rudimental or short wings and wing-covers.

1. (253.) Lopaphus Bojei.

Fœm. Alis oblongo-cycloideis; elytris alarumque area anteriore viridibus, area posteriore carnea; capite inermi; femoribus anticis mediisque infra 3-denticulatis, postremis ultra medium denticulatis.

Long. corp. 4″; proth. 3‴; mosoth. 9‴; ped. postr. 2″ 5‴; elytr. 4‴; alar. 1″ 5‴; anten. 1″.

Phasma Bojei, *De Haan, Orthopt. Orient.* p. 125. pl. 13. f. 3, fem.

Hab. Macassar.

2. (254.) Lopaphus brachypterus.

Fœm. Olivacea; capite inermi; mesothorace granulato; prothorace quater longiore; alis abbreviatis, dimidium articulum secundum abdominis æquantibus, hyalinis; femoribus mediis postremisque latere inferiore apicali bidenticulatis.

Long. corp. 4″ 1‴; proth. 3‴; mesoth. 1″; elytr. 4‴; alar. $9\frac{1}{2}$‴; ped. postr. 2″ 3‴; anten. 2″ 2‴.

Phasma brachypterum, *De Haan, Orthopt. Orient.* p. 125. pl. 13. f. 2, fem.

Hab. Sumatra.

3. (255.) Lopaphus Coccophagus.

Mas elongatus, subcylindricus; fœmina latior, subdepressa, inermis; tegminibus parvis; alis puniceis, area costali luteo-fulva, maris usque ad basin segmenti 3ⁱⁱⁱ abdominis extensis, fœminæ longitudine metathoraci æqualibus, utriusque sexûs segmentis ultimis abdominalibus elongatis, præcedentibus æqualibus; operculo fœminæ acuto, paulo ultra apicem abdominis extenso, stylis analibus longitudine segmenti ultimi lanceolatis, segmento apicali maris angulis externis rotundatis, postice in medio paulo emarginato, stylis brevioribus obtusis.

Long. corp. maris, unc. $2\frac{3}{4}$; cap. lin. $2\frac{3}{4}$; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. 3; abdom. lin. $13\frac{1}{2}$ + lin. 4 = lin. $17\frac{1}{2}$; tegm. lin. 2; alar. expans. lin. 17.

Long. corp. fœm. cum operc. unc. $4\frac{3}{4}$; cap. lin. 4; proth. lin. 3; mesoth. lin. 10; metath. lin. 6; abdom. lin. 23 + lin. $8\frac{1}{2}$ = lin. $31\frac{1}{2}$; styl. anal. lin. $3\frac{1}{4}$.

Aplopus Coccophagus, *G. R. Gray, MSS.*

Alopus Cocophages, *Newport in Phil. Trans.* 1844, p. 288. pl. 14. f. 4.

Hab. Navigator's Island (*Duke of Northumberland*). In Mus. Banks. (Soc. Linn.), Hopeiano Oxoniæ, et B.M.

According to information given by Mr. Nightingale to the Entomological Society of London (July 6, 1835), this species of *Phasmidæ* is one of the most injurious insects inhabiting the Bara Tonga Islands of the South Pacific Ocean, where it is sometimes so abundant, feeding upon the cocoa-nut trees, and devouring both the old stock and the young shoots, that orders are issued by the chiefs to destroy them by cutting them in pieces, thereby to prevent the damage which they inflict on this tree, which constitutes, in fact, the chief support of the community. Similar particulars of the habits of this species are also given in Williams's 'Missionary Enterprise in the South Seas,' p. 495.

4. (256.) **Lopaphus galacpterus.**

Obscure viridis; capitis spinis duabus acutis abbreviatis, inter oculos locatis; alis lacteis; prothorace bispinoso; mesothorace 12-spinoso, spinis 6-seriatis; pedibus marmoratis, anticis sinuatis.

Mas. Corpore lineari, angusto.

Long. corp. 2″; proth. 1‴; mesoth. 7‴; elytr. 1½‴; alar. 5‴; ped. postr. 1″ 6‴.

Fœm. Corpore bis latiore, abdominis articulis margine posteriore subprominentibus.

Long. corp. 2″ 7‴; proth. 1½‴; mesoth. 9‴; alar. 7‴; ped. postr. 2″ 2‴.

Phasma galacpterum, *De Haan, Orthopt. Orient.* p. 127. pl. 13. f. 5. mas, f. 4. fem.

Hab. Sumatra.

5. (257.) **Lopaphus Macklottii.**

Fusco- et viridi-marmoratus; capitis spinis duabus incrassatis acutis; alis luteis, margine exteriore fusco, albo punctato; thorace lævi; pedibus marmoratis et fasciatis, anticis non sinuatis.

Mas. Corpore lineari; pedibus postremis corpore longioribus.

Long. corp. 2″ 1‴; proth. 1½‴; mesoth. 6⅔‴; ped. postr. 2″ 4‴; anten. 2″ 3‴; elytr. 3‴; alar. 1″.

Fœm. Abdomine ter latiore, articulis margine posteriore lobo obtuso angulato auctis, vagina tubiformi.

Long. corp. 2″ 9‴; proth. 2‴; mesoth. 7½‴; ped. postr. 2″ 7‴; elytr. 3‴; alar. 1″.

Phasma Macklottii, *De Haan, Orth. Orient.* p. 126. pl. 11. f. 1. mas, f. 2. fœm.

Hab. Buitenzorg.

The operculum of the female is constructed as in *Anophelepis Xiphias* and in *Lopaphus Hadrillus*. I also saw a species in the Museum of Leyden, and in that of the Zoological Society of Amsterdam from the Island of Nias, exhibiting a similar structure, having also very short rudimental tegmina, but no trace of wings. I had not, however, an opportunity of describing it.

6. (258.) **Lopaphus Hadrillus,** *Westw.*

PLATE XXVIII. fig. 4.

Fuscus luteo variegatus, luteoque granulatus; capite et thorace spinosis; obscurus, antennis pallidis, apice fusco annulatis; tegminibus subrotundatis, longitudine dimidii metanoti, ante medium alte angulatis; alis vix tegminibus duplo longioribus, area costali nigra, postica infumata; pedibus intermediis crassioribus, femoribus ante apicem supra bi-, infra uni-lobatis, tarsis compressis (fœm.).

Long. corp. unc. 3⅔; cap. lin. 3; proth. lin. 3; mesoth. lin. 11; metath. lin. 5; abdom. lin. 17+lin. 6=lin. 23; tegm. lin. 3½; alæ, lin. 6; expans. alar. lin. 15.

Hab. In Sarawak, Borneo (*D. Wallace*). In Mus. Saunders.

Female. Long, narrow, and subcylindrical, of a brownish black colour varied with luteous, and furnished with luteous tubercles, granules, and spines. Head with two acute, erect, rather diverging spines in the middle of the crown, and several smaller ones at the sides. Ocelli wanting. Antennæ long, luteous, annulated near the tips with brown; basal joint subquadrate, flat. Prothorax with two spines near together in the middle of the anterior part, and two wider apart behind. Mesothorax spinose, with five pairs of larger spines on the upper surface at nearly equal distances apart; the first pair near the front, and the fifth near the hind margin, these two pairs, as well as the fourth, close together; the second and third pairs with the spines wide apart. Metathorax with the sides finely spined, each having two larger spines, the second close to the insertion of the hind legs. Abdomen long, subcylindrical, subrugose; each of the basal segments with a transverse row of minute spines near the hind margin, largest in the fourth and fifth segments: these and the following are slightly dilated on each side at a short distance from the base; terminal segment subquadrate, rugose at the sides and apex; the anal styles exserted. Operculum extending beyond the extremity of the abdomen; its apex compressed, emarginate, and very finely serrated, accompanied by a pair of elongated horny compressed plates of equal length, arising from the eighth segment, furcate at the tip; the upper division slender and acute, the lower truncate and denticulated. The tegmina are nearly rounded, blackish, with

a conical elevation near the base. Wings small, extending to the middle of the basal segment of the abdomen; fore margin blackish; hind area smoky, with dark veins. Legs moderately long, the middle ones shorter and thicker than the rest, blackish, varied with irregular luteous fasciæ; fore femora with a small tooth near the apex beneath; middle femora with two acute lobes near the tip above, and one beneath; hind pair with a small spine near the apex beneath; all the tibiæ slightly dilated near the base within. Tarsi compressed, but not crested.

PLATE XXVIII. Fig. 4. The female, of the natural size. 4 *a*. The two inner appendages of the operculum seen from above. 4 *b*. The terminal segments of the body seen sideways.

A female pupa, rather more than 3 inches long, has the rudimental tegmina $1\frac{1}{4}$ line long, and the rudimental wings 2 lines long. A male pupa, nearly $2\frac{3}{4}$ inches long, has rudimental wing-covers 1 line long, and rudimental wings 4 lines long; the latter similar to those of the insect represented in Pl. XXVII. fig. 4. The armature of the body and legs is similar to that of the female, but the spines and rugosities are less developed.

7. (259.) **Lopaphus Hellotis**, *Westw.*
PLATE XL. fig. 1.

Elongatus, obscurus, fuscus luteo-varius; capite inermi; pro- et mesothoracibus multispinosis; tegminibus parvis, rotundatis, longitudine dimidii alarum æqualibus; alis ad medium segmenti 1^mi^ abdominis extensis, obscure albidis, puniceo subtinctis fuscoque nebulosis, area costali fusca, lutescenti paulo varia; operculo apicem abdominis superante, apice fisso, laminis duabus corneis apice fissis instructo; pedibus quatuor anticis elongatis, inermibus; antennis valde elongatis (fœm.).

Long. corp. cum operc. unc. $4\frac{1}{2}$; cap. lin. 3; anten. fere unc. 4; proth. lin. 3; mesoth. lin. 11; metath. lin. 6; abdom. lin. 25 + lin. 6 + operc. lin. $2\frac{1}{2}$ = lin. $33\frac{1}{2}$; tegm. lin. 4; alar. expans. lin. 16.

Hab. Borneo. In Mus. Hopeiano Oxoniæ (olim. nostr.).

Elongated, subcylindrical, with the terminal segments of the abdomen dilated. Head subquadrate, luteous; hind part darker, without ocelli or spines. Antennæ nearly the length of the body. Pro- and mesothorax armed with numerous spines, the anterior ones directed obliquely forwards; those of the prothorax forming two rows, those of the mesothorax forming three, the central row running along the dorsal central carina; the sides and under part also armed with smaller spines. Tegmina small, nearly rounded, brown, with a small pale spot near the inner margin. Wings about twice the length of the tegmina, and extending to the middle of the first abdominal segment; costal area brown, with luteous shades; hinder area dirty white, slightly tinged with pink and with several brownish clouds. Abdomen long and unarmed. Operculum extending beyond the extremity of the abdomen, its apex slit; armed at the sides with two elongated horny appendages, furcate at their tips, enclosing two elongated curved filaments, as in several of the preceding species. Legs long and simple (the two hind ones wanting in my unique specimen of the female).

PLATE XL. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

8. (260.) **Lopaphus Struthioneus**, *Westw.*
PLATE XXXIV. fig. 3, female.

Valde elongatus, subcylindricus, inermis, fuscus; mesonoto supra granulis minutis distantibus notato et prothorace sex triplo longiori; tegminibus minutis, squamiformibus; alis metathorace dimidio brevioribus, roseis venis longitudinalibus latis nigris, area costali fusca griseo nebulosa; pedibus longis, compressis; femoribus quatuor posticis ante apicem subtus bispinosis, tarsorum anticorum articulo basali supra dilatato (fœm.).

Long. corp. unc. 6, lin. 7; cap. lin. 4; anten. unc. $3\frac{1}{2}$; proth. lin. $3\frac{1}{2}$; mesoth. lin. 22; metath. lin. 10; abdom. lin. 34 + lin. 6 = lin. 40; tegm. lin. $1\frac{1}{2}$; alar. expans. lin. 16.

Hab. Singapore. B.M.

This species is at once distinguished by its large size, the disproportionate length of the mesothorax, and the very small tegmina and wings. The head is nearly square, rather flattened above, with the hinder margin raised into four small elevations. The antennæ are long and very slender; the basal joint flattened above; they are uniform brown. The mesothorax is very long and subcylindrical, with the middle ridge but slightly indicated; the surface is marked with a number of minute acute granules placed wide apart, of which also there is a row of about fifteen along each lateral margin. The hind part is dilated at the place of insertion of the middle legs, and on the upper side are affixed the two minute scale-like black tegmina. The metathorax is considerably wider than the mesothorax, with the wings affixed at about one-fourth of its length from the fore margin; they are small, being about two-thirds of the length of the metathorax; they are rich rosy-coloured, with seven or eight longitudinal black veins gradually widening

to the hind margin; the costal area is brown, with grey clouds and spots. The abdomen is long, narrow, cylindrical, and unarmed; the three terminal segments are short (equal to the fifth in length); the ninth having its hinder lateral angles deflexed and acute, with the apex subtruncate, the angles of the truncation produced into two very small points, having the short anal styles, which are obtuse and rounded at the tips, beneath them; the centre is also slightly porrected and minutely furcate. The legs are long, slender, and compressed; the four posterior femora with two small spines on the underside near the tips; and the basal joint of the anterior tarsi is elevated on its upper side into a large rounded leaflet. The operculum is simple, navicular, and extends to the extremity of the abdomen.

A second specimen in the National Collection is rather smaller than the one described above, with the costal area of the wings more strongly marked with rounded luteous spots, and the hind portion of the wings pale fulvous with dark veins.

PLATE XXXIV. Fig. 3. The female, of the natural size. 3 *a*. The extremity of the body seen sideways.

9. (261.) **Lopaphus Gorgus**, *Westw.*

PLATE XI. fig. 4, female.

Pallide olivaceo-fuscus, opacus; abdomine fusco; capite et thorace granulatis; tegminibus oblongo-ovalibus; alis mediocribus, areæ costalis basi fusco maculata, medio straminea, apice castaneo-rufo, area postica chalybea maculis numerosis albis; antennis brevioribus, 22-articulatis; pedibus longis, femoribus anticis acute serratis, intermediis lobo magno membranaceo ante medium marginis superi cum duabus alteris minoribus in medio et prope apicem positis, posticis spinulosis loboque parvo ante medium marginis superi instructis (fœm.).

Long. corp. unc. $3\frac{5}{6}$; cap. lin. $3\frac{3}{4}$; anten. lin. 14; proth. lin. 3; mesoth. lin. 10; metath. lin. 4; abdom. lin. 18+ lin. 7=lin. 25; tegm. lin. $10\frac{1}{2}$; alar. expans. lin. 29.

Hab. Richmond River, Australia. B.M.

I am only acquainted with females of this fine species. The head is oval, granulated, with three small ocelliform tubercles in a triangle between the eyes. The antennæ are as long as the pro- and mesothorax, 22-jointed, the basal joint large. The pro- and mesothorax are finely granulated; the latter wider than the former, with the sides nearly parallel. The abdomen is widened from the base to the fourth and fifth segments, which have a longitudinal raised space in the middle of the hind margin terminating in a small membranous lobe; the seventh segment is much narrowed, forming with the two following segments an oblong-ovate mass. The operculum is very wide, and extends slightly beyond the extremity of the abdomen. The tegmina are elongate-ovate, with the ordinary carina near the base strongly marked. The wings are rather short, extending to about the hind margin of the third abdominal segment; the costal area is brown at the base, forming ill-defined dark spots towards the middle of the area, which is pale straw-coloured, the apical portion being rich chestnut-red; the hinder area is steel-blue, with numerous white spots, one of larger size than the rest near the middle of its anterior portion. The legs are long; the fore femora strongly serrated along the upper edge; the tibiæ with numerous minute spines; the middle femora with a large foliaceous lobe, pointed at the tip, at about one-third of the length from the base of the upper edge, with two small acute lobes between it and the apex; the hind femora with several small spines and a larger lobe before the middle; the four hind tibiæ with a small lobe on the outer edge near the base, and several small spines on each of the edges.

PLATE XI. Fig. 4. The female, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

Genus 24. **XERODERUS.**

Xeroderus, *G. R. Gray*, *Burmeister* (*o. c.* p. 582, note).
Xeroderus (A.), *De Haan*, *Orth. Orient.* p. 116.

Body elongate, rugose, with small oval tegmina and large wings in both sexes. Abdomen more or less lobed. Head small, square, flat. Antennæ of moderate length. Ocelli three in a triangle between the eyes. Prothorax small. Mesothorax about twice the length of the prothorax, rugose, dilated in the female. Tegmina oval, rather longer than the metathorax. Wings very large, as long as the abdomen in both sexes. Abdomen long, narrow in the male, wider in the female, gradually attenuated, with lateral triangular dilated membranous lobes, most distinct in the female. Three terminal segments in both sexes of uniform length with the preceding joints, slightly dilated in the male, with the last segment furcate in the male, simple in the female, the ovipositor not extending beyond the extremity of the abdomen. Legs of moderate length, slender; femora serrated.

1. (262.) **Xeroderus Kirbii.**

PLATE XXXI. fig. 6, male; fig. 7, female.

Cinereus; thorace depresso; mesonoto latiori, spinoso; tegminibus ovalibus areaque costali nigro reticulatis, basi

nigris; alis fuscis, basi sensim purpurascenti-coccineo tinctis, segmentis abdominalibus lateraliter acute lobatis (mas et fœm.).

Long. corp. maris, unc. $2\frac{3}{4}$; cap. lin. 2; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. $5\frac{1}{2}$; abdom. lin. $16\frac{1}{2}$+lin. 4= lin. $20\frac{1}{2}$; tegm. lin. 5; alæ, lin. 22; expans. lin. 47.

Long. corp. fœm. unc. 4; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. 6; metath. lin. 8; abdom. lin. 21 + lin. 8 = lin. 29; tegm. lin. $8\frac{1}{2}$; alæ, lin. 30; expans. lin. 64.

Xeroderus Kirbii, *G. R. Gray, Syn. Phasm.* p. 32.
Burmeister, Handb. d. Ent. ii. 2. p. 582.
Hab. In Australia. In Mus. Hopeiano Oxoniæ.

The accompanying figures are taken from the two typical specimens (male and female) in the Hopeian Collection. The head is furnished with two pairs of tubercles close to the hind margin. The ocelli are large in both sexes. The antennæ of the male are setose, with the joints long, the basal joint narrow (the extremity is broken off). The pronotum is flat, and widened behind, with the lateral margins slightly elevated. The mesonotum has a raised, somewhat heart-shaped space, armed with short lateral spines, as well as with several on the disc; there is also a curved row of short spines on each side, running from the anterior lateral angles to the base of the tegmina, and the extreme lateral margins are also spined. The tegmina in both sexes are oval, with a very slight angulated elevation in the middle. The wings are large; the costal area pale ashy buff, irregularly varied with brown, the chief vein furcate; the membranous area pink, gradually shaded off to brown, the longitudinal veins strong and dark brown. The abdominal segments are furnished on each side with thin membranous lobes, acute at the hind angle, very much smaller in the male than in the female; the former has the terminal dorsal segment of the abdomen elevated in the centre, whence it is furcate to the extremity; the anal styles are long and obtuse; the operculum of the female is simple, and extends to the extremity of the abdomen. The legs are rather short in both sexes, with the femora serrated externally in the female.

Plate XXXI. Fig. 6. The male, of the natural size (with the extremity of the legs and wings omitted). 6 *a*. The extremity of the abdomen seen sideways.
Fig. 7. The female, of the natural size. 7 *a*. The extremity of the body seen sideways.

2. (263.) Xeroderus? Marchali.

Plate XXXVI. fig. 4.

Luteo-virescens; capite et abdomine sublævibus; thorace subrugoso, capite postice lineis 6 longitudinalibus notato; prothorace tuberculis 4 minutis quadrangulum anticum formantibus; mesothorace in medio versus marginem anticum bituberculato, lateribus submembranaceis, spinis nonnullis fortibus curvatis pubescentibus armatis; tegminibus ovalibus (long. lin. 3), opacis, antice obscure virescentibus, postice cinereis; alis abdomine brevioribus, hyalinis, roseo parum tinctis; venis transversis albidis, costa opaca obscure virescenti, plaga elongata basali subrosea; abdomine sublineari; antennis et pedibus concoloribus, extus brunneo viridique subfasciatis; femoribus omnibus membrana angusta et valde dentata instructis, dentibus pubescentibus et curvatis, femoribus supra dentibus parum minoribus armatis; tibiis 4 posticis spinosis, anticis 2 fere inermibus; abdomine depresso, lateribus parallelis, simplicibus.

Long. corp. lin. 22; cap. lin. 2; anten. lin. 11; proth. lin. 2; mesoth. lin. $3\frac{1}{3}$; metath. lin. 4; abdom. lin. $8\frac{1}{2}$+ lin. 2=lin. $10\frac{1}{2}$; tegm. lin. $2\frac{1}{2}$; alar. expans. lin. 20.

Prisopus Marchali, *Serville, H. N. Orth.* p. 284.
Xeroderus Marchali, *De Haan, Orth. Orient.* pp. 112, 116.
Hab. In "Ile de France." Typus in Mus. Hopeiano Oxoniæ.

The simple structure of the abdominal segments of the unique male of this species, preserved in the Hopeian Museum, separates it from the genuine species of *Prisopus*, with which it agrees in the membranous and serrated appendage of the legs. I do not doubt, when the female comes to be known, that it will be necessary to form a separate genus for its reception, it being here placed provisionally in that of *Xeroderus*.

Plate XXXVI. Fig. 4. The male, of the natural size.

3. (264.) Xeroderus? manicatus.

Linearis, fuscus; antennis longitudine corporis; elytris brevissimis, basi denticulo parvo elevato; alis longis, rotundatis, fuscis; femoribus anticis membranaceis.

Long. corp. —— ?

Mantis linearis, *Fabricius, Ent. Syst.* ii. p. 15. no. 14; *Ent. Syst. Suppl.* p. 189 (Phasma l.).
Olivier, Enc. Méth. vii. 624 (Mantis l.), (nec Phasma linearis, *Drury*).
Phasma manicatum, *Lichtenstein, Linn. Trans.* vi. 17.
G. R. Gray, Syn. Phasm. p. 28 (Prisopus man.).
Phasma (Xeroderus) lineare, *De Haan, Orthopt. Orient.* pp. 112, 116.
Hab. In India orientali.

Genus 25. XEROSOMA.

Xerosoma, *Serville, G. R. Gray.*

Body subdepressed, rather broad, rugose, winged. Head of moderate size, subquadrate: eyes small. Ocelli 0. An-

tennæ long, Prothorax armed with two large compound spines. Mesothorax wider than the prothorax, and about twice its length. Tegmina oval, as long as the mesothorax. Wings of moderate size, about two-thirds of the length of the abdomen in the female. Abdomen wider than the thorax; three terminal segments of uniform length with the preceding joints; ovipositor and anal styles short. Legs of moderate length, slender, without lobes or dilatations.

Inhabits Brazil.

The female only of the unique species of this Brazilian type of form is known, and is contained in the National Museum of Paris. Burmeister's conjecture that it is the male of *Prisopus spinicollis* is without foundation, the simple structure of the legs being of itself sufficient to prove the wide separation of the two groups.

1. (265.) Xerosoma canaliculatum.

Luteo-brunneum; capite medio canaliculato, tuberculato, tuberculis duobus majoribus posticis; thorace tuberculato; pronoto postice spinis duabus compositis; tegminibus virescentibus, carina mediana parum elevata; alarum area antica virescenti opaca, basi subrosea, postica hyalina, fusco transverse reticulata; pedibus viridi-brunneis, subtus fusco maculatis; antennis luteo-brunneis (fœm.).

Long. corp. unc. $2\frac{1}{2}$; cap. lin. 2; anten. lin. 16; proth. lin. 2; mesoth. lin. 5; metath. lin. 5; abdom. lin. 11 + lin. 5=lin. 16; tegm. lin. 6; alar. expans. unc. $2\frac{1}{3}$.

Xerosoma canaliculatum, *Serville, Ann. Sci. Nat.* xxii. p. 61.
G. R. Gray, Syn. Phasm. p. 27.
Serville, H. N. Orth. p. 275.

Hab. In Brasilia. In Mus. Reg. Paris.

The dimensions given above are taken from an examination and drawing made by me from the typical specimen in the Paris Museum.

Genus 26. CREOXYLUS.

Creoxylus, *Serville, H. N. Orth.* p. 265.
Phasma, pars, *G. R. Gray.*
Xeroderus, Sect. (B), *De Haan, Orth. Orient.* p. 116.

Body elongate, filiform, rugose; head spined; tegmina elongate-ovate; wings large. Head subquadrate, rather larger than the prothorax. Ocelli wanting. Antennæ long, setaceous. Eyes large. Mesothorax about twice the length of the prothorax. Tegmina elongate ovate, as long as the pro- and mesothorax united, with the median carina strongly elevated in the middle. Wings large, as long as the abdomen. Abdomen cylindric, elongated; terminal segments dilated in the males. Legs of moderate length; femora without membranous dilatations, the four posterior furnished with leaflets, largest in the middle legs; tibiæ not toothed, but with two small dilatations, one near the base, the other towards the extremity.

I have followed De Haan in adding several species to this genus, which, however, seem to differ in various important particulars from the original type (of which I have not been able to find any specimen in the Paris Collections, but which seems very closely allied to *Phasma spinosum* of Fabricius = *Ph. corniceps*, G. R. Gray, of which the type is contained in the British Museum). It is indeed possible that the Eastern species of this group will require forming into a distinct genus when a better knowledge is obtained of Serville's type.

1. (266.) Creoxylus corniger.

Brunneo-rufescens; capite rugoso, vertice cornubus duobus compressis auriformibus tuberculisque pluribus posticis elevatis alterisque anticis minoribus; prothorace tuberculato; mesothorace tuberculis majoribus instructo; tegminibus rufo-brunneis, ovalibus, apice acutis, costa mediana valida; alis obscuris, hyalinis, costa opaca, rufo-brunnea, basi pallida; pedibus concoloribus; tibiis anticis extus lobis duobus foliaceis rudimentalibus; femoribus intermediis foliolis 4, 2 externis 2que internis, loboque parvo interno subapicali; tibiis extus versus basin foliolo alteroque fere apicali; femoribus tibiisque posticis foliolis similibus, at multo minoribus; antennis rufo et brunneo annulatis.

Long. corp. unc. 2, lin. 3.

Creoxylus corniger, *Serville, H. N. Orth.* p. 265.
Xeroderus corniger, *De Haan, Orth. Orient.* p. 116.

Hab. ——?

2. (267.) Creoxylus spinosus.

Nigrescenti-brunneus; capite bicorni, cornubus auriformibus, dentatis; thorace scaberrimo, mesothorace antice bispinoso; tegminibus longis, juxta basin elevatis, reticulatis; alis subhyalinis, cinereis, nervis brunneo-nigris; area costali basi carnea, reticulata; abdomine piceo; pedibus (anticis casu deficientibus); femoribus mediis dentatis, posticis vix dentatis, tibiis simplicibus.

Long. corp. circ. unc. $2\frac{1}{2}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 4; metath. lin. 4; abdom. circ. unc. $1\frac{1}{2}$; tegm. lin. 6; alar. expans. unc. $3\frac{1}{2}$.

Phasma (Xeroderus) spinosum et corniceps, *De Haan, Orth. Orient.* p. 116.
Mantis spinosa, *Fabricius, Ent. Syst.* ii. p. 14; *Ent. Syst. Suppl.* p. 188 (Phasma sp.).
Olivier, Enc. Méth. vii. 633. no. 40.
Serville, Ann. Sci. Nat. xxii. p. 58 (Phasma sp.).
Latreille, Gen. Crust. et Ins. iii. 87.
G. R. Gray, Syn. Phasm. p. 22.
Phasma corniceps, *G. R. Gray, Syn. Phasm.* p. 25.

Hab. In Indiis (*Fabr.*, nec in Ind. orient.); Demerara (*G. R. Gray*, sub *P. corniceps*). B.M.

3. (268.) Creoxylus Simyra, *Westw.*

PLATE XXXII. fig. 3, male.

Fusco-nigricans, obscurus; capite, pro- et mesonotis granulosis, vertice linea tenui abbreviata nigra, spinisque 4 parvis æqualibus postice armato, lateribus pone oculos puncto parvo rotundo nigro notatis; mesothorace prothorace vix triplo longiori, lateribus ante medium spinulis paucis armatis; tegminibus ovalibus, carina ante medium angulariter elevata posticeque in laminam tenuem semirotundam dilatata; alis fumosis, area costali fusca, venis obscurius subtessellatis; femoribus anticis subtus eroso-dilatatis, tibiis anticis ad basin et apicem sublobatis, femoribus 4 posticis subtus spinosis (mas).

Long. corp. unc. $2\frac{1}{12}$; cap. lin. $1\frac{1}{2}$; anten. lin. 15; proth. lin. $1\frac{1}{2}$; mesoth. fere lin. $4\frac{1}{2}$; metath. lin. $4\frac{1}{2}$; abdom. lin. 11 + lin. 2 = lin. 13; tegm. lin. 2; alar. expans. lin. 30.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. Saunders et Oxoniæ (olim nostr.).

This species is very closely allied to *Ph. Diacis*, De Haan, but differs in the uniform size of the spines of the head, the shorter mesothorax, and the differently constructed terminal joints of the abdomen. The head is subquadrate, rounded at its hinder part, granulose, the granules arranged in lines; eyes very prominent; a row of four, small, equal-sized spines across the hind part of the head, and a small round black spot on each side behind the eyes. The antennæ are rather short, dark brown, with numerous small luteous rings. The prothorax is finely granulose, as is also the mesothorax, which is gradually widened behind, and armed with a few very small spines in its anterior half. The tegmina are oval, obscure, blackish brown, with the inner margins paler; the carina is conically elevated rather before the middle of its length, and is dilated in its hinder portion into a large semicircular lamina. The wings are stained blackish brown, with the costal area darker, the veins varied with black or blackish dots, the median vein simple. The abdomen has the fifth and sixth segments wider than the preceding, and marginated; the seventh and eighth are subquadrate, the eighth with a lobe in the middle of its hind margin; the ninth segment small and conical, with the two small anal styles setose; the terminal ventral segments form a large operculum extending beyond the tip of the abdomen, with its truncated extremity subdenticulated. The fore femora are dilated, and suberose along the under margin. The tibiæ short, and dilated at the base and apex. The four hind legs short, with the femora denticulated beneath.

PLATE XXXII. Fig. 3. The male, of the natural size. 3 *a*. The head seen sideways. 3 *b*. The terminal segments of the abdomen seen sideways. 3 *c*. The same seen from behind.

4. (269.) Creoxylus Diacis.

Capite 4-spinoso, spinis duabus superioribus majoribus, duabus lateralibus minoribus; femoribus margine anteriore et posteriore membranaceis, subdilatatis; alis infumatis, area antica fusco-cinerea, hinc inde cinereo-nebulosa (mas).

Long. corp. 2″; proth. 1‴; mesoth. 4‴; alar. 1″ 2‴.

Phasma (Xeroderus) Diacis, *De Haan, Orth. Orient.* p. 117. pl. 15. f. 2, mas.

Hab. In Sumatra.

5. (270.) Creoxylus laceratus.

PLATE XXIX. fig. 1, female.

Mas. Capite bicristato, cristis laceratis, spinulosis; femoribus anticis 4-spinosis, postremis spinulosis, latere externo supra medium unifoliatis; alis infumatis, area antica fusca, macula dilatata media et apice cinereo.

Fœm. Multo major et robustior; mesothorace utrinque spinis quatuor, duabus intermediis compositis, discoque seriebus duabus spinarum compositarum, alterisque irregularibus posticis; tegminibus rugosis et irregularibus, obscure virescentibus, margine externo in medio fusco; alarum area costali obscure virescenti fusco punctato, basi nubilaque magna pone medium fuscis, area postica fusca, apice albida, venis transversis gracilibus albidis; abdomine segmentis basalibus lobo parvo foliaceo utrinque postice armato, segmentis quatuor posticis dilatatis, rugosis et lobatis; metathoracis lateribus ad insertionem pedum posteriorum spinis quinque armatis; femoribus duobus posticis lobo foliaceo trifido versus medium supra instructis; tibiis posticis extus obtuse denticulatis.

Long. corp. maris, 2″; proth. 2‴; mesoth. 4‴; elytr. 3‴; alar. 1″ 4‴.

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. 3; proth. lin. 3; mesoth. lin. 6; metath. lin. 6; abdom. lin. 17 + lin. 4 = lin. 21; tegm. lin. 4; alæ, lin. 20; expans. alar. unc. 3, lin. 7.

Phasma (Xeroderus) laceratum, *De Haan, Orthopt. Orient.* p. 116. pl. 15. f. 1, mas.

Hab. In Sumatra. Fœminam e Sarawak misit *D. Wallace.* In Mus. Saunders et B.M.

The general characters of the female above described so closely resemble the detailed description given of the male of *Xeroderus laceratus* by De Haan, that I have little hesitation in considering it as the other sex of that species.

Plate XXIX. Fig. 1. The female, of the natural size. 1 *a*. The head and prothorax seen sideways. 1 *b*. The terminal segments of the abdomen seen below, with the anal styles incurved (the operculum has been injured in the process of preservation).

6. (271.) Creoxylus auritus.

Antennis longitudine corporis, nigro alboque variis; capite fusco, spinis plurimis elevatis acutis, verticalibus duabus majoribus compressis acuminatis; thorace cylindrico, fusco, spinis plurimis elevatis acutis æqualibus, scabro; elytris concavis, brevissimis, tuberculo magno medio compresso; alis magnis, obscuris, margine exteriore late rufescenti-fusco maculato, fascia lata alba; abdomine cylindrico; pedibus simplicibus.

Mantis aurita, *Fabricius, Ent. Syst.* ii. p. 15; *Ent. Syst. Suppl.* p. 189 (Phasma a.).
Latreille, Gen. Cr. et Ins. iii. 87.
G. R. Gray, Syn. Phasm. p. 23 (Phasma a.).

Hab. In India orientali.

Genus 27. CYPHOCRANIA.

Cyphocrana, *Serville, Enc. M.* x. 445, *& H. N. Orth.* 236.
G. R. Gray, Syn. Phasm. p. 35.
Cyphocrania, 1 B., *Burmeister, Handb. d. Ent.* 578.
Cyphocrania, A. pars, *De Haan, Orth. Orient.* p. 128.

Body more or less rugose, with oval tegmina and large wings (of equal size in both sexes). Head posteriorly gibbose; ocelli three, more or less distinct; antennæ rather short, multiarticulate; eyes large and prominent. Mesothorax about thrice the length of the prothorax. Tegmina oval, covering at least the basal third part, sometimes half, of the wings; smaller in the males than in the females. Legs spinose, without membranous dilatations at the edges; basal joint of the tarsi moderately short. Abdomen long, cylindrical; terminal segments short; anal styles very broad and rather short; oviduct extending rather beyond the extremity of the body.

The species of which this genus is composed are amongst the most gigantic of known insects. The types are natives of the islands of the Eastern Ocean; but there is considerable diversity of structure among the other species, from which the genus might easily be divided into sections and subsections.

1. (272.) Cyphocrania gigas.

Fusco-lutea vel fulva, obscura, nigro-granulosa; tegminibus areaque costali alarum virescentibus vel luteo-fuscis, alarum basi tantum virescenti, nebulosa vel albo maculata, venis tenuibus, area postica fusco-fasciata; prothorace inermi; mesothorace spinuloso, spinulis viridibus apice nigris, in fœmina distantibus, in mare magis prominentibus et approximatis; pedibus spinulosis; stylis analibus maris ovatis, peracutis, fœminæ dilatatis, margine inferiore integro, superiore sinuato, apicali rotundato medio spinoso (mas et fœm.).

Long. corp. maris, unc. 5; expans. alar. unc. 6.
Long. corp. fœm. unc. 8; expans. alar. unc. 8.

"Corpus in hac specie omnium maximum, plus quam spithamæum, crassitie digiti, pallidum. Caput rotundatum, antennæ setaceæ. Collum rotundatum, capite brevius, supra basin verruca bifida. Thorax elongatus, cylindricus, scaber, punctis eminentibus sparsis. Elytra unicoloria, ovato-oblonga, longitudine thoracis cum capite, sed alis plus quam dimidio breviora, testacea, basi elevata, non vero carinata. Alæ maximæ, semiorbiculatæ, plicatæ, pallide testaceæ, fasciis fuscis nebulosæ, margine anteriore costa lineari lata nervosa tegente alas et abdomen instar elytrorum. Abdomen crassitie digiti, thorace triplo s. duplo longius, teretiusculum, segmentis septem. Anus foliolis 2 ovatis et unico subtus concavo. Pedes 1 femoribus triangularibus serratis, tibiis angulatis lævibus subtus serratis. Pedes 2 femoribus subtus angulis duobus serrato-spinosis, tibiis triangularibus dentato-serratis. Pedes 3 femoribus et tibiis angulatis, angulis serrato-spinosis."—*Linnæus, l. c.*

Varietas. (Mas forte) Quadruplo minor, basi alarum pallida aut rubra.

Gryllus gigas, *Linnæus, Syst. Nat.* (ed. 10) p. 425. n. 1; *Mus. Reg. Ulr.* p. 109; *Syst. Nat.* (ed. 12) p. 689.
Shaw, Nat. Miscell. pl. 43.
Rœsel, Ins. L. Gryll. t. 19. f. 9, 10.
Bradley, Nat. t. 27. f. 6.
Arumatia cruribus maculatis, *Petiver, Gaz.* t. 60. f. 2.
Arumatia, *Marcgr. Bras.* 251.
Phasma gigas (Le géant), *Stoll, Spectr.* pl. 2. f. 5, & *App.* (fœm.).
Fabricius, Ent. Syst. ii. p. 14; *Ent. Syst. Suppl.* p. 187 (Phasma gigas).
Donovan, Ins. India, pl. 9.
Lichtenstein, Linn. Trans. vi. 11. no. 9.
Spectrum gigas, *Lamarck, An. s. Vert.* iv. 254.
Mantis gigas, *Olivier, Enc. M.* vii. 625. no. 2.

Phasma (Cyphocrania) gigas, *De Haan, Orth. Orient.* p. 129. pl. 14. fig. 3, male.
Burmeister, Handb. d. Ent. ii. 579.
Cyphocrana gigas, *Lepel. et Serville, Enc. M.* x. p. 445.
Serville, Ann. Sci. Nat. xxii. p. 60; *H. N. Orth.* p. 237.
G. R. Gray, Syn. Phasm. p. 35.
Hab. Amboyna, Molucca. B.M., &c.

Varietas. Fusca, artubus dilute fuscis, fusco-undulatis; thorace tereti, granulato; elytris brevibus, ovatis, medio gibbis, dente elevato obtuso, dilute testaceis, basi et apice fuscis; pedibus spinulosis.

Long. corp. unc. $7\frac{1}{2}$.

Phasma gigas (Le géant), *Stoll, Spectr.* pl. 1. f. 1, fem.
Phasma Empusa, *Lichtenstein, Linn. Trans.* vi. p. 12. no. 10.
Le grand Soldat de Cayenne, *Buffon, Pl. Enl. Suppl.* pl. 65. f. 1.
Cyphocrana Empusa, *G. R. Gray, Syn. Phasm.* p. 35.
Serville, H. N. Orth. p. 237.
Burmeister, Handb. d. Ent. ii. 2. 579.
Hab. In India orientali. Mus. Holthuys.

De Haan considers the insect figured by Stoll to be merely a coloured variety of *C. gigas*. Serville also was evidently of the same opinion, although he gave them as distinct (see note in *H. N. Orth.* p. 239).

2. (273.) Cyphocrania Reinwardtii.

Fœm. Alarum area postica pellucida, fusco-fasciata; area antica uti et elytris fuscescentibus, nervis fortioribus; prothorace medio spinuloso, spinulis biseriatis; mesothorace ubicunque, hypothorace infra spinis peracutis validis concoloribus, infra et lateribus longioribus circumdato; cercis analibus dilatatis, parallelis, ultra medium latere externo carinatis, apice sinuatis (fœm.).

Long. corp. fœm. unc. $8\frac{1}{6}$; cap. lin. 6; anten. lin. 24; proth. lin. 5; mesoth. lin. 14; metath. lin. 14; abdom. unc. $3\frac{1}{2}$ + unc. 1 = unc. $4\frac{1}{2}$; tegm. unc. $2\frac{1}{4}$; alar. expans. unc. 8.

Ph. (Cyphocrania) Reinwardtii, *De Haan, Orth. Orient.* p. 130. pl. 10. f. 1 ♀.
Hab. In Nova Guinea (littore occid. merid.).

I have already noticed, that the *Cyphocrania acanthomera* of Burmeister (which De Haan considered might be the male of this fine insect) is the male of *Monandroptera inuncans*.

3. (274.) Cyphocrania Goliath.

Cærulescenti-viridis; mesothorace scabriusculo aut sublævi, flavo, linea media cærulescenti-viridi; tegminibus magnis, viridibus, macula lineaque rubro-albis, margine interiore sanguineo; alis hyalinis, glaucis, basi nervis sanguineis, area costali viridi basi linea media et subtus sanguineis; abdomine flavescenti-viridi, articulis flavis nigro marginatis, foliolis brevibus in medio carinatis, literam V inversam referentibus; operculo longe ultra apicem abdominis extenso, cymbiformi; pedibus valde serratis, 4 anticis fasciatis, tibiis 2 posticis fortiter spinosis; meso- et metasternis transverse fasciatis, fasciis nigris et elevatis.

Long. corp. $8\frac{1}{2}''$; expans. alar. $8''$.

Diura Goliath, *G. R. Gray, Trans. Ent. Soc.* i. p. 45; *Syn. Phasm.* p. 39 (Acrophylla G.).
Phasma (Cyphocrania) Goliath, *Audouin et Brullé, Hist. Nat. Ins.* t. ix. pl. 7. p. 105.
De Haan, Orth. Orient. p. 128.
Hab. Java, Timor, New Guinea, Moreton Bay, northern parts of New Holland. B.M., &c.

Var. fœm. major. Cyphocrana versirubra, *Serville, Orth.* p. 235.
Cyphocrana herculeana, *Charpentier, Orth. Descr.* pl. 1.

Virescens; capite postice subangustato, supra brunneo lineato; mesothorace prothorace quadruplo longiori, cylindrico, subrufo, medio subcarinato et utrinque spinis 5 vel 6 armato, lateribusque spinosis; meso- et metasternis lineis duabus spinarum hujusque lateribus spinosis; tegminibus mesothorace subbrevioribus, ovalibus, absque elevatione mediana, viridibus, striola basali alteraque pone medium disci albis; alis abdomine parum brevioribus, pellucidis, viridi-brunneis, costa opaca, supra viridi, basi purpurea, subtus discoque infero tegminum rubro-purpureis; operculo fœminæ canaliculato, infra unicarinato; pedibus corpore concoloribus obscurius vel brunneo-marmoratis, femoribus anticis serratis, 4 posticis spinosis, spinis internis posticorum majoribus (fœm.).

Long. corp. 9–10 unc.

Hab. In Nova Hollandia (nec Brasilia). In Mus. Hopeiano Oxoniæ.

The typical specimen of this variety, now in the Hopeian Museum, bears a label in the handwriting of Latreille inscribed "Brés." (Brazil). This incorrect locality, given by Serville, has deceived subsequent authors.

Var. fœm. minor. Cyphocrana versifasciata, *Serville, H. N. Orth.* p. 235.

Virescens, subnitida; capite fere lævi; mesothorace prothorace quadruplo longiori et parum latiori, cylindrico, carina mediana gracili et utrinque tuberculis spiniformibus armato, lateribus etiam meso- et metanoti tuberculis spiniformibus armatis; his infra fasciis brunneis transversis æque distantibus variatis, tuberculis spinosis duplici serie

instructis; tegminibus longitudine mesothoracis, ovato-rotundatis, carina mediana abbreviata vix distincta, utrinque viridibus; alis segmenta 4 basalia abdominis tegentibus, hyalinis, haud coloratis, venis subfulvis, area costali utrinque viridi; abdominis operculo fœminæ lanceolato, apicem abdominis longe superante, hujus appendicibus terminalibus operculo parum brevioribus, basi angustis, lateribus sinuatis, apice abrupte truncato; pedibus corpore concoloribus, brunneo-maculatis, femoribus anticis serratis, femorum 4 posticorum angulis dentatis, tibiis intermediis et posticis lobis parvis apicalibus instructis.

Long. corp. unc. $7\frac{1}{2}$.

Hab. ——? In Mus. Hopeiano Oxoniæ.

Having carefully examined and drawn the original typical individual of this species, described by Mr. G. R. Gray, and having also before me Serville's types of his two species, *C. versifasciata* and *C. versirubra*, in the Hopeian Collection, I am able to refer the two latter to *C. Goliath*. The type of *C. versifasciata* is a smaller female, and has lost all its distinctive colours, probably from having been originally preserved in spirits of wine. I have also recently obtained a remarkably beautiful specimen of the female from Moreton Bay, of which the following are the dimensions :—Long. corp. cum operc. unc. $8\frac{1}{2}$; cap. lin. 5; anten. lin. 15; proth. lin. 5; mesoth. lin. 15; metath. lin. $14\frac{1}{2}$; abdom. unc. 3, lin. 7+unc. 1+operc. ap. lin. 9 =unc. 5, lin. 4; tegm. lin. 22; alar. expans. unc. 8.

In this specimen the mesothorax is nearly smooth; the colour of the membranous portion of the wings is hyaline tinged with green; the prothorax has a broad brown fascia on each side; the abdomen is dark fulvous brown, with the extremity and the operculum dark green.

The *Acrophylla Typhœus* of Gray, which De Haan gives as the male of *Cyphocrania Goliath*, is the male of *Tropidoderus Childrenii*.

4. (275.) Cyphocrania Beauvoisii.

Fusca; thorace scabro; tegminibus elongatis, viridibus, basi subgibbiferis; alis hyalinis, area costali abdomineque viridibus, ultimo nigro reticulato; pedum marginibus serratis, sed tibiarum posticarum margine interno spinoso.

Long. corp. unc. 7, lin. 1; expans. alar. unc. 7, lin. 6.

Cyphocrana Bauvoisii, *Serville, Ann. Sci. Nat.* xxii. 60.
G. R. Gray, Syn. Phasm. p. 35.
Phasma gigas, *Pal. de Beauv. Ins. d'Afr. et d'Amér.* p. 109, *Orthopt.* pl. 13. f. 1 (fœmina vagina mutilata).
Burmeister, Handb. d. Ent. ii. 2. 579.

Hab. Java (*Burmeister*).

De Haan considers that the insect figured by Palisot de Beauvois is simply a variety of *C. Goliath* of Gray, with the ovipositor mutilated. Being unable to verify this supposition, I have preferred giving it as doubtfully distinct.

5. (276.) Cyphocrania Enceladus.

PLATE XXXIX. fig. 1, male.
PLATE XXXIX. fig. 2, female.

Mas. Subfiliformis; prothorace scabro, mesothorace scaberrimo.

Fœm. Cylindrica; pro- et mesothorace scaberrimis.

Maris tegminibus brunneis, in medio nigro-maculatis, margine anteriori flavo-viridi, fœminæ flavescenti-viridibus, margine posteriori ad basin nigro; alis maris subhyalinis, fœminæ nigrescentibus, utriusque albo-maculatis, area costali viridescenti-testacea, maculis nigris; foliolis duobus brevibus latis, apice dilatatis; pedibus anticis lineis elevatis striatis, quatuor posterioribus subtus spinosis.

Long. corp. maris, unc. $5\frac{2}{3}$; cap. lin. $2\frac{1}{3}$; anten. fere unc. 2; proth. lin. 3; mesoth. lin. 8; metath. lin. 10; abdom. unc. 3+lin. 7=unc. 3, lin. 7; tegm. unc. 1; alar. expans. unc. $6\frac{1}{2}$.

Long. corp. fœm. 7″; cap. lin. 4; proth. lin. 4; mesoth. lin. 12; metath. lin. 12; abdom. unc. 3, lin. 5+lin. 11+ styl. anal. lin. 5=unc. 4, lin. 9.

Acrophylla Enceladus, *G. R. Gray, Syn. Phasm.* p. 39.

Hab. In Australia. In Mus. Hopeiano Oxoniæ.

De Haan has suggested (*Orth. Orient.* p. 129) that this species is only a variety of *C. maculata*. The two species are, however, quite distinct; and as *P. Enceladus* appears to be very rare, I have introduced figures of the typical specimens of both sexes, preserved in the Hopeian Collection, into this work, which are the only ones I have yet seen.

PLATE XXXIX. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.
Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways.

6. (277.) Cyphocrania reticulata.

Viridula; mesothorace tuberculato; tegminibus brevibus, ovalibus, viridibus, fasciis 3 vel 4 transversis rufo-fuscis, marginis antici basi rufo apice viridi; alis duplo longioribus, basi rubris, albo fuscoque reticulatis; pedibus tarsisque spinosis, femoribus anticis lineis elevatis striatis.

Long. corp. unc. $6\frac{3}{4}$; long. anten. unc. $1\frac{7}{12}$; expans. alar. $5\frac{1}{4}$ unc.

Phasma reticulata, *Pal. de Beauv. Ins. Am. et Afr.* p. 166. pl. 14. f. 5.
G. R. Gray, Syn. Phasm. p. 38 (Platycrana r.).
Hab. St. Domingo.

7. (278.) Cyphocrania? hectica.

"Capite oblongo-ovato, fronte in cornu acuto (bifoliato), porrecto; thorace tereti, scabriusculo; pedibus angulatis, anticis latissimis, tibiis dentatis; tegminibus brevissimis, juxta basin spinosis; alis hyalinis fusco maculatis."

Long. corp. fere unc. 5; expans. alar. unc. $3\frac{1}{2}$.

Phasma hecticum, *Lichtenstein, Linn. Trans.* vi. pp. 14 & 39. pl. 1. f. 2, mas. [?]
Platycrana hectica, *G. R. Gray, Syn. Phasm.* p. 36.
Palophus Haworthii, fem. ?, *ante*, p. 90.
Hab. In Sina [?]. Olim in Mus. Holthuysen.

Lichtenstein's figure of this species is evidently more faithful in some respects than his description: thus, the tegmina, which he says are "brevissimis," are in fact oblong-ovate, and as long as the metathorax; and the fore legs are not so broad as to merit the term "latissimis." It is described as a male, and as a native of China. I can scarcely doubt, however, but that it is an African insect, of the female sex, and that it is, in fact, the female of *Palophus Haworthii, ante*, p. 90. The armature of the legs, the quadrinodose mesothorax, the bilobed fourth and fifth segments of the abdomen, and the emargination of the terminal segment, observable in Lichtenstein's figure, are all found in the Berlin and Leyden specimens of the female, which is Burmeister's *Haplopus ceratophyllus*. It is indeed not improbable that the Leyden specimen may be the original Holthuysian type described by Lichtenstein.

8. (279.) Cyphocrania æstuans, *Westw.*

PLATE VII. fig. 4, female.

Luteo-cinerea obscura, nigro granulosa, valde elongata; capite tuberculis duobus compositis inter oculos, alterisque minoribus triplici serie utrinque dispositis; mesothoracis dorso spinis nonnullis parvis irregularibus armato; alarum area antica luteo-fusca, postica chalybea, basi pallidius vix tessellata; pedibus longis, fusco subannulatis, tibiis quatuor posticis extus bilobatis; segmento quarto abdominis supra ad apicem lobato (fœm.).

Long. corp. fere unc. 7; cap. lin. $4\frac{1}{3}$; proth. lin. $4\frac{1}{3}$; mesoth. lin. 18; metath. lin. 14; abdom. unc. 3, lin. $9\frac{1}{2}$ + lin. $8\frac{1}{3}$ = unc. $4\frac{1}{2}$; tegm. lin. 9; alæ, lin. 18; alar. expans. unc. 3, lin. 2.

Hab. Congo, Senegallia. In Mus. Hopeiano Oxoniæ, olim Westwood, et B.M.

This fine species is nearly the size of *Ph. reticulata* of Palisot de Beauvois; but the wings and wing-covers are scarcely more than half the size of those of that species. The entire insect is of an obscure luteous ashy or pale buff-brown colour, the surface having a great number of minute black granules. The head is oval, with two larger compound tubercles between the eyes, and with small tubercles on the back part of the head arranged on each side in three longitudinal rows. The antennæ are shorter than the mesothorax, with the basal joints of moderate size. The prothorax is rugose, and of equal length with the head. The mesothorax is armed with three or four small spines on each side of the median line, placed irregularly. The metathorax has the posterior portion greatly elongated. The abdomen is very long, and nearly equally broad, and simple, except the fourth segment, which has a double lobe on its hinder margin on the upper side; the eighth segment is very short, the ninth truncated at its extremity; the seventh ventral segment is but little swollen, and extends to one-third of the length of the ninth dorsal segment; its extremity is emarginate; the two anal styles are short and thick. The tegmina are oval, equal to the head and prothorax in length, with a slightly elevated space between the base and the middle. The wings are twice the length of the tegmina, extending, when closed, to the extremity of the first segment of the abdomen; the costal area is uniform reddish brown, with the median vein furcate; the hind area is steel-blue and glossy, with the base slightly tessellated with somewhat paler spots. The fore legs are long and nearly simple. The four hind legs have the femora furnished near the base and apex beneath with a small lobe, also on the upper side near the base and in the middle; the tibiæ have two lobes before and beyond the middle on the outer edge, and a small one on the inner edge towards the base; the tarsi are simple. The legs are slightly banded with dark brown. A specimen in the British Museum has the fore and middle legs on the right-hand side imperfectly developed.

PLATE VII. Fig. 4. The female insect, of the natural size. 4 *a*. The terminal segments of the abdomen seen from beneath. 4 *b*. Ditto seen laterally. 4 *c*. The fourth abdominal segment seen laterally.

9. (280.) Cyphocrania Pasimachus, *Westw.*

PLATE IX. fig. 5, female.

Fusca, granulosa, elongata; capite tuberculis majoribus per paria dispositis; mesothorace spinis duabus in medio armato; tegminibus oblongo-ovatis, obscure fusco-virescentibus, carina valida ante medium instructis; alarum area

costali fusco-virescenti, basi pallida, macula irregulari nigra, area postica fusca, fasciis irregularibus macularibus pallidis guttisque pallidis in venas dispositis; pedibus griseis, nigro-punctatis; femoribus dentatis, anticis compressis, tibiis anticis membrana elongata 3-partita instructis, posticis extus prope basin spina unica, intus pluribus armatis; tarsis compressis (fœm.).

Long. corp. unc. 6; cap. lin. 4; proth. lin. 3; mesoth. lin. $13\frac{1}{2}$; metath. lin. 9; abdom. lin. 30+lin. 11=lin. 41; tegm. lin. 11; alæ, lin. 19; expans. alar. unc. $3\frac{1}{3}$.

Hab. In Nova Hollandia. B.M.

A single specimen of the female of this fine species is contained in the National Collection. It is long, narrow, and subconvex, the abdomen being the widest part of the body. The head is oval, granulose, with two pairs of rounded tubercles on the crown. The antennæ are broken at the tips, twenty-six joints only remaining. The mesothorax is long, granulose, and armed with two diverging black spines near the middle of the disc. The basal segments of the abdomen are narrowly margined at the sides; the fourth has a transverse membrane near the tip; the three terminal segments are narrowed, rugose, the terminal one entire; the anal styles very short. The operculum slightly boat-shaped, not extending to the tip of the abdomen. The tegmina are oblong-ovate, with a strong carina running from the base, forming an elevated lobe before the middle. The costal area of the wings is pale greenish brown; the base paler, with a large irregular black spot; the posterior area brown, with irregular fasciæ of pale spots, and also with small round pale spots upon the longitudinal veins. The legs are strong; the femora dentated; the fore tibiæ with an elongated membrane on the upper edge, reaching from the middle to the extremity, with two incisions; the four hind tibiæ have a single spine on the outer edge near the base, and with several on the inner edge; the tarsi are compressed.

Plate IX. Fig. 5. The female, of the natural size. 5 *a*. The head and prothorax seen sideways. 5 *b*. The terminal segments of the body seen sideways.

10. (281.) Cyphocrania Tamyris, *Westw.*

Plate XXXVIII. fig. 2, male.

Elongata, gracilis, cylindrica, fusca luteo varia; capite utrinque pone oculos linea lutea; antennis elongatis, pone medium subannulatis; pro- et mesothorace spinis elongatis acutis, per paria armatis; tegminibus parvis, subovalibus, carina mediana subito in medio conico-elevata; alis puniceo-albis, griseo-fusco irregulariter undulato-fasciatis, area costali fusco albido et luteo variis; pedibus fulvis fusco variis (mas).

Long. corp. unc. 3, lin. 7; cap. lin. 2; anten. unc. $2\frac{1}{4}$; mesoth. lin. $7\frac{1}{2}$; metath. lin. $5\frac{1}{2}$; abdom. lin. 20+lin. 5= lin. 25; tegm. lin. 3; alar. expans. unc. 4.

Hab. Pulo Penang. In Mus. Westermann Havniæ.

The male of this handsome species is unique in the splendid cabinet of M. Westermann of Copenhagen. It is long and slender, and of a brown colour varied with luteous. The head is oblong; eyes prominent; ocelli obsolete, the hind part raised into a transverse row of very small elevations; on each side behind the eyes is a longitudinal luteous stripe. The antennæ are long and slender; beyond the middle they are slightly marked with pale rings placed wide apart. The prothorax is armed with two pairs of spines, one at the fore margin, the other in the middle. The mesothorax is also armed on its upper surface with a series of still larger acute spines, arranged not quite regularly in pairs. The tegmina are small, subovate, with the median carina suddenly, but only moderately, elevated into a small conical tubercle; they are greyish luteous, with brown veins. The wings are large; they are of a pinkish-white colour, varied with a number of irregular broad greyish-brown fasciæ, the veins in the dark parts being much darker; the costal area is buffish brown, slightly varied with brown and luteous, with the veins blackish, the median one being simple. The legs are long, slender, and unarmed, fulvous-coloured varied with brown. The abdomen is long and slender; the sixth segment constricted in the middle, carinated along the centre; the seventh segment shorter and subconical, the eighth considerably constricted in the middle, and the ninth subquadrate, slightly emarginate at its apex, the anal styles not being visible from above; the terminal ventral segments are considerably swollen, the ninth extending only to the extremity of the eighth dorsal segment, acute, with the tip also emarginate. The meso- and metasterna are spinulose.

Plate XXXVIII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways.

11. (282.) Cyphocrania? punctipes.

Lævis, obscure viridis; mesothorace unciæ longitudine, subcylindrico, postice sensim crassiori, supra spinis acutis 12–15 irregularibus, subtus etiam spinis paulo minoribus armato; metathorace e quarta parte mesothorace breviori, lateribus et infra spinosis; tegminibus 5 lin. longis, ovalibus, carina mediana, viridibus, albo marginatis; alis magnis, abdomine brevioribus, brunneis albido guttulatis, area costali

rubida, fascia dimidiata contigua chalybea, fulvo 3-maculata; abdomine gracili, lævi, cylindrico; pedibus fortibus, femoribus granulis numerosis albis angulisque spinosis, tibiis parum dilatatis, anticis muticis, posticis 4 infra denticulatis (mas).

Long. corp. circ. unc. $4\frac{3}{4}$; cap. lin. 2; mesoth. lin. 12; metath. lin. 10; abdom. segm. 6 basal. unc. $2\frac{1}{4}$; tegm. lin. $5\frac{1}{2}$; alar. expans. unc. $3\frac{1}{2}$.

Cyphocrana punctipes, *Serville, H. N. Orth.* p. 239.
De Haan, Orth. Orient. p. 117 (Xeroderus p.).
Hab. In Africa? In Mus. Hopeiano Oxoniæ.

The original type of this species, described by Serville, from M. Marchal's collection, is contained in the Hopeian collection at Oxford, having been purchased with the whole of that collection, which contained by far the most beautiful series of Orthopterous insects in any private museum.

12. (283.) Cyphocrania maculata.

Fusco-rufa; pronoto cylindrico, subgranulato; tegminibus ovalibus, carina mediana in medio vix angulata, alarum area costali concolori, testacea vel subviridi, basi rubella vel pallido-marmorata, area postica fusca, hyalino-tessellata; marginibus pedum omnium serrulatis; abdomine basi obscure viridi, segmentis tribus apicalibus brevibus, oviductu vix ultra apicem abdominis extenso, stylis analibus minutis, marum ovatis, fœminarum abbreviato-ovatis apice rotundatis.

Long. corp. maris, unc. $4\frac{1}{3}$; alar. expans. unc. $5\frac{1}{3}$.

Long. corp. fœm. unc. 8; cap. lin. 6; anten. lin. 20; proth. lin. 4; mesoth. lin. 17; metath. lin. 11; abdom. unc. 3, lin. 10+lin. 10=unc. 4, lin. 8; tegm. lin. 14; alar. expans. unc. 5, lin. 7.

Phasma Necydaloides (Le Spectre à ailes tachetées), *Stoll, Spectr.* pl. 3. f. 8. fem., pl. 4. f. 11. male.
Roesel, Ins. Bel. ii. *Locust.* t. 19. f. 9.
Latreille, Gen. Cr. et Ins. iii. 87.
Lepel. et Serv. Enc. M. x. 101 (Phasma N.).
Mantis maculata, *Olivier, Enc. M.* vii. 626 & 636. no. 56.
Serville, Ann. Sc. Nat. xxii. 61.
Cyphocrana maculata, *Lepel., St. Farg. et Serv. Enc. M.* x. 445.
Serville, Ann. Sc. Nat. xxii. 61.
Mantis cylindrica, *Gmelin, Syst. Nat.* (*Linn.*) p. 2048.
Olivier, Enc. Méth. vii. 626 (Mantis c.).
Spectrum Necydaloides, *Lamarck, An. s. Vert.* iv. 254.
Phasma nævium, *Lichtenstein, Linn. Trans.* vi. 13.
Platycrana maculata, *G. R. Gray, Syn. Phasm.* p. 36.
Serville, H. N. Orth. p. 240 (Platycr. m.).
Hombron et Jacquinot, Voy. au Pôle Sud, iv. 358. pl. 1. f. 8 (from Warou Island).
Cyphocrania Necydaloides, *Burmeister, Handb. d. Ent.* ii. 2. 579.
Phasma (Cyphocrania) maculata, *De Haan, Orth. Orient.* p. 129.
Hab. Amboyna; Moluccas; Sandwich Islands (*Capt. Beechey, Voy. of the Sulphur*). B.M., &c.

De Haan incorrectly refers *Acrophylla Enceladus* and *Briareus*, Gray, to this very distinct species.

13. (284.) Cyphocrania graciosa.

Capite spinis coronato; mesothorace abbreviato; metasterno dilatato; abdominis lateribus lobis spinosis armatis; tegminibus alarum longitudine $\frac{2}{3}$ æquantibus, fusco flavoque variis; alis abdominis longitudine, pallide roseis, costa fuscescente, venis omnibus fusco nebulosis; pedibus 2 posticis incrassatis et fortiter spinosis (mas).

Long. corp. maris, unc. $3\frac{5}{8}$; cap. lin. $3\frac{1}{2}$; anten. mutil.; proth. lin. $3\frac{1}{2}$; mesoth. lin. $4\frac{1}{4}$; metath. lin. $7\frac{1}{2}$; abdom. lin. 18 + lin. $7\frac{1}{2}$ = lin. $25\frac{1}{2}$; tegm. lin. 27; alar. expans. unc. 6.

Phasma (Eurycantha) graciosa, *Westwood, Cab. Orient. Ent.* p. 16. pl. 7. f. 3.
Hab. Prince of Wales's Island (*Dr. Cantor*). In Mus. Hopeiano Oxoniæ.

14. (285.) Cyphocrania Jumnos, *Westw.*

Plate XXX. fig. 1, male.

Pallide fusca, sublævis; metathorace dilatato et utrinque spinoso; tegminibus ovalibus, alis magnis, area costali luteo-viridi, versus basin macula magna fusca notata, parte postica albido fuscoque tessellata; pedibus anticis longis simplicibus, posticis crassioribus dentatis, tibiis spinis brevibus crassis incurvis armatis (mas).

Long. corp. unc. $5\frac{1}{4}$; cap. lin. 3; proth. lin. 3; mesoth. lin. 9; metath. lin. 13; abdom. unc. 2, lin. 6 + lin. 5 = unc. 2, lin. 11; tegm. lin. 14; alæ, unc. 2, lin. 6; alar. expans. unc. 5, lin. $3\frac{1}{2}$.

Hab. ——?

This species has the body almost smooth, and brownish. The head and prothorax of equal length. The mesothorax rather dilated between the anterior margin and the middle, and rather constricted behind the middle. The metathorax is dilated beneath, its hinder division considerably longer than the anterior. The abdomen is elongate, subconvex, narrowed from the base to the fourth segment, the fifth widest at its extremity; the three terminal segments short, the terminal one with the lateral posterior angles slightly produced. The tegmina are oval, and rather longer than the metathorax, and about half the length of the wings; the latter have the costal area pale dirty yellow

(probably green whilst alive), with a large oblong brown patch near the base; the hinder portion is ornamented with macular fasciæ of brown, darkest towards the base. The fore legs are long and simple, as are also the middle pair; the hind pair are thickened, the femora strongly spined, and the inner edge of the tibiæ with about six short strong incurved spines; the sides of the metasternum and the posterior coxæ are also spined.

PLATE XXX. Fig. 1. The male, of the natural size. 1 *a*. The metasternum and base of one of the hind legs. 1 *b*. The terminal segments of the abdomen seen sideways.

Since my drawing of this insect was made, the specimen has been sold by auction, and I do not know in whose possession it is at the present time.

Genus 28. **PLATYCRANIA.**

Platycrana, pars, *G. R. Gray*.
Serville, H. N. Orth. p. 240.
Cyphocrania, Sect. B., *De Haan* (p. 130).
Cyphocrania, Sect. 1, B., *Burmeister* (p. 578).

Body robust in the females; winged in both sexes; the wings of the male nearly as long as the abdomen, not or scarcely more than half its length in the female. Head moderate-sized, convex, destitute of ocelli. Antennæ short, or of moderate length. Mesothorax about thrice the length of the prothorax. Tegmina small, broadly ovate, truncated at the tip. Abdomen slender in the males, broad in the females, with the operculum extending to, or rather beyond, the extremity of the abdomen, furnished in the typical species with two long curved slender filaments; anal styles slender, long and pointed. Legs short, or of moderate length, more or less dentated.

I have followed Serville in giving *Phasma edule*, Licht., as the type of a genus distinct from the preceding, and have added to it two other species, which agree with it tolerably well in general form, although, from several of their details, they will require a separate section for their reception.

1. (286.) **Platycrania edulis.**

Viridis; mesothorace maris scabro, fœminæ glabro; tegminibus areaque costali alarum viridibus, basi coccineis; stylis analibus minutis, angustis, acutis; pedibus brevibus, submuticis, femoribus 4 posticis subtus denticulatis.

Long. corp. maris, unc. 3, lin. 7; cap. lin. 3; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. 7; abdom. lin. 21 + lin. 4 = lin. 25; tegm. lin. 6; alar. expans. unc. $4\frac{1}{2}$.

Long. corp. fœm. cum operc. unc. 6; cap. lin. 6; anten. lin. 13; proth. lin. $3\frac{3}{4}$; mesoth. lin. 12; metath. lin. 11; abdom. unc. 2, lin. 8 + lin. 7 + operc. lin. 3 = unc. $3\frac{1}{2}$; tegm. lin. 11; alar. expans. unc. $4\frac{1}{4}$.

Phasma Jamaicensis (Le Spectre verd), *Stoll, Spectr.* pl. 6. f. 20. female, f. 21. male.
Phasma edule, *Lichtenstein, Linn. Trans.* vi. 13.
Mantis viridana, *Olivier, Enc. Méth.* vii. 636. no. 60.
Cyphocrana viridana, *Serville, Ann. Sc. Nat.* xxii. 60.
Platycrana viridana, *G. R. Gray, Syn. Phasm.* p. 36.
Serville, H. N. Orth. p. 241.
Mantis viridis, *Donovan, Ins. India*, pl. 10.
Cyphocrania viridana, *Burmeister, Handb. d. Ent.* ii. 2. 578.
Phasma (Cyphocrania B.) viridanum, *De Haan, Orth. Orient.* p. 130.
Mantis gigas, *Houtt. Nat. Hist.* x. pl. 79. f. 1.

Hab. Indiæ orientalis insulis Moluccas et Philippin.; Aru (*Wallace*); Ceram (*Mad. Pfeiffer*). B.M., &c.

Stoll's specific name *Jamaicensis* would have been retained for this species, were it not for its incorrect geographical indication. That of *edule*, given to the species by Lichtenstein, is consequently adopted (his reference to the Jamaica species, figured by Drury, being however omitted). According to Valentinus, quoted by Houttuyn, this species is eaten by the Malays for food.

2. (287.) **Platycrania Alpheus,** *Westw.*

PLATE IV. fig. 2.

Elongata, pallide virescens; mesothorace et abdomine fuscescentibus, hujus apice virescente; lævis, subnitida; mesonoto tuberculis minutis instructo; tegminibus subrotundatis areaque costali alarum viridibus, harum membrana vix dimidium segmenti 2di abdominis attingente, pallide fusca, venis fulvis; pedibus brevibus, crassis, fere inermibus (fœm.).

Long. corp. unc. $4\frac{2}{3}$; cap. lin. 5; anten. lin. 13; proth. lin. 4; mesoth. lin. 9; metath. lin. 9; abdom. lin. 23 + lin. 9 = lin. 32; tegm. lin. $7\frac{1}{2}$; alar. expans. lin. 26.

Hab. Ceylon and Philippine Islands. B.M.

Entirely smooth and rather glossy, except the mesothorax, which is more or less covered with small, oblong, slightly raised tubercles, especially in front, and along the lateral margins of the upper part; the general colour is pale green, with the mesothorax and abdomen brownish, the latter greenish at its extremity; the tegmina and costal area of the wings are green, the membranous portion of the latter slightly stained with brownish, with longitudinal fulvous veins. The head is oval. The antennæ short, with about twenty-three joints; the basal joint of moderate size. The prothorax is scarcely larger than the head, its anterior lateral angles narrowed and slightly porrected; the disc

uneven. The mesothorax has its sides nearly straight; the mesonotum is, however, narrowed behind to the base of the tegmina, which, when closed, do not extend over more than two-thirds of the metanotum; they are shortly ovate and strongly reticulated, and rather more than half the length of the wings, which, when closed, extend to the middle of the second abdominal segment. The abdomen is long, simple, and subconvex; the segments gradually narrowed to the extremity and margined at the sides, the anterior ones with two lines of small impressions on each side; the terminal segment is rounded, exposing the two small styles as well as the extremity of the operculum, which is constricted close to the base. The legs are short, strong, and angulated; the middle ridge of all the femora beneath armed with a few slight and scarcely distinct spines.

The specimens from the Philippine Islands have the mesothorax more strongly granulated.

Plate IV. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways.

3. (288.) **Platycrania Phelaus**, *Westw.*

Plate XXVII. fig. 5.

Elongata, tota lævis, pallide fulvo-lutescens; capite, pedibus, tegminibus apiceque areæ costalis alarum virescentibus, tegminibus ovalibus; alis paulo ultra medium segmenti 3^tii^ abdominis extensis, albido-fulvis venis fulvis; femoribus subtus denticulatis; operculo vix ultra apicem segmenti 9^ni^ abdominis extenso.

Long. corp. fere unc. 5; cap. lin. $5\frac{1}{2}$; proth. lin. 4; mesoth. lin. 10; metath. lin. $6\frac{1}{2}$; abdom. lin. 25 + lin. 10 = lin. 35; tegm. lin. 10; alæ, lin. 17; alar. expans. unc. 3.

Hab. Feejee Islands (*D. Macgillivray*). B.M.

This species is closely allied to *Pl. Alpheus*, but is at once distinguished by the relative size of the wing-covers and wings, more slender abdomen, smooth mesothorax, and denticulated femora. The head is obovate and convex, very smooth; it is produced into a prominent angle in front of each eye, behind each of which is also a slightly curved longitudinal impressed line. The antennæ are rather longer than the pro- and mesothorax; the first joint moderately robust, the third and immediately following joints very short, but gradually elongated. The prothorax is marked on each side of its hinder portion with a slightly impressed oval line, each preceded by strong punctures. The mesothorax is smooth and oblong, with a slender raised line running along each side to the base of the wing-covers, this line being punctured on its inner edge; near the hind margin it has two deep impressions, between which is a minute scutellum-like plate. The abdominal segments are smooth and nearly square, each slightly constricted at its base and apex; the eighth and ninth joints attenuated, the latter angulated along the middle of its upper surface. The operculum is constricted near the base; it is boat-shaped, and extends very slightly beyond the extremity of the ninth dorsal segment. The anal styles are short, broad, and obtuse. The tegmina are oval, pale green, very strongly and thickly reticulated, the membrane along the anterior and posterior edges towards the base being brown; the strong discoidal vein is slightly elevated. The wings have the costal area pale luteous at base, greenish at the apex; the veins more strongly coloured than the membrane; the chief vein is furcate both towards the base and about the middle of the wing; the hind portion is pale luteo-fulvous, with the longitudinal veins fulvous, the transverse ones nearly colourless. The legs are short and strong; the femora finely spined beneath.

The unique specimen in the British Museum has the left fore-leg not fully developed.

Plate XXVII. Fig. 5. The female, of the natural size. 5 *a*. The terminal segments of the body seen laterally.—(*Note.* The operculum is represented a trifle too long.)

Genus 29. **ACROPHYLLA.**

Diura, *G. R. Gray* (*Ent. Austr.*).
Acrophylla, *G. R. Gray*, and Ctenomorpha, pars, *G. R. Gray* (males), (*Syn. Phasm.* pp. 38–41).
Acrophylla, *Serville.*
Cyphocrania, Sect. II., *Burmeister, Handb. d. Ent.* p. 579.
Cyphocrania, Sect. A. pars, C & D, *De Haan* (*Orth. Orient.* p. 130).

Body very long, cylindrical, and slender in both sexes, especially in the males. Head of moderate size, horizontal, convex. Ocelli three, or wanting. Antennæ short, or of moderate length. Mesothorax about thrice the length of the prothorax, generally more or less spined. Tegmina elongate-ovate, about one-third or half the length of the wings. Wings large or moderate in both sexes, being longest in the males. Legs moderately long, longer in the males, serrated; hind tibiæ not armed within with strong teeth. Abdomen long, slender, cylindrical, especially in the males; anal styles very long and dilated, especially in the females; oviduct of the latter boat-shaped, not extending beyond the extremity of the body.

Inhabit New Holland.

The Australian species here brought together form several divisions, according to the size of the wings. Thus, in *Acr. Titan* they are of large size in the female, whilst in *Acr. Chronus*, &c. they are much shorter in the female. *A. violascens* is destitute of ocelli. De Haan unites *A.*

Titan with *Cyph. Goliath* in the genus *Cyphocrania*; but the remarkably elongated anal appendages refer the former species to *Acrophylla*, whilst *C. Goliath*, from the armature of its legs, and greatly elongated ovipositor, evidently belongs to a type distinct from the true *Acrophyllæ*.

1. (289.) Acrophylla Titan.

Mas. Gracilis, subfiliformis; mesothorace scaberrimo; alis longioribus.

Fœm. Cylindrica; mesothorace scabro; subcinereo-fusca.

Tegminibus nigro-viridibus testaceo-maculatis, maris margine anteriore albido, fœminæ macula in marginis antici medio magna albida; alis nigro-fuscis albo-maculatis, area costali viridi-nigra, testaceo-maculata, basi rubida; pedibus albo-cinereis, anticis trigonis, angulo inferiori dentibus magnis rufis, superiori vix dentatis; stylis abdominalibus duobus longis trigonis dentatis.

Long. corp. maris, 5″ 6‴; anten. 1″ 7‴; alar. exp. 6″.

Long. corp. fœm. 9″ 7‴; anten. 1″ 9‴; alar. exp. 7″ 6‴.

Phasma Titan, *MacLeay in King's Survey of Australia*, ii. 454.
G. R. Gray, Ent. of Austr. i. pl. 4, fem. (Diura T.); *ejusd. Syn. Phasm.* p. 39 (Acrophylla T.).
Serville, H. N. Orth. p. 231.
Burmeister, Handb. d. Ent. ii. 2. 579 (Cyphocrania T.).
Laporte, H. N. Ins. v. 4. pl. 4, mas.
Phasma (Cyphocrania) Titan, *De Haan, Orth. Orient.* p. 129.

Hab. In Australia. B.M. &c.

2. (290.) Acrophylla Briareus.

Brunnea; mesothorace vix scabro; tegminibus brunneis, nervis flavis; alis nigris, maculis albis quadratis, area costali brunnea, nervis flavis; foliolis duobus brevissimis latis; pedibus brevibus, quatuor posterioribus subtus spinosis.

Long. corp. fœm. 5″ 9‴; alar. expans. 2″ 5‴.

Diura Briareus, *G. R. Gray, Trans. Ent. Soc.* vol. i. p. 45; *Syn. Phasm.* p. 40.

Hab. In Australia. Mus. Dunn.

De Haan refers this species (as well as *Acr. Enceladus*, Gray) to the *Cyphocrania maculata* of Olivier. I have not seen the species.

3. (291.) Acrophylla Chronus.

Mas. Olivaceus; mesothorace spinulis parvis nigris; tegminibus brunneis, margine anteriore albis; alis subhyalinis, albo-brunneis, area costali brunnea, juxta basin albo-marginata; pedibus spinosis.

Fœm. Flavescens, subnigro-viridis; mesothorace vix scabro; tegminibus flavo- aut brunneo-viridibus, nervis flavescentibus; alis nigris, obscure albo-maculatis, area costali brunneo-viridi, basi nervisque flavescentibus, lineis irregularibus nigris, foliolis duobus longis apice latioribus; pedibus mediocribus, quatuor posterioribus dentatis; pedum lateribus griseo-reticulatis.

Long. corp. maris, 4″; anten. 2″; alar. expans. 3″ 9‴.

Long. corp. fœm. 6″ 11‴; anten. 11‴; alar. exp. 2″ 11‴.

Mas. Ctenomorpha marginipennis, *G. R. Gray, Ent. Austr.* i. pl. 1. f. 2; *Syn. Phasm.* p. 41.
Phasma (Cyphocrania D.) marginip., *De Haan, Orthopt. Orient.* p. 131.
Fœm. Diura Chronus, *G. R. Gray, Ent. of Austr.* i. pl. 5. f. 2; *Syn. Phasm.* p. 39 (Acrophylla C.).
Serville, H. N. Orth. p. 232.
Burmeister, Handb. d. Ent. ii. 2. 580 (Cyphocrania Chr.).

Hab. In Australia. B.M.

I am not satisfied as to the amount of variation to which this species is subject, but believe it to be greater than would at first sight be credited. In the Hopeian Collection are preserved a male and female, received from Mr. MacLeay as distinct, under the name of *Diura Saturnus*; the female agreeing with Gray's figure in the size of the wings and tegmina, but with the legs and anal styles more elongated, the latter being 13 lines long, the entire insect being 8 inches long. Other female specimens, of much smaller size, varying from 5 to 6 inches long, have the wings scarcely so long as the tegmina. In these also there is considerable difference in the length of the anal styles. Another specimen, about $8\frac{1}{2}$ inches long (including the anal styles, 13 lines long), has the wings as large as in Gray's figure, but much more strongly tessellated than the ordinary individuals, the general colour of the specimen being reddish brown.

4. (292.) Acrophylla Japetus.

Mas. Brunneus; mesothorace scaberrimo; tegminibus brunneis, juxta apicem albo-marginatis; alis hyalinis, basi flavo-albidis, margine exteriore nigrescentibus, area costali brunnea, basi subhyalina flavo-albida, apice nigrescente; pedibus brevibus, dentatis.

Fœm. Flavo-viridis; pro- et mesothorace brevioribus, scaberrimis; tegminibus mediocribus; alis nigris albo-maculatis, area costali viridi fusco-submaculato; foliolis duobus brevibus, latis; pedibus brevioribus, dentatis.

Long. corp. maris, fere unc. 4; cap. lin. 2; anten. lin. 19; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. 6; abdom. lin. 26 + lin. $4\frac{1}{2}$ = lin. $30\frac{1}{2}$; tegm. lin. 5; alar. expans. unc. $4\frac{1}{3}$.

Long. corp. fœm. unc. 6; cap. lin. $3\frac{1}{2}$; anten. lin. 10; proth. lin. 3; mesoth. lin. 12; metath. lin. 7; abdom. lin. 35 + lin. 8 +styl. anal. lin. 4=lin. 47; tegm. lin. 9; alar. expans. lin. 37.

Mas. Ctenomorpha spinicollis, *G. R. Gray, Ent. Austr.* i. pl. 1. f. 1; *Syn. Phasm.* p. 41.
Phasma (Cyphocrania D.) spinic., *De Haan, Orth. Orient.* p. 131.
Fœm. Diura Japetus, *G. R. Gray, Ent. of Austr.* i. pl. 5. f. 1; *Syn. Phasm.* p. 40.
Burmeister, Handb. d. Ent. ii. 2. 580 (Cyphocrania Jap.).

Hab. In Australia, Melville Island. In Mus. Hopeiano Oxoniæ.

The anal styles in the male are scarcely visible beyond the extremity of the abdomen.

5. (293.) Acrophylla Osiris.

Pupa. Pallide brunnea; mesothorace scaberrimo; foliolis duobus brevissimis trigonis; pedibus (anticis casu deficientibus) dentatis, intermediis et posticis brevibus lineis elevatis striatis; tibiarum apice et basi parum dilatatis.

Long. corp. 4″ 9‴.

Diura Osiris, *G. R. Gray, Trans. Ent. Soc.* i. 46; *Syn. Phasm.* p. 40.

Hab. In Australia. Mus. Hope.

De Haan (*Orth. Orient.* p. 131) and Burmeister (*Zeitsch.* ii. 38) incorrectly consider this supposed species to be the pupa of *A. Japetus* (*spinicollis*).

The rudimental tegmina are $1\frac{1}{2}$ line, and the rudimental wings $3\frac{1}{2}$ lines long; the posterior tibiæ have several spines on the outside near the base; and the anal styles are as long as the preceding segment, broadly ovate, each with an erect thin ovate lobe as long as the style itself.

6. (294.) Acrophylla Acheron.

Larva. Albida brunneo admixta; thorace subglabro, foliolis longis sublatis; pedibus brevioribus, anticis foliato-compressis, intermediis et posticis femoribus subcrassis, ultimis spinosis; tibiis interne spinis in medio duabus latis armatis, tarsorum articulo 1mo erecto dilatato.

Long. corp. 4″ 8‴.

Diura Acheron, *G. R. Gray, Trans. Ent. Soc.* i. 46; *Syn. Phasm.* p. 40.

Hab. In Australia. Mus. Dunn.

According to De Haan (*Orth. Orient.* p. 131), this supposed species is the pupa of *A. Chronus* (*marginipennis*).

7. (295.) Acrophylla MacLeaii.

Rubro-brunnescenti-nigra, nigro-fuscata; tegminibus areaque costali pallidioribus albido-maculatis; alis hyalinis, pallide brunnescenti-nigris; pedibus gracilibus, pallide fasciatis.

Long. corp. maris, 3″ 2‴; fœm. 3″ 10‴; expans. alar. maris, 3″ 2‴.

Ctenomorpha MacLeaii, *G. R. Gray, Syn. Phasm.* p. 41.

Hab. In Australia. In Mus. Soc. Linn. Lond.

8. (296.) Acrophylla tessellata.

Plate XXXV. fig. 1, male; fig. 2, female.

Elongata, gracilis, brunneo-fusca; capite (in utroque sexu) 3-ocellato; mesothorace elongato, tuberculis acutis per paria irregulariter dispositis armato; tegminibus ovalibus, carinæ medio parum elevato; alis maris magnis, fœminæ dimidiatis, area costali flavescenti-brunnea, vena mediana prope basin in utroque sexu furcata, area postica hyalina nigro-tessellata; oviductu cymbiformi, stylis compressis porrectis; pedibus gracilibus, 4 posticis serratis; stylis analibus maris minutis (mas et fœm.).

Long. corp. maris, unc. $3\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; anten. lin. 21; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. 5; abdom. lin. 21 + lin. 5 = lin. 26; tegm. lin. 5; alar. expans. unc. $3\frac{1}{2}$.

Long. corp. fœm. unc. $5\frac{1}{2}$; cap. lin. 3; anten. lin. 11; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. $6\frac{1}{2}$; abdom. lin. 30+lin. 7+styl. anal. lin. $2\frac{1}{2}$=lin. $39\frac{1}{2}$; tegm. lin. 7; alar. expans. unc. 2, lin. 7.

Ctenomorpha tessellata, *Curtis, MS.* (male).
G. R. Gray, Syn. Phasm. p. 44.

Hab. Moreton Bay, N. Australia. Fœm. in Mus. Hopeiano, Oxon. (e coll. Westw.). Mas in B.M.

This species is remarkable for having the wings strongly tessellated in both sexes, those of the female being scarcely more than half the size of those of the male, and for the minute size of the anal styles of the male. The body is long and slender. The general colour is dark reddish brown. The head of the male is wide, with large eyes, and the three ocelli are distinct in both sexes; the antennæ in the male are moderately long, slender, and finely setose, about 24-jointed; those of the female are much shorter, but composed of the same number of joints. The mesothorax is armed along its upper surface with about six pairs of small pointed tubercles, placed rather irregularly; and the lateral margins are also armed with a few smaller ones. The tegmina are oblong-ovate, with the middle of the central carina scarcely elevated. The wings are white,

strongly marked with black-brown tessellations along the transverse veins; the costal area is red-brown, with the numerous transverse veinlets whitish; the central vein is furcate near the base. The legs of the male are long and slender, shorter and more robust in the female; the anterior pair nearly simple, but the four hinder with the lower angles (especially of the femora) finely serrated. The abdomen of the male is long and slender; the terminal ventral segment short and much swollen; the terminal dorsal segment contracted at the base, swollen at the sides, and furcate at the extremity, with minute teeth at the inner edges of the furcation. The ovipositor of the female is boat-shaped and compressed, followed by two compressed porrected anal styles about as long as the preceding joint.

PLATE XXXV. Fig. 1. The male, of the natural size. 1*a*. The terminal segments of the male seen sideways. 1*b*. The same seen from beneath.

Fig. 2. The female, of the natural size. 2*a*. The terminal segments of the female seen sideways.

9. (297.) **Acrophylla Salmacis**, *Westw.*

PLATE XXXVII. fig. 2, male.

Valde elongata, cylindrica, tota fusco-lutescens; antennis brevibus, crassioribus; capite 3-ocellato; mesonoto spinis 8 per paria dispositis; tegminibus elongato-ovalibus, carina mediana mediocriter elevata; alis magnis, apice fumosis, vena mediana areæ discoidalis prope basin furcata; pedibus serratis, tibiis anticis inermibus, 4 posticis prope basin supra spinis duabus foliaceis majoribus approximatis armatis; stylis abdominalibus perlongis (mas).

Long. corp. unc. $5\frac{1}{4}$; cap. lin. 3; anten. lin. 12; proth. lin. 2; mesoth. lin. 9; metath. lin. 8; abdom. lin. 30 + lin. 6 + styl. anal. lin. 5 = lin. 41; tegm. lin. 6; alar. expans. unc. $5\frac{1}{4}$.

Hab. Northern Australia. B.M.

I have only seen the male of this species, which is very long, slender, and cylindrical, entirely of a luteous pale brown colour (the specimen had, however, been preserved in spirits of wine). The head is rather large and subdepressed; the eyes very large, as well as the three ocelli. The antennæ are short and thick, 23-jointed, the joints narrowed at the base, and setose. The mesothorax is long, armed with four pairs of short thick spines. The tegmina are elongate-ovate; the median carina moderately elevated. The wings are large, stained along the outer margin with darker brown; the costal area darker, especially along the basal half, with the median vein furcate near the base. The abdomen is very long and slender; the last joint truncate, with the truncation curved; the anal styles as long as the three terminal joints, flattened, and slightly pointed at the tip. The legs are of moderate length and serrated, the anterior tibiæ being simple; the four hind tibiæ with a bispinose foliaceous lobe near the base on the upper edge.

PLATE XXXVII. Fig. 2. The male, of the natural size. 2*a*. The terminal segments of the body seen sideways.

I at first thought it possible that the insect here figured might be the male of *Cyphocrania Goliath*, but the arrangement of the spines of the hind legs and mesosternum will scarcely allow of such an idea.

10. (298.) **Acrophylla violascens.**

Mas. Prasinus; mesothorace scabro; tegminibus areæque costalis margine anteriore albis; area postica violascente; foliolis duobus filiformibus; pedibus anticis longioribus, intermediis brevibus dentatis, posticis longis, femoribus crassis angulatis dentatis, lineis elevatis striatis.

Fœm. Viridis; mesothorace scabro, antice angustato, in medio subcarinato lineis tribus flavis; tegminibus viridibus; alis minoribus roseis; area costali viridi, basi flava, apice attenuata; abdomine longo, crasso, viridi, lineis longitudinalibus tribus subflavis; foliolis duobus brevibus subfiliformibus; pedibus mediocribus dentatis; antennis brevibus.

Long. corp. maris, 3″ 4‴; anten. 9‴; alar. exp. 2″ 6‴.
Long. corp. fœm. 3″ 9‴; anten. 3″ 6‴; alar. exp. 1″ 1‴.

Mas. Phasma violascens, *Leach, Zool. Miscell.* i. pl. 9.
G. R. Gray, Ent. Austr. i. pl. 6. f. 1 (Diura v.); *Syn. Phasm.* p. 40 (Acrophylla v.).
Burmeister, Handb. d. Ent. ii. 2. 580 (Cyphocrania v.).
Fœm. Diura roseipennis, *G. R. Gray, Ent. Austr.* i. pl. 7. f. 1; *Syn. Phasm.* p. 41 (Acrophylla r.).
Burmeister, l. c. (Cyphocrania viol., fœm.)
Phasma (Cyphocrania C.) roseipennis, *De Haan, Orth. Orient.* p. 130.

Hab. In Australia. B.M., &c.

Genus 30. **PODACANTHUS.**

Podacanthus, *G. R. Gray, Serville, Burmeister, De Haan.*

Body large, slender in the males, thick and cylindrical in the females. Head flat, gibbose behind. Ocelli 3. Antennæ moderately long; those of the males one-third longer than those of the females, pilose, and 23-jointed,—of the females shorter, glabrous, and 26-jointed. Thorax short, pyramidal; mesothorax scarcely twice the length of the prothorax, gradually widening behind, spinose. Metathorax rather longer than the mesothorax, broad and oblong. Abdomen with the ovipositor of the females strongly cymbiform, carinated beneath and pointed at the tip; anal styles very long, narrow in both sexes; terminal segment in the males truncate at the tip and biuncinate beneath. Teg-

mina oval, half the length of the wings in the female, one-third in the males. Wings large, equal-sized in both sexes. Legs short, two hind pairs dentated beneath. Tarsi with the basal joint short.

1. (299.) Podacanthus Typhon.

Viridi-flavus; tegminibus viridibus, subtus basi roseis, maris margine externo roseo; alis hyalinis albis, vel roseo-tinctis, venis magis roseis, area costali viridi, basi et subtus rosea; abdomine flavo; pedibus carneis.

Long. corp. maris, 3″ 2‴—4″ 1‴; anten. 1″ 9‴; alar. expans. 5″ 9‴.

Long. corp. fœm. 5″ 4‴; anten. 1″ 6‴; alar. exp. 8″ 6‴.

Podacanthus Typhon, *G. R. Gray, Ent. of Austr.* i. pl. 2. f. 1; *Syn. Phasm.* p. 32.
Serville, H. N. Orth. p. 230.
Burmeister, Handb. d. Ent. ii. 2. 581.
Var. maris. Podacanthus unicolor (totus viridis), *Charpentier, Orthopt. Descr.* pl. 56.
Hab. In Australia (Port Jackson, &c.). B.M., &c.

2. (300.) Podacanthus viridi-roseus.

P. Typhoni affinis sed multo minor; viridis; alis roseis, nervis saturatioribus, basi violascentibus, area costali viridi, vena mediana rosea, furcata, stylis analibus segmento ultimo fœminæ brevioribus.

Long. corp. fœm. unc. $3\frac{4}{6}$; cap. lin. 3; anten. lin. 9; proth. lin. 2; mesoth. lin. $3\frac{1}{2}$; metath. lin. $9\frac{1}{2}$; abdom. lin. 21 + lin. 7 + styl. anal. lin. $1\frac{1}{2}$ = lin. $29\frac{1}{2}$; tegm. lin. 19; alar. expans. unc. $5\frac{4}{6}$.

Phasma viridi-rosea (*Curtis, MS.*).
G. R. Gray, Syn. Phasm. p. 43 (Podacanthus v.).

Hab. In Australia, Moreton Bay, &c. Mus. Curtis, Hopeiano Oxoniæ, &c.

I am indebted to J. Curtis, Esq., for allowing me to examine and draw this and other species described from his collection by Mr. G. R. Gray.

Genus 31. LOXOPSIS, *Westw.*

Head with the crown conically and obliquely elevated. Antennæ moderately long. Mesothorax about thrice the length of the prothorax, subconical, dilated behind. Tegmina shortly ovate, one-fourth of the length of the wings. Wings as long as the abdomen, very broad. Abdomen of the female short and broad; terminal segments short, simple; ovipositor extending nearly to the extremity of the abdomen, ending in two short points. Legs rather short, anterior simple; hind legs armed with small spines.

It is unfortunate that only the female of this very remarkable insect is known. It is unique in the Museum of Leyden.

1. (301.) Loxopsis conocephala.

Fœm. Olivacea; capite tetragono, conico, acuto; elytris quartam partem alarum æquantibus, acuto-carinatis; alis dilatatis, longitudinem abdominis æquantibus, cycloideis, fusco-griseis, maculis subfasciatis pellucidis; abdomine dilatato, brevi, fusco nigro-fasciato.

Long. corp. 2″ 2‴; proth. 2‴; mesoth. 4‴; ped. post. 1″ 4‴; elytr. 5‴; alar. 1″ 6‴.

Phasma conocephalum, *De Haan, Orth. Orient.* p. 124. pl. 12. f. 3, fem.

Hab. In Sumatra.

Genus 32. PHASMA.

Phasma, pars, *Stoll, Fabricius, Lichtenstein.*
Burmeister, Handb. d. Ent. p. 583.
Phasma, *Serville* (*H. N. Orth.* p. 267).
Gray (*Syn. Phasm.* p. 22).
De Haan, Orth. Orient. p. 123.

Head small, subdepressed, often furnished with three ocelli. Antennæ generally very long and setaceous, especially in the males. Thorax much shorter than the abdomen. Mesothorax short, not more than twice the length of the prothorax, smooth or spined. Tegmina minute, sometimes rather larger, oval, spinose, or elevated in the centre of the median carina. Wings sublinear, nearly as long as the abdomen in both sexes; costal area narrow. Abdomen filiform, cylindric; anal styles short; ovipositor of the female not extending beyond the extremity of the abdomen. Legs moderately long and simple, sometimes slightly dentated, not dilated or armed with membranous lobes.

Inhabit the New World.

1. (302.) Phasma Hopei.

Nigro-brunneum; capite thoraceque flavo-lineatis; tegminibus areæque costalis margine anteriore viridescenti-flavis; alis albidis, apice nigris; abdomine nigro-brunneo, apice pallidiori nigro-maculato.

Long. corp. maris, 2″; anten. 3″; alar. expans. 2″ 9‴.

Long. corp. fœm. 3″; anten. 2″ 6″; alar. expans. 3″ 6‴.

Phasma Hopii, *G. R. Gray, Syn. Phasm.* p. 25 (nec Ph. perspicillare, ut teste *De Haan*).
Hab. In Brasilia. B.M., &c.

2. (303.) Phasma perspicillare.

Griseo-brunneum; tegminibus basi flavescentibus, area costali alarum flavo-striata, area postica basi albida; limbo

lato, integro, nigricante, ad apicem latiori, articulo 1mo tarsorum flavo.

Long. corp. 2″ ; anten. 1″ 7‴ ; alar. expans. 3″ 4‴.

Phasma perspicillaris (Le Spectre manière de Papillon), *Stoll, Spectr.* pl. 23. f. 86, *and Index.*
G. R. Gray, Syn. Phasm. p. 24.

Hab. Surinam.

3. (304.) Phasma Gambrisius, *Westw.*

PLATE XIV. fig. 2, male.

Elongatum, subfiliforme, subcylindricum, viride ; capite majori, 3-ocellato, hoc et mesonoto subrugosis ; abdomine fusco, apice viridi ; alis albis, apice subfuscis, area costali viridi ; pedibus mediocriter elongatis, gracilibus ; tegminibus parvis, subquadratis.

Long. corp. unc. 2 ; cap. lin. 1 ; proth. lin. $\frac{2}{3}$; mesoth. lin. 3 ; metath. lin. $3\frac{1}{2}$; abdom. lin. 13 + lin. 2=lin. 15 ; tegm. lin. 2 ; alæ, lin. 16 ; alar. expans. unc. $2\frac{3}{4}$.

Hab. In Venezuela. B.M.

Long, slender, subcylindrical, except the metathorax, which is the widest part of the body ; grass-green, not glossy, and destitute of spines or tubercles. The head wide ; eyes large ; ocelli three, large, the front one smaller than the two others ; crown of the head finely rugose. Antennæ broken (about an inch left), the joints very long, except the first, second, fourth, and fifth, which are short, uniform brown-coloured. Mesothorax small, cylindrical, finely rugose on the back. Tegmina small, oblong-quadrate, the extremity rather oblique, the carina strongly elevated into a rounded cone, the surface rather strongly reticulated. Metathorax pale brown. Wings large ; costal area green, the principal vein furcate near the base ; hinder portion white, slightly dusky at the extremity ; the longitudinal veins pale brown, the transverse one scarcely distinct. Abdomen long, cylindrical, brown, green at its extremity ; three terminal segments short, subclavate ; apex of terminal segment subemarginate ; terminal segments beneath moderately swollen, scarcely extending beyond the eighth dorsal segment ; anal styles rather large and setose. Legs slender (anterior tibiæ and tarsi wanting) and rather short, uniform green-coloured ; tarsi paler, beneath golden-coloured ; basal joint of moderate length.

Allied to *Phasma prasinum*, Serville.

PLATE XIV. Fig. 2. The male, of the natural size. 2 *a*. The four terminal segments of the abdomen seen from beneath. 2 *b*. The same seen sideways.

4. (305.) Phasma Venilia, *Westw.*

PLATE XXXIII. fig. 5, female.

Gracile et perelegans, inerme, fulvum ; abdomine fusco, nitido ; capite 3-ocellato ; tegminibus parvis, apice oblique truncatis, fulvis, margine interno nigro-tessellatis ; alis magnis, roseis, area costali læte flava, antice virescente, postice fusco-striata ; pedibus tenuissimis (fœm.).

Long. corp. fœm. lin. 28 ; cap. lin. $1\frac{2}{3}$; anten. lin. 29 ; proth. lin. $1\frac{2}{3}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 5 ; abdom. lin. $13\frac{1}{2}$ + lin. 3 = lin. $16\frac{1}{2}$; tegm. lin. $2\frac{1}{3}$; alar. expans. unc. $3\frac{3}{4}$.

Hab. In Bogota. B.M.

This is one of the most elegant species in the family. It is very slender, especially in the mesothoracic portion of the body. The head is oblong and polished ; the eyes large, as well as the three ocelli. The antennæ are long and straight, about 24-jointed, the joints being remarkably long. The anterior half of the body is of a rich fulvous colour ; the legs rather paler, with a slight greenish tinge. The prothorax is rather irregular on its upper surface, and the mesothorax is marked by an impressed line down the whole of its length. The tegmina are small, oblong, with the middle of the carina but slightly elevated ; they are fulvous yellow, with the inner margin marked with three rows of small black spots occupying the areas between the transverse yellow veins. The wings are large, of a beautiful rosy hue, with darker rosy longitudinal veins ; the costal area rich yellow, with fulvous longitudinal veins ; the fore margin tinged with green, and the hinder margin with a brown dash, intersected by the pale longitudinal veins ; the principal vein is not furcate, but it unites before reaching the apex of the wing with the next vein, and this united portion again unites close to the tip with the following vein. The legs are very slender and simple ; the basal joint of the tarsus about as long as the following joints united. The abdomen is long, cylindrical, brown, and polished ; the three terminal joints are short, and terminated by two slender, straight, porrected styles ; the ovipositor is straight, scarcely swollen, and reaches to the extremity of the ninth dorsal segment.

PLATE XXXIII. Fig. 5. The female, of the natural size. 5 *a*. The terminal segments of the body seen sideways.

5. (306.) Phasma Menius, *Westw.*

PLATE XVII. fig. 2, male.

Gracile, sordide nigricans, obscurum ; antennis longis, albido 10-annulatis ; mesonoto vix prothorace longiori, supra parum granuloso ; tegminibus brevibus, subquadratis, in medio elevato-angulatis, striola obscura notatis ; alis opaco-albidis, area costali nigricante ; pedibus gracilibus, obscuris, inermibus, femoribus tibiisque basi albidis (mas).

Long. corp. maris, unc. 2; cap. lin. $1\frac{1}{2}$; anten. unc. $2\frac{1}{3}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 2; metath. lin. $4\frac{1}{2}$; abdom. lin. 11 + lin. $2\frac{1}{2}$ = lin. $13\frac{1}{2}$; tegm. lin. $2\frac{1}{4}$; alar. expans. unc. $2\frac{5}{6}$.

Hab. In Columbia (*D. Gaudichaud*). In Mus. Saunders.

This species is long and slender, of an obscure blackish-brown colour, opake. The head is nearly square, but slightly convex, with the three ocelli on the crown, the anterior one considerably in advance of the others; on each side behind the eyes is an obscure pale streak. The antennæ are long and slender; the joints are very long, and each alternate joint has its base marked with a broad whitish ring; beyond the middle each joint is composed of a great number of minute articulations. The prothorax is oval, the anterior angles being truncated and spiraculiferous. The mesonotum is scarcely longer than the prothorax, finely rugose, and with two oblique rows of small tubercles on each side extending to the insertion of the tegmina; the latter are small and nearly square, the centre strongly elevated into an obtuse angle, the ridge of which is marked with a dull whitish line. The wings are large, opake whitish, with a slight fulvous tinge, which is the colour of the longitudinal veins; the veins and veinlets along the outer margin of the wings are brown; the costal area is blackish, with the principal vein furcate near the base. The abdomen is long, narrow, of nearly equal width throughout; the terminal ventral segments considerably swollen and angulated, not extending beyond the eighth dorsal segment; the anal styles deflexed and ovate. The legs are long and slender, destitute of spines; the basal joint of the tarsi is as long as the three following joints.

Plate XVII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways.

6. (307.) Phasma Salpingus, *Westw.*

Plate XXXIII. fig. 3, female.

Elongatum, obscurum, fuscum, olivaceo-variegatum; antennis pallidis, fusco-annulatis; capite 3-ocellato, postice in tuberculum conicum elevato; mesothorace brevi, spinis duabus ante medium armato; tegminibus parvis, oblongis, oblique truncatis, venis pallidis; alis permagnis, fumosis, venis longitudinalibus obscurioribus, area costali virescente, maculis latis fuscis irregularibus undatis; pedibus longis, gracilibus, fusco et virescente variis (fœm.).

Long. corp. unc. 2, lin. 5; cap. lin. 2; anten. unc. $2\frac{3}{4}$; mesoth. lin. $2\frac{2}{3}$; metath. lin. 6; abdom. lin. 14+lin. $3\frac{1}{2}$ =lin. $17\frac{1}{2}$; tegm. lin. $3\frac{1}{3}$; alar. expans. unc. 4.

Hab. In Bogota. B.M.

This species is well distinguished by its short and bispinose mesothorax, and by the peculiar markings of the costal area of the wings. The general colour is dark brown variegated with olivaceous green. The head is very convex behind, and raised into a large conical tubercle; the three ocelli are very large. The antennæ are pale luteous, very long and slender, but only 24-jointed; the apical joints are, however, finely and minutely annulated; each joint has the apical half brown. The mesothorax is very little longer than the prothorax, armed before its middle with two erect obtuse points, preceded by two more minute ones; its lateral margins are also armed with two or three small spines. The tegmina are larger than the mesothorax; the central carina is very strongly elevated and rounded, the apex is obliquely truncated, and the disk strongly reticulated with the fine pale veinlets. The wings are large; the costal area pale olivaceous green, with numerous irregular-sized broad brown waved spots; the chief vein is furcate near the base; the hinder area smoky coloured, with darker longitudinal veins. The abdomen is dark brown; the terminal segments short, and conical at the tip; the oviduct small, but reaching to the extremity of the abdomen; the two anal styles short, obtuse, setose, and convergent at the tip. The legs are long, slender, and simple, alternately marked with brown and olivaceous spots; the tarsi are long, the basal joint being about as long as the three following joints.

Plate XXXIII. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the body seen sideways.

7. (308.) Phasma Tithonus.

Flavescenti-viride; capite thoraceque viridi-flavis, nigro-lineatis; tegminibus in medio elevatis, nigro-lineatis; alis hyalinis; abdomine basi brunneo-flavo, apice viridi, nigro-maculato; pedibus supra viridibus, nigro-lineatis, subtus nigris; antennis nigris, griseo-albo-annulatis.

Long. corp. maris, 1″ 7‴; anten. 1″; alar. expans. 2″.
Long. corp. fœm. 2″ 9‴; anten. 1″ 7‴; alar. exp. 4″.

Phasma Tithonus, *G. R. Gray, Syn. Phasm.* p. 23.
Serville, H. N. Orth. p. 272.
De Haan, Orth. Orient. p. 123.
Phasma ornatum, *Burmeister, Handb. d. Ent.* ii. 2. 585.
Charpentier, Orth. Descr. pl. 42.
Phasma lineatum, *Fischer, Bull. Soc. Imp. Nat. Mosc.* vii. 327.

Hab. In Brasilia (nec Ind. orient.). B.M., &c.

8. (309.) Phasma helvolum.

Stramineo-flavescens; capite subelongato, supra depresso, macula nigra verticali; prothorace capite paulo breviori, tuberculis nonnullis nigricantibus minutis discoidalibus lon-

gitudinaliter dispositis; mesothorace brunneo, tuberculis numerosis minutis instructo; tegminibus opacis, fulvo-rufescentibus, fere apicem metathoracis attingentibus; alis fere longitudine abdominis, translucidis, subobscuris, venis brunneis, costa subopaca, fulvescenti roseo-tincta, præsertim ad basin tincta; abdomine thorace duplo longiori, segmentis quinque basalibus supra macula magna brunnea oblonga notatis; lamina supra-anali subanalem lineis duabus excedente, apice subtruncato, in medio vix emarginato, lamina subanali angusta, haud cymbiformi; pedibus concoloribus, subtus brunneo submaculatis (fœm.).

Long. corp. unc. 3, lin. 3.

Phasma helvolum, *Serville, H. N. Orth.* p. 273.
De Haan, Orth. Orient. p. 123.

Hab. In Brasilia.

9. (310.) **Phasma lineolatum.**

Læve, nigricans; capite infra virescenti, supra utrinque lineolis duabus longitudinalibus viridibus; thorace infra viridi, supra lineola longitudinali mediana flava vel viridi, et utrinque duabus viridibus interdum confluentibus; tegminibus minutis, vix longitudine dimidii mesothoracis, opacis, nigris, costa viridi; carina mediana distincta, in spinam terminata (in fœm. majori); alis longitudine abdominis, hyalinis, viridi-tinctis, apice margineque tenui interno brunnescentibus, costa opaca brunnea, linea longitudinali lata, viridi; pedibus concoloribus, viridi-tinctis; antennis corpore duplo longioribus et concoloribus (mas et fœm.).

Long. corp. maris, unc. 2; fœm. unc. $2\frac{1}{2}$.

Phasma lineolatum, *Serville, H. N. Orth.* p. 273.
An Ph. fasciatum, *G. R. Gray*? (teste *De Haan, Orth. Orient.* p. 123).

Hab. In Brasilia.

10? (311.) **Phasma fasciatum.**

"Nigrum; capite albo-lineato; mesothorace scabro; tegminibus nigris, margine anteriore viridibus; alarum area costali nigrescenti, fasciis longitudinalibus viridibus; area postica hyalina, alba, margine nigrescenti.

"Long. corp. —?; anten. —?; alar. expans. —?."—*G. R. G.*

Phasma fasciatum, *G. R. Gray, Syn. Phasm.* p. 24.
Burmeister, Handb. d. Ent. ii. 2. 585.
Ph. lineolatum?, *Serv., De Haan, Orth. Orient.* p. 123.

Hab. In Brasilia.

11. (312.) **Phasma Ega,** *Westw.*

PLATE XXXII. fig. 2, female.

Elongatum, inerme, viride, brunneo-purpureo varium; metathorace et abdomine lutescentibus; alarum area postica alba; pedibus perbrevibus; capite macula rotunda flava inter oculos; pro- et mesonotis 5-lineatis; tegminibus in medio, parteque postica areæ costalis alarum purpureo-maculatis (fœm.).

Long. corp. unc. $2\frac{1}{8}$; cap. lin. $1\frac{2}{3}$; anten. lin. 14; proth. lin. $1\frac{1}{2}$; mesoth. lin. 3; metath. lin. 5; abdom. lin. 13+lin. 3=lin. 16; tegm. lin. $3\frac{2}{3}$; alar. expans. lin. 34.

Hab. Ega, in Brasilia (*D. Bates*). B.M.

Of this elegant species I have only seen a single specimen, which I regard as a female with some doubt. The anterior part of the body is grass-green, with purplish-brown markings, the mesothorax and abdomen being luteous brown. The head is oblong and green, with a circular yellow patch between the eyes surrounded by a black ring, and having a slender dark line down its middle; the hind part of the head is marked with seven longitudinal pale yellow lines. The antennæ are reddish brown, the tips of the joints darker, basal joint yellow. The pro- and mesothorax are green, with several dark purplish-brown longitudinal lines with slender yellow ones between them, the sides of the latter grass-green. The tegmina are elongate-ovate; the carina scarcely elevated in the middle; the inner margin, and a patch extending from it to the middle of the carina, of a purplish-brown colour. The wings are large and white, the longitudinal veins slightly fulvous; the costal area has its anterior half grass-green, the posterior half yellowish, with irregular purplish-brown patches; the median vein is furcate. The legs are short and simple; they are greenish-luteous coloured, with the tips of the femora and tibiæ dusky. The abdomen is long, and of a luteous-brown colour; the three terminal joints are rather short, and gradually attenuated, with the anal styles porrected and obtuse: the operculum is not at all prominent, and scarcely extends beyond the extremity of the seventh dorsal segment; it is pointed at the tip, and is followed by two flattened plates united by a straight line down the middle, and these again by an entire, oval, slender membrane.

PLATE XXXII. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments seen sideways. 2 *b*. The same seen from beneath.

12. (313.) **Phasma Necydaloides.**

Brunneum; antennis flavis aut fuscis; capite utrinque flavo-lineato; mesothorace granuloso; tegminibus ovatis, angulatis, brevissimis, fuscis, extus nigris, linea flava media notatis; alis longitudine abdominis, obscuris, area costali brunnea, opaca.

Long. corp. maris, unc. 2, lin. 2; cap. lin. 2; anten. lin. 27; proth. lin. 2; mesoth. lin. $2\frac{1}{2}$; metath. lin. 4;

abdom. lin. 14+lin. 3=lin. 17; tegm. lin. 3; alar. expans. unc. $3\frac{1}{3}$.

Long. corp. fœm. unc. 3; cap. lin. $2\frac{3}{4}$; mesoth. lin. $3\frac{1}{4}$; metath. lin. 5; abdom. lin. 18 + lin. $3\frac{1}{2}$=lin. $21\frac{1}{2}$; tegm. lin. 4; alar. expans. unc. $4\frac{1}{2}$.

Gryllus Necydaloides, *Linnæus, Amœn. Acad.* (*Centur. Ins.*) vi. 397. no. 32; *Syst. Nat.* xii. 2. 691.

"Corpus fusco-fuliginosum. Caput supra obscure ferrugineum. Thorax subelongatus, supra scaber, brevior quam in reliquis Mantis speciebus. Elytra brevissima, omnino ovata, obtusa, angulo humerali exstantia, supra cinerea, sub angulo ad latera nigra. Alæ obscure nebulosæ, convolutæ et plicatæ, longæ."—*Amœn. Acad.*

"Dignoscitur elytris ovatis, brevissimis, viridibus, extus nigris. Mas longe angustior, thoracis linea dorsali bifariam dentata, a femina crassiore et thorace lævi differt."—*Syst. Nat.*

Mantis Necydaloides, *Rösel, Locust.* t. 19.
Fabricius, Ent. Syst. ii. 14. 7; *Ent. Syst. Suppl.* p. 189. 7 (Phasma N.).
Olivier, Enc. Méth. vii. 625 (Mantis N.).
Serville, H. N. Orth. p. 270 (Phasma N.).
Phasma Necydaloides, *De Haan, Orth. Orient.* p. 123.
Gryllus phthisicus, *Linn. Syst. Nat.* (ed. x.) p. 425. no. 2; *Mus. Adolph. Frid.* 83; *Mus. Reg. Ulr.* p. 110; *Syst. Nat.* ed. 12. p. 689. 2.

"Corpus cinereum, longitudine 4 digitorum transversorum, crassitie pennæ anserinæ. Caput subrotundum, lævе. Antennæ setaceæ. Collum lævе, subrotundum, longitudine capitis. Thorax elongatus, subcylindricus, longitudine capitis cum thorace, muricatus, punctis eminentibus vix conspicuis. *Elytra* brevissima, ovata, in medio notata gibbo carinato, extus nigra, linea alba carinali distinguente nigredinem a colore cinereo. *Alæ* longæ, cinereæ, semiorbiculatæ, plicatæ, margine exteriore lineari-lanceolato, crassiore, cinereo-nebuloso, elytra mentiente tegente alas et abdomen. Pedes angulati, læves, nec spinosi."—*Linn.*

Mantis phthisica, *De Geer, Mém. Ins.* iii. 9. 1. pl. 36. f. 1.
Gmelin, Syst. Nat. no. 2049.
Olivier, Enc. Méth. vii. 626. no. 5.
Serville, Ann. Sc. Nat. xxii. 58.
Cuvier, Règne An. (*ed. Crochard*) *Ins.* pl. 80. f. 2.
Phasma edule, var. *β*, *Lichtenstein, Linn. Trans.* vi. 13.
Phasma bioculatum (Spectre brun sombre à miroirs noirs), *Stoll, Spectr.* pl. 20. f. 76.
G. R. Gray, Syn. Phasm. p. 24.
Hab. Surinam; Cayenne; Brazil. B.M., &c.

A specimen from Bogota, in the British Museum, differs from the ordinary Brazilian individuals in having the carina of the tegmina acutely conical, and not rounded in the middle of its elevation; in the white mark of these organs not being curved (somewhat like a reversed S); in the hinder part of the wings being paler ashy coloured; in the red base of the femora and fulvous-red tibiæ, instead of being uniformly black with the rest of the legs. In all other respects it so completely agrees, that I do not feel inclined to regard it as a distinct species.

13. (314.) Phasma variegatum.

Parvum; antennis brevissimis (?); thorace tereti, glabro; tegminibus brevissimis, ovatis; alarum costa lata, fusca, fasciis quatuor sulphureis, area postica ad basin hyalina; abdomine subdepresso, dilute fuliginoso.

Long. corp. circ. unc. 2.

Phasma variegata (Spectre marqueté), *Stoll, Mant.* t. 8. f. 26.
Fabricius, Ent. Syst. Suppl. p. 189.
Phasma variegatum, *Lichtenstein in Linn. Trans.* vi. 15. no. 18.
Latreille, Gen. Cr. et Ins. iii. 87.
Serville, Ann. Sc. Nat. xxii. 58.
G. R. Gray, Syn. Phasm. p. 24.
Serville, H. N. Orth. p. 271 (Phasma v.).
De Haan, Orth. Orient. p. 123.
Mantis tessulata, *Oliv. Enc. Méth.* vii. 637. no. 63.
Hab. In Surinam.

14. (315.) Phasma prasinum.

Viridulum; thorace gracili, sulco medio longitudinali; mesothorace longitudinaliter sulcato; tegminibus mesothorace dimidio brevioribus, viridibus, apice truncato-sinuatis, carina mediana vix distincta; alis abdominis longitudine, flavidis, hyalinis, costa opaca viridi flavido-tessellata; pedibus concoloribus, femoribus tibiisque macula nigra apicali; antennis corpore longioribus, articulis viridibus, apice brunneis (abdomine mutilo) (mas).

Long. corp. 2 unc.

Phasma prasinum, *Serville, H. N. Orth.* p. 272 (nec Ph. prasinum, *Burm.* p. 586).
De Haan, Orth. Orient. p. 123.
Hab. ——?

15. (316.) Phasma cinereum.

Cinereum; mesothorace tereti, glabro; tegminibus brevissimis, lanceolatis, cinereis, fusco-reticulatis; alis dilute cinereis, fusco-venosis, area costali rufescenti, fusco-nebulosa; antennis brevibus, setaceis; femoribus anticis utrinque membrana tenui instructa.

Long. corp. 2″ 5‴; anten. 7‴; alar. expans. 3″ 3‴.

Phasma cinerea (Le Spectre de couleur cendrée), *Stoll, Spectr.* t. 14. f. 56, *& App.*
Lichtenst. Linn. Trans. vi. 16 (Phasma cin.).

Mantis cinerea, *Oliv. Enc. Méth.* vii. 641, *App.* no. 15.
Serville, Ann. Sc. Nat. xxii. 58 (Phasma c.).
G. R. Gray, Syn. Phasm. p. 25.
Burmeister, Handb. d. Ent. ii. 2. 584.
De Haan, Orth. Orient. p. 123.
Mantis baculus, *De Geer, Mém. Ins.* ii. pl. 36. f. 1.
Hab. In Surinam et Brasilia (Bahia).

In the Berlin Museum the name of this species has been applied by Burmeister to a female insect which exactly agrees with his short description,—"rufo-cinereum, mesonoto scabro, alarum area postica venis transversis infuscatis." The following are the proportions of this insect:—

Long. corp. unc. $3\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; anten. unc. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 5; metath. lin. 6; abdom. lin. 22 + lin. 5 = lin. 27; tegm. lin. $5\frac{1}{2}$; alar. expans. unc. $4\frac{1}{3}$.

The legs are comparatively very short and slender, the hind ones not reaching beyond the fourth segment of the abdomen; the abdomen long and broad; the tegmina oval, with the central carina slightly elevated towards the base.

16. (317.) Phasma laterale.

Nigrum; mesothorace teretiusculo, glabro; tegminibus alarumque basi sulphureis; abdomine nigro, marginibus lateralibus brunneis; pedibus inermibus.

Long. corp. unc. 2, lin. 1; expans. alar. unc. 3.

Phasma lateralis (Le Spectre noir de Surinam, et Spectre noir de Coromandel), *Stoll, Spectr.* pl. 10. f. 36, 37.
Fabricius, Ent. Syst. ii. 15 (Mantis l.); *Ent. Syst. Suppl.* p. 188 (Phasma l.).
Phasma laterale, *Lichtenstein, Linn. Trans.* vi. 15.
Latreille, Gen. Cr. et Ins. iii. 87.
Oliv. Enc. Méth. vii. 634. no. 43.
Serv. Ann. Sc. Nat. xxii. 58 (Phasma l.).
Lepel. et Serv. Enc. Méth. x. 101.
G. R. Gray, Syn. Phasm. p. 22.
De Haan, Orth. Orient. p. 123.
Mantis xanthomela, *Oliv. Enc. Méth.* vii. 638.
Hab. In Brasilia.

In the Banksian Cabinet the name *Phasma laterale* is applied to a small species with short quadrate tegmina, each furnished with a small curved spine.

17. (318.) Phasma Pholcus, *Westw.*

Plate X. fig. 2, male.

Gracile, cylindricum; mesothorace crassiori; cinereo-virescens granulis pallidis; capite 3-ocellato; mesonoto brevi; tegminibus ovalibus, carina prope basin in spinam brevem elevata; alarum area postica fusco parum tincta; abdomine longiori; pedibus præsertim posticis brevioribus, tarsorum articulo basali mediocri.

Long. corp. lin. 21; cap. lin. $1\frac{1}{2}$; proth. lin. 1; mesoth. lin. $2\frac{1}{2}$; metath. lin. $2\frac{1}{3}$; abdom. lin. 11 + lin. 2 = lin. 13; tegm. lin. 2; alæ, lin. 13; alar. expans. lin. 27.
Hab. In Brasilia (Santarem, *D. Bates*). B.M.

This species is remarkable for the great comparative length of the abdomen, the spinose tegmina, and the shortness of the hind legs. The head is subquadrate, its anterior part pale yellow; eyes prominent; ocelli three, luteous. The head, prothorax, mesothorax, tegmina, legs, and costal area of the wings are greenish ashy, not glossy; the anterior parts of the body rugose, with minute pale granulations. The antennæ are nearly as long as the body, with pale annuli; the mesothorax is short, as well as the metathorax, being of nearly equal length. Tegmina small, subovate, rugose; the carina moderate, armed near the base with a small erect spine. Wings with the costal area ashy green, the principal vein furcate, hinder portion of wings slightly tinged with brown. Abdomen long, slender, dark brown, slightly glossy, rather clavate at the tip; apical dorsal segment with a small notch in the middle of the hind margin; anal styles short and rather thick; terminal ventral segments scarcely swollen, extending rather beyond the base of the ninth dorsal segment.

Plate X. Fig. 2. The male, of the natural size. 2 *a*. The terminal segment seen from above. 2 *b*. The terminal segments seen from beneath. 2 *c*. The same seen laterally.

18. (319.) Phasma maculatum.

Gracillimum; capite thoraceque flavo-brunneis, strigis brunneis; tegminibus minutis, quadratis, in medio spina armatis; alis hyalinis, fuscis, margine exteriori obscuro; area costali flavo-brunnea, brunneo-maculata; pedibus brevibus, brunneis, fasciis albo-brunneis (mas).

Long. corp. unc. 2, lin. 2; cap. lin. $1\frac{2}{3}$; anten. unc. 2, lin. 11; proth. lin. $1\frac{2}{3}$; mesoth. lin. 3; metath. lin. 4; abdom. lin. 14 + lin. 3 = lin. 17; tegm. lin. $1\frac{1}{2}$; alar. expans. lin. 35.

Phasma maculatum, *G. R. Gray, Syn. Phasm.* p. 26.
Serville, H. N. Orth. p. 269.
De Haan, Orth. Orient. p. 123.
Hab. In Brasilia (River Amazon). In Mus. Saunders et B. M.

The head is considerably wider than the prothorax; the two hind ocelli large, the anterior one being much less distinct.

19. (320.) Phasma ambiguum.

PLATE XIII. fig. 3, male.

Cinereum; tegminibus nigris, spina in margine anteriori; area costali alisque pallide fulvis, margine cinereo; corpore nigro (mas et fœm.).

Long. corp. maris, lin. 19; cap. lin. 1; proth. lin. $\frac{3}{4}$; mesoth. lin. 2; metath. lin. 3; abdom. lin. 10 + lin. 2 = lin. 12; tegm. lin. 2; alæ, lin. $11\frac{1}{2}$; alar. expans. unc. 2.

Long. corp. fœm. unc. $2\frac{1}{4}$; cap. lin. $1\frac{3}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. $4\frac{1}{2}$; abdom. lin. 14+lin. 2= lin. 16; tegm. lin. $3\frac{1}{2}$; alæ, lin. 17; alar. expans. unc. 3.

Phasma ambigua, *Stoll, Spectr.* pl. 25. f. 98.
Phasma ambiguum, *G. R. Gray, Syn. Phasm.* p. 26.
Serville, H. N. Orth. p. 269.
De Haan, Orth. Orient. p. 123.

Hab. ——? (*Stoll*); Cayenne (*Serville*); Villa Nova, Brasilia (*Bates*). B.M.

I have but little hesitation in considering the insect represented in Plate XIII. fig. 3, as the male of Stoll's *Ph. ambigua*, although it differs slightly in several respects from Serville's detailed description of the species. The female, as will be seen from the measurements given above, is considerably larger; the spine on the tegmina of the male is not so large, and is more deflexed than in the female; the antennæ of the male are very long and slender, consisting of about forty joints, the joints long and slender, slightly hairy, and scarcely distinguishable from each other; near the extremity of the antennæ in the female there is a white annulus about a line long; the costal area of the wings in the female is greenish brown, with a few slightly-marked pale spots near the apex, none of which are discernible in the male; the posterior area is of a dirty buffish white, with buff veins. The legs are dirty brownish green, with the femora and tibiæ darker at the tips; the anterior and middle tibiæ are also slightly marked with paler annuli.

PLATE XIII. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the abdomen of the male seen sideways. 3 *b*. One of the tegmina of the female with the erect spine. 3 *c*. The terminal segments of the abdomen of the female seen from above, showing the longitudinal black streaks. 3 *d*. The same seen sideways, showing the very slightly swollen operculum extending only to the middle of the eighth dorsal segment.

20. (321.) Phasma spinicolle.

Olivaceo-fulvum; capite 3-ocellato; antennis multi-annulatis; mesothorace scabro-spinoso, linea dorsali media nigra; alis obscuris; tegminibus parvis, quadratis; femoribus anticis rectis.

Long. corp. maris, 1″ 10‴; fœm. 2″ 4‴.

Phasma spinicolle, *Burmeister, Handb. d. Ent.* ii. 585.
De Haan, Orth. Orient. p. 123.

Hab. In insula St. Domingo, Port au Prince.

Specimens of both sexes of this very distinct species are preserved in the Royal Museum of Berlin, where I have examined and made drawings of them.

21. (322.) Phasma armatum.

Obscure brunneum; capite antice lineis duabus tuberculatis; mesothorace postice dilatato, antice gibbo, lineis quatuor spinarum armato; tegminibus parvis, quadratis, areaque costali brunneis, reticulatis; alis hyalinis, pallide rubris; pedibus brevibus, nigro-brunneis, albo-fasciatis; capite parvo, ocellis obsoletis.

Long. corp. unc. $2\frac{1}{4}$; cap. lin. 2; anten. unc. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. 5; abdom. lin. 13+ lin. $2\frac{1}{2}$=lin. $15\frac{1}{2}$; tegm. lin. 2; alar. expans. unc. $3\frac{1}{6}$.

Phasma armatum, *G. R. Gray, Syn. Phasm.* p. 26.
Hab. In Demerara. B.M.

22. (323.) Phasma flavo-maculatum.

Nigrescenti-brunneum; thorace flavo-maculato, subtus virescenti; tegminibus margine anteriori, linea media, margineque posteriori viridescentibus; alis obscure hyalinis, area costali nervis longitudinalibus viridibus; pedibus viridescentibus.

Long. corp. 2″ 6‴; anten. 2″ 3‴; alar. expans. 2″ 7‴.

Phasma flavo-maculatum, *G. R. Gray, Syn. Phasm.* p. 25.
Hab. In Brasilia. In Mus. Saunders et B.M.

The type of this species, described from a male specimen, is preserved in the National Collection, which also contains a female, of which a specimen is also contained in Mr. W. W. Saunders's Cabinet. The following are their relative proportions:—

Long. corp. maris, unc. $2\frac{1}{2}$; cap. lin. 2; anten. lin. 27; proth. lin. $1\frac{2}{3}$; mesoth. lin. 5; metath. lin. 4; abdom. lin. 15 + lin. $3\frac{1}{2}$ = lin. $18\frac{1}{2}$; tegm. lin. $3\frac{1}{2}$; alar. expans. unc. $2\frac{5}{6}$.

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. $2\frac{1}{2}$; anten. unc. $1\frac{5}{6}$; proth. lin. 6; metath. lin. 5; abdom. lin. 20 + lin. 5 = lin. 25; tegm. lin. 4; alæ long. lin. $4\frac{1}{2}$.

The head is very glossy, and the anterior half of the body is marked with minute yellow spots, which assume the appearance of granules on the mesonotum. The head is furnished in the male with three rudimental ocelli, which are almost obsolete in the female. The antennæ are long

in both sexes. The tegmina are oval, and have a large dark central patch, the middle of the central carina being but little elevated; the principal vein of the costal area in the wings of both sexes is furcate near the base; the transverse veins in this part are rather wide apart, and black. The wings of the male are of full size, but those of the female are scarcely longer than the mesothorax. The abdomen of the male is cylindrical, with the seventh and eighth segments rather swollen; the terminal ventral segment does not extend beyond the eighth dorsal, and is not swollen and more membranous than usual; the last dorsal segment is small, and arched at its extremity, with the anal styles short, cylindrical, obtuse, and setose; the abdomen of the female is longer and more robust, the sixth ventral segment with a short spine in the middle of its posterior margin; and the oviduct is membranous, and does not extend beyond the middle of the eighth dorsal segment.

23. (324.) **Phasma Cneius**, *Westw.*

PLATE XXI. fig. 2, female.

Luteo-griseum, fusco-varium, gracillimum, cylindricum; capite parvo, 3-ocellato; antennarum articulis basi pallidis, fascia subapicali lata alba; capite, pro- et mesonotis granulatis; tegminibus parvis, ovalibus, luteo-griseo et nigricante variegatis; alis subangustis, fusco-tinctis, area costali luteo-griseo et fusco irregulariter maculata et nebulosa; pedibus perbrevibus, inermibus (mas et fœm.).

Long. corp. maris, lin. 21; cap. lin. 1; anten. lin. 18; proth. lin. 1; mesoth. lin. 3; metath. lin. 3; abdom. lin. 12+lin. 2=lin. 14; tegm. lin. $1\frac{1}{2}$; alar. expans. unc. 2.

Long. corp. fœm. lin. 27; cap. lin. $1\frac{1}{4}$; anten. lin. 15; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. 15 + lin. 3 = lin. 18; tegm. lin. $2\frac{1}{2}$; alar. expans. unc. $2\frac{3}{4}$.

Hab. Villa Nova, in Brasilia (*D. Bates*). B.M.

This obscurely-coloured, very slender species is well distinguished by the very short legs, annular antennæ, and granulated anterior part of the body. The head is small, oblong, convex; eyes very globose and prominent; between them in the male is a circular depression, within which the ocelli are placed; the two posterior ones on raised pale-coloured tubercles, giving the appearance of a pair of greatly enlarged ocelli. In the female the ocelli are small and less conspicuous. The antennæ are slender, about 50-jointed, brown, with the majority of the joints pale at the base; the terminal joints are very indistinct, and close to the tip is a rather broad white ring. The pro- and mesothorax are finely but rather distantly granulose. The tegmina are small, oval, with the veins strongly marked, and with a moderately elevated tubercle a little before the middle of the chief vein. The wings are rather long and narrow, equally developed in both sexes, stained pale brown, with the veins rather darker; the costal area pale luteo-greyish, varied with darker purplish-brown clouds; the principal veins marked alternately with short black streaks; median vein furcate at about one-fourth from the base of the wing. Legs, especially the four hind ones, very short, slender, and simple. Abdomen very long and slender, the terminal segments in the male not dilated above, and scarcely so beneath, widely gaping at the tip; anal styles small, and buff. The terminal ventral segments, in the only female I have seen, may possibly have been injured,—the plate analogous to the oviduct being flattened, and only extending to the extremity of the seventh dorsal segment, and notched at its tip, followed by two pairs of lateral compressed plates, narrow, and pointed at the tip, and another bifid flattened plate with the two anal styles.

Obs. One of the specimens of the male, received with the rest from Mr. Bates, is destitute of ocelli (fig. 2 *d*).

PLATE XXI. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the body seen from beneath. 2 *b*. The same seen laterally. 2 *c*. The front of the head of the male. 2 *d*. Ditto of variety without ocelli. 2 *e*. The terminal segments of the male seen laterally.

24. (325.) **Phasma Bennettii.**

Mesothorace brevissimo; capite thoraceque viridibus, nigro-lineatis; tegminibus areaque costali æruginosis, margine anteriori et nervis nigris; alis nigrescentibus; abdomine pedibusque nigris, femoribus lineis longitudinalibus viridibus elevatis.

Long. corp. unc. 2; cap. lin. 2; anten. lin. 19; proth. lin. 2; mesoth. lin. $1\frac{1}{2}$; metath. lin. 4; abdom. lin. 15; tegm. lin. 3; alar. expans. unc. $3\frac{1}{4}$.

Phasma Bennettii (*Curtis, MS.*).
G. R. Gray, Syn. Phasm. p. 25.
De Haan, Orth. Orient. p. 123.

Hab. In Columbia. Coll. Curtis.

I am indebted to Mr. Curtis for allowing our friend, A. H. Haliday, Esq., to make me a sketch of this very distinct species, which is unique in his collection. It is remarkable for the very short mesothorax, which is not nearly so long as the prothorax.

25. (326.) **Phasma Stabilinus**, *Westw.*

PLATE XVII. fig. 5, female.

Fuscum, subbreve, inerme; pro- et mesothorace æqualibus; capite magno, gibboso, rufo, 3-ocellato; alis auran-

tiacis, margine lato, nigro, apice lutescenti, area costali fulva, nigro-punctatissima; antennis nigris, albo-annulatis; femoribus anticis rectis; tibiis omnibus cum tarsis albido-annulatis (fœm.).

Long. corp. fœm. unc. $2\frac{1}{3}$; cap. lin. $2\frac{1}{2}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. $1\frac{2}{3}$; metath. lin. 6; abdom. lin. 12 + lin. $3\frac{1}{2}$ = lin. $15\frac{1}{2}$; tegm. lin. 4; alæ, lin. 21; alar. expans. unc. $3\frac{2}{3}$.

Hab. In Brasilia, Amazons (*D. Bates*). In Mus. Saunders.

This is one of the most curious species in the family, and is distinguished not only by the brilliancy of its colours, but also by its remarkably short mesothorax, scarcely more than a quarter of the length of the metathorax, its straight anterior femora, large subglobose head, large wings, &c. The head is large and fulvous red, with three ocelli in a triangle between the eyes. The antennæ are long and slender, with several broad whitish annuli. The prothorax brown, with two pairs of black patches on the back; the anterior lateral angles are circularly incised. The mesothorax is very short, gradually raised and widened behind. The tegmina are pale reddish brown, with minute dots of black in the reticulated spaces. The wings are large and bright orange-coloured, with a broad black border, the tip being pale luteous; the costal area is reddish brown, with a multitude of minute black dots within the reticulated spaces; the chief vein is furcate near the base. The metathorax is wide; the abdomen gradually narrowed to the tip, dark brown-coloured; the three terminal segments short, entire; anal styles short, exserted; operculum moderately swollen, extending to the extremity of the abdomen. Legs moderately long, slender, and simple; femora blackish; tibiæ and tarsi annulated with luteous and blackish. Tarsi with the basal joint rather longer than the three following joints united. Body beneath of a nearly uniform rich brown colour.

Plate XVII. Fig. 5. The female, of the natural size. 5*a*. The terminal segments of the abdomen seen sideways.

26. (327.) **Phasma unicolor.**

Gracile, cylindricum, rufescenti-brunneum; capite majori, 3-ocellato; mesothorace scabro; tegminibus in medio elevatis; alis cinereis, apice obscuris; pedibus longis, lineis elevatis striatis; antennis luridis, articulorum apicibus nigris.

Long. corp. lin. $25\frac{1}{2}$; cap. lin. 2; anten. lin. 22; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{3}$; metath. lin. 4; abdom. lin. $15\frac{1}{2}$; tegm. lin. 1; alar. expans. lin. 34.

Phasma unicolor (*Curtis, MS.*).
G. R. Gray, Syn. Phasm. p. 25.
Hab. In Colombia. Mus. Curtis.

I am indebted to Mr. Curtis for an opportunity afforded to our friend Mr. Haliday to make me a sketch of the unique specimen of this insect in his cabinet.

27. (328.) **Phasma Phlegyas,** *Westw.*

Plate XVII. fig. 1.

Gracile, cylindricum, fuscum, obscurum; capite inter oculos rugoso; mesothorace granuloso; antennis perlongis; pedibus gracilibus, inermibus; tegminibus parvis, ovatis, postice oblique truncatis; alis fusco parum tinctis, area costali pallide fusca, nebulis punctisque obscurioribus.

Long. corp. circ. unc. $2\frac{1}{3}$; cap. lin. $1\frac{1}{2}$; anten. lin. 24; proth. lin. $1\frac{1}{2}$; mesoth. lin. 5; metath. lin. 4; abdom. circ. lin. 14; tegm. lin. $3\frac{1}{2}$; expans. alar. unc. $2\frac{1}{2}$.

Hab. In Brasilia; Monte Video. In Mus. Saunders.

The only specimen I have seen of this species has the abdomen broken off beyond the third segment, so that it is only from its slender form that I conjecture that it is a male. It is slender and cylindrical, dusky brown, and destitute of gloss. The head is rather larger than the prothorax; eyes prominent; the middle of the head rather rugose, and with two rows of granules extending towards the hind margin. The antennæ are very long and slender, brown, with paler annulations. The mesothorax is long, slender, and finely granulose. The tegmina are ovate, considerably shorter than the metathorax, with the apical margin obliquely truncate; they are brown, with darker veins, and with a strongly elevated tubercle towards the base. The wings are of moderate size, slightly stained with brown, with dark brown longitudinal veins; the costal area pale brown, with numerous darker small patches and spots, especially towards the disc of the wing; the chief vein is furcate. The abdomen is long and slender. The legs are of moderate length, slender, simple, dusky, and slightly varied with paler dots.

Plate XVII. Fig. 1. The insect (male?), of the natural size.

28. (329.) **Phasma Puppeius,** *Westw.*

Plate X. fig. 1, male.

Gracillimum, filiforme, lævе; antennis pedibusque elongatis; tegminibus oblongo-ovatis, apice acuto; alis hyalinis, iridescentibus, venis mediis longitudinalibus ad basin nigris, area costali pallide virescenti; segmentis 7 et 8 abdomina-

libus supra nigro bivittatis, ultimo apice emarginato, subtus spinulis rugoso (mas).

Long. corp. lin. 23; cap. lin. $1\frac{1}{4}$; proth. lin. 1; mesoth. lin. $5\frac{1}{4}$; metath. lin. 4; abdom. lin. 10 + lin. 2 = lin. 12; tegm. lin. 1; alæ, lin. 11; alar. expans. lin. 23.

Hab. In Brasilia (Tapajos, *D. Bates*). B.M.

One of the most slender species of the family, and of which I have only seen a single male specimen. It is cylindrical, smooth, destitute of spines or tubercles; general colour luteous. The head is wider than the prothorax; eyes prominent; ocelli wanting. Antennæ as long as the body. Mesothorax long, and slenderer than the metathorax. Tegmina small, oblong-ovate, widest behind; the apex acuminated; carina slightly developed, pale green. Wings with the costal area pale green; hinder area hyaline, iridescent; the longitudinal veins nearly colourless, except at the base, where the central ones are black. Legs long, slender, and simple; the extremity of the four posterior tibiæ and of the basal joint of the tarsi fuscous; basal joint of the anterior tarsi three-fourths, and of the hind tarsi two-thirds of the whole length of the tarsus. Abdomen very slender, slightly clavate at the tip, the extremity of the seventh and base of the eighth segments being widest; these two segments are marked on the upper side with two dark vittæ; the ninth segment is subquadrate, slightly emarginate at its extremity, and rugose on its under side, with small points; anal styles deflexed, obtuse, short; the terminal ventral segments slightly swollen.

Plate X. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the body seen sideways. 1 *b*. The terminal segment seen from beneath.

29. (330.) Phasma Valgius, *Westw.*

Plate X. fig. 3, male.

Gracillimum, filiforme, lævе; capitis margine postico serie tuberculorum instructo; mesothorace elongato, granuloso; tegminibus parvis, ovalibus, pallidis, venis longitudinalibus maculaque parva discoidali fuscis; abdomine elongato, apice vix clavato, segmento ultimo apice fisso; pedibus elongatis.

Long. corp. unc. $2\frac{1}{6}$; cap. lin. $1\frac{1}{3}$; proth. lin. $1\frac{1}{4}$; mesoth. lin. 5; metath. lin. $3\frac{1}{2}$; abdom. lin. 13 + lin. 2=lin. 15; tegm. lin. 2; alæ, lin. 13; alar. expans. lin. 27.

Hab. ——? B.M.

An extremely slender filiform species, with long and delicate legs and antennæ. The general colour is pale luteous buff. The head is moderate-sized; eyes prominent; ocelli wanting; hind margin of the head with a transverse row of minute tubercles. Antennæ long, with broad darker bands. Mesothorax elongated, finely granulose. Tegmina ovate, with brown longitudinal veins, and a dark spot near the base. Wings subhyaline; costal area darker. Legs long and simple (anterior wanting); basal joint of the tarsi of moderate length. Abdomen long, slender, and cylindrical; the seventh segment gradually thickened; the eighth dilated at the sides beneath; ninth small, with a deep notch at the tip; anal styles short, obtuse; three terminal ventral segments scarcely extending beyond the middle of the eighth dorsal segment, moderately swollen.

Plate X. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the abdomen seen laterally.

30. (331.) Phasma Phantasma, *Westw.*

Plate XII. fig. 5, male.

Gracillimum, cylindricum, inerme; antennis pedibusque elongatis; pallide luteo-fuscum, capite et pronoto fusco variegatis; mesonoto lineis nigris tenuissimis; tegminibus parvis, oblique truncatis; alis vix fusco tinctis, area costali obscuriori; pedibus pallide luteis fusco fasciatis (mas).

Long. corp. unc. $2\frac{1}{3}$; cap. lin. 1; proth. lin. 1; mesoth. lin. 6; metath. lin. 5; abdom. lin. 14 + lin. 2 = lin. 16; tegm. lin. $1\frac{1}{2}$; alæ, lin. $11\frac{1}{2}$; alar. expans. lin. $23\frac{1}{2}$.

Hab. Tapajos, in Brasilia (*D. Bates*). B.M.

Very long, slender, and cylindrical, smooth, not glossy, pale luteous brown. Head small, depressed; eyes large, prominent, dark along the front margin, a dark line in the middle; hind part with more or less distinct, slender dark lines. Antennæ long, slender, pale luteous brown. Prothorax varied with several short and slender dark lines. Mesothorax long, with a greenish tinge, and with a central and lateral very fine black line. Tegmina small, pale brown, oblique, truncate at the extremity, pale yellow on the outer side near the base. Wings very slightly stained with dusky colour (almost iridescent); the costal area very pale brown; principal vein entire, reticulations wide apart; longitudinal veins of the hind portion very slightly coloured with brown. The abdomen is filiform, pale luteous brown, each segment with a dark dorsal line and four small black dots arranged in a square near the hind margin; the terminal segment is deeply emarginate behind; the under surface at the extremity armed with minute hooks; the anal styles curved, obtuse at the tips, not extending beyond the extremity; the terminal ventral segments are swollen, and do not extend to the extremity of the eighth dorsal segment. The legs are very long, slender, and simple, pale luteous brown; the

femora and tibiæ with darker bands; the basal joint of the tarsi very long.

PLATE XII. Fig. 5. The male, of the natural size (drawn from a specimen in which the tegmina had been broken off; but other specimens have since been received from Mr. Bates, showing the tegmina scarcely so large as represented by the dots in this figure). 5 *a*. The terminal segments seen laterally. 5 *b*. The last segment seen from beneath.

31. (332.) Phasma Paxillus, *Westw.*

PLATE XI. fig. 5, male.

Elongatum, subcylindricum; capite et thorace granulosis, abdomine subrugoso; obscure viridi-nigricans; capite utrinque spinulis duabus in medio verticis; tegminibus ellipticis, carina prope basin in lobum rotundatum elevata, obscure viridibus, venis nigricantibus; alis mesothorace parum longioribus, area costali viridi-cinerea, basi obscure rosea, parte postica fumosa, strigis transversis inter venas pallidis; abdominis segmentis apicalibus paulo dilatatis, ultimo apice inciso (mas).

Long. corp. unc. $2\frac{3}{8}$; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. $4\frac{1}{2}$; abdom. lin. 12 + lin. 3 = lin. 15; tegm. lin. 3; alæ, lin. 6; alar. expans. lin. $13\frac{1}{2}$.

Hab. In Brasilia. B.M.

This species approaches *Ph. brevipenne*, Burm.; but that species is described as possessing ocelli, and as having the wings three times as long as the tegmina, the latter being mucronated in the middle; in all which respects it differs from the one now under notice. The body is long, rather slender and subcylindrical, of an obscure blackish colour with a greenish tinge; the head and thorax covered with small granules; the abdomen rugose. The head is rather wider than the prothorax; the eyes moderately prominent, *without ocelli*; the crown of the head with two small spines on each side. The antennæ reach to the middle of the metathorax; they are 20-jointed, the joints being long. The tegmina are elongate-ovate, rather narrow behind; they are of a dark greenish colour, with darker veins; the carina is strongly elevated near the base into a rounded lobe. The wings are about twice the length of the tegmina, with the costal area ashy green, the base pale obscure rosy; the posterior area smoky, with pale strigæ between the transverse veinlets. The abdomen is long, with the sixth and seventh segments dilated, and the eighth and ninth narrowed, the last being longitudinally carinated above, the carina terminating in a rather deep incision; anal styles short, obtuse, and slightly protruded; the seventh ventral segment is strongly angulated. The legs are rather short; the anterior femora rather dilated and rugose; the basal joint of the tarsi not longer than the three following joints.

PLATE XI. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the abdomen seen sideways.

The unique specimen of the male in the National Collection has one of the hind legs only partially developed, probably the result of an accidental renovation of the limb.

32. (333.) Phasma Soranus, *Westw.*

PLATE XVII. fig. 3, female.

Crassum, subcylindricum, læve, fuscum, obscurum; antennis longis, gracillimis, ocellis tribus minutissimis inter oculos positis; pronoto fascia postica nigra; mesothorace prothorace haud dimidio longiori, conico; tegminibus brevibus; alis apicem segmenti 5ti abdominis attingente; pedibus longis, simplicibus (fœm.).

Long. corp. unc. $2\frac{1}{2}$; cap. lin. 2; proth. lin. $2\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 4; abdom. lin. $10\frac{1}{2}$ + lin. $3\frac{1}{2}$ = lin. 14; tegm. lin. 4; alæ, lin. $13\frac{1}{2}$; alar. expans. unc. $2\frac{1}{5}$.

Hab. In Colombiæ regione frigida Quindensi (*D. Goudot*). In Mus. Saunders.

This is a very curious species, distinguished by its robust body, very short mesothorax, and very long simple legs and antennæ. The head is rounded, convex, entire, with three very minute ocelli; the eyes very prominent. Antennæ long, slender, and multiarticulate, every fifth or sixth joint being separated more distinctly from the following than the others, making, at first sight, the antennæ appear as if composed of long joints each reducible into several subarticulations. The prothorax is subconical; the anterior lateral angles semicircularly truncate; the hind margin with a broad black transverse fascia. The mesothorax is short, broad, subconical, and simple. The tegmina are small, subovate, emarginate on the hinder margin, the reticulations pale-coloured; the central carina but little elevated. The wings are very wide; the costal area dark brown, with very numerous transverse parallel luteous veinlets; the main vein furcate near the base, the two divisions uniting together again near the tip; the hinder area is smoky-coloured, with brunneous longitudinal veins. The abdomen is robust, swollen in the middle, and convex; the three terminal segments narrow, the eighth moderately elevated; the operculum boat-shaped, deepest near the base; the anal styles short and porrected. All the legs are long and simple; the tarsi long; the hind ones two-thirds of the length of the hind tibiæ.

PLATE XVII. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the body seen sideways.

Genus 33. NECROSCIA.

Necroscia, *Serville, H. N. Orth.* p. 250.
De Haan, Orth. Orient. p. 117.
Platycrana, pars, *G. R. Gray, Syn. Phasm.* p. 36.
Phasma, Sect. II. pars, *Burmeister, Handb. d. Ent.* p. 585.

Body long and slender, generally simple, or occasionally with the head, prothorax, mesothorax, or tegmina spined, and with short quadrate tegmina and fully developed wings in both sexes. Head generally unarmed, with or without ocelli. Antennæ generally very long, and often annulated. Thorax elongated, cylindrical. Mesothorax generally about thrice the length of the prothorax or shorter (in the species destitute of ocelli). Tegmina small, generally subquadrate, and from one-fifth to one-eighth of the length of the wings. Wings large; costal area with the main vein simple in both sexes, or bifurcate in the female only of some of the species. Legs long and slender, neither spined nor dilated; basal joint of the tarsi very elongate. Abdomen elongate, cylindric, subclavate in the males; anal styles very short.

Inhabit India and the Islands of the Eastern Ocean.

Restricted as this group is, according to the views of Serville and De Haan, to the Oriental species allied to *Phasma*, the species are very numerous. In the following arrangement I have not attempted to tabulate the species, although I have followed the distribution proposed by De Haan, commencing with the species with spines on the head, after which are placed some species with spines on the thorax, followed by the unarmed species having an elongated mesothorax. De Haan has distributed the latter according to the colours of the wings and legs, which has led to artificial results. The genus is terminated by those species which have the mesothorax comparatively short.

1. (334.) Necroscia spiniceps.

Capite luteo, nigro-punctato, spinis duabus nigris, basi distantibus, apice divergentibus; ocellis nullis; antennis unicoloribus; alis infumatis, area antica olivacea; elytris brevibus, truncatis, fuscis, apice albo; mesothorace granulato; pedibus flavidis.

Long. corp. maris, unc. $2\frac{1}{4}$; cap. lin. $1\frac{2}{3}$; anten. lin. 16; proth. lin. $1\frac{1}{3}$; mesoth. lin. $4\frac{1}{3}$; metath. lin. 4; abdom. lin. 14 + lin. 3 = lin. 17; tegm. lin. $1\frac{2}{3}$; alar. expans. unc. $2\frac{2}{3}$.

Long. corp. fœm. unc. 3; cap. lin. $2\frac{2}{3}$; anten. lin. 19; proth. lin. 2; mesoth. lin. 5; metath. lin. 6; abdom. lin. 16 + lin. 5 = lin. 21; tegm. lin. 3; alar. expans. unc. $4\frac{1}{2}$.

Phasma (Necroscia) spiniceps, *De Haan, Orthopt. Orient.* p. 119. pl. 15. f. 4 (nec 2), mas.

Hab. In Borneo; Sarawak (*Wallace*). In Mus. Saunders.

De Haan was acquainted only with the male of this species; but Mr. Wallace has sent home both sexes, although very rare. The female is much more robust than the male; it is destitute, like the male, of ocelli, and the wings are more tessellated; the truncation of the tegmina, together with their white apical margin, is very peculiar.

2. (335.) Necroscia acanthocephala.

PLATE XXVII. fig. 4, pupa fœminæ.

Capite viridi, conico, bispinoso, spinis nigris, basi conjunctis, apice divergentibus; ocellis nullis; antennis nigris, annulo apicali albo; alis infumatis, area antica uti et elytris viridibus; pedibus brunneo-flavis (mas).

Long. corp. 2″ 1‴; proth. 1‴; mesoth. 4‴; alar. 1″ 5‴; lat. alar. 8‴.

Phasma (Necroscia) acanthocephala, *De Haan, Orth. Orient.* p. 118.

Hab. Pontianak (Borneo).

The pupa represented in Plate XXVII. fig. 4. appears to me to be that of a female of this species. The general colour is luteous buff; the spines of the head black; the antennæ black, except at the base, which is luteous, and apex, which is pale and greenish; the rudimental tegmina and wings are green. It was sent from Sarawak by Mr. Wallace, and is in the collection of W. W. Saunders, Esq.

PLATE XXVII. Fig. 4. The pupa, of the natural size. 4 *a*. The head and front of the thorax seen sideways. 4 *b*. The extremity of the abdomen seen sideways.

3. (336.) Necroscia diacanthos.

PLATE XIX. fig. 5, male; fig. 6, female.

Gracillima, nigricans; capite magno, 3-ocellato, postice valde elevato, conico, spinis duabus parallelis; antennis longis, albo annulatis; pro- et mesothorace albo-granulatis; tegminibus parvis, fuscis, postice truncatis, margine tenui postico pallide viridi; alis infumatis, area costali in mare pallide testacea, in fœmina obscuriori fusco-nebulosa, hujus vena secunda bifurcata (in mare simplici); antennis elongatis, ante apicem annulo albo notatis; pedibus longis, gracillimis, in fœmina brevioribus, tarsis albidis.

Long. corp. maris, lin. 26; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. 4; metath. lin. $3\frac{3}{4}$; abdom. lin. $13\frac{1}{3}$ + lin. 3 = lin. $16\frac{1}{2}$; tegm. lin. $1\frac{1}{3}$; alar. expans. lin. 32.

Long. corp. fœm. lin. 36; cap. lin. 2; proth. lin. 1;

mesoth. lin. 5; metath. lin. 5; abdom. lin. 20+lin. 3 = lin. 23; tegm. lin. 2; alar. expans. lin. 50.

Phasma (Necroscia) diacanthos, *De Haan, Orth. Orient.* p. 119 (pl. 15. f. 4 ♂ = P. (N.) spiniceps ♂, nec P. (N.) diacanthos ♀).

Hab. In Malacca (*D. Wallace*). In Mus. W. W. Saunders.—Borneo. In Mus. Lugdunensi.

This is a very slender and delicate species, well distinguished by its conically elevated head and short truncated tegmina, with the hind margin pale green. The head is much larger than the prothorax; the three ocelli distinct. The antennæ in the male are longer than the entire body, blackish, with a white ring near the tip. The antennæ and legs of the female are shorter than those of the male. The pro- andmesothorax are slender, but widened behind; the disc covered with minute white granules. The tegmina are very short, with a strongly elevated conical tubercle in the middle, the hind margin narrowly edged with pale green. The wings are dusky; the costal area in the male reddish and unspotted, in the female reddish brown with numerous darker clouds; in the former the principal vein is simple and pale-coloured, but it is furcate in the latter. The abdomen is very long and slender in the male; the eighth joint longer than the preceding or following, the latter being very short; the three terminal ventral segments are considerably dilated, the ninth extending to the extremity of the eighth dorsal segment. In the female the abdomen is more robust, with the operculum extending to about the extremity of the eighth dorsal segment. The legs of the male are very slender and reddish, the tarsi whitish, with the base of the first joint dusky; the legs of the female are shorter and more obscure, but with pale tarsi, the basal joint being about half the whole length of the tarsi.

Plate XIX. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the abdomen seen sideways.
Fig. 6. The female, of the natural size. 6 *a*. The head and prothorax seen sideways. 6 *b*. The terminal segments of the abdomen seen sideways.

4. (337.) **Necroscia Esepus**, *Westw.*
Plate XVI. fig. 5, male.

Elongata, gracillima; capitis vertice, prothoracis margine postico et mesothorace antice spinis acutis armatis; tegminibus subovalibus, in medio angulato-elevatis, postice pallide bimaculatis; abdomine longissimo; alis fuscis, area costali obscuriori, ad apicem pallide maculatis; pedibus brevioribus, inermibus (mas).

Long. corp, unc. $3\frac{1}{12}$; cap. lin. 2; anten. lin. 27; proth. lin. $1\frac{1}{3}$; mesoth. lin. 6; metath. lin. $5\frac{1}{2}$; abdom. lin. 20 + lin. 3 = lin. 23; tegm. lin. $2\frac{1}{2}$; alar. expans. unc. $3\frac{1}{6}$.

Hab. In Malacca (*D. Wallace*). In Mus. W. W. Saunders.

This species is well distinguished by its very long slender form, spined head and thorax, and posteriorly maculated tegmina and wings. The head and thorax are dull pale greenish and finely granulated, the remainder of the body brownish and smooth; the head is armed on the crown with about ten erect spines. The antennæ are about two-thirds of the entire length of the body; they are obscurely coloured, with a slight pale annulus near the tip. The prothorax is small, with a few small erect spines across the hinder margin, The mesothorax is armed in front with two pairs of strong spines (those on the left side being confluent, except at the tips, in the only specimen which I have seen); the disc of the remainder of the mesothorax is armed with a few much smaller spines. The tegmina are small and subquadrate, with a strongly raised obtuse tubercle in the middle; the hinder margin with two pale spots on the edge. The wings are brown; the costal area darker, with several small pale spots on the fore margin, and two or three larger and more distinct near the tips. The abdomen is very long and slender, the fifth segment with its hinder edge elevated in the middle; the three terminal segments rather swollen, the last emarginate at the tip; the two terminal ventral segments are swollen, the last not extending beyond the extremity of the eighth dorsal segment. The fore legs are wanting in the specimen drawn; the four posterior are rather short and simple, obscurely coloured, with the tips of the femora and tibiæ darker; the basal joint of the tarsi is not more than half the whole length of the latter.

Plate XVI. Fig. 5. The male, of the natural size. 5 *a*. The head and front of the thorax seen sideways. 5 *b*. The extremity of the abdomen seen sideways.

5. (338.) **Necroscia Agondas**, *Westw.*
Plate XXVIII. fig. 2, male.

Elongata, gracilis, fusco, albido et luteo paulo variegata; capite postice conice elevato, hoc, pro- et mesonotis minute granulatis; alis fuscescentibus, area costali obscuriori; pedibus (præsertim tibiis) perbrevibus, femoribus posticis crassioribus, subtus multidenticulatis (mas).

Long. corp. maris, unc. $2\frac{1}{3}$; cap. lin. 2; anten. lin. 14; proth. lin. $1\frac{3}{4}$; mesoth. lin. 4; metath. lin. 5; abdom. lin. 12+lin. $2\frac{1}{2}$=lin. $14\frac{1}{2}$; tegm. lin. $2\frac{1}{3}$; alar. expans. unc. $2\frac{2}{3}$.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

This obscurely-coloured species is easily distinguished by its conical head, short legs, and rather thickened hind thighs. The general colour is obscure brown, slightly varied with buff and luteous. The head is conically elevated in the hind part of the disc, the surface being armed with acute granulations; the face is marked with a small triangular black spot. The antennæ are long and slender, multiarticulate, finely setose, the joints very short. The pro- and mesothorax are slender and finely granulose. The tegmina are small and ovate; the median carina rather strongly angulated between the middle and base; the chief veins are varied with buff and black spots; they are not straight, but slightly undulated throughout their whole length. The wings are moderately large, stained blackish brown, with the longitudinal veins somewhat darker-coloured; the costal area is darker brown, the chief vein not furcate, blackish, with numerous small luteous dots. The abdomen is long, slender, and simple; the terminal segments, especially the eighth, strongly elevated and angulated at the summit, the ninth joint obliquely deflexed; the three terminal ventral segments are not swollen beneath, the ninth extending beyond the extremity of the ninth dorsal segment. The legs are slender and short, resulting chiefly from the shortness of the tibiæ, which are not so long as the femora; the hind femora are rather thickened and denticulated along their whole length; the basal joint of the tarsi in all the legs is about the length of the three following joints united.

PLATE XXVIII. Fig. 2. The male, of the natural size. 2 *a*. The front part of the body seen sideways. 2 *b*. The extremity of the body seen sideways.

6. (339.) Necroscia Gargantua, *Westw.*
PLATE XXIX. fig. 3, male.

Elongata, abdomine valde elongato, lutescens; abdomine magis fusco; mesothorace pronoto plus duplo longiori, utrinque spinis 8 recurvis armato; tegminibus brevibus, apice truncatis; alarum area antica pallide virescenti, vena mediana furcata, area postica pallide fuscescenti, macula subapicali pallida; antennis pedibusque longis, gracilibus, femoribus serratis (mas).

Long. corp. unc. $4\frac{3}{4}$; cap. lin. $2\frac{1}{3}$; anten. unc. 4; proth. lin. $2\frac{1}{2}$; mesoth. lin. 6; metath. lin. $9\frac{1}{2}$; abdom. lin. 30 + lin. 5 = lin. 35; tegm. lin. 5; alæ, lin. 35; alar. expans. unc. 6.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W.W. Saunders.

This species is at once distinguished by the great length of the abdomen and the comparative shortness of the mesothorax, with its recurved spines. The head is rather flat and simple; the three ocelli are very minute, but distinct. The antennæ are very long (at least 4 inches) and slender. The prothorax is the same size as the head. The mesothorax is about $2\frac{1}{3}$ times the length of the prothorax; it is rather narrower than the prothorax in front; its disc is rather flat, each side having about eight thin acute recurved spines. The metathorax is oblong, wider than any other part of the body, its hinder portion rather longer than the anterior. The abdomen is long, narrow, and simple (twice the length of the entire thorax); the three terminal segments are widened (they have, however, been crushed); the seventh and following ventral plates extend only to about the middle of the eighth dorsal segment. The anal styles are short and obtuse. The tegmina are short, broad, and subtruncate at the extremity. The wings are large; the anterior area pale dull green, the median vein furcate; the posterior area is pale brown, with a large, somewhat triangular pale buff spot near the apex. The legs are long, slender, and simple; the femora finely serrated; the tarsi with the basal joint as long as all the remainder together. The body beneath is pale and simple, except the mesosternum, which has two rows of deflexed spines.

The pupa is smaller ($3\frac{1}{4}$ inches long), with the mesothorax similarly spined; the rudimental tegmina are very minute (about one line long), oval, and the rudimental wings are subovate, $5\frac{1}{2}$ lines long, touching each other along the inner margin in the middle of the back.

PLATE XXIX. Fig. 3. The perfect insect, of the natural size (male).

7. (340.) Necroscia Gadarama, *Westw.*
PLATE XXI. fig. 4, female.

Elongata, gracilis, obscura, luteo-fusca; capite, pro- et mesonotis tenuissime granulosis, hoc utrinque ante medium spinulis tribus nigris armato; tegminibus oblongo-quadratis; alis longis, subhyalinis, area costali fusca; pedibus longis, simplicibus, oviductu haud inflato (fœm.).

Long. corp. unc. $3\frac{1}{12}$; cap. lin. 2; anten. lin. 20; proth. lin. 2; mesoth. lin. 6; metath. lin. 6; abdom. lin. 16 + lin. 4 = lin. 20; tegm. lin. $3\frac{1}{2}$; alar. expans. unc. $3\frac{3}{4}$.

Hab. In insula Java (*Dr. Horsfield*). In Mus. Soc. Merc. Ind. Orient., Lond.

This obscure species is distinguished by the granulose surface of the anterior part of the body, and by the anterior half of the mesonotum being armed with six small black spines arranged irregularly in pairs. The head is oblong,

with an oblong impression between the eyes; the granules on the hind part of the head are arranged in longitudinal lines. The antennæ are long and slender, with the joints short, but irregular. The mesothorax is of equal width with the head, with a slightly raised longitudinal dorsal median line. The tegmina are small, oblong-quadrate; the median carina slightly indicated, with the ordinary conical elevation almost obsolete. The wings are long and rather narrow, subhyaline, with the longitudinal veins luteous brown; the costal area greyish brown, the median vein simple and paler coloured. The abdomen is long, subcylindric, with slightly raised longitudinal lines along the lateral margins; the apex gradually attenuated and simple, the tip trilobed, the middle lobe rather elongated and rounded; the anal styles short, porrected, and conical. The oviduct scarcely swollen, extending to about the middle of the ninth dorsal segment. Fore legs (wanting in the only specimen I have yet seen); four hind legs simple, moderately long and slender; tarsi with the basal joint as long as the three following united.

PLATE XXI. Fig. 4. The female, of the natural size. 4 *a*. The extremity of the body seen sideways.

8. (341.) Necroscia atrophica.

Grisea, fulvo et brunneo varia; capite inermi, subrugoso, supra nigricanti, utrinque linea longitudinali flavescenti; thorace subrugoso, subtus longitudinaliter sulcato; mesothorace utrinque antice spinis duabus longis acutis, anteriori flavescenti brunneo varia, posteriori fortiori, nigra; tegminibus mesothorace brevioribus, apice recte truncatis, flavo brunneoque variis, carina mediana valde distincta et acuta; alis fere longitudine abdominis, flavidis hyalinis, costa virescenti opaca brunneo maculata; abdomine rugoso, sulcis longitudinalibus [apice spinoso]; pedibus flavo-viridibus brunneo annulatis, femoribus dilatatis et ad apicem incrassatis; antennis fere longitudine corporis, articulo singulo fulvo brunneoque annulato (fœm.).

Long. corp. unc. 3–3$\frac{1}{2}$; alar. expans. circ. unc. 6.

Mantis atrophica, *Pallas, Spic.* ix. t. 1. f. 1.
Fabricius, Ent. Syst. ii. 14; *Ent. Syst. Suppl.* p. 188 (Phasma a.).
Lichtenstein, Linn. Trans. vi. 14.
Olivier, Enc. Méth. vii. 633.
Latreille, Gen. Cr. et Ins. iii. 87.
Lamarck, An. s. Vert. iv. 254 (Spectrum a.).
G. R. Gray, Syn. Phasm. p. 23.
Phasma (Necroscia) atroph., *De Haan, Orthopt. Orient.* pp. 118, 122.
Phasma minans, *Serville, H. N. Orth.* p. 268 (teste *De Haan, l. c.*).
Hab. In Java.

9. (342.) Necroscia fusco-annulata.

Mesothorace elongato; alis fumatis, venis basi carneis, area antica olivacea, medio in longitudinem fasciata, fascia flavo-rubescente; capite inermi, carneo postice 3-maculato; ocellis minimis; antennis nigris, annulis distantibus albis; pedibus fuscis, annulis flavis (mas).

Long. corp. unc. 2$\frac{1}{3}$; cap. lin. 1$\frac{1}{2}$; anten. unc. 2$\frac{1}{4}$; proth. lin. 1$\frac{1}{2}$; mesoth. lin. 4$\frac{2}{3}$; metath. lin. 4$\frac{2}{3}$; abdom. lin. 14+lin. 3=lin. 17; tegm. lin. 2; alar. expans. unc. 2, lin. 7.

Phasma (Necroscia) fusco-annulatum, *De Haan, Orth. Orient.* p. 119.
Hab. In Borneo. In Mus Lugdunensi.

The dimensions and characters given above, supplemental to those of De Haan, are derived from an examination and drawing made by myself of the type-specimen of the insect in the Leyden Museum.

10. (343.) Necroscia nigro-annulata.

Mesothorace elongato; alis fumatis, area antica fusco-olivacea, fasciis quatuor transversis irregularibus maculatis viridibus; capite parvo, inermi; ocellis nullis; antennis nigris, annulis 4 æque distantibus albis; pedibus elongatis, nigro-fuscis, annulis viridibus (mas).

Long. corp. unc. 1$\frac{5}{6}$; cap. lin. 1; anten. unc. 1$\frac{5}{6}$; proth. lin. 1$\frac{1}{3}$; mesoth. lin. 4$\frac{1}{2}$; metath. lin. 5; abdom. lin. 10$\frac{1}{2}$ +lin. 2=lin. 12$\frac{1}{2}$; tegm. lin. 1$\frac{1}{2}$; alar. expans. unc. 2$\frac{1}{6}$.

Phasma (Necroscia) nigro-annulatum, *De Haan, Orthopt. Orient.* p. 119.
Hab. In Borneo. In Mus. Lugdunensi.

This is a slender species, of which only the male is preserved in the Leyden Museum, where I have examined and drawn it.

11. (344.) Necroscia fumata.

Capite et prothorace viridi-griseis nigro-lineatis; ocellis tribus distinctis; mesothorace prothorace triplo longiori, viridi; tegminibus linearum 3 longitudine, viridi-griseis nigro-lineatis, costa media elevata nigra; alis hyalinis at infumatis, costa opaca viridi-grisea nigro-lineata; abdomine virescenti, capite et thorace duplo longiori; femoribus, tibiis tarsisque brunneo viridique alternatim fasciatis (fœm.).

Mas minor et gracilior; tegminibus brevioribus; femoribus anticis ad basin vix emarginatis.

Long. corp. circ. unc. 3.

Necroscia fumata, *Serville, H. N. Orth.* p. 251.
De Haan, Orth. Orient. pp. 118, 119.
Hab. In Java.

12. (345.) **Necroscia sordida.**

Mesothorace elongato; alis fumatis, area antica fusco-olivacea, maculis irregularibus subviridibus; capite inermi; ocellis nullis; antennis fuscis; pedibus fuscis griseo-variegatis, brevioribus; abdominis apice acuminato (fœm.).

Long. corp. unc. $2\frac{1}{6}$; cap. lin. $1\frac{1}{2}$; anten. unc. $1\frac{3}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. 12+lin. 4=lin. 16; tegm. lin. 1; alar. expans. unc. $2\frac{3}{4}$.

Phasma (Necroscia) sordidum, *De Haan, Orthopt. Orient.* p. 120.

Hab. In Sumatra. In Mus. Lugdunensi.

The unique typical specimen preserved in the Leyden Museum is a female, which I have examined and drawn.

13. (346). **Necroscia Samsoo,** *Westw.*
PLATE X. fig. 6, female.

Elongata, inermis; mesothorace gracillimo, granuloso; capite supra subplano, fossula parva utrinque pone oculos; tota obscure lutea haud nitida (forsan viridis insecto viventi); tegminibus parvis, ovalibus; alis mediocribus, costa obscuriori; pedibus gracilibus, inermibus (fœm.).

Long. corp. unc. 3; cap. lin. 2; proth. lin. $1\frac{3}{4}$; mesoth. lin. 6; metath. lin. 5; abdom. lin. 16+lin. 4 = lin. 20; tegm. lin. 3; alæ, lin. $20\frac{1}{2}$; alar. expans. unc. $3\frac{1}{2}$.

Hab. In China. B.M.

The unique specimen of this species in the National Collection is a female, which had been preserved in spirits, so that its colour, now a uniform dull luteous buff, was probably green when alive. It is elongated, with a very slender mesothorax. The head is oval, rather flattened above, with a small impression on each side behind the eyes. The antennæ are slender (broken off about half an inch from the base). The prothorax small. The mesothorax slender, cylindrical, granulated. The tegmina small, oval, with a moderately strongly angulated carina. The wings of moderate size; the costal area darker than the hinder area, which is almost colourless. The abdomen is long, and considerably broader than the mesothorax, with the middle joints broadest. The operculum is as long as the three terminal dorsal segments, and the two anal styles are slightly porrected. The legs are moderately long, slender, and destitute of spines.

PLATE X. Fig. 6. The female, of the natural size. 6*a*. The terminal segments seen laterally.

14. (347.) **Necroscia Esacus,** *Westw.*
PLATE XVI. fig. 4, female.

Elongata, gracilis, inermis; mesonoto elongato vix granulato; albido-fusca; antennis elongatis, obscuris albido-annulatis; tegminibus brevibus, in medio angulatis; alis subhyalinis, area costali fusco-rufescenti, fusco subnebulosa, punctisque distinctioribus prope basin notatis, vena 2da furcata; pedibus præsertim anticis brevibus, femoribus anticis latioribus, omnibus fusco-albidis fusco variegatis (fœm.).

Long. corp. fœm. unc. $2\frac{3}{4}$; cap. lin. $1\frac{1}{2}$; anten. unc. $1\frac{2}{3}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $6\frac{1}{2}$; metath. lin. 5; abdom. lin. 15 + lin. $3\frac{1}{2}$ = lin. $18\frac{1}{2}$; tegm. lin. $1\frac{1}{2}$; alar. expans. unc. 3.

Hab. Apud Singapore (*D. Wallace*). In Mus. W. W. Saunders.

The female of this species (the male not having yet been received) is distinguished by its elongated mesothorax and abdomen and its short legs, the anterior femora being dilated along the lateral margins. It is slender, destitute of spines, the mesonotum alone being finely tuberculated. The head is rather wider than the prothorax, subconvex, pale at the sides, with a slender curved dark line extending backwards from the eyes. The antennæ are of moderate length, very slender, obscure brown, with numerous pale rings; basal joints pale. The mesothorax is about three times the length of the prothorax. The tegmina are short, subovate, glaucous, reticulated with the dark veins. The wings are subhyaline, being only very slightly stained with brown; the costal area is darker, redder brown, with small darker clouds, and with dark spots along the mid-vein, which is furcate. The legs are short, setose, simple, dirty buff, with darker rings and marks; the anterior femora dilated along the edges. The abdomen is very long and slender; the eighth and ninth segments short. The operculum is rather small, reaching to the middle of the ninth dorsal segment; the anal styles short and very broad.

PLATE XVI. Fig. 4. The female, of the natural size. 4 *a*. The three terminal segments of the abdomen seen sideways.

A variety of this species, from Ceylon, is in the collection of R. Templeton, Esq., in which the wings are less iridescent, and the two branches of the median vein of the costal area are not united at the tip of the wings.

15. (348.) **Necroscia Passalus,** *Westw.*
PLATE IX. fig. 8, male.

Elongata, subgracilis, opaca; capite utrinque spinulis duabus ad marginem internum oculorum tuberculoque spinoso in parte postica verticis; mesothorace subbrevi, parum rugoso; tegminibus subquadratis, carina valde elevata cristata, antice rotundata; alis pallidis, area costali obscure nebulosa; pedibus subbrevibus, femoribus quatuor posticis prope

apicem spinulosis, segmento ultimo abdominis apice emarginato (mas).

Long. corp. unc. 2, lin. 1; cap. lin. $1\frac{2}{3}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. 11+lin. 3= lin. 14; tegm. lin. 2; alar. expans. unc. 3, lin. 1.

Hab. In Ceylon. B.M.

This species, of which I have only seen a single specimen of the male, approaches *N. Æsalus*, of which it might at first be supposed to be the opposite sex; the armature of the head and legs seems, however, sufficiently to disprove this relationship. The head is nearly ovate; the eyes moderately prominent; the ocelli wanting; the inner margin of each eye is armed with two small spines, and the hind part of the crown of the head is raised into a rugose tubercle armed in front with minute spines. The mesothorax is rather short and subrugose. The tegmina are nearly square, with the costa elevated into a strong crest, rounded in front. The wings are large and pale, with the costal area darker and clouded. The abdomen is elongated, as wide as the mesothorax; the fourth, fifth and sixth segments a little dilated at a short distance from the base of each; the seventh and eighth short, and rather wider than the preceding; the ninth subquadrate, rather constricted in the middle on each side, with the apical angles rounded off, and the hind margin emarginate in the middle. The anal styles are short, obtuse, and not exposed; the three terminal ventral segments are short, only extending to the base of the ninth dorsal segment; they are moderately swollen, the eighth being very short and transverse. The legs are rather short and robust; the four posterior femora with two or three minute spines on the under side near the tips; the basal joint of the tarsi is not longer than the three following joints.

Plate IX. Fig. 8. The male, of the natural size. 8 *a*. The head seen sideways. 8 *b*. The three terminal segments seen from beneath. 8 *c*. The same seen sideways.

16. (349.) Necroscia Æsalus, *Westw.*

Plate X. fig. 7, female.

Crassior; capite, pro- et mesothorace spinulis asperis; tegminibus quadratis, carina oblonga valde elevata; fusca, capite antennisque luteis, harum articulis intermediis apice nigris; tegminibus luteo-albidis nigro variis; alis pallide roseo-fuscis, area costali nigricante, postice lutescente, basi albida macula nigra (fœm.).

Long. corp. unc. 2, lin. 7; cap. lin. $1\frac{3}{4}$; proth. lin. $1\frac{3}{4}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. 6; abdom. lin. $13\frac{1}{2}$ + lin. 2 = lin. $15\frac{1}{2}$; tegm. lin. 3; alæ, lin. 21; alar. expans. unc. $3\frac{3}{4}$.

Hab. In Ceylon. B.M.

This species is shorter and more robust, especially in the mesothorax, with shorter legs than many of the allied species. The head is short, with the eyes prominent; it is destitute of ocelli, and is of a luteous colour; the crown is rugose and armed with minute spines, as is also the prothorax. The antennæ extend to the middle of the metathorax; they are luteous, with the tips of the alternate joints black. The mesothorax is robust and rugose, being covered with numerous spinulose granules. The tegmina are subquadrate, with the carina strongly elevated into an oblong lobe; they are luteous buff, with the base, outer margin, and tips blackish. The wings are pale, and slightly tinged with rosy brown; the costal area is blackish in front, luteous behind, the base pale luteous with a black patch. The abdomen is more slender than the metathorax, gradually thickened to the fifth and sixth segments; the three terminal short and attenuated, the eighth being very short; the anal styles are short and obtuse, and the operculum is not quite the length of the abdomen. The fore legs are wanting in the unique female in the National Collection; the four posterior are short and simple, with the tips of the tibiæ black; the basal joint of the tarsi is not longer than the three following joints.

Plate X. Fig. 7. The female, of the natural size. 7 *a*. The head and prothorax seen laterally. 7 *b*. The three terminal segments of the body seen laterally.

17. (350.) Necroscia Salmanazar, *Westw.*

Plate XVI. fig. 6, female.

Elongata, gracilis, lævis, mesothorace granuloso; fusca, pro- et mesothorace luteis; pedibus luteo-albidis; alarum area costali fulvo-albida, striolis numerosis nigris transversis notata; abdomine obscure fusco, stylis analibus nigris.

Long. corp. unc. $2\frac{1}{4}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 6; metath. lin. $6\frac{1}{2}$; abdom. lin. 18 + lin. 4 = lin. 22; tegm. lin. 2; alæ, lin. 25; alar. expans. unc. $4\frac{1}{4}$.

Hab. Philippine Islands. B.M.

I have only seen a single female specimen of this species in the National Collection. It is long and narrow, smooth, except the mesothorax, which has a row of granules arranged on each side of the slender, slightly raised median line; it is brown, with the pro- and mesonotum tinged with luteous, the legs luteous buff, and the abdomen dark brown, with the anal styles black. The head is of moderate size, destitute of ocelli, with the hind portion raised into two small tubercles. The mesothorax is of moderate length, not longer than the metathorax. The tegmina are small and subquadrate, with the carina moderately elevated near the base. The wings are large, very pale

brown, the costal portion fulvous buff, with a longitudinal series of short dark transverse strigæ between the veinlets. The abdomen is the thickest part of the body, subconvex; the terminal segments short, the last emarginate at the tip, exposing a short semicircular flattened lobe in the middle, and the two rather elongated black anal styles. The operculum is moderate-sized, extending to about half the length of the ninth dorsal segment; its extremity is notched, and it is followed by two broad flattened plates. The legs are moderately long, slender, and simple.

PLATE XVI. Fig. 6. The female, of the natural size. 6*a*. The extremity of the abdomen seen from beneath. 6*b*. The same seen laterally.

18. (351.) **Necroscia Pirithous**, *Westw.*

Elongata, gracilis, cylindrica, abdomine crassiori, fulvo-lutescens; capite oblongo, 3-ocellato; antennis fere longitudine capitis; mesothoracis dorso granulato; tegminibus ovalibus, apice oblique truncatis; alarum area costali concolori, vena mediana simplici; pedibus præsertim anticis longis; abdominis segmentis tribus apicalibus brevibus, ultimo apice emarginato, segmento 6to ventrali ad apicem bicornuto, operculo apice bifido (fœm.).

Long. corp. fœm. unc. $2\frac{5}{6}$; cap. lin. 2; anten. unc. $2\frac{1}{4}$; proth. lin. 2; mesoth. lin. 6; metath. lin. 6; abdom. lin. 17 + lin. 3 = lin. 20; tegm. lin. 3; alar. expans. unc. 3, lin. 7.

Hab. In insula Java (*Dr. Horsfield*). In Mus. Soc. Merc. Ind. Orient., Lond.

The only female specimen which I have seen of this species very closely resembles *Necroscia Salmanazar* (Pl. XVI. fig. 6) in its general form and proportions, but differs in its uniform fulvo-luteous colour, in the possession of three distinct, although small, ocelli, in the more strongly granulose mesonotum, in the uniform colour of the costal area of the fore wings, and in the two small horns with which the sixth ventral segment is armed at its extremity. The head is rather longer than wide, with a slight circular impression between the eyes, within which the ocelli are placed; the hind part of the head is slightly raised, and divided by a longitudinal impressed line down the middle. The antennæ are very long and slender, with very numerous joints scarcely discernible. The mesonotum is covered above with minute granules, without any raised longitudinal carina. The tegmina are small, oval, obliquely truncate at the extremity. The wings are large, somewhat hyaline, and colourless; the costal area pale fulvo-luteous; the median vein concolorous with the body, simple, and rather darker than the remainder. The abdomen is wider than the thorax, nearly parallel; the last three dorsal segments short; the terminal one emarginate, exposing a minute rounded lobe at its apex; the anal styles are of moderate size, concolorous, porrected, and resembling a small open forceps; the sixth ventral segment has a small deflexed spine on each side at its extremity; the operculum is nearly straight and compressed, its apex acutely bifid.

I have not thought it necessary to give a figure of this insect, as it bears so great a general resemblance in its form and proportions to *Necroscia Salmanazar*.

19. (352.) **Necroscia Aruana**, *Westw.*

PLATE XXXIX. fig. 4, female.

Elongata, subparallela, luteo-fusca opaca; capite tuberculis tribus minutis ocelliformibus; antennis longis, ultra medium fusco-annulatis; pro- et mesonotis granulatis; tegminibus oblongis, apice oblique truncatis, carina mediana nigra, prope medium angulato-elevata, angulo intus lutescente; alis magnis, pallide roseis, costa obscure lutescente nigrescenti-nebulosis, vena mediana simplici; pedibus brevibus, simplicibus, luteo-fuscis, obscurius submaculatis; operculo ultra apicem abdominis protenso (fœm.).

Long. corp. unc. $3\frac{1}{2}$; cap. lin. 2; anten. unc. 3; proth. lin. 2; mesoth. lin. $6\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. 22 + lin. 4 = lin. 26; tegm. lin. $3\frac{1}{2}$; alar. expans. unc. $4\frac{1}{3}$.

Hab. Insula Aru, prope Nov. Guin. (*D. Wallace*). In Mus. W. W. Saunders.

This species, of which I have only seen a female, is long and slender, of a dull luteous-brown colour. The head is oblong, with three small tubercles representing the ocelli in front; the hind part with a central impressed line, having a raised tubercle on each side. The antennæ are long and very slender, pale brown, with several blackish rings towards the extremity. The pro- and mesothorax are granulated, the latter but slightly widened behind. The tegmina are oblong, and truncated obliquely at their extremities; they are dirty buff-brown, with the central carina blackish and elevated in the middle into a small conical protuberance, within which is a minute oval patch coloured pale buff. The wings are large and pale rosy, with the tips somewhat dusky; the longitudinal veins are darker rosy, especially towards the base; the costal area is dirty luteous with blackish clouds, and with the central vein simple and darker coloured. The legs are slender and short, fulvous brown, slightly mottled with darker brown, especially on the middle tibiæ. The abdomen is long and slender; the three terminal joints short; the last truncate at the tip, with the two anal styles straight and porrected, as long as the joint to which they are attached. The operculum extends beyond

the abdomen to the extremity of the anal styles, and is emarginate at its extremity.

PLATE XXXIX. Fig. 4. The female, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

20. (353.) Necroscia Osmylus, *Westw.*
PLATE XXXVII. fig. 4, male.

Gracillima, valde elongata, fusca obscura; capite lutescente, linea occipitali nigra; antennis pedibusque tenuissimis, virescenti-luteis; tegminibus minutis, subovalibus, carina conica media; alis hyalinis, costa antice viridi, postice fusco-nebulosa; pedibus setosis, articulo basali tarsorum apice nigricante (mas).

Long. corp. unc. $1\frac{5}{8}$; cap. lin. $1\frac{1}{3}$; anten. lin. 18; proth. lin. $1\frac{1}{6}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. $2\frac{1}{2}$; abdom. lin. 11 + lin. 2=lin. 13; tegm. lin. 1; alar. expans. unc. $1\frac{7}{5}$.

Hab. Sarawak (*D. Wallace*). In Mus. W. W. Saunders.

This species is distinguished by its very delicate shape, pale greenish legs and antennæ, and dark stripe down the middle of the crown of the head, which is oblong, with prominent eyes. The antennæ are very slender and finely setose, and towards the tip they are annulated with brown at the extremity of the long joints. The mesothorax is finely granulose, slightly widened behind, and with two small black dots near the middle. The tegmina are very small and oval, dirty buff along the middle, with the centre of the carina elevated into a conical protuberance; the inner and outer portions are reticulated with brown. The wings are hyaline and transparent, with the longitudinal veins slightly coloured; the costal area is green along its fore margin; the base, as well as hinder part, is clouded with small reddish-brown shades on a pale ground. The legs are very slender, short, and simple. The abdomen is very long, slender, and brown; the three terminal ventral segments are short, not extending beyond the extremity of the eighth dorsal segment; the terminal dorsal segment is deflexed at its extremity and bifid, the slit being armed with several minute teeth.

PLATE XXXVII. Fig. 4. The male, of the natural size. 4 *a*. The extremity of the body seen sideways.

21. (354.) Necroscia Capito, *Westw.*
PLATE XXXII. fig. 4, male.

Elongata, cylindrica, lævis, inermis, olivaceo-viridis; capite sanguineo; antennis, tibiis tarsisque fuscis; abdomine fusco; alis fuscis, area costali viridi, fusco-tessellato (mas).

Long. corp. unc. $2\frac{5}{6}$; cap. lin. $2\frac{1}{2}$; anten. lin. 12; proth. lin. $1\frac{1}{2}$; mesoth. lin. 6; metath. lin. 5; abdom. lin. $15\frac{1}{2}$ + lin. $3\frac{1}{2}$=lin. 19; tegm. lin. $3\frac{1}{2}$; alar. expans. lin. 32.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

This species is distinguished by its smooth, cylindrical, glossy body and peculiar colouring. The head is oblong and cylindrical, smooth, and destitute of spines; the eyes of moderate size. The antennæ are rather short, black, and slender, about 22-jointed, the joints of equal thickness to the tips. The pro- and mesothorax are slender and unarmed, the latter long; they are of a green colour, as well as the tegmina, which are elongate-oval, with the central carina but slightly elevated. The wings are of moderate size, pale brown; the costal area green, with the hinder portion tessellated with small brown spots within the numerous areolets; the median vein is furcate near the base. The abdomen is long, slender, and brown-coloured, with the articulations paler; the three terminal segments are rather dilated; the three terminal ventral segments not extending beyond the extremity of the eighth dorsal segment. The legs are long, slender, and simple, except that each femur is armed beneath near the tip with two minute spines; they are dark green, with the tibiæ and tarsi greenish black.

PLATE XXXII. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

22. (355.) Necroscia Palinurus, *Westw.*
PLATE XI. fig. 6, female.

Elongata; capite magno, subconvexo; abdomine in medio latiori; mesothorace granulato; tegminibus parvis, oblongo-ovalibus; alis mediocribus, medium abdominis vix attingentibus, area costali obscure albido-fulva, area postica pallide albida; pedibus præsertim anticis longis, femoribus omnibus subtus ante apicem 1- vel 2-denticulatis (fœm.).

Long. corp. unc. $3\frac{2}{3}$; cap. lin. 4; proth. lin. $2\frac{1}{3}$; mesoth. lin. 9; metath. lin. 4; abdom. lin. 17 + lin. 6 = lin. 23; tegm. lin. 5; alæ, lin. 13; alar. expans. unc. $2\frac{1}{3}$.

Hab. In insulis Philippinensibus. B.M.

Female. Obscure fulvous-coloured; the abdomen brown at the extremity; the head with a dark streak on each side behind the eyes; the costal area of the wings dark fulvous buff, and the posterior area very pale buff. Head large, oval, subdepressed; ocelli wanting; hind part with several longitudinal impressions. Mesothorax elongate, narrow, slightly dilated behind, finely granulose above. Abdomen elongate, gradually widened from the base to the fourth segment, thence narrowed to the extremity, smooth, the sides finely margined; seventh segment short, eighth con-

siderably longer than the preceding, ninth small, rounded behind. Operculum moderate-sized, extending nearly to the extremity of the eighth dorsal segment, accompanied by two strong horny appendages attached to the under side of the eighth segment, furcate at their tips, extending nearly to the apex of the abdomen; anal styles long, slender, curved, and setose. Tegmina small, narrowly oval. Wings rather small, scarcely extending to the middle of the length of the abdomen. Fore legs very long, slender, and unarmed, except a small spine on the under side near the tip; middle and hind femora with two small spines near the tip beneath; all the tibiæ simple and slender; tarsi of the fore legs long, of the four hind ones moderately long.

PLATE XI. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen laterally. 6 *b*. The extremity of the abdomen seen from beneath.

23. (356.) Necroscia Styxius, *Westw.*
PLATE IX. fig. 3, male.

Elongata, subcylindrica; capite magno, ovali, nigro, macula fulva antica, lineis tribus impressis in parte postica; mesothorace antice subgranulato, lateribus vitta pallida longitudinali notatis; tegminibus ovalibus, parvis; alis mediocribus, fusco-tinctis, areaque costali obscuriori; pedibus fuscis, femoribus pallide subannulatis, omnibus subtus prope apicem spinulis nonnullis armatis (mas).

Long. corp. unc. $2\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. $4\frac{1}{3}$; abdom. lin. $12\frac{1}{2}$+lin. 3= lin. $15\frac{1}{2}$; tegm. lin. 3; alæ, lin. 14; alar. expans. unc. $2\frac{1}{3}$.

Hab. In insulis Philippinensibus. B.M.

Male. Long, slender, cylindrical; metathorax widest. Head large, oval, black, with a fulvous patch in front and between the eyes; hind part of the crown with three longitudinal slightly impressed lines. Antennæ with the two basal joints fulvous, the remainder black (length —?, the extremity being broken off half an inch from the base). Prothorax and mesothorax blackish brown above, each with a pale lateral streak; the latter with the anterior part finely granulose. Abdomen long and slender, pale brown; three terminal joints dilated, the last notched at its tip and finely denticulated beneath; anal styles long, slender, and setose; three terminal segments beneath somewhat swollen; the eighth constricted at its apex, furnished beneath with a curved horny hook acute at the tip. Tegmina small, oval, dark brown; central carina moderately elevated. Wings moderately large, stained brown; the costal area darker brown, with dark longitudinal veins. The legs long and slender, brown; the femora with indistinct paler annulations; all the femora finely denticulated on the under side near the tips; tibiæ slender, simple; tarsi with the basal joint long.

Head beneath and fore part of the under side of the thorax and coxæ black.

PLATE IX. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the body seen sideways. 3 *b*. The terminal segments seen from beneath.

24. (357.) Necroscia Lampethusa, *Westw.*
PLATE XXXIV. fig. 2, female.

Elongata, gracilis, fere parallela, fusca; mesothorace valde elongato, granuloso; alis mediocribus, fere ad medium segmenti 4^{ti} abdominis attingentibus, subhyalinis, costa fusca, vena mediana simplici; pedibus gracilibus, femoribus 4 posticis subtus ante apicem tuberculo instructis (fœm.).

Long. corp. unc. $3\frac{5}{6}$; cap. lin. 2; anten. unc. $2\frac{1}{3}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 11; metath. lin. 5; abdom. lin. 22 + lin. 5 = lin. 27; tegm. lin. $3\frac{1}{3}$; alar. expans. lin. 34.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

I have only seen a single female of this species, which is closely allied to *Ph. brachypterum* of De Haan (pl. 13. f. 2), from which, however, it differs in being more slender and smaller, the legs thinner and more elongated, and the wings considerably longer, reaching nearly to the middle of the fourth abdominal segment. The general colour is an obscure rusty brown. The pro- and mesothorax granulose. The head oblong. The antennæ long and very slender, with the two basal joints dilated and flattened. The mesothorax is rather more than four times the length of the prothorax; it is very slightly, but gradually, widened from the front to the base of the tegmina, which are oval, with the median carina scarcely elevated. The wings are opake whitish, with fine brown veins; the costal area brown, slightly clouded with darker shades. The abdomen is simple; the terminal segments slightly dilated; the apical one truncate and slightly emarginate. The operculum is simple, boat-shaped, pointed at the tip, and not extending to the middle of the ninth ventral segment.

PLATE XXXIV. Fig. 2. The female, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways.

25. (358.) Necroscia Lysippus, *Westw.*
PLATE XXXIX. fig. 3, female.

Elongata, cylindrica, gracilis; mesonoto granulato; tegminibus parvis, ovalibus; alis pallide fuscis, area costali

obscuriori, ad basin carnea, vena mediana longe e basi furcata; pedibus brevibus, simplicibus.

Long. corp. unc. $4\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; anten. lin. 18; proth. lin. $2\frac{1}{2}$; mesoth. lin. $9\frac{1}{2}$; metath. lin. 6; abdom. lin. 26+ lin. 4=lin. 30; tegm. lin. $3\frac{2}{3}$; alar. expans. unc. $4\frac{1}{3}$.

Hab. Borneo (*D. Wallace*). In Mus. W. W. Saunders.

This plain-looking species is nearly allied to *N. Sipylus*, but has the mesothorax longer, the median vein of the costal area of the wings furcate, the base of this part sanguineous, the legs and antennæ much shorter, the abdomen longer, with the anal styles shorter. The head is rather longer than wide, moderately convex; the hind part divided by several slight longitudinal impressions. The antennæ very slender, about 25-jointed, each joint (beyond the tenth) formed of about five or six minute articulations, the last being rather thicker than the rest and darker coloured. The pro- and mesothorax are finely granulated; the latter is considerably elongated. The tegmina are small and ovate; the central carina moderately elevated before the middle. The wings are large, smoky-coloured, with darker veins; the costal area darker, obscure brown, slightly clouded, with the base dark flesh-coloured, the main vein furcate at a considerable distance from the base. The abdomen is long and cylindrical; the terminal segments short and conical; the anal styles short, obtuse, and porrected; the oviduct small, and extending to about half the length of the ninth dorsal segment.

Plate XXXIX. Fig. 3. The female, of the natural size. 3 *a*. The terminal segments of the abdomen seen sideways.

26. (359.) **Necroscia Lampetia**, *Westw.*
Plate XXXVIII. fig. 5, male.

Elongata, cylindrica, fusca; capite brevi, triocellato; antennis longissimis, fuscis; mesothorace inermi; tegminibus brevioribus, apice oblique truncatis, margine tenui externo lutescenti; alis fuscis, in medio albo undatis, prope apicem nubila transversa subalbida, area costali fusca, vena mediana furcata; pedibus gracilibus; tibiis quatuor posticis nigris luteo bifasciatis, tarsis albidis; abdominis apice deflexo et bifurcato, segmento 8vo præcedenti fere duplo longiori.

Long. corp. unc. $3\frac{1}{3}$; cap. lin. $1\frac{1}{2}$; anten. unc. $3\frac{1}{2}$; proth. lin. 2; mesoth. lin. 5; metath. lin. $5\frac{1}{2}$; abdom. lin. 22+ lin. 4=lin. 26; tegm. lin. 2; alar. expans. fere unc. 4.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

This species is closely allied to *N. Phætusa*, but is well distinguished by its short 3-ocellated head, its unicolorous antennæ, the proportions of its prothorax and unarmed mesothorax, shorter tegmina, reticulated wings, with the median vein of the costal area furcate, differently constructed terminal segments of the abdomen, and fasciated legs. The head is flattened above, with the three small ocelli distinct; the eyes very prominent. The antennæ very long and slender, uniformly brown. The prothorax is of the usual length. The mesothorax slender and simple, widened behind. The tegmina short, subquadrate, obliquely truncate, with the median carina formed into a strong conical elevation in the middle. The wings are long and narrow, pale brown, the middle marked with numerous hyaline waves; near the tip is a rather indistinct transverse paler cloud; the costal area itself is but slightly darker than the rest of the wing, and unspotted; its median vein is furcate before the middle of its length, the two branches uniting together before the tip, and the united vein again joining the next vein still nearer to the tip of the wings. The abdomen is long and slender; the last joint alone pale fulvous buff; this joint is truncate at its extremity, the sides being strongly deflexed, the deflexed angles armed within with short teeth; the eighth dorsal segment is nearly twice as long as the seventh; the three terminal ventral segments are very short, scarcely reaching beyond the base of the eighth dorsal segment. The legs are long and slender, with the tarsi luteous; the fore legs are dark brown, the four hind ones black at the tips of the femora; the tibiæ are also black, with two or three broad luteous rings.

Plate XXXVIII. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the body seen sideways. 5 *b*. The last joint seen from behind.

27. (360.) **Necroscia Phætusa**, *Westw.*
Plate XXXVIII. fig. 4, male.

Gracillima, cylindrica, fusca luteo varia; capite majori, subdepresso, inter oculos fusco punctis duobus luteis, postice nigro lineato; prothorace longiori; mesothorace tenui, carina lævi mediana, lateribus spinis circ. 10 parvis armatis, fusco, maculis tribus anticis plagaque majori submedia luteis; abdomine longissimo, apice luteo; tegminibus oblongis, margine externo albido; alis fuscis, macula apicali albida, area costali fusca, margine antico lutescenti, vena mediana simplici, abdominis apice furcato (mas).

Long. corp. unc. $3\frac{3}{4}$; cap. lin. 2; anten. lin. 28; proth. lin. 2; mesoth. lin. 5; metath. lin. $5\frac{1}{2}$; abdom. lin. 26+ lin. 4=lin. 30; tegm. lin. 3; alar. expans. fere unc. 4.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

The male of this species is very much elongated, subcylindric, and of a dull brown colour varied with luteous markings. The head is as wide as the metathorax, rather flat above, with the eyes very prominent; between the eyes is a dark patch, within which are two small luteous dots resembling ocelli; the hind part is marked with several dark lines. The antennæ are long and slender, luteous at the base, with the joints darker at the tips; beyond the middle they are slightly marked with broad paler annuli. The prothorax is long and narrow, being about half the length of the mesothorax; it is obscurely coloured with three dark lines down the middle and sides. The mesothorax is narrow, slightly dilated behind; it is brown, with three small luteous spots arranged in a triangle near the fore margin, and behind these is a central larger luteous spot; the hind part is more obscurely coloured: each side is armed with about ten small spines. The tegmina are oblong, truncated behind, with the carina elevated into a small cone in the middle; they are brown, with the outer margin luteous. The wings are uniformly smoky brown, with a large triangular patch close to the tips luteous; the veins are but slightly coloured; the costal area is somewhat darker brown, with the fore margin dirty pale buff; the veins are marked with darker dots; the median vein simple, united near its apex with the following vein. The abdomen is long, very slender, cylindrical, and dark brown; the terminal segments fulvous; these are dilated; the last furcate at its extremity, the furcation armed beneath with small spines; the anal styles are deflexed, thick, and obtuse at the tips; the three terminal ventral segments are very short, not extending beyond the middle of the eighth dorsal segment, and considerably swollen; the middle legs (the only ones left in the unique specimen which I have seen) are very slender and simple, varied with luteous and brown shades.

PLATE XXXVIII. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the body seen sideways. 4 *b*. The same seen from beneath.

28. (361.) **Necroscia Carterus**, *Westw.*

PLATE XV. fig. 5, female.

Gracilis, inermis, luteo-albida, virescenti tincta; capite cum pro- et mesothorace linea tenui longitudinali mediana obscura; abdomine fuscescenti, stylis analibus longissimis, rectis, acutis; tegminibus parvis, oblongis, apice subtruncatis, carina parum elevata; alis fere hyalinis, area costali luteo-albida; antennis ad medium abdominis attingentibus.

Long. corp. unc. $3\frac{5}{8}$; cap. fere lin. 2; proth. fere lin. 2; mesoth. lin. 6; metath. lin. 6; abdom. lin. $22\frac{1}{2}$ + lin. $5\frac{1}{2}$ =lin. 28.

Hab. In Nova Hollandia. B.M.

The only specimen which I had, at first, seen of this species is a very imperfect one in the National Collection. It is long and slender, subdepressed, with the middle segments of the abdomen forming the widest part of the body. It is smooth, and destitute of spines or tubercles. The general colour is buff with a greenish tinge; the abdomen brownish. The head is small, and destitute of ocelli; it, as well as the pro- and mesothorax, is marked with a slender, central, dark longitudinal line. The tegmina are small, oblong-ovate, subtruncate at the extremity; the carina but slightly elevated; front margin brown. The wings moderate-sized, rather narrow, nearly colourless; the costal area yellowish buff; the median vein furcate at a short distance from the base. Abdomen very long, widest in the middle, gradually attenuated to the tip; three terminal dorsal segments not different in appearance from the preceding, but shorter; the terminal one slightly notched at the tip, exposing the two very minute anal styles. The operculum is small and acute, not extending to the middle of the eighth dorsal segment, followed by two elongated flattened appendages extending beneath the ninth dorsal segment. Legs wanting.

PLATE XV. Fig. 5. The female, of the natural size. 5 *a*. The three terminal segments seen sideways. 5 *b*. The same seen from beneath.

P.S. The British Museum has subsequently received a second and more perfect individual of this species, of which the following are the proportions:—

Long. corp. fere unc. 4; cap. lin. 2; proth. lin. 2; anten. unc. $2\frac{1}{2}$; mesoth. lin. 7; metath. lin. 7; abdom. lin. 24 +lin. 5=lin. 29; styl. anal. porrect. lin. 5; ped. ant. lin. 27, med. lin. 19, post. lin. 24.

The legs are very slender, and the anal styles long, narrow and porrected, and acute at the tip, as in Pl. VII. fig. 1, and Pl. VIII. fig. 2. The specimen appears to be a female, but the oviduct does not extend beyond the middle of the eighth dorsal segment. The expansion of the fore wings is $4\frac{1}{2}$ inches.

29. (362.) **Necroscia Sipylus**, *Westw.*

PLATE XVIII. fig. 4, female.

Valde elongata, tenuis, subcylindrica, albido-lutea; capite oblongo, medio subcanaliculato; pro- et mesonotis granulatis; tegminibus subovalibus, apice truncatis; alis albido-griseis, venis fulvis aut rufescenti tinctis, area cos-

tali obscuriori plus minusve nebulosa; abdomine alis multo longiori, apice compresso (fœm.).

Long. corp. fœm. unc. $3\frac{3}{4}$; cap. lin. $2\frac{1}{2}$; anten. unc. $2\frac{3}{4}$; proth. lin. 2; mesoth. lin. $7\frac{1}{2}$; metath. lin. 7; abdom. lin. 21+lin. 5=lin. 26; tegm. lin. 3; alar. expans. unc. 4.

Hab. In Assam (*D. Jenkins*); Java (*Dr. Horsfield*). In Mus. Hopeiano Oxoniæ (olim nostr.), Soc. Merc. Ind. Orient., et B.M.

This species is very long and slender; the wings, although of large size, scarcely covering more than two-thirds of the abdomen. The general colour is uniform pale reddish brown with a tinge of buff, the costal area being more or less clouded with grey and luteous. The head is oblong, finely granulated on the crown with a fine central longitudinal impressed line. The antennæ are very long and slender, the basal joint small; the terminal joints very numerous, but indistinct. The pro- and mesothorax are finely granulated on the back and sides. The tegmina are oval, truncate at the ends, very slightly angulated near the middle of the main carina. The wings are somewhat opake, of a very pale greyish buff, with the veins luteous or slightly tinged with rosy; the costal area more or less mottled with grey and luteous; the median vein simple. The abdomen is long and simple, gradually attenuated to the tip, with the anal styles elongated and posteriorly porrected; the oviduct is not swollen, and does not extend quite to the extremity of the abdomen. The legs are long, slender, and simple.

The male is smaller and still more slender than the female.

Plate XVIII. Fig. 4. The female, of the natural size. 4 *a*. The extremity of the body seen sideways.

Specimens vary in their somewhat shorter proportions, and in the darker brown tint, the more uniform colour of the costal area of the wings, and in the rather more angulated tegmina, which are sometimes pale luteous on the outer margin, with a luteous patch arising from the elevation of the carina. Mr. Wallace has sent a female insect from Sarawak, Borneo, so greatly resembling the Assam specimens, that I can scarcely regard it otherwise than as a local variety; the mesothorax is shorter, the tegmina rather longer, and the wings considerably longer than those of the typical females; the legs are also shorter; the proportions being—

Long. corp. unc. $3\frac{1}{4}$; cap. lin. 2; proth. lin. $2\frac{1}{4}$; mesoth. lin. 6; metath. lin. 6; abdom. lin. 17+lin. 5=lin. 22; tegm. lin. $3\frac{3}{4}$; alar. expans. unc. $4\frac{1}{6}$.

If it should ultimately prove distinct, it may receive the name of *N. Warasaca*, Westw.

30. (363.) Necroscia Sarpedon, *Westw.*

Plate XXXII. fig. 5, male.

Plate XVI. fig. 1, female.

Elongata, gracilis, inermis, fusca, opaca; capite cum pro- et mesothorace linea media tenui nigra; mesonoto et abdominis segmentis quatuor basalibus nigris nitidis, horum marginibus posticis pallidis; alis fumosis, area costali fusca rubido tincta et subnebulosa; stylis analibus elongatis (fœm.).

Long. corp. fœm. unc. $3\frac{3}{4}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 7; metath. lin. 7; abdom. lin. 21 + lin. 5 = lin. 26; tegm. lin. $2\frac{1}{2}$; alæ, lin. 25; alar. expans. fere unc. $4\frac{1}{2}$.

Hab. North Australia. B.M.

A single mutilated specimen of this species is contained in the National Collection. It is long, narrow, opake brown, destitute of spines or tubercles. Head rather small, with a slender central longitudinal line, which extends along the middle of the pro- and mesothorax. Ocelli wanting. Prothorax with two diverging black lines in the hind part; the hind part of the metanotum and four basal segments of the abdomen black and glossy, the extremity of these segments pale; hind segments brown, gradually narrowed to the eighth segment; terminal segment as long as the preceding, with the anal styles narrow, longer than the joint itself, and truncate at their tips, extending from its sides near the tip. Tegmina small, rather square; outer angles rounded; carina slightly elevated. Wings large; costal area brown, with a claret tint, and slightly marked with lighter clouds; median vein furcate; posterior portion dusky. Middle legs short, slender, and simple; basal joint of the tarsi rather short; the other legs and antennæ broken off. Meso- and metasternum pale, with a broad central black vitta. Operculum narrow, not swollen, extending nearly to the extremity of the ninth dorsal segment.

Plate XVI. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the body seen laterally.

P.S. The British Museum has recently received both sexes of this species from North Australia. The male is represented in Plate XXXII. fig. 5. It is very long and slender, coloured as in the female, the dark lines on the head and prothorax scarcely visible. The tegmina with the carina much elevated and rounded in the middle. The wings dusky brown in the apical half, the basal half subhyaline, with brown longitudinal and transverse veins; the costal area blackish brown, with numerous oblong buff spots; the median vein simple. The abdomen with the three terminal ventral segments short, not extending be-

yond the eighth dorsal segment, and much swollen; the anal styles curved and deflexed. The legs of moderate length, brown; the tibiæ with wide luteous rings.

The female has the antennæ extending to the middle of the fourth abdominal segment. The wings have the basal half subhyaline, with brown veins; the apical half dusky, slightly marked with hyaline dots in the middle of some of the cells towards the middle of the wings. The legs are rather short, simple, and coloured as in the male. The eggs of the female are black and glossy; they are a line and a half long, and of an oval, subdepressed form.

31. (364.) Necroscia Hipponoë.

PLATE XXIX. fig. 2, female.

Fusca, elongata, subdepressa; abdomine thorace latiori; capite, pro- et mesonotis granulosis, granulis mesonoti majoribus et in lineis irregularibus dispositis; tegminibus ovalibus, venis albo notatis; alis fuscescentibus, area costali griseo variegata; pedibus brevioribus, femoribus tibiisque multisinuatis (fœm.).

Long. corp. fœm. unc. $2\frac{5}{6}$; cap. lin. $2\frac{2}{3}$; anten. lin. 18; proth. lin. $2\frac{1}{2}$; mesoth. lin. 6; metath. lin. $5\frac{1}{2}$; abdom. lin. 15 + lin. $3\frac{1}{2}$ = lin. $18\frac{1}{2}$; tegm. lin. $3\frac{1}{2}$; alar. expans. unc. $3\frac{1}{6}$.

Hab. Sarawak, Borneo (*D. Wallace*). B.M.

This obscure species is well distinguished by the short multi-sinuated femora and tibiæ, as well as by the sublineated granulation of the mesonotum. The head is nearly square, slightly elevated at the hind part, and granulose. The antennæ are long and very slender; the joints short. The mesothorax is gradually broadened behind, being wider than the head at its base; the granules are larger than on the pronotum, especially those towards the fore part, where they form several irregular lines. The tegmina are oval, with the subbasal elevation of the median carina slightly marked; the veins are not very prominent, but are marked with several short whitish spots. The wings are of moderate size, brownish, with the longitudinal veins darker brown; the costal area is obscure and darker brown, varied, especially towards the extremity, with greyish buff; the chief vein is simple, varied with brown and luteous. The abdomen is wider than the mesothorax, of nearly equal width throughout, each of the six basal segments being rather dilated on each side towards its base; the three terminal segments are gradually narrowed; the seventh and eighth with an elevated tubercle near the middle of the hind margin. The ovipositor is conical, depressed, with a curved carina on each side from the base to the middle, enclosing on each side a raised polished spot, giving to the ovipositor, when seen from beneath, the appearance of a fox's face, the nose or tip of the ovipositor being slightly emarginate. The legs are rather short; the femora and tibiæ (except the tibiæ of the fore legs) rather dilated, and multisinuated along their whole length; the basal joint of the tarsi is simple, and about as long as the three following joints.

PLATE XXIX. Fig. 2. The female, of the natural size. 2 *a*. The extremity of the abdomen seen sideways.

32. (365.) Necroscia Larunda, *Westw.*

PLATE XXVII. fig. 3, male.

Elongata, sat gracilis, obscura fusca luteo variegata, abdominis apice viridi tincto; capite oblongo, postice convexo; antennis brevioribus, articulis elongatis; capite, pro- et mesonotis irregulariter et minute granulosis, hoc prothorace vix duplo longiori; tegminibus subovalibus, extus oblique truncatis; alis elongatis, subhyalinis, fusco parum tinctis, area costali obscuriori; pedibus brevibus (mas).

Long. corp. maris, unc. $2\frac{3}{4}$; cap. lin. 3; anten. lin. 15?; proth. lin. $2\frac{1}{3}$; mesoth. lin. 5; metath. lin. 6; abdom. lin. 14 + lin. 3 = lin. 17; tegm. lin. 4; alar. expans. unc. $3\frac{3}{4}$.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

Obscure brown, varied slightly with luteous; the extremity of the abdomen tinged with green. Head oblong, elevated, and convex at its hind part, with numerous minute granules arranged in irregular lines. Antennæ very slender, broken off at about an inch and a quarter from the base; the fourth joint short, the twelfth and following long. Pro- and mesonotum opake brown, finely granulose. Tegmina subovate; the outer margin rounded, the inner straight; the apex obliquely truncate; the central carina and the ordinary conical elevation but slightly prominent; inner margin pale; the disc brown, varied with minute irregular luteous shades, such being also the colour of the costal area of the wings, which are long and rather narrow, slightly stained with brown, with luteous-brown longitudinal veins; the principal vein in the costal area is entire. The abdomen is long, polished, and pale brown; the three terminal segments short (as is also the sixth dorsal segment) and gradually narrowed, the tip of the ninth joint forming three minute equal-sized lobes; the first and second ventral segments are marked with an oblong black patch in the middle of each, and there is also a small round black spot at the extremity of the sixth ventral segment: the terminal segment on the under surface of the abdomen has been

injured in the only specimen I have seen of the species. The legs are short, unarmed, and slender; the anterior femora rather strongly compressed, and black on the posterior and inferior surfaces beyond the middle; the basal joint of the two anterior tarsi is as long as all the following joints united, and that of the four posterior tarsi as long as the three following joints united.

PLATE XXVII. Fig. 3. The male, of the natural size.

33. (366.) **Necroscia Meneptolemus**, *Westw.*

PLATE XIX. fig. 4, male.

Gracillima, filiformis, inermis, obscura, fusco-viridis; antennis longis, fuscis, articulis duobus basalibus luteis; mesothorace sublævi; abdomine luteo-fusco, nitido; tegminibus parvis, ovalibus, viridibus; alis subhyalinis, area costali viridi, vena 2nda integra; pedibus longis, gracillimis, femoribus subtus ante apicem inermibus (mas).

Long. corp. unc. $2\frac{1}{2}$; cap. lin. $1\frac{1}{3}$; anten. unc. $2\frac{1}{2}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. 5; metath. lin. 4; abdom. lin. 15+ lin. 3=lin. 18; tegm. lin. 2; alar. expans. unc. $2\frac{1}{2}$.

Hab. Singapore (*D. Wallace*). In Mus. W. W. Saunders.

The only specimen which I have seen of this species is a male. It is nearly allied to *N. Iolas*, but is smaller, much more slender, and with the femora not toothed beneath near the tips. The head is quadrate, with the eyes large and prominent; the hind part of the crown is elevated convexly. The antennæ are very long, brown, with the two basal joints dull luteous. The mesothorax is very long and slender; it is nearly smooth on the upper side, with but the slightest traces of granulation. The tegmina are small, elongate-ovate, with a pale green line running outside the ordinary, rather slightly marked carina, and with a very small conical elevation towards the base. The wings are subhyaline, being very slightly stained with dusky; the longitudinal veins pale brown; the costal area dark green, paler at the base, and with the second vein not furcate. The abdomen is very long and slender; the three terminal segments short and but little swollen, the ninth having its apical lateral angles deflexed, with short spines on their inner margins; the caudal styles are obtuse, and inflexed at the tips; the three terminal ventral segments are short, extending rather beyond the middle of the eighth dorsal segment, and but slightly swollen. The legs are long, slender, and simple; the femora destitute of a small spine near the tips beneath; the tarsi are slender, with the basal joint longer than all the following united together.

PLATE XIX. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

34. (367.) **Necroscia Ceramia**, *Westw.*

PLATE XII. fig. 2, male.

Gracilis, cylindrica, obscure luteo-fusca; capite lævi, parum convexo, punctis duobus minutis inter oculos; antennis longis, gracillimis, 70-articulatis; mesothorace crebre granulato; tegminibus brevibus, subquadratis, carina media versus basin angulato-elevata; alis magnis, subhyalinis, fusco parum tinctis, area costali roseo paulo tincta fusco-que nebuloso-maculata; pedibus brevibus, femoribus versus apicem subtus dente minuto armatis (mas).

Long. corp. maris, unc. $2\frac{7}{8}$; cap. lin. 2; anten. lin. 22; proth. lin. 2; mesoth. lin. 7; metath. lin. 5; abdom. lin. 16+lin. 3=lin. 19; tegm. lin. $2\frac{1}{4}$; alar. expans. unc. 3.

Hab. Ceram (*Dom^a Pfeiffer*). B.M.

This male species, of which I have seen but a single individual (interesting on account of the partial development of one of the fore legs), is long, very slender, and cylindric, with the body entirely smooth, except the mesothorax, which is very finely granulose throughout its entire surface. The head is nearly square, but slightly convex, with two minute black dots between the eyes, and a fine impressed line down the middle of the back of the head, extending also through the pronotum; the mesonotum having a fine central carina. The antennæ are long and very slender, each composed of about seventy joints, each fourth joint being black; the remaining joints being of the general colour of the insect, which is of a luteous brown. The tegmina are small and nearly square; the central carina elevated into a conical tubercle towards the base. The wings are large and somewhat hyaline, slightly stained with brown, with pale brown veins; the costal area tinged with rosy brown, and varied with darker rosy-brown irregular and ill-defined spots, especially in the middle of the fore margin, the chief vein being also dotted with brown. The abdomen is long and simple; the three terminal segments slightly dilated, the last quadrate, with the extremity truncate and much deflexed; the three terminal ventral segments extend to the extremity of the body, and are but slightly swollen beneath. The legs are short, slender, and simple, except the femora, which have a minute spine on the under side near the tip; the basal joint being as long as all the rest united.

PLATE XII. Fig. 2. The male insect, of the natural size. 2 *a*. The four terminal segments of the abdomen seen sideways. 2 *b*. The last joint seen from behind.

35. (368.) **Necroscia bimaculata.**

Dilute fuliginosa; thorace tereti, glabro; elytris brevis-

simis, lanceolatis, dilute fuscis, medio macula sulphurea; alis hyalinis, basi rufescentibus, costa dilute fusca (mas).

Phasma bimaculata (la double tache), *Stoll, Spectr.* t. 8. f. 29.
Phasma bimaculatum, *Lichtenstein, Linn. Trans.* vi. p. 15.
Serville, Ann. Sc. Nat. xxii. p. 58.
Mantis bimaculata, *Olivier, Enc. Méth.* vii. 637. no. 64.
G. R. Gray, Syn. Phasm. p. 22.
Burmeister, Handb. d. Ent. ii. 2. 586.
Phasma (Necroscia) bimaculatum, *De Haan, Orth. Orient.* p. 118.

Hab. In Coromandel.

36. (369.) Necroscia Erechtheus, *Westw.*

PLATE IX. fig. 1, male.
PLATE XII. fig. 3, male, var.
PLATE XIV. fig. 6, female.

Elongata, cylindrica, inermis, fulva fusco variegata; mesothorace granuloso; abdomine brunneo, incisuris luteis, apice virescenti; pedibus fulvis fusco annulatis; tegminibus nigricantibus, margine antico venisque viridibus; alis fuscis, puniceo plus minusve tinctis, area costali virescenti nebulis nigricantibus subfasciatis (mas et fœm.).

Long. corp. maris, lin. 23; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. $3\frac{1}{2}$; abdom. lin. 11+lin. 2= lin. 13; tegm. lin. $1\frac{1}{3}$; alæ, lin. $13\frac{1}{2}$; alar. expans. unc. $2\frac{1}{4}$.

Long. corp. fœm. unc. $2\frac{3}{4}$; cap. lin. 2; proth. lin. 2; mesoth. lin. $4\frac{3}{4}$; metath. lin. 6; abdom. lin. 16+lin. $3\frac{1}{2}$= lin. $19\frac{1}{2}$; tegm. lin. $2\frac{1}{2}$; alæ, lin. 20; alar. expans. unc. $3\frac{1}{2}$.

Long, slender, subcylindrical; the female more robust, with the hind part of the mesothorax and the metathorax dilated. The general colour of the head and thorax is fulvous or luteous, varied with dark brown markings. The head is unarmed, and furnished with two small round tubercles between the eyes, which appear to be developed into ocelli in the male; the hind part of the head is marked with eight more or less distinct dark lines. The antennæ are very long and slender (one-fourth longer than the entire insect in the male); the basal articulations are luteous; at the distance of half an inch from the base the joints become very short, a single joint at equal distances apart (about a quarter of an inch) being pale at its base, and there being also a ring of white near the tip. The prothorax is marked with two rather angulated lines down the middle. The mesothorax is marked with several dark patches, especially one on each side near the tegmina; its disc is covered with small luteous granules. The tegmina are subquadrate, with the carina moderately elevated in the middle into a rounded lobe; they are black, with the lateral margin and the fine reticulated veins green. The wings are long and rather narrow; the costal area is green, with the veins (both longitudinal and transverse) paler, marked with a number of dark brown clouds forming indistinct fasciæ; the chief longitudinal vein is simple. The posterior area is brown, more or less strongly tinged with rosy red. The legs are luteous buff, with dark brown rings; they are slender and simple, with the basal joint of the tarsi long, and pale yellow, with the tip black. The abdomen is brown, with the articulations paler; that of the male is very slender, with the three terminal segments rather short and slightly swollen; the last segment attenuated and notched at the tip; the three ventral segments are moderately swollen, extending a little beyond the base of the ninth dorsal segment. The terminal segments of the female are simple, the operculum extending to half the length of the ninth dorsal segment.

PLATE IX. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways. 1 *b*. The same seen from beneath. [The specimen here figured has unfortunately been injured in the terminal organs.]
PLATE XII. Fig. 3. A much darker and more strongly marked variety of the male, with the abdominal segments perfect. 3 *a*. The terminal segments seen sideways. 3 *b*. The extremity of the body seen from above.
PLATE XIV. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the body seen sideways.

37. (370.) Necroscia affinis.

Pallide viridis; thorace scabriusculo; tegminibus linea media et macula flavis; alis albido-hyalinis, area costali linea flava; pedibus viridibus; antennis flavescentibus nigro annulatis (mas).

Long. corp. —?; cap. lin. $1\frac{1}{3}$; anten. unc. $2\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. $3\frac{2}{3}$; abdom. —?; tegm. lin. 2; alar. expans. fere unc. 3.

Platycrana affinis, *G. R. Gray, Syn. Phasm.* p. 37.
Hab. In India. B.M.

The original type of this species, described by Mr. G. R. Gray, is preserved in the British Museum. The antennæ have the basal joints annulated with black. The tegmina have a central spot and the curved carina pale yellow. The costal area of the wings is pale green, with a line along the middle and several small spots yellow. The mesothorax has a fine central longitudinal entire carina, on each side of which are rows of minute tubercles placed wide apart.

38. (371.) Necroscia punctata.

PLATE XXIX. fig. 5, female.

Viridis, flavo-maculata; thorace scabriusculo, flavescente; tegminibus medio flavis, macula nigra; alis albido-hyalinis,

area costali viridi, linea media et maculis flavis; pedibus flavescentibus nigro et viridi fasciatis; antennis longis, flavescentibus nigro annulatis.

Long. corp. maris, —?; cap. lin. $1\frac{2}{3}$; anten. unc. $2\frac{1}{3}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. $3\frac{2}{3}$; abdom. —?; tegm. lin. 2; alar. expans. fere unc. 3.

Long. corp. fœm. unc. $2\frac{3}{4}$; cap. lin. $1\frac{2}{3}$; anten. —?; proth. lin. $1\frac{2}{3}$; mesoth. lin. 5; metath. lin. $4\frac{2}{3}$; abdom. lin. $16\frac{1}{2}$ + lin. 2 = lin. $18\frac{1}{2}$; tegm. lin. 2; alar. expans. unc. $3\frac{1}{3}$.

Platycrana punctata, *G. R. Gray, Syn. Phasm.* p. 37.
Phasma (Necroscia) punctatum, *De Haan, Orth. Orient.* pp. 118, 121.

Hab. In India orient. Sarawak et Malacca (*Wallace*); Java (*Dr. Horsfield*). B.M.

The original description of this species was taken from a male individual. The figure in Pl. XXIX. is from a female, which has the body much wider, that of the male being quite filiform; in the latter the mesothorax has a central longitudinal carina formed of minute tubercles placed close together, and the costal area is marked with a considerable number of minute round yellow spots.

39. (372.) Necroscia Pholidotus, *Westw.*

Plate XX. fig. 6, male.
Plate XVII. fig. 4, female.

Gracillima, filiformis, capite latiori, oculis valde prominentibus; fusca, mesothorace obscure viridi; capite, pro- et mesothorace granuloso-spinosis; tegminibus parvis, quadratis, tuberculo medio rotundato elevato, margine postico albido; alis fumosis, area costali obscuriori; pedibus subbrevibus, gracilibus, in fœmina perbrevibus; abdomine valde elongato (mas et fœm.).

Long. corp. maris, unc. $3\frac{1}{6}$; cap. lin. 2; proth. lin. 2; mesoth. lin. 7; metath. lin. 5; abdom. lin. 21 + lin. 3 = lin. 24; tegm. lin. 2; alæ, lin. 18; alar. expans. unc. $3\frac{1}{6}$.

Long. corp. fœm. unc. $4\frac{1}{4}$; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. 8; metath. lin. 8; abdom. lin. 27+lin. 4= lin. 31; tegm. lin. 4; alæ, lin. 27; alar. expans. unc. $4\frac{3}{4}$.

Hab. Assam et Sylhet. Mus. Hopeiano Oxoniæ (olim nostr.) et B.M.

Male. Very long, slender, and subcylindrical. Head, pro- and mesothorax granulose, the granules on the crown of the head and front of the mesothorax becoming small spines. Head considerably wider than the prothorax; eyes very prominent; hind part of the crown very gibbose; ocelli obsolete. Antennæ very long and slender. Mesothorax one-third longer than the metathorax. Tegmina small, square, with a strongly elevated and rounded tubercle in the middle of the carina; the apical margin luteous. Metathorax and abdomen glabrous, the latter very long and slender; fifth segment slightly carinated at its extremity; terminal segments small and but slightly thickened; apex slightly notched; three terminal segments moderately swollen, scarcely extending beyond the base of the ninth dorsal segment. Wings long and rather narrow, pale brown; costal area darker brown, chief vein simple. Legs slender and simple, of moderate length, the middle ones short; basal joint of all the tarsi about as long as the four remaining joints together.

Female. Much larger and more robust, with much shorter legs. The principal vein of the costal area is furcate at a short distance from the base of the wings; the hind portion of the costal area is slightly varied with paler spots; the reticulation of the posterior portion is much darker. The abdomen has the fifth dorsal segment more strongly carinated in the middle of the hind margin; the three terminal dorsal segments are strongly angulated above; the anal styles are short, broad, and rather exserted, and the operculum nearly extends to the extremity of the ninth dorsal segment.

Plate XX. Fig. 6. The male, of the natural size. 6 *a*. The head and front of the thorax seen sideways. 6 *b*. The terminal segments of the abdomen seen sideways.
Plate XVII. Fig. 4. The female, of the natural size. 4 *a*. The terminal segments of the abdomen seen laterally.

40. (373.) Necroscia curtipes.

Elongata, cylindrica, albido-fusca; capite postice spinis numerosis armato; prothorace spinulis 8 per paria dispositis; mesothorace (prothorace plus quam triplo longiori) valde spinoso, spinis anticis majoribus; tegminibus griseis, medio in tuberculo magno conico obtuso elevatis; alis abdomine brevioribus, pallide fuscis, area costali griseo fuscoque varia; abdomine valde elongato, inermi, segmento 5to ad apicem supra elevato, oviductu brevi, simplici; pedibus præsertim intermediis, brevibus, simplicibus, femoribus anticis parum dilatatis, articulo 1mo tarsorum anticorum valde elongato.

Long. corp. unc. 4; cap. lin. 3; anten. lin. 22; proth. lin. 2; mesoth. lin. 7; metath. lin. 6; abdom. unc. $2\frac{5}{8}$; tegm. lin. 4; alar. expans. unc. $4\frac{5}{6}$.

Phasma (Necroscia?) curtipes, *Westwood, Cabinet Orient. Entomol.* p. 78. pl. 39. f. 1.

Hab. Prince of Wales's Island (*Dr. Cantor*). Mus. Hopeiano Oxoniæ.

Allied to *Ph. auritum*, Fabr.

41. (374.) **Necroscia Mancinus**, *Westw.*
PLATE XIV. fig. 3, male?

Elongata, gracilis, subcylindrica, inermis; capite, pro- et mesothorace granulosis; abdomine lævi; tegminibus parvis, obovatis; tota obscure fusca, alis pallide fuscis, costa obscuriori, ad basin albida; pedibus gracilibus, simplicibus.

Long. corp. circ. unc. $2\frac{1}{3}$; cap. lin. $1\frac{3}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. 4; abdom. —?; tegm. lin. $1\frac{3}{4}$; alæ, lin. 14; alar. expans. unc. $2\frac{1}{3}$.

Hab. Philippine Islands. B.M.

I am only acquainted with a single very mutilated specimen of this species in the National Collection. The abdomen is broken off at the third segment, but the whole form of the insect seems to indicate it to have been a male. It is long, slender, subcylindrical, entirely dark brown; the head, pro- and mesothorax finely granulose on the upper side. The head is destitute of ocelli; it is subovate, with the eyes moderately prominent. The tegmina are small and obovate, obliquely truncate at the tips; the carina is but moderately and gradually elevated near the base. The wings are of moderate size, pale brown, with the costal area dark brown, the base pale buff. The legs are moderately long and slender, destitute of spines or lobes. The abdomen is slender, cylindrical, and smooth; the six terminal joints broken off.

PLATE XIV. Fig. 3. The insect, of the natural size.

42. (375.) **Necroscia Euryalus**, *Westw.*
PLATE X. fig. 4, male.

Elongata, gracilis, abdomine longo, cylindrico; cinerea, capite et mesothorace maculis obscuris variis, granulosis; alis pallide cinereis, area costali obscuriori, strigis abbreviatis in venas dispositis; tegminibus parvis, carina in medio valde elevata; pedibus brevioribus (mas).

Long. corp. unc. $2\frac{1}{6}$; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $5\frac{1}{2}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 13 + lin. 2 = lin. 15; tegm. lin. 1; alæ, lin. 12; alar. expans. lin. $25\frac{1}{3}$.

Hab. In Ceylon. B.M.

Long and slender, with the legs rather short, and the metathorax and abdomen long. Cinereous; the head and mesonotum varied with small obscure patches, and finely granulated. The head is of moderate size; eyes prominent; ocelli wanting. Antennæ very long and slender. Crown of head with two spines near the hind margin, behind which is a row of small granules. Pro- and mesothorax with a slender dark central dorsal line. Tegmina small, subovate; carina strongly elevated in the middle. Wings pale ashy; costal area darker, and slightly tinged with purplish; the chief veins marked with short dark lines. Abdomen long and slender; the eighth rather broader than several of the preceding segments, ninth segment truncate at the extremity; terminal ventral segments slightly swollen, the last extending to about two-thirds of the length of the ninth dorsal segment. Legs rather short and simple; basal joint of the tarsi of moderate length.

PLATE X. Fig. 4. The male, of the natural size. 4 *a*. The hind part of the head from above. 4 *b*. The terminal segments of the abdomen from above. 4 *c*. The same from beneath. 4 *d*. The same sideways.

43. (376.) **Necroscia Panætius**, *Westw.*
PLATE XII. fig. 4, male.

Gracillima, cylindrica, lævis, inermis, antennis pedibusque anticis longissimis, fusco-virescens; abdomine pallidiori; capite utrinque pallido; mesothorace utrinque linea tenui nigra (mas).

Long. corp. unc. $2\frac{1}{2}$; cap. lin. $1\frac{1}{3}$; anten. unc. $2\frac{1}{4}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. 6; metath. lin. $4\frac{1}{2}$; abdom. lin. $14\frac{1}{2}$ + lin. 3 = lin. $17\frac{1}{2}$; tegm. lin. 2; alar. expans. unc. $2\frac{1}{4}$.

Hab. In Ceylon. B.M.

Allied to *Necroscia filum*, Westwood, Cab. Orient. Ent. pl. 39. f. 2. Very slender and filiform. General colour greenish brown, abdomen paler. Head moderate-sized; eyes prominent; ocelli wanting. Antennæ as long as the body, slender; sides of the head behind the eyes with a luteous vitta. Mesothorax long and slender, with a slender lateral black line on each side edged with a pale luteous one. Tegmina small, ovate; carina slightly developed, with a slender marginal line. Wings hyaline; costal area darker, with a slender lateral line. Fore legs nearly as long as the body, very slender and simple; basal joint of the tarsi very long (the four posterior legs wanting in the unique specimen in the British Museum). Abdomen long, slender, and cylindrical; three terminal segments scarcely broader than the preceding, with an elevated angle along the middle; the terminal segment emarginate at its extremity, exposing the short obtuse anal styles, which are setose and cross each other; three terminal ventral segments slightly swollen, not extending to the extremity of the eighth dorsal segment.

PLATE XII. Fig. 4. The male, of the natural size. 4 *a*. The terminal segments of the body seen sideways. 4 *b*. The same seen from above.

44. (377.) Necroscia Iolas, *Westw.*

PLATE XIX. fig. 2, male.

Gracillima, elongata, lævis, fusca, viridi tincta; mesothorace vix granulato et valde elongato; capite subquadrato, postice haud elevato; tegminibus parvis, ovalibus, ante medium vix angulatis; alis paulo infumatis, area costali fusca viridi tincta, vena 2^{nda} simplici, albo maculata; pedibus longis, gracilibus, femoribus omnibus ante apicem subtus spinula parva armatis, abdominis segmento ultimo lateribus incurvis spinulisque intus armatis (mas).

Long. corp. unc. $2\frac{3}{4}$; cap. lin. $1\frac{1}{2}$; anten. unc. $2\frac{3}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $7\frac{2}{3}$; metath. lin. 7; abdom. lin. 15 + lin. 4 = lin. 19; tegm. lin. 3; alar. expans. unc. $2\frac{2}{3}$.

Hab. In Malacca (*D. Wallace*). In Mus. W. W. Saunders.

I have only seen a single male of this species, which is well distinguished by its very long and slender mesothorax and its obscure greenish-brown colour. The head is subquadrate, the hinder part not at all elevated. The eyes rather small, but very prominent. The antennæ long, slender, and blackish. The mesothorax finely granulated above, about four times the length of the prothorax. The tegmina obscure greenish, small, oval, scarcely carinated, and but slightly angulated towards the base. The wings are scarcely stained with brown; the costal area is greenish brown, paler green along the inner margin; the veins dark, the principal ones varied with minute whitish spots; the second vein is not furcate. The abdomen is very long and slender; the terminal segments rather widened, but not swollen, the last with the edges deflexed at the tip, and armed with minute teeth on the inside; the anal styles are thickened, and obtuse at the tips; the terminal ventral segments have, I believe, been injured in the unique male which I have seen. The legs are long and slender; the middle ones considerably the shortest, simple, except that all the femora are armed on the under side near the tip with a small spine; the basal joint of the tarsi is about as long as the succeeding joints united.

PLATE XIX. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the abdomen seen sideways. 2 *b*. The last segment seen from behind.

45. (378.) Necroscia Ismene, *Westw.*

PLATE XL. fig. 2, male; fig. 3, female.

Elongata, gracilis; capite convexo; antennis valde elongatis, nigris, 3-annulatis, annulo ultimo subapicali; brunneo-fusca, pro- et mesonotis minute granulatis; capite et pedibus læte fulvis; tegminibus fascia lata integra basali flava, carina mediana acuta et angulata; alis pallide fuscis, albo transverse valde reticulatis, basi et apice late fuscis, area costali brunneo-fusca pallida, area postica vix obscuriori, venis vix distinctis (mas et fœm.).

Long. corp. maris, unc. $1\frac{3}{4}$; cap. lin. $1\frac{2}{3}$; anten. unc. $2\frac{2}{3}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. 4; abdom. lin. 13 + lin. 2 = lin. 15; tegm. lin. 2; alar. expans. fere unc. 3.

Long. corp. fœm. unc. 3, lin. 1; cap. lin. 3; proth. lin. 2; mesoth. lin. 6; metath. lin. $5\frac{1}{2}$; abdom. lin. 18+lin. 3= lin. 21; tegm. lin. 3; alar. expans. unc. 4, lin. 2.

Hab. Borneo. In Mus. D. Westermanni Havniæ.

This handsome species is closely allied to *N. Marmessus*, Westw., but is at once distinguished by its more sombre colours, reticulated wings, basal fascia of the tegmina, &c. The female also bears a considerable resemblance in general form to the female of that species, figured in Pl. XIX. fig. 1. The general colour is reddish brown. The male has the head rather large and convex, of a bright orange colour. The eyes large and prominent. The antennæ very long and slender, blackish, with three white annuli, the third being close to the tip. The pro- and mesothorax have the upper surface finely granulated; the latter is rather widened in its hind part. The tegmina are rather broad, subquadrate; the carina strongly marked, acute along its ridge, and elevated between the middle and base into a conical lobe rounded at its top; the base of the tegmina is occupied by a broad entire yellow fascia. The wings are large, pale brown, with the base and apex uniform brown, the middle portion occupied with numerous slender white transverse reticulations; the costal area is pale reddish brown, scarcely darker than the posterior area, and with the veins scarcely distinct; the median one simple. The abdomen is long and slender; the apical segments short and simple; the anal styles produced into a pair of small curved forcipated appendages, setose, incurved, and thickened at the tips. The terminal ventral segments are short and considerably swollen. The legs are very slender and simple, and of an orange colour.

The female agrees with the male in general colours, but has the body more robust and the legs shorter; the median vein of the costal area is furcate at about $7\frac{1}{2}$ lines from the base; and the operculum is acutely boat-shaped, and extends to the extremity of the abdomen.

PLATE XL. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways.
Fig. 3. The female, of the natural size, seen sideways, with the bases only of the limbs exhibited.

46. (379.) Necroscia Cercyon, *Westw.*

PLATE XXXIV. fig. 1, male.

Valde attenuata, cylindrica, inermis, viridi-fusca, opaca; capite subrotundato, oculis magnis; antennis corpore longioribus, 4-annulatis; tegminibus brevibus, ovalibus, rufo-fuscis, carina nigra acute angulata, margine externo albo; alis fuscis, nubilis pallidioribus transversis vix distinctis, area costali brunneo-fusca (area postica haud obscuriori), vena mediana simplici pallide viridi, margine antico ad basin brunnescenti; abdomine nigro-fusco; pedibus gracilibus, luteo-fulvis (mas).

Long. corp. unc. 2, lin. 5; cap. lin. 2; anten. unc. $2\frac{3}{4}$; proth. lin. 2; mesoth. lin. 5; metath. lin. $4\frac{1}{2}$; abdom. lin. 13 + lin. 2 = lin. 15; tegm. lin. 2; alar. expans. unc. $2\frac{3}{4}$.

Hab. Pulo Penang. In Mus. D. Westermanni Havniæ.

This species is closely allied to *N. Marmessus*, but differs in its colours and in the clavate anal styles. It is very slender and cylindrical, greenish brown and opake. The head wide, with very prominent eyes; ocelli obsolete. The antennæ are longer than the body, very slender, dark brown, with four white rings placed at equal distances apart, the last being close to the tip. The pro- and mesothorax are simple. The tegmina are small, subovate, reddish brown; the carina black, acutely, but not strongly, angulated before the middle; the outer margin white. The wings large, brown, with scarcely distinct paler transverse clouds between the longitudinal veins; the latter are rather darker reddish brown; the costal area is reddish brown, scarcely darker than the hind part of the wing; the median vein simple and pale green; the fore margin at the base is reddish brown. The abdomen is blackish brown and slender; the terminal segments short, and but slightly swollen, the last with its lateral posterior angles produced; the anal styles porrected, incurved, and gradually clavate to the tips; the three terminal ventral segments are constricted at the base of each, the last extending to the end of the last dorsal segment. The legs are long, very slender, and simple, and of luteo-fulvous colour.

PLATE XXXIV. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen sideways.

47. (380.) Necroscia Euplectes, *Westw.*

PLATE XXVIII. fig. 1, male.

Gracillima, filiformis, inermis, fusco-nigricans; capite antice, pro- et mesonoto granulis albis notatis; antennis longissimis, albo annulatis; tegminibus parvis, rotundatis, in medio conice elevatis, brunneo-carneis, linea media alteraque transversa albis; alis fuscis, iridescentibus, area costali puniceo-fusca linea longitudinali pallidiori; pedibus gracilibus, geniculis tarsisque albidis (mas).

Long. corp. unc. 2; cap. lin. $1\frac{1}{3}$; anten. lin. 23; proth. lin. $1\frac{1}{3}$; mesoth. lin. 4; metath. lin. 3; abdom. lin. 12 + lin. $2\frac{1}{2}$ = lin. $14\frac{1}{2}$; tegm. lin. 1; alar. expans. unc. $2\frac{1}{4}$.

Hab. In Borneo (Sarawak) (*D. Wallace*). In Mus. W. W. Saunders.

This very slender species is well distinguished by its iridescent wings, and the white granules on the pro- and mesothorax. The head is rather broad, unarmed; eyes large; front of head dirty whitish, with the upper lip tinged with green. The antennæ are very long and slender, dark brown, with three distant white annuli. The mesothorax is slender and nearly cylindrical; the under surface and sides pale greenish buff; the disc, like that of the prothorax, dark brown, with a fine raised longitudinal median line, the surface covered with numerous minute whitish granules. The tegmina are very small, nearly round; the middle of the central carina very strongly elevated and rounded, brown; the costa tinged with green and pink, and the disc marked with a transverse whitish line. The wings are brown, very transparent, and strongly iridescent; the costal area pale brown, strongly tinged with pink, and with a pale whitish line extending from the base to about the middle, where it is gradually lost. The fore legs are wanting; the four hind legs are long, very slender, and simple, brown; the tips of the femora and the tarsi pale buff. The abdomen is long and slender, brown, paler beneath, and tinged with green; the three terminal segments dilated; the ninth strongly emarginate at its extremity, with the obtuse anal styles porrected, curved, and setose; the terminal ventral segments are much swollen, the last not extending to the extremity of the eighth dorsal segment.

PLATE XXVIII. Fig. 1. The male, of the natural size. 1 *a*. The extremity of the abdomen seen sideways.

48. (381.) Necroscia atricoxis, *Westw.*

PLATE XXI. fig. 5, female.

Elongata, gracilis, fusca, antice olivaceo tincta, inermis; antennis valde elongatis, fuscis, albido 6-annulatis; tegminibus parvis, ovalibus, postice subtruncatis, tuberculo conico nigro instructis; alis fuscis, area costali luteo-fusca; pedibus luteo-fuscis, coxis et apicibus femorum nigris (fœm.).

Long. corp. fœm. unc. 3; cap. lin. 2; anten. unc. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 7; metath. lin. 6; abdom. lin.

16 + lin. 3 = lin. 19; tegm. lin. 3; alar. expans. unc. 3, lin. 7.

Hab. In India orientali (*Domina Hamilton*). In Mus. Soc. Ent. Londin.

Long and slender. Colour brown; the anterior part of the body tinged with olivaceous; the head with several slightly indicated darker longitudinal lines. Head rounded, moderately convex, unarmed. Antennæ very long and slender; joints extremely numerous, with six equidistant annuli of white. Pro- and mesothorax slender and simple, with a slender pale longitudinal dorsal line. Tegmina small, oval, subtruncate at the extremity, brown; costa whitish; carina dark brown, elevated, with a strong conical black lobe before the middle. Wings large, uniform brown; veins concolorous; costal area brighter brown, buff along the fore margin; median vein furcate, the lower branch uniting with the upper before the extremity of the wing. Abdomen long, gradually attenuated to the tip, which is rounded and simple; anal styles slightly extending beyond the apex, obtuse at the tip; oviduct boat-shaped, reaching as far as the extremity of the ninth dorsal segment, acute at its tip. Legs long, very slender, and simple; the coxæ and tips of the femora black; basal joint of the tarsi in the fore legs longer than all the rest united, as long as the three following in the four hind legs.

Plate XXI. Fig. 5. The female, of the natural size. 5 *a*. The extremity of the body seen sideways.

49. (382.) Necroscia Umbretta.

Obscure fuliginosa; thorace tereti, scabro; tegminibus brevissimis, basi aristato-spinosis; alis longitudine abdominis, extus maculis oblongis fuscis; antennis concoloribus, longitudine corporis (mas).

Phasma linearis (Le double épine brun), *Stoll, Spectr.* pl. 8. f. 27, *and Append.*
G. R. Gray, Syn. Phasm. p. 26 (nec Phasma lineare, *Fabr.* = Prisopus manicatus).
Phasma Umbretta, *Lichtenstein, Linn. Trans.* vi. 14.
(An Ph. acanthoptera, *Stoll*?)

Hab. In Surinamo. Mus. Holthuys.

50. (383.) Necroscia acanthoptera.

Fusca; tegminibus spinosis; alis flavescenti-brunneis; area costali rufescenti, brunneo maculata.

Phasma acanthoptera (Le Spectre moucheté), *Stoll, Spectr.* pl. 21. f. 78, *and App.*
G. R. Gray, Syn. Phasm. p. 23.
Serville, H. N. Orth. p. 268.
Burmeister, Handb. d. Ent. ii. 2. 586.
De Haan, Orth. Orient. p. 123.
(An Phasma lineare, *Stoll* = Ph. Umbretta, *Licht.*?)

Hab. In Amboina (*Stoll*); Cayenne (*Serville*).

51. (384.) Necroscia Casignetus, *Westw.*

Plate XX. fig. 5, female.

Elongata, subgracilis, corpore et pedibus inermibus, tegminibus spina curvata erecta armatis; mesothorace linea tenui media glabra, dorsoque granulosa; tota fusca; alis fuscescentibus, area costali brunnea, vena 2da furcata; pedibus longis, intermediis brevioribus (fœm.).

Long. corp. unc. $3\frac{3}{5}$; cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. $6\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. $19\frac{1}{2}$ + lin. 3 = lin. $22\frac{1}{2}$; tegm. lin. 3; alæ, lin. $22\frac{1}{2}$; alar. expans. unc. 4.

Hab. Assam (*Major Jenkins*). Mus. Hopeiano Oxoniæ, olim nostr.

Female. Long and moderately slender; the metathorax widest, and the abdomen gradually attenuated. General colour brown, obscure; abdomen glabrous. Head wider than the prothorax; eyes prominent; ocelli obsolete. Antennæ long, extending at least to the extremity of the fourth segment of the abdomen. Mesothorax gradually widened behind, finely granulose, with a fine raised longitudinal glabrous line. Tegmina broadly ovate, angulated along the middle, with an acute, curved, and erect spine near the centre. Wings smoky; costal area brunneous; the principal vein furcate. Abdomen with the three terminal dorsal segments short; the last notched at the tip, exposing the two short obtuse anal styles (the terminal ventral segments are injured in the unique specimen in my collection). Legs moderately long, slender, and simple (the intermediate pair the shortest). Tarsi with the basal joint about as long as the four others united.

Plate XX. Fig. 5. The female, of the natural size.

52. (385.) Necroscia annulata.

Fusca; tegminibus margine exteriore flavis, in medio dente brevi elevato; alis fuscis; antennis longis, fuscis, annulis quatuor albidis; pedibus ferrugineis.

Phasma annulata, *Fabricius, Ent. Syst. Suppl.* p. 189.
Latreille, Gen. Crust. et Ins. iii. 87.
G. R. Gray, Syn. Phasm. p. 23 (nec Phasma annulata, *Serville*).

Hab. Tranquebaria.

53. (386.) Necroscia vinosa.

Lævis, rufo-brunnea, corticina; ocellis nullis; mesothorace prothorace triplo longiori, in medio supra carina vix distincta; tegminibus concoloribus, carina mediana valde et acute elevata; alis subhyalinis rufo-vinosis, costa opaca corpore concolori; pedibus brunneis, femoribus viridi tinc-

tis; antennis fuscis, pone medium albo 4-annulatis (mas et fœm.).

Long. corp. maris, unc. 2, lin. 5; cap. lin. $1\frac{1}{3}$; anten. unc. $2\frac{1}{6}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. 4; metath. lin. $4\frac{1}{2}$; abdom. lin. 14 + lin. $2\frac{1}{2}$ = lin. $16\frac{1}{2}$; tegm. lin. 2; alar. expans. fere unc. 3.

Long. corp. fœm. unc. 3; cap. lin. 2; anten. unc. $2\frac{1}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 6; metath. lin. 7; abdom. lin. 17 + lin. 3 = lin. 20; tegm. lin. 4; alar. expans. unc. $4\frac{1}{4}$.

Necroscia vinosa, *Serville, H. N. Orth.* p. 253.
Phasma (Necroscia) vinosum, *De Haan, Orthopt. Orient.* pp. 118, 120.

Hab. In Java (*Serville*); Sarawak, Borneo (*Wallace*). In Mus. W. W. Saunders et Hopeiano Oxoniæ (olim nostr.).

Fine specimens of the male of this species have been received from Mr. Wallace. The female is now described for the first time from a specimen obtained by me from the Museum of Leyden.

It is of a reddish-brown colour, the head and anterior femora having a dull greenish tinge, the former with a dark red triangular patch between the eyes, and with several slight longitudinal darker lines at the back part of the head, which is very convex. The antennæ have two short pale rings beyond the middle. The mesonotum has a slender raised longitudinal line down the middle, and the disc exhibits a number of minute pale granules. The central carina of the tegmina is conically elevated and very acute along its whole length. The median vein of the costal area of the wings is furcate at about one-third of the length from the base. The legs are slender, with a very minute tooth near the extremity of the femora beneath. The ovipositor reaches nearly to the extremity of the abdomen, and the anal styles are short, slender, porrected, and setose.

54. (387.) Necroscia rubicunda.

Mesothorace elongato; alis rubicundis, area antica fusca maculis flavis nervis simplicibus; elytris planis, fuscis; pedibus cinereis fusco annulatis (fœm.).

Long. corp. 3″; alar. 1″ 10‴.

Phasma (Necroscia) rubicundum, *De Haan, Orthopt. Orient.* p. 120. pl. 12. f. 2, fem.

Hab. In Borneo.

55. (388.) Necroscia rosea.

Viridis aut rufescenti-brunnea, antennis rufo-brunneis; mesothorace tereti, glabro; tegminibus minutis, ovalibus, rufo-brunneis, striga obscura longitudinaliter notatis; alis carneis, subopacis, area costali viridi; pedibus flavis, femoribus denticulatis.

Long. corp. unc. 3; anten. unc. 1; alar. expans. unc. $3\frac{3}{4}$.

Phasma rosea (Le Spectre à ailes rouges), *Stoll, Spectr.* pl. 5. f. 17.
Mantis rosea, *Fabricius, Ent. Syst.* ii. 16; *Ent. Syst. Suppl.* p. 190 (Phasma r.).
Latreille, Gen. Crust. et Ins. iii. 87.
Lepel. et Serv. Enc. Méth. x. 101.
Serville, Ann. Sci. Nat. xxii. p. 31 (Phasma r.).
G. R. Gray, Syn. Phasm. p. 37 (Platycrana r.).
Mantis erythroptera, *Olivier, Enc. Méth.* no. 58.
Phasma roseum, *Lichtenstein, Linn. Trans.* vi. 14.

Hab. East Indies; Amboyna; Ceram (*Madame Ida Pfeiffer*). B.M.

The male is figured by Stoll. The fore femora have two spines beneath near the tip, the middle femora have three or four small spines near the tip, and the hind femora have about eighteen along their whole length beneath, three near the tip being larger than the rest. The tegmina are oval, with a dark central longitudinal streak furcate towards the middle, the outer branch being again furcate beyond the middle. The three terminal segments of the body in the male are of nearly equal length, the seventh segment gradually widened, the eighth subquadrate, the ninth subquadrate, but emarginate along its apical truncation, with a minute terminal lobe and a longitudinal carina along the middle of the back of this joint; the anal styles are about the length of the last joint, exserted, dilated and converging at the tips, their inner surface at the extremity being armed with several minute teeth.

56. (389.) Necroscia marginata.

Viridis; mesothorace granuloso; tegminibus areaque costali viridibus, margine exteriori lactifloreis, interne nigro marginatis; alis puniceis; pedibus inermibus.

Long. corp. unc. $2\frac{1}{2}$; cap. lin. 2; anten. unc. $2\frac{1}{6}$; proth. lin. 2; mesoth. lin. 5; metath. lin. 5; abdom. lin. 13 + lin. 4 = lin. 17; tegm. lin. 3; alar. expans. unc. $3\frac{1}{4}$.

Phasma marginatum, *G. R. Gray, Syn. Phasm.* p. 23.

Hab. In Ora Malabariensi. B.M.

The head is small. The mesothorax granulated. The tegmina with the central carina gently elevated near the middle. The legs simple, and the anal styles exserted and dilated at the tips.

57. (390.) Necroscia 4-guttata.

Capite gibboso, viridulo, ore flavo, ocellis obsoletis; thorace viridi, subrugoso; mesothorace prothorace triplo lon-

giori, 3-carinato (carina una dorsali, duabus lateralibus); tegminibus viridibus ($2\frac{1}{2}$ lin. long.), carina mediana distincta utrinque puncto flavo rotundo; alis hyalinis, roseis; costa opaca, viridescenti; abdomine, pedibus, et basi antennarum viridi-flavescentibus; femoribus anticis basi rectis (mas).

Long. corp. fere unc. 2; fœm. unc. $3\frac{1}{3}$.

Necroscia 4-guttata, *Serville, H. N. Orth.* p. 253.
Phasma 4-guttatum, *Burmeister, Handb. d. Ent.* ii. 2. 586. *Charpentier, Orth. Descr.* t. 10.
Phasma (Necroscia) 4-guttatum, *De Haan, Orth. Orient.* pp. 118, 121 (excl. syn. P. rosei, *Fab., Stoll, Licht.*).

Hab. In Java (*Serville*); Borneo (*De Haan*).

Both sexes of this species are contained in the Royal Museum at Berlin. The head is convex; the mesothorax granulose; the median carina of the tegmina very strongly and roundly raised between the base and middle of the tegmina; the wings extend to the end of the sixth segment of the abdomen. The following are the proportions of the female:—

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. $2\frac{2}{3}$; anten. unc. $2\frac{1}{6}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 6; metath. lin. 6; abdom. unc. 2; tegm. lin. 4; alar. expans. unc. $4\frac{1}{3}$.

58. (391.) Necroscia bis 2-guttata.

Cæruleo-viridis; antennis longis, albo 5-annulatis; elytris guttis 4 albis; alarum area postica rosea; mesothorace granuloso.

Long. corp. maris, unc. 2; cap. lin. $1\frac{1}{2}$; anten. lin. 20; proth. lin. $1\frac{1}{3}$; mesoth. lin. 4; metath. lin. $3\frac{1}{2}$; abdom. lin. $11\frac{1}{2} + \text{lin. } 2 = \text{lin. } 13\frac{1}{2}$; tegm. lin. $1\frac{2}{3}$; alar. expans. unc. 2, lin. 7.

Hab. In Java; Borneo.

Phasma bis 2-guttatum, *Burmeister, Handb. d. Ent.* ii. 2. 586.
Charpentier, Orth. Descr. pl. 11.

The above proportions are taken from an examination of the typical specimen preserved in the Royal Museum at Berlin.

59. (392.) Necroscia Rafflesii.

Cærulescenti-viridis; macula inter oculos flava; mesothorace longo, gracili; tegminibus maculis duabus in medio albis; alis hyalinis, albis, coccineo marginatis; abdomine basi sulphureo, apice cæruleo-viridi; pedibus basi flavis.

Long. corp. 2″ 2‴; alar. exp. 2″ 7‴.

Platycrana Rafflesii, *G. R. Gray, Syn. Phasm.* p. 37.
Phasma (Necroscia) Rafflesii, *De Haan, Orth. Orient.* pp. 118, 121.
(An Necroscia bis biguttata?, teste *De Haan.*)

Hab. In Sumatra (*Gray*); Java (*De Haan*). Olim in Mus. Soc. Zool. Lond.

60. (393.) Necroscia Marmessus, *Westw.*

Plate XIX. fig. 7, male.
Plate XIX. fig. 1, female.
Plate XXIX. fig. 4, var. male.

Gracilis, inermis, mesonoto granulis minutis instructo; obscure lutescenti-virescens; capite viridi; tegminibus parvis, ovalibus, viridibus, macula alba aut fulva pallida ante medium marginis interni, alteraque marginis externi; alis læte puniceis, area costali viridi, versus basin magis flavescenti; pedibus longis, gracilibus, fulvo-testaceis, annulo pallidiori ante apicem tibiarum 4 anticarum; antennis albo annulatis.

Var. maris maculis tegminum rotundatis fulvis.

Var. maris macula rotundata fulva inter oculos (mas et fœm. An *N. Rafflesii*?).

Long. corp. maris, unc. $2\frac{1}{6}$; cap. lin. 2; anten. unc. $2\frac{1}{4}$; proth. lin. 2; mesoth. lin. $5\frac{2}{3}$; metath. lin. $5\frac{1}{4}$; abdom. lin. $12 + \text{lin. } 2\frac{1}{2} = \text{lin. } 14\frac{1}{2}$; tegm. lin. 2; alar. expans. lin. 31.

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. $2\frac{1}{3}$; proth. lin. 2; mesoth. lin. 6; metath. lin. 6; abdom. lin. $18 + \text{lin. } 3\frac{1}{2} = \text{lin. } 21\frac{1}{2}$; tegm. lin. $3\frac{1}{3}$; alar. expans. unc. 4, lin. 5.

Hab. In Malacca; Borneo (Sarawak) (*D. Wallace*). In Mus. W. W. Saunders, Hopeiano Oxoniæ, et B.M. In Sumatra (*D. Raffles*). In Mus. Soc. Merc. Ind. Orient.

The pale-ringed antennæ and the elegant contrast of the two portions of the beautifully tinted wings distinguish this species. The general colour is dull luteous, tinged with green on the thorax, and with fulvous on the abdomen, which is glossy. The head is broad, with the eyes very prominent, convex above, fine green, with a large yellow rounded spot between the eyes. The antennæ are very long and slender, blackish, with about five whitish annuli. The metathorax is finely granulated. The tegmina are small, subovate, rather strongly angulated near the middle; the base, and a spot between the base and the middle of the inner margin, together with another spot beyond the middle of the outer margin, pale. The wings are rosy pink; the costal area green, yellower at the base, with the veins darker green, the principal vein not being furcate. The abdomen is long and slender; the terminal segments considerably swollen; the ninth dorsal segment with an acute

edge; the anal styles obtuse, incurved, and forcipated. The legs are long, slender, unarmed, testaceous-coloured; the basal joint of the tarsi as long as all the remaining joints united.

The female is larger and broader, with shorter legs. The general colour resembles that of the male; the pale spot across the middle of the tegmina transverse, and extending to the inner margin, and the pale spot of the outer margin more oblique. The chief vein of the costal area is furcate. The three terminal segments of the abdomen compressed and short; the ovipositor not swollen, extending to the extremity of the ninth dorsal segment; the anal styles straight and obliquely porrected.

The colour and form of the spots on the head and tegmina vary in different specimens. In some males the head is spotless, in others it has a large rich fulvous-yellow round spot between the eyes. In some specimens of both sexes the spots of the tegmina are transverse, oblique, and whitish; in others fulvous yellow; whilst in some the spots are round and fulvous yellow. I at first considered the specimens with rounded spots on the tegmina as a distinct species, to which I gave the name of *Ph. Eurybates*, which they may retain, if ultimately proved to be a distinct species.

PLATE XIX. Fig. 7. The male, of the natural size. 7 *a*. The terminal segments of the body seen sideways.

PLATE XIX. Fig. 1. The female, of the natural size. 1 *a*. The head seen sideways. 1 *b*. The extremity of the body seen sideways.

PLATE XXIX. Fig. 4. Variety of the male with rounded spots of the tegmina (*Ph. Eurybates*, Westw., olim). 4 *a*. The extremity of the body seen sideways.

61. (394.) Necroscia annulipes.

Antennis nigrescentibus, albo annulatis; capite flavo, nigro lineato; thorace supra rufo, nigro lineato, scabro, subtus viridi-flavo; tegminibus viridi-flavis, margine interiore rufo-brunneo, in medio macula flava; alis pallide roseis, area costali viridi-flava, lineis tribus longitudinalibus rufo-brunneis; abdomine lurido; pedibus flavis, quatuor anterioribus annulis rufo-brunneis.

"Pedum anteriorum femoribus et tibiis 3-annulatis; mediorum femoribus annulo unico, tibiis annulis 2 nigris, pedibus posticis concoloribus. ? Nova Hollandia."—*De Haan.*

Long. corp. maris, 2″ 6‴; anten. 2″ 7‴; alar. expans. 3″ 1‴.

Long. corp. fœm. unc. $3\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{3}$; mesoth. lin. 6; metath. lin. 7; abdom. lin. 19 + lin. 4 = lin. 23; tegm. lin. 3; alar. expans. unc. $4\frac{3}{4}$.

Phasma annulipes, *Curtis, MS.*
G. R. Gray, Syn. Phasm. p. 37 (Platycrana ann.).
Phasma (Necroscia) annulipes, *De Haan, Orth. Orient.* pp. 118, 121.

Hab. In India orient. Malacca; Nova Hollandia. In Mus. Curtis, B.M., &c.

I am indebted to Mr. Curtis for permission given to Mr. Haliday to make a drawing of the typical specimen described by Mr. G. R. Gray from his Collection, which is a male. A female in the Leyden Museum is ticketed "Nova Hollandia?" Mr. Wallace has sent it from Malacca. It is a very slender species. The head has a black line on each side behind the eye, which also extends along the sides of the pro- and mesothorax. The anterior femora have two black rings beyond the middle; the middle femora have a single black ring near the tip, and the hind femora (in the female) are without rings; the four anterior tibiæ in the female are annulated with black, and the tip of the basal joint of the tarsi in the middle legs and the extremity of the hind tibiæ are also dark-coloured.

62. (395.) Necroscia vittata.

Lævis; capite magno; prothorace lævissimo, cylindrico, lateribus haud dilatatis; mesothorace prothorace vix duplo longiori; capite et thorace viridibus, hoc supra lineis duabus flavidis in thoracem extensis, alterisque duabus lateralibus pone oculos, singula in medio fasciæ lævi viridi-nigra; ocellis obsoletis; alis hyalinis obscuris (basi excepto), roseo vix tinctis, costa opaca, margine extremo virescenti, striaque longitudinali brunnea, alteraque contigua flavescenti; abdomine viridi-flavo, viridi vix lineato; corpore infra viridi-flavo.

Long. corp. circ. unc. 2.

Necroscia vittata, *Serville, H. N. Orth.* p. 254.
Phasma (Necroscia) vittatum, *De Haan, Orth. Orient.* p. 118.

Hab. In Java.

63. (396.) Necroscia chlorotica.

Obscure flavida; capite angusto, elongato, postice nigro lineolato; ocellis obsoletis; thorace albido granuloso, lineis nigris vix distinctis, utrinque unicarinato, subtus nigro punctato; mesothorace prothorace triplo longiori; tegminibus obscure flavidis (2 lin. long.), carina mediana distincta haud angulata; alis magnis, hyalinis roseo vix tinctis, costa opaca obscure flavida nigro guttulata; abdomine lævi; antennis pedibusque corpori concoloribus, his obscurius maculatis, femoribus anticis basi profunde emarginatis, stylis analibus porrectis, longitudine segmenti ultimi (fœm.).

Mas. Multo gracilior et obscurior, alis absque ulla tinctura rosea.

Long. corp. maris, unc. $2\frac{1}{3}$; cap. lin. $1\frac{1}{3}$; anten. unc. $2\frac{1}{8}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. 4; abdom. lin. 15 + lin. 3 = lin. 18; tegm. lin. $2\frac{1}{2}$; alar. expans. unc. $2\frac{1}{2}$.

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. 2; anten. unc. 2+; proth. lin. 2; mesoth. lin. 7; metath. lin. 6; abdom. lin. 20 + lin. 4 = lin. 24; tegm. lin. 3; alar. expans. unc. $3\frac{1}{2}$.

Necroscia chlorotica, *Serville, H. N. Orth.* p. 252.
Phasma (Necroscia) chlorotica, *De Haan, Orth. Orient.* pp. 118, 121.

Hab. In Java. In Mus. Lugdunens. et Hopeiano Oxoniæ (mas et fœm. cum individuo typico Servilleano).

64. (397.) Necroscia roseipennis.

Capite et prothorace supra obscure viridibus, rugosis, ocellis distinctis; capite postice in medio canaliculato; mesothorace prothorace triplo longiori, 3-carinato (una dorsali et duabus lateralibus); tegminibus viridibus, brevibus (2 lin. long.), carina mediana distincta albida; alis hyalinis rosaceis, costa viridi opaca; abdomine viridi-luteo, postice attenuato, appendiculis duobus brevibus crassis; pedibus viridibus, femoribus anticis ad basin emarginatis (fœm.).

Mas. Triplo minor, gracilis; antennis viridibus, corpore longioribus.

Long. corp. unc. $2\frac{1}{2}$.

Necroscia roseipennis, *Serville, H. N. Orth.* p. 252.
Guérin, Icon. du Règne An., Ins. pl. 53. f. 5, texte, p. 328.
Griffith, Animal Kingdom, pl. 110. f. 5.
Phasma (Necroscia) roseipenne, *De Haan, Orth. Orient.* pp. 118, 121.

Hab. In Java (*Serville*). Borneo; Sumatra (*De Haan*).

De Haan (*l. c.*) has given *Phasma curvipes*, Stoll, *valgum*, Lichtenstein, *roseipennis*, Serville, *Chloris*, Serville, and *prasinum*, Burmeister, as one species. Having, notwithstanding all my exertions, been unable to find any trace of Serville's typical specimens in the Paris Collections, I am unable to determine how far De Haan is justified in such a step, and therefore prefer giving the species as distinct.

65. (398.) Necroscia Chloris.

Capite et thorace viridibus, supra rugosis; ocellis obsoletis; capite utrinque linea alba postice notato; mesothorace prothorace saltem triplo longiori; 3-carinata (una dorsali et duabus lateralibus); tegminibus viridibus (saltem 2 lin. long.), carina mediana distincta albida; alis hyalinis subroseo tinctis; costa opaca viridula; abdomine viridi-luteo, postice attenuato, viridi; pedibus antennisque mutilis (fœm.).

Long. corp. unc. $2\frac{1}{2}$.

Necroscia Chloris, *Serville, H. N. Orth.* p. 253.
Phasma (Necroscia) roseipenne, *Serv.*, var. teste *De Haan, Orth. Orient.* p. 121.

Hab. In Java.

66. (399.) Necroscia Burmeisteri, *Westw.*

Pallide viridis, unicolor; alarum area postica pallide incarnata; mesonoto granulato, linea media necnon utrinque laterali elevata.

Long. corp. fœm. unc. 2, lin. 7; cap. lin. $1\frac{1}{2}$; anten. unc. $2\frac{1}{4}$; proth. lin. $1\frac{2}{3}$; mesoth. lin. 5; metath. lin. $4\frac{1}{2}$; abdom. lin. 15+lin. 3=lin. 18; tegm. lin. 2; alar. expans. unc. $3\frac{1}{4}$.

Phasma prasinum, *Burmeister, Handb. d. Ent.* ii. p. 586; nec Ph. prasinum, *Serville, H. N. Orth.* p. 272.
Phasma (Necroscia) roseipenne, *Serv.*, fœm. teste *De Haan, Orth. Orient.* p. 121.

Hab. In Java et Borneo.

The typical specimen described by Burmeister is contained in the Berlin Museum; it is a female, and is more slender than the allied species; the tegmina having the median carina but little elevated; and the operculum does not extend beyond the middle of the ninth dorsal segment.

67. (400.) Necroscia curvipes.

Cinerea, gracilis; mesothorace tereti, glabro; tegminibus brevissimis, ovatis, nigro lineatis; alis hyalinis; femoribus anticis extrorsum divaricatis; antennis longissimis, nigris (mas).

Long. corp. 2″ 1‴; anten. 2″ 3‴; alar. expans. 2″ 6‴.

Phasma curvipes (Le Spectre aux pieds de devant courbés), *Stoll, Spectr.* p. 43. pl. 13. f. 52.
G. R. Gray, Syn. Phasm. p. 38 (Platycrana c.).
Mantis inflexipes, *Oliv. Enc. Méth.* vii. 641.
Serville, Ann. Sc. Nat. xxii. 58 (Phasma inf.).
Phasma valgum, *Lichtenstein, Linn. Trans.* vi. 16.
Phasma (Necroscia) roseipenne, mas, *Serville*, teste *De Haan, Orth. Orient.* p. 121.

Hab. In China.

68. (401.) Necroscia Zeuxis, *Westw.*

Plate XXVIII. fig. 5, male; fig. 6, female.

Gracilis; oculis magnis; antennis pedibusque elongatis, simplicibus, nigro irregulariter annulatis; alarum area postica ante apicem fascia maculari pallide cærulea; articulo 1mo tarsorum subtus ad basin intus paulo angulato.

Mas. Nigricans, mesothorace obscurius submaculato; capite mesothorace duplo latiori, impressione rotunda inter oculos; mesothorace tenuissime granulato; tegminibus brevibus, margine interno obscure rufo; alarum area antica nigricanti, nebulis irregularibus griseis, vena mediana integra virescenti, area postica nigra, venis transversis tenuissimis albidis.

Fœm. Grisea, fusco vel nigricanti variegata; antennis albido annulatis; mesothorace granuloso; tegminibus obscure cinereis albido tessellatis; alarum area antica grisea, irregulariter nigricanti fasciata, area postica nigra, versus basin albido tessellata, medio lunula magna fulva, fasciaque subapicali pallide cærulea; pedibus luteo-cinereis nigro fasciatis; operculo anali elongato.

Long. corp. maris, unc. $2\frac{5}{6}$; cap. lin. $1\frac{1}{2}$; anten. unc. $3\frac{2}{3}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $8\frac{1}{4}$; metath. lin. $4\frac{1}{4}$; abdom. lin. 16 + lin. $2\frac{1}{2}$ = lin. $18\frac{1}{2}$; tegm. lin. $2\frac{1}{4}$; alæ, lin. 16; alar. expans. fere unc. 3.

Long. corp. fœm. unc. $4\frac{1}{6}$; cap. lin. $2\frac{1}{2}$; anten. unc. $3\frac{3}{4}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. $10\frac{1}{2}$; metath. lin. 5; abdom. lin. 21 + lin. 4 + operc. apice lin. 2 = lin. 27; tegm. lin. 4; alæ, lin. 19; alar. expans. unc. $3\frac{1}{6}$.

Hab. In Borneo (Sarawak) (*D. Wallace*). In Mus. W. W. Saunders, Mus. Hopeiano Oxoniæ, et B.M.

The male is very slender and cylindrical, of a greenish-black colour; the abdomen and antennæ black. The head short and wide; eyes large. Antennæ very long, black; basal joint moderate-sized; on the face between the eyes is a circular depression. Mesothorax very slender, and very finely granulated. Abdomen slender; three terminal joints short, bent upwards; terminal joint slightly notched at the tip; anal styles short, obtuse; three terminal ventral segments swollen, extending to the extremity of the abdomen, the terminal one emarginate at the tip. Tegmina small, oval, with a moderately raised conical tubercle near the base; the inner edge, as well as a spot near the base, obscure red. The wings have the costal area blackish brown, varied with obscure paler greyish spots, with a reddish tinge along the fore and inner margin; posterior area black, with a curved row of pale blue spots near the apex. Under side of the body and of the femora tinged with green, except the metasternum, which is brick-red. The tibiæ slightly annulated with obscure paler marks.

The female is much larger and more robust. The head and pro- and mesothorax greyish obscure, the latter finely granulated, varied with blackish markings. The antennæ with a number of pale rings. The tegmina blackish, mottled with greyish buff, as well as the costal area of the wings, the base of which is brown, tessellated towards the middle with dirty-buff spots; a large orange curved fascia in the middle, followed by the curved row of blue spots as in the male. The legs are alternately banded with buff and blackish brown; the three terminal segments of the abdomen are simple, with a curved upper outline. The operculum is but little swollen, and extends considerably beyond the extremity of the abdomen; it is acutely bifid at its tip, and is accompanied within by two elongated horny appendages bifid at the tip, the upper apex acute and elongated.

Plate XXVIII. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the abdomen seen sideways.
Fig. 6. The female, of the natural size. 6 *a*. The appendages of the operculum seen from above. 6 *b*. The terminal segments of the abdomen seen laterally.

69. (402.) Necroscia pulchella.

Mas. Mesothorace subelongato, duabus lineis longitudinalibus nigris notato; alis obscuris, infra medium fuscescentibus, lineis duabus luteis inter singulum nervorum par, apice nigro-velutinis macula media flava, juxta aream anticam producta; area antica fuscescente, nervis tribus mediis læte viridibus; capite inermi, ocellis nullis; antennis nigris; pedibus viridibus, femorum angulis duobus superioribus nigris.

Long. corp. 13‴; proth. 1‴; mesoth. 2‴; alar. $8\frac{1}{2}$‴.

Phasma (Necroscia) pulchellum, *De Haan, Orth. Orient.* p. 120. pl. 15. f. 5, mas.

Hab. In Sumatra (*De Haan*); Sarawak (*Wallace*). In Mus. Lugdunensi et W. W. Saunders.

70. (403.) Necroscia Tages, *Westw.*

Plate XVIII. fig. 1, male.

Gracilis; mesothorace abbreviato; alis maximis; capite fulvo; pro- et mesothorace virescentibus nigro maculatis; tegminibus subquadratis, viridibus, carina media rufa, alis nigricantibus, basi fasciaque subapicali maculari alba; area costali antice viridi, vena mediana rufa, postice nigra venulis viridibus; abdomine brunneo, segmentis apicalibus lateraliter flavo variegatis.

Long. corp. unc. 2; cap. lin. 2; proth. lin. 2; mesoth. lin. $2\frac{3}{4}$; metath. lin. 5; abdom. lin. 11 + lin. 3 = lin. 14; tegm. lin. $2\frac{1}{2}$; alæ, lin. 19; alar. expans. unc. 3, lin. 5.

Hab. In India orientali. In Mus. Hopeiano Oxoniæ (olim nostr.).

I obtained the only specimen which I have seen of this beautiful species from a large Indian Collection consigned to Mr. S. Stevens for sale; it is remarkable for the small

size of the head, the abbreviated mesothorax, short legs, and very large wings, as well as for the various colours of the latter. The head is small and convex, destitute of ocelli, fulvous, with a black spot on each side behind the eyes. The antennæ are black, with the two basal joints luteous green. The extremities are broken off at nearly an inch from the base. The prothorax is nearly equal in size to the head; it is green, with the anterior lateral angles, two contiguous spots in the middle of the fore margin, a spot on each side above the insertion of the fore legs, and a spot on the middle of the hind margin black. The mesothorax is short and rather narrowed in front, having a slight constriction close to the fore margin; it is slightly rugose, green, with two spots on the disc towards the fore margin, a slender lateral line on each side, and a transverse spot near the hind margin black. The tegmina are broad, nearly square, with the angles rounded off, green, rugose, with a strongly angulated red carina. The wings are very large; the costal area green in front; the strong midrib red, furcate beyond the middle; the hind part black, with the numerous transverse veinlets green; membranous area brownish black, with a large basal spot and a subapical row of oval spots white. The abdomen is long and slender, chestnut-brown, with the junction of the segments, as well as the sides of the terminal segments, yellow. The legs are rather short and simple; the tarsi with the basal joint as long as the three following taken together. Body beneath luteous; the three terminal ventral segments reaching to the extremity of the eighth dorsal segment, not swollen; the articulations indistinct *, two curved thin appendages extending beyond the tip; the anal styles of moderate size, extending beyond the extremity of the body.

Plate XVIII. Fig. 1. The male, of the natural size. 1*a*. The terminal segments of the abdomen seen sideways.

71. (404.) Necroscia Sparaxes, *Westw.*

Plate IX. fig. 6, male.
Plate XX. fig. 4, female.

Elongata, inermis, rufescenti-albida, lævis, haud nitida; capite et thorace tenuiter villosis, capitis vertice et mesonoto lineis tribus nigris; prothorace linea unica mediana; tegminibus breviter ovalibus, in medio carinatis et angulato-elevatis; alis hyalinis, venis longitudinalibus fuscis, transversis late fusco tinctis, area costali fulvo-lutea, basi obscuriore, vena media simplici in ♂, furcata in ♀; pedibus brevioribus, inermibus, parum villosis (mas et fœm.).

Long. corp. maris, unc. $1\frac{3}{4}$; cap. lin. $1\frac{2}{3}$; anten. lin. 16; proth. lin. $1\frac{1}{2}$; mesoth. lin. 3; metath. lin. 3; abdom. lin. $10\frac{1}{2}$ + lin. 2 = lin. $12\frac{1}{2}$; tegm. lin. $1\frac{1}{2}$; alar. expans. unc. 2.

Long. corp. fœm. unc. 3; cap. lin. $2\frac{1}{3}$; anten. unc. 2; proth. lin. 2; mesoth. lin. $4\frac{1}{2}$; metath. lin. 6; abdom. lin. 17 + lin. 3 = lin. 20; tegm. lin. 3; alar. expans. unc. $4\frac{1}{3}$.

Hab. Insula Ceylon. Mus. Templeton. India orient. (*Domina Hamilton*). Mus. Ent. Soc. Lond.

Distinguished by its long and narrow form, destitute of spines, with the legs rather short and simple, and the wings large and reticulated. General colour reddish buff. The head with a slender black line down the middle, and one on each side behind the eyes. The antennæ long and slender, especially beyond the middle, with very numerous short joints; they, as well as the legs and anterior part of the body, are finely villose. The pro- and mesothorax have a fine black line down the centre, and the latter has also a fine line on each side within the lateral margin of the mesonotum. The tegmina are small and shortly ovate, strongly carinated down the middle, which is elevated into an angle a little before the centre of the carina. The wings are large and rather hyaline, with the longitudinal veins brown; all the transverse veins widely bordered with a brown shade, which becomes confluent towards the tips of the wings; the costal area fulvous buff, rather darker at the base in the female, and slightly clouded with darker shades. The legs are rather short and simple, and marked with several very fine dark longitudinal lines; the tarsi have the basal joint as long as the three following. The abdomen is reddish brown, with several fine dark longitudinal lines; that of the male is narrow and of nearly uniform width; the seventh joint rather narrowed; the ninth wider, with the posterior lateral angles rounded off; the terminal ventral segments are scarcely swollen, the eighth and ninth being confluent and pointed at the tip, which does not extend beyond the eighth dorsal segment; the anal styles are prominent, slender, and obtuse at the tips.

The female has the extremity of the body gradually attenuated, the terminal joint being bifid at the tip, with the anal styles protruded backwards and placed close together, giving the appearance of an extra minute joint. The operculum is but moderately swollen, and extends to the middle of the ninth dorsal segment, its apex being bifid.

* The slight appearance of articulations induces me to consider this specimen as a male, although the unswollen structure of these segments might be supposed to indicate a female.

PLATE IX. Fig. 6. The male, of the natural size. 6 *a*. The terminal segments seen sideways. 6 *b*. The same seen from beneath.

PLATE XX. Fig. 4. The female, of the natural size. 4 *a*. The terminal segments of the body seen sideways, with the extremity of the operculum separately represented.

72. (405.) Necroscia Virbius, *Westw.*

PLATE XVI. fig. 2, male.

Virescenti-lutescens, obscura; capite majori, postice elevato; mesothorace in medio supra bituberculato; tegminibus brevibus, subovatis, acute carinatis et in medio angulatis; alis fuscis, basi extremo læte viridi, apice pallide marginato, area costali sublutea; abdomine filiformi, rufo, apice inflato, cercis analibus latis, brevibus; pedibus gracilibus, simplicibus (mas).

Long. corp. maris, unc. $1\frac{3}{4}$; cap. lin. $1\frac{1}{2}$; anten. lin. 17; proth. lin. $1\frac{1}{3}$; mesoth. lin. 3; metath. lin. 3; abdom. lin. 10+lin. 2=lin. 12; tegm. lin. 2; alar. expans. unc. $2\frac{1}{2}$.

Hab. In Malacca (*D. Wallace*). In Mus. W. W. Saunders.

I have only seen a single male of this pretty species, the general colour of which is pale obscure greenish lutescent; it is smooth and destitute of spines or tubercles, except two small conical tubercles on the mesonotum rather beyond the middle. The head is considerably wider than the prothorax, with the eyes very prominent; the hind part of the crown is somewhat conically elevated. The antennæ are long, very slender, and with the joints scarcely distinguishable. The mesonotum has a fine central longitudinal carina, and on each side below the raised lateral margin is a short red line running to the base of the tegmina. The tegmina are small, short, subovate, rather sharply carinated down the middle, and with the centre angulated; they are brown, with the veins pale, and forming a strongly reticulated surface. The wings are large, pale brown, the extreme base of a delicate green colour, and the apex pale along the margin; the transverse veins are rather widely stained with rather darker brown; the costal area is dirty luteous, with the longitudinal veins greenish, the principal vein not being furcate. The abdomen is long, filiform, smooth, and of a red colour, knobbed at the extremity; the three apical ventral segments being considerably swollen, and extending nearly to the extremity of the ninth dorsal segment; the anal styles are short, broad, curved, and somewhat forcipate. The legs are of moderate length, slender, simple, and of a greenish lutescent colour; the basal joint of the tarsi about as long as the three succeeding joints.

PLATE XVI. Fig. 2. The male, of the natural size. 2 *a*. The head, pro- and mesothorax seen sideways. 2 *b*. The terminal segments of the abdomen seen sideways. 2 *c*. The last segment with the anal styles seen from behind.

73. (406.) Necroscia Hemus, *Westw.*

PLATE XVI. fig. 3, male.

Parva, capite magno, mesothorace breviori; inermis; viridis, pro- et mesothorace flavo maculatis; tegminibus parvis, ovalibus, supra acute angulatis; alarum area costali viridi, linea longitudinali flavescenti, margine antico obscuro, area postica infumata; abdomine rufo; antennis pedibusque obscure rufis, tarsis albidis.

Long. corp. lin. 18; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{3}$; mesoth. lin. $1\frac{2}{3}$; metath. lin. 3; abdom. lin. $7\frac{1}{2}$+lin. $2\frac{1}{2}$=lin. 10; tegm. lin. $1\frac{1}{2}$; alar. expans. lin. 26.

Hab. In Malacca (*D. Wallace*). In Mus. W.W. Saunders.

Of this pretty little species I have only seen a single male, of which the hind legs were wanting. It is smooth, and destitute of spines or tubercles. The head, pro- and mesothorax, tegmina, and costal area of the wings are green; the mesothorax obscure greenish brown; the abdomen red; the legs obscure reddish, with the tarsi pale buff. The head is larger than the prothorax, very convex, and elevated at the hind margin, glossy, with the eyes very prominent, and having a yellow longitudinal line on each side behind the eye. The antennæ are long and slender, brownish, paler at the base. The prothorax is small, glossy, with two yellow spots in front and a larger broader one behind. The mesothorax is not half as long again as the prothorax; it is narrowed towards the base, which is ornamented above with a yellow spot, and the hinder part with a yellow line on each side. The tegmina are small, nearly oval, strongly angulated above in the middle near the base, green, with a pale line on the outside of the angulated ridge. The wings large, brown; the costal area green, with a pale longitudinal line; the fore margin dusky; the chief vein is simple. The abdomen is long, subclavate, brownish red; the eighth dorsal segment much larger than the ninth, which is small and semiovate; the anal styles large, exserted, and thickened at the tips; the three terminal ventral segments are moderately swollen, the ninth not extending to the extremity of the eighth dorsal segment. The legs are simple, slender, and of moderate length (the hind ones wanting); the femora and tibiæ obscure on the outside, dull reddish on the inside; the tibiæ dark at the tips, and the tarsi pale buff.

PLATE XVI. Fig. 3. The male, of the natural size. 3 *a*. The terminal segments of the body seen sideways.

74. (407.) Necroscia Cyllarus, *Westw.*

PLATE XIII. fig. 2, male.
PLATE XIV. fig. 5, female.

Elongata, subcylindrica, fusco-albida; capite, pro- et mesonotis fusco vittatis, antennis pedibusque fusco variegatis; mesonoto brevi, subrugoso; ocellis nullis; tegminibus parvis, subquadratis; alis limpidis, vix fusco tinctis, area costali albido-fusca; pedibus longitudine mediocribus (mas et fœm.).

Long. corp. maris, lin. 18; cap. lin. $1\frac{1}{4}$; anten. lin. 10; proth. lin. $1\frac{1}{3}$; mesoth. lin. 2; metath. lin. 3; abdom. lin. 8+lin. 2=lin. 10; tegm. lin. $1\frac{1}{2}$; alar. expans. lin. 23.

Long. corp. fœm. unc. $2\frac{3}{4}$; cap. lin. $2\frac{1}{2}$; anten. unc. 2; proth. lin. $2\frac{1}{2}$; mesoth. lin. 4; metath. lin. 6; abdom. lin. 9+lin. 4=lin. 13; tegm. lin. 4; alar. expans. unc. 4.

Hab. In Jamaica. B.M.

Elongate, subcylindrical, pale brownish buff. The male slender; the eyes prominent; head with three fine longitudinal lines on the crown, and one on each side behind the eyes. Mesothorax short. Tegmina small, rather ovate; carina forming an elevated rounded lobe near the base. Antennæ and legs grey, much varied with black. Wings slightly stained with brown; costal area brown, with the fore edge darker brown; principal vein in the latter furcate near the base in both sexes. Abdomen with the seventh and eighth segments short, with a dark furcate mark on each side; the ninth larger, subquadrate, slightly emarginated at its apex; anal styles deflexed, obtuse; three terminal ventral segments but slightly swollen, agreeing in length with the dorsal ones.

Female much larger and more robust. The antennæ extend to beyond the middle of the abdomen; at first sight they appear to be only 23-jointed, but the last ten joints are multiarticulate, so that these organs, in fact, consist of about 70 joints. Crown of head with three dark longitudinal lines, the middle one strongest. The pro- and mesonotum pale at the sides, with a dark median line; anterior division of the metanotum with a conical dark mark in the middle. Mesonotum granulose. Tegmina subquadrate, narrowed at the base; carina strongly arched and elevated. Wings semitransparent, with pale luteous-brown veins; costal area pale luteous brown; chief vein furcate. Abdomen simple; three terminal segments narrowed; anal styles porrected; sixth ventral segment trifid at its extremity. Operculum moderately swollen, extending to the extremity of the abdomen. Legs rather short and simple; tarsi short, with the basal joint not longer than the three following.

PLATE XIII. Fig. 2. The male, of the natural size. 2 *a*. The terminal segments of the body seen sideways. 2 *b*. The last segment seen from behind.

PLATE XIV. Fig. 5. The female, of the natural size. 5 *a*. The four terminal segments of the body seen from beneath. 5 *b*. The same seen laterally.

75. (408.) Necroscia maculicollis.

Fusca; capite et thorace supra albidis, hoc fusco maculato, alarum area costali luteo brunneoque subvariegata; parte postica fusca, basi extremo puniceo; capite supra in tuberculum conicum apice rotundato producto; antennis albido annulatis; mesothorace (prothorace duplo longiori) in medio bituberculato, tegminibus ad humeros angulato-elevatis; abdomine elongato, cercis analibus divergentibus; oviductu brevi, simplici; pedibus simplicibus (mas et fœm.).

Long. corp. maris, lin. 17; cap. lin. 1; anten. lin. 19; proth. lin. 1; mesoth. lin. 3; metath. lin. 3; abdom. lin. 10+lin. 2=lin. 12; tegm. lin. $1\frac{1}{3}$; alar. expans. lin. 22.

Long. corp. fœm. unc. $3\frac{7}{5}$; cap. lin. $2\frac{1}{2}$; anten. lin. 18; proth. lin. 2; mesoth. lin. $4\frac{1}{2}$; metath. lin. 6; abdom. lin. 17+lin. 3=lin. 20; tegm. lin. 3; alar. expans. unc. $4\frac{1}{3}$.

Phasma (Necroscia) maculicollis, *Westw. Cabinet Orient. Ent.* p. 77. pl. 38. f. 2.

Hab. Assam, Sylhet (*Major Jenkins*); Java (*Horsfield*). B.M., &c.

76. (409.) Necroscia hilaris.

Læte viridis, alis (nisi area costali viridi) fuscis, tegminibus externe flavo marginatis; abdomine rufo; capite inermi, convexo; prothorace simplici, mesothorace (prothorace vix longiori) bituberculato; humeris tegminum in tuberculum elevatis; alis abdominis longitudine; pedibus simplicibus, parum elongatis; oviductu brevi, simplici.

Long. corp. unc. $2\frac{1}{4}$; cap. lin. $2\frac{1}{2}$; anten. unc. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 3; metath. lin. 6; abdom. lin. 12+lin. 3=lin. 15; tegm. lin. $2\frac{2}{3}$; alar. expans. unc. 4.

Phasma (Necroscia) hilare, *Westwood, Cab. Orient. Ent.* p. 77. pl. 38. f. 1.

Hab. Assam (*Lieut. Robinson*). In Mus. Hopeiano Oxoniæ (olim nostr.).

77. (410.) Necroscia Sangarius, *Westw.*

PLATE XXXV. figs. 4 & 5, males.
PLATE XVII. fig. 6, female.

Griseo-fusca, obscura; mesothorace brevi, granulato, postice latiori, tuberculisque duobus magnis rotundatis notato; prothoracis margine postico sanguineo; tegminibus brevibus, subquadratis, nigro tessellatis, tuberculo carinæ

valde elevato et rotundato; alis magnis, fumosis, transverse valde reticulatis, area costali fusco-lutea, seriebus quinque longitudinalibus macularum parvarum nigrarum notata; pedibus brevibus, femoribus anticis rectis (fœm.).

Long. corp. fœm. unc. $2\frac{1}{2}$; cap. lin. 2; anten. —?; proth. lin. 2; mesoth. lin. $3\frac{1}{2}$; metath. lin. $5\frac{1}{2}$; abdom. lin. 14+lin. 3=lin. 17; tegm. lin. $2\frac{1}{2}$; alar. expans. unc. 4.

Hab. Mount Ophir and Borneo, Sarawak (*D. Wallace*); Pulo Penang. In Mus. W. W. Saunders et Westermann.

This very remarkable species is well distinguished by its straight anterior femora, its short square spotted tegmina, and its large multivenose wings with the pale brown costal area spotted with black. The head of the female is moderately large, rather convex, with three slender dark lines on the hind part of the crown. The antennæ are slender; but the tips in the unique female which I have seen are broken off. The prothorax has its anterior lateral angles truncated and incised; its slender hind margin is bright scarlet. The mesothorax is not more than one and a half times the length of the prothorax; it is slender in front, two-thirds of its hinder portion being widened, its disc granulose, and the anterior portion of the dilated part with two large rounded tubercles. The tegmina are short, subquadrate, brown, each with about six small black spots; the tubercle of the carina is very prominently elevated and obtuse. The wings are very large, pale smoky-coloured, the membranous portion very thickly and transversely veined; the costal area is fulvous brown, the second vein furcate, each of the longitudinal veins bearing a series of small round black spots. The abdomen is rather wide; the two terminal segments small, the last entire; the caudal styles rather short and obtuse. The operculum extends nearly to the extremity of the body; its tip is emarginate; the sixth ventral segment is entire along its hind margin. The legs are short, rather robust, and unarmed; the anterior femora are straight, being in nowise emarginate at the base; the basal joint of the tarsi is about as long as the three following joints united.

Plate XVII. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen sideways.

The insect which I consider to be the male of this species is contained in the Collection of Mr. Westermann of Copenhagen, and is represented in Pl. XXXV. fig. 5. It is of an obscure luteo-fulvous colour; the mesothorax with a green fascia in front; the tegmina and costal area of the wings marked with numerous small round greenish-black dots; the membranous portion nearly pellucid, and scarcely tinged with brown; the veins very slender, but distinct; the median vein of the costal area is simple, but it is united with the next at a short distance from the tip of the wing; the antennæ are slightly annulated with whitish.

Plate XXXV. Fig. 5. The male, of the natural size. 5 *a*. The terminal segments of the body seen sideways.

A variety of the male of this species has been sent from Sarawak by Mr. Wallace. It is represented in Pl. XXXV. fig. 4, and is slender and of a fulvous-brown colour; the head very convex; eyes very prominent; antennæ very long and slender, brown, not annulated with white, the base luteous; the pro- and mesothorax granulated, the latter twice the length of the former, with two-thirds of its hind portion elevated, the anterior part of the elevated portion slightly bituberculated. The membrane connecting the head and prothorax and the pro- and mesothorax is bright scarlet; the mesothorax is also distinguished by a narrow green margin in front. The tegmina are nearly square, strongly carinated, reddish brown, with the veins slender and pale fulvous, forming reticulations. The wings are uniform smoky brown; the costal area fulvous brown, with the transverse veins slender, placed very regularly at short equal distances apart, and pale luteous; the median vein simple. The abdomen is brown; the extremity much swollen beneath, paler luteous. The fore legs are wanting in the only specimen I have seen; the middle and hind ones slender, sanguineous, with the articulation between the femora and tibiæ pale buff. Its proportions are as follows:—

Long. corp. lin. 20; cap. lin. $1\frac{1}{2}$; anten. lin. 21; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. $3\frac{2}{3}$; abdom. lin. $8\frac{1}{2}$ +lin. 2=lin. $10\frac{1}{2}$; tegm. lin. $1\frac{1}{2}$; alar. expans. unc. $2\frac{1}{2}$.

A female, also sent from Sarawak in Borneo by Mr. Wallace, which I presume to be a variety of this species, is more brunneous, without any tinge of green. The mesothorax shorter and broader, with the entire disc and anterior angles more elevated and rugose. The tegmina also broader, brown, with all the veins not quite so pale, but destitute of black dots. The wings rather pink at base; the costal area without black dots; the membranous portion richer brown, with the transverse veins not so strongly marked. The legs red-brown, with the femora green at the tips. The prothorax with the hind margin scarlet.

The length of the insect is $2\frac{1}{2}$ inches, and the expanse of the wings $4\frac{1}{4}$.

Plate XXXV. Fig. 4. The variety of the male, of the natural size. 4 *a*. The terminal segments of the abdomen seen sideways.

78. (411.) **Necroscia Medora**, *Westw.*

PLATE XXVII. fig. 1 *a*, male; fig. 1, female.

Elongata, opaca, virescenti, lutescenti et nigricanti varia; capite, pro- et mesonotis acute granulatis; capite valde convexo; antennis brevioribus, luteo irregulariter annulatis; mesonoto pronoto vix dimidio longiori, ante medium tuberculis duobus acutis armato; tegminibus subquadratis, ad medium carinæ valde elevato-rotundatis; alis fuscis, area costali pedibusque nigro, viridi luteoque variis, his perbrevibus. Mas gracilior. (Mas et fœm.)

Long. corp. maris, lin. 22; cap. lin. $1\frac{1}{3}$; anten. —?; proth. lin. $1\frac{1}{3}$; mesoth. lin. $2\frac{2}{3}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 10 + lin. 3 = lin. 13; tegm. lin. 2; alar. expans. unc. $2\frac{1}{2}$.

Long. corp. fœm. unc. $2\frac{2}{3}$; cap. lin. 3; anten. —?; proth. lin. 2; mesoth. lin. 3; metath. lin. 6; abdom. lin. 14+lin. 4=lin. 18; tegm. lin. 3; alar. expans. unc. $3\frac{3}{4}$.

Hab. Sarawak, Borneo (*D. Wallace*). In Mus. W. W. Saunders.

This species is at once distinguished by its short bituberculated mesonotum, and short broad tegmina very strongly elevated between the base and middle, and the numerous minute spines on the front parts of the body. The head is rounded, very gibbose; eyes very prominent; hinder part of the crown armed with several rows of minute spines. The antennæ are short; the joints slender, short, and very numerous; they are dark brown, annulated with buff, the annuli being near together towards the base. The pronotum has the anterior lateral angles acute and porrected, and the disc is furnished with a few acute granules. The mesothorax is not twice the length of the prothorax; it is widened behind, especially in the female, and is furnished with numerous small tubercular spines, the disc being armed with two elevated granulose tubercles a little in advance of the middle. In the male the mesothorax is comparatively more elongated than in the female. The metathorax is longer than the mesothorax (being nearly double its length in the female). The tegmina are nearly square, with the angles rounded (those of the male being rather longer than those of the female); the elevation of the carina is very strongly raised and rounded, especially in the female; the veins are pale buff and finely reticulated. The wings are large and brown, with the longitudinal veins rather darker; the costal area is mottled with black, green, and obscure buff; the chief longitudinal vein is simple in the male, but furcate in the female. The legs are short (comparatively longer in the male), slender, and simple; the anterior femora very slightly sinuated at the base. The abdomen of the male is slender, linear, and clavate at the extremity, the eighth segment being much the widest, and the ninth short and nearly straight at its extremity, with the sides rounded off; the anal styles are rather thick, porrected, curved, and obtuse at the tips; the three terminal ventral segments are considerably swollen, and scarcely extend beyond the base of the ninth dorsal segment. The abdomen of the female is gradually narrowed; the three terminal dorsal segments carinated; the ovipositor is scarcely swollen, and extends to about the middle of the ninth dorsal segment.

PLATE XXVII. Fig. 1 *a*. The male, of the natural size, with the legs and wings removed. 1 *b*. The extremity of the body of the male.

Fig. 1. The female, of the natural size. 1 *c*. The front part of the body seen sideways. 1 *d*. The extremity of the body seen sideways.

79. (412.) **Necroscia Westermanni**, *Westw.*

PLATE XXXVIII. fig. 3, female.

Robusta; capite valde convexo, mesothorace abbreviato, subconico, supra bituberculato; tegminibus parvis, planis, subquadratis, carina versus basin valde elevata; viridis, opaca, lævis; capite antice luteo-fusco; pro- et mesothorace obscure viridibus, ad marginem anticum sanguineo fasciatis; alis fuscis, albo valde fasciatis, fasciis angustis, et prope marginem analem magis distinctis, area costali viridi, basi obscuriore; abdomine nigro, luteo late fasciato; pedibus brevibus, luteo-fuscis, femoribus anticis rectis (fœm.).

Long. corp. fœm. unc. $2\frac{1}{2}$; cap. lin. 3; anten. lin. 17; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. $5\frac{1}{2}$; abdom. lin. 12+lin. 4=lin. 16; tegm. lin. 3; alar. expans. unc. $4\frac{1}{6}$.

Hab. Pulo Penang. In Mus. D. Westermanni Havniæ.

The female of this beautiful species is unique in the Collection of Mr. Westermann of Copenhagen, a gentleman who possesses one of the most beautiful collections of insects in existence, a large portion of which was collected by himself in Asia and Africa. It is closely allied to the female of *N. Medora* (Pl. XXVII. fig. 1), but differs in the smooth anterior portions of the body, short legs, and tessellated wings. The body is comparatively robust, especially in the region of the metathorax; it is smooth, green, and opake. The head obovate; eyes very prominent; ocelli obsolete. Antennæ very slender, of moderate length, and brown; hind part of head very convex, unarmed, the fore part luteo-fuscous. The prothorax is short. The mesothorax subconical; it is swollen above in the middle into two raised lobes terminating in points; it and the prothorax are obscure green, with a slender transverse sanguineous membrane in front of each. The tegmina are broad, flat, with

the carina strongly raised towards the base, forming a large obtuse lobe; the reticulation is indistinct. The wings are large and brown, with very numerous, narrow, transverse, irregular, white undulating fasciæ, most distinct towards the anal margin; the apex of the wing and the portion of membrane between the two areas white; costal area green, with the base darker; the median vein furcate. The metanotum and abdomen are black; the latter with wide luteous fasciæ occupying the bases of the segments; the two terminal segments are very convex; the operculum scarcely swollen, extending to about the middle of the ninth dorsal segment; anal styles porrected and obtuse. The under side of the body and legs are luteo-fuscous; the latter are setose and simple, short and slender, with the basal joint of the tarsi short.

Plate XXXVIII. Fig. 3. The female, of the natural size. 3 *a*. The head and front of the thorax seen sideways. 3 *b*. The terminal segments of the abdomen seen sideways.

80. (413.) Necroscia biguttata.

Olivaceo-viridis, articulationibus corporis incarnatis; elytris gutta basali alba, alarum area antica nigro punctata, postica infuscata (mas).

Long. corp. maris, lin. 23; cap. lin. 1; anten. lin. 21; proth. lin. 1; mesoth. lin. 3; metath. lin. $3\frac{1}{2}$; abdom. lin. 11 + lin. $2\frac{1}{2}$ = lin. $13\frac{1}{2}$; tegm. lin. 2; alar. expans. unc. $2\frac{1}{2}$.

Phasma biguttatum, *Burmeister, Handb. d. Ent.* ii. 586.
Phasma (Necroscia) biguttatum, *De Haan, Orth. Orient.* p. 118.

Hab. In Borneo. In Mus. Berol.

The typical specimen of this species (which is allied to *N. Sangarius*), described by Burmeister, is in the Berlin Museum. It is a male. The head is short and very gibbose; the antennæ long, with six white fasciæ; the mesothorax has two small whitish spots in the middle; the terminal segments of the body are considerably dilated.

81. (414.) Necroscia gularis.

Mesothorace breviore, duplicem longitudinem prothoracis æquante; ocellis nullis; thorace et tegminibus fascia laterali flava; alis pallide roseis.

Long. corp. lin. 22; cap. lin. $1\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. 4; abdom. lin. 12; tegm. lin. $2\frac{1}{2}$; alar. expans. unc. $2\frac{2}{3}$.

Phasma (Necroscia) gulare, (*Hagenbach, MS.*) *De Haan, Orthopt. Orient.* p. 122.

Hab. In Borneo.

The dimensions given above are taken from the typical specimen preserved in the Leyden Museum.

82. (415.) Necroscia nigro-fasciata.

Mesothorace breviore, duplicem longitudinem prothoracis æquante; ocellis nullis; thorace, tegminibus alisque margine laterali nigro notatis.

Long. corp. maris, lin. 18; cap. lin. 1; anten. lin. 12; proth. lin. 1; mesoth. lin. 2; metath. lin. $3\frac{1}{2}$; abdom. lin. 8 + lin. 2 = lin. 10; tegm. lin. 2; alar. expans. unc. 2.

Phasma (Necroscia) nigro-fasciatum, *De Haan, Orthopt. Orient.* p. 122.

Hab. Singalang; Sumatra; Batang.

The typical specimen in the Leyden Museum is a male; but the terminal segments of the body are only slightly dilated; the anterior femora are straight at the base; the hinder area of the wings is pale fleshy.

Genus 34. METRIOTES, *Westw.*

Platycrana, pars, *G. R. Gray* (*Syn. Phasm.* p. 36).
Burmeister (*Handb. d. Ent.* p. 581).
De Haan (*Orthopt. Orient.* p. 124).
Phasma (pars, nec Platycrana), *Serville, H. N. Orthopt.*

Body long, slender, with long equal-sized wings in both sexes. Head porrected, flat, occasionally spined, destitute of ocelli. Antennæ long and slender, or of moderate length. Thorax cylindrical or angulated; mesothorax twice or thrice the length of the prothorax, occasionally spined. Tegmina elongate-ovate, generally about one-third of the length of the wings. Wings large in both sexes; median vein of the costal area generally furcate. Legs long, or moderately long and slender; fore femora occasionally rather dilated. Abdomen elongated, flattened; anal styles abbreviated.

Inhabit South America.

These insects are distinguished from most of the preceding by the more elongated tegmina, which are, however, much shorter than in some of the subsequent genera; hence the name here proposed for the present group. They are united by Burmeister and De Haan with *Dinelytron*, to which they are perhaps too closely allied. The three insects placed by Serville in his genus *Platycrana* belong to three separate groups, whilst his first section of *Phasma* comprises the species of *Platycrania* which bears his name. If Cayenne, and not Amboyna, be the real country of *Ph. acanthopterum* of Stoll, it ought to find a place in the present group.

The genus, as proposed by Mr. G. R. Gray, comprises

several distinct groups; and it is here confined to the species placed by him at the end of the genus and their allies.

1. (416.) Metriotes Stollii.

Fusca; alarum area costali obsolete 3-fasciata, area postica venis transversis late fuscis, hac versus basin nigra, basi ipsa pallide virescenti; mesothorace spinis 6 per paria dispositis; abdominis segmentis basalibus macula oblonga media postice dilatata nigra notatis (fœm.).

Long. corp. 3″ 8‴; anten. 1″ 18‴; alar. expans. 5″ 2‴.

Phasma reticulata, *Stoll, Spectr.* pl. 23. f. 85.
Platycrana Stollii, *G. R. Gray, Syn. Phasm.* p. 38.
Burmeister, Handb. d. Ent. ii. 2. 582 (nec Ph. reticulata, *Pal. Beauv.* pl. 14. f. 5).
Hab. America meridionali (*Burm.*).

2. (417.) Metriotes Blanchardi.

"Obscure viridis, antennis nigro flavoque annulatis, capite lineis quinque nigris; thorace linea media nigra; elytris obscure viridibus, nervis dilutioribus; alis diaphaneis; parte coriacea viridi; pedibus viridibus, femorum tibiarum tarsorumque articuli primi apice nigris."

Long. 65 mill.; envergure 11 centim.

Phasma reticulatum, *Blanchard in D'Orbigny, Voy. Amér. Mérid. Entomol.* p. 215. pl. 26. f. 7 (nec Ph. reticulatum, *Pal. Beauv.*, nec Ph. reticulata, *Stoll*).

Hab. In sylvis in provincia de Chiquitos, odorem moschatum exhalans.

3. (418.) Metriotes Santara, *Westw.*

Plate XIV. fig. 4, female.

Elongata, gracilis, subconvexa; capite 3-ocellato, spinisque verticalibus armato; pro- et mesonoto granuloso-spinosis; tegminibus oblongis, apice acuminatis, rugosis, carina valde elevata et abrupta; alis pallide fuscis; pedibus brevibus, femoribus anticis subfoliaceis.

Long. corp. unc. $3\frac{1}{6}$; cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{3}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. 6; abdom. lin. 19 + lin. $3\frac{1}{2}$ = lin. $22\frac{1}{2}$; tegm. lin. 7; alæ, lin. 25; alar. expans. unc. $4\frac{1}{3}$.

Hab. In Brasilia, Santarem (*D. Bates*). B.M.

Brown, obscure; the metathorax and abdomen glossy; the head, tegmina, and costal area of the wings dirty green. Head rather larger than the prothorax, subovate; ocelli 3, placed between the eyes; vertex with a double row of small spines, the anterior being the largest. Antennæ about an inch and a half long, 40-jointed, the middle joints long; the ten or twelve apical ones very short. Prothorax with its hinder division furnished with several minute spines in pairs. Mesothorax short, with the sides nearly parallel, with two rows of small spines along the middle of the back and with several along the flanks. Tegmina as long as the pro- and mesothorax, rugose and uneven, the apex suddenly acuminated; the carina very strong, and raised into a suddenly elevated lobe extending to the middle of the tegmina. Wings large; costal area brown, with the base pale dusky and slightly clouded, the chief vein twice furcate; posterior area pale dusky. Legs short, with the anterior pair dilated along the femora, and slightly varied with pale markings. Abdomen elongated, wider than the fore part of the body; terminal joints short and broad, the last truncate at the tip, with the angles rounded off; the anal styles slightly porrected. The operculum is small and flat, scarcely extending beyond the seventh dorsal segment, and followed by two small flattened pointed appendages.

Plate XIV. Fig. 4. The female, of the natural size. 4 *a*. The front of the body seen sideways. 4 *b*. The terminal segments seen from beneath. 4 *c*. The same seen laterally.

4. (419.) Metriotes Bubastes, *Westw.*

Plate XIV. fig. 1, female.

Elongata, gracilis, subdepressa, ferruginosa; mesonoto lineis nonnullis gracilibus elevatis, spinisque sex tenuibus instructo; tegminibus oblongo-ovatis, versus basin spina recurva armatis; abdomine nitido luteo-fusco, fasciis 5 nigris; pedibus et antennis brevibus; alis fuscis, strigis albis inter venulas transversas notatis (fœm.).

Long. corp. unc. 3; cap. lin. 2; proth. lin. 2; mesoth. lin. 4; metath. lin. $5\frac{1}{2}$; abdom. lin. 18 + lin. 4 = lin. 22; tegm. lin. 7; alæ, lin. 27; alar. expans. unc. $4\frac{1}{2}$.

Hab. In Brasilia (Tapajos). B.M.

Allied to *M. Stollii*, but at once distinguished by the spines on the tegmina. Long, narrow, subdepressed; obscure, except the abdominal segments, which are glossy; red-brown. Head small, subquadrate, subrugose, with four small tubercles in a row close to the hind margin. Antennæ broken at the distance of eleven lines from the base, the part remaining containing 24 joints. Mesothorax shorter than the metathorax, narrow, with several fine longitudinal raised lines. Tegmina oblong-ovate, dull green; the basal half of the fore margin dull brown, and with two black spots on the inner margin; the carina very strongly elevated, its basal angle produced into a strong spine directed backwards. Wings large, pale yellowish at the base; costal area with the chief vein furcate near the base, dull pale greenish brown, slightly varied with dusky clouds and black spots and dots; posterior portion brown, with narrow transverse pale strigæ between the slender transverse veins. Legs short, without spines; fore femora

and tibiæ compressed and slightly dilated along their whole length; tarsi short, with the basal joint short; hind legs not more than two-thirds the length of the abdomen, which is wider than the front of the body, subdepressed, glossy, luteous brown; each of the five basal segments with a broad black transverse fascia: the terminal segments are not narrowed; they are marked with a dark line on each side; the last joint slightly emarginate, with the anal styles short, but porrected; the operculum flat *, and does not extend to the extremity of the eighth dorsal segment, and is accompanied by two flattened and slightly curved pointed appendages.

Plate XIV. Fig. 1. The female, of the natural size. 1 *a*. The front of the body seen laterally. 1 *b*. The three terminal segments of the body seen from beneath.

5. (420.) Metriotes obscura.

Obscure fusca; mesonoto medio abdomineque supra nigris; capite postice elevato, tuberculato; pronoto tuberculato; mesothorace longitudine capitis cum prothorace, lateribus compressis, dorso tuberculato; tegminibus ovalibus, brunneis, venis nigris, mesothorace paulo longioribus, basin versus carina elevata, cum linea obliqua albida ex apice partis elevatæ ad marginem internum extensa; alis longitudine abdominis, area costali brunnea, basin versus nigro maculata, guttisque nonnullis ejusdem coloris in disco notata; area postica ad basin et marginem apicalem fusco tinctis, disco hyalino-albis venis fusco late tinctis; pedibus gracilibus, carinatis, brunneis, nigro submaculatis; antennis brunneis.

Long. corp. fœm. unc. 3, lin. 7.

Phasma obscurum, *Guérin-Méneville in Mag. Zool.* 1838, *Ins. Orth.* pl. 235; *Voyage de la Favorite*, p. 72.
De Haan, Orth. Orient. p. 124.

Hab. Bahia, in Brasilia.

6. (421.) Metriotes Dictys, *Westw.*

Plate XV. fig. 7.

Tota fulvo-fusca; capite oblongo, vertice spina parva erecta armato; pro- et mesothorace inermibus; tegminibus ovalibus, singulo spina parva erecta prope basin armato; alis pallide fuscis, area costali paulo obscuriore, vena majori bifida; pedibus brevibus, inermibus, femoribus anticis compressis.

Long. corp. unc. $2\frac{1}{2}$; cap. lin. $2\frac{1}{2}$; anten. unc. 2; proth. lin. 2; mesoth. lin. 4; metath. lin. 5; abdom. lin. 14 + lin. 3 = lin. 17; tegm. lin. 6; alar. expans. unc. $2\frac{3}{4}$.

Hab. ——? Columbia? In Mus. W. W. Saunders.

I have seen but a single specimen of the female of this species, and am therefore unable to determine whether the peculiar circumstance of the head being armed on the right side of the crown with a single spine be a permanent specific character or not. The general colour is of a reddish or fulvous brown, opake, and with the head, pro- and mesothorax very slightly rugose. The head is oblong, convex, marked on the crown with several dusky lines, and armed also on the right side of the centre with a small erect spine. The antennæ are long, and slightly thickened towards the base. The pro- and mesothorax are convex and unarmed, the latter scarcely twice the length of the former. The tegmina are oval, with the central carina well defined towards the base, and armed with a small acute erect spine. The wings are of moderate width, very pale brown with a reddish tinge; the costa pale brown, with the chief vein furcate. The legs short and simple; the fore femora dilated; the anterior tarsi with the basal joint as long as the three following united. The abdomen is convex; the three terminal segments narrowed and shortened, the last rounded at the tip, with the anal styles exposed at the extremity. The operculum is short and flat, extending to about the middle of the eighth dorsal segment, the inner appendages forming two rows of flattened plates.

Plate XV. Fig. 7. The female, of the natural size. 7 *a*. The head and prothorax seen sideways. 7 *b*. The terminal segments of the abdomen seen from beneath.

7. (422.) Metriotes Myrsilus, *Westw.*

Plate XV. fig. 6, female.

Olivaceo-fusca, opaca, tenue granulata, granulis albis (in verticem longitudinaliter dispositis); mesothorace supra spinis erectis recurvis armato; tegminibus ovalibus, nigro venosis; alis sub-brevioribus, latis, area costali opaca et obscura, ante apicem leviter albo irrorata, postica subpellucida parum fulvescenti, venis longitudinalibus luteo-fulvis; metanoto albido; pedibus brevibus, inermibus, femoribus anticis latioribus (fœm.).

Long. corp. fœm. unc. $2\frac{1}{3}$; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. $4\frac{1}{2}$; metath. lin. 5; abdom. lin. 13 + lin. $3\frac{1}{2}$ =lin. $16\frac{1}{2}$; tegm. sing. lin. 8; alar. expans. unc. 3.

Hab. Columbia (*D. Gaudichaud*). In Mus. W. W. Saunders.

This species is closely allied to *M. Diocles*, especially in the structure of the terminal segments of the abdomen beneath; but it is broader and shorter, and the wings exhibit

* The shortness of this organ might be perhaps considered to indicate it as the three terminal segments of the male; but it is not at all swollen, nor marked with traces of articulation.

none of the beautiful variegated reticulations of that species. The general colour is dark brown, with a slight obscure greenish tinge. The head, pro- and mesothorax are finely tuberculated, the tubercles being minute and white; those of the head arranged in several longitudinal rows. The metathorax is also armed with a number of small erect spines, bent backwards at their tips. The antennæ are rather thickened at the base, with the joints considerably elongated. The tegmina are oval, obscure brown, with the reticulations black and numerous. The wings are shorter than in *M. Diocles*, with the costal area broad, opake, brown, paler at the base, and slightly irrorated with white towards the tip; the hinder portion is semipellucid, slightly tinged with fulvous, with the longitudinal veins fulvo-luteous. The legs are rather short, setose, unarmed; the fore femora slightly dilated; the basal joint of the tarsi short. The abdomen is moderately broad; the terminal segments above carinated down the middle; the three terminal segments of nearly equal length, but gradually narrowed; the last rounded behind. The operculum is very short, not extending beyond the seventh dorsal segment, the internal appendages forming two rows of flattened plates; the anal styles exserted and setose.

PLATE XV. Fig. 6. The female, of the natural size. 6 *a*. The terminal segments of the abdomen seen from beneath.

8. (423.) Metriotes Diocles, *Westw.*

PLATE XV. fig. 1, female.

Fusca, gracilis; capite, pro- et mesothorace parum granulosis, his supra planis, angulis lateralibus spinulosis; tegminibus ovalibus, sordide luteis, vitta indistincta obscura; alis elongatis, area costali fusco-lutea fusco nebulosa; area postica pellucida, basi extrema cærulea, plaga fusca extus cincta, venis transversis fusco nebulosis (mas et fœm.).

Long. corp. maris, unc. $2\frac{1}{4}$; cap. lin. $1\frac{2}{3}$; anten. unc. $2\frac{1}{2}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 4; metath. lin. 5; abdom. lin. $14\frac{1}{2}$ + lin. $3\frac{1}{2}$ = lin. 18; tegm. sing. lin. 6; alar. expans. unc. $3\frac{1}{4}$.

Long. corp. fœm. unc. 3; cap. lin. 2; anten. lin. 24; proth. lin. 2; mesoth. lin. 5; metath. lin. 6; abdom. lin. 15 + lin. 5 = lin. 20; tegm. sing. lin. 9; alar. expans. unc. $4\frac{1}{3}$.

Hab. Columbia (*D. Gaudichaud*). In Mus. W. W. Saunders.

This species is well distinguished by the beautiful patch of pale blue at the base of the posterior area of the wings, which is immediately surrounded by a dark brown spot. The head is oblong, flattened above, opake, slightly rugose, and with the hinder part immediately in front of the prothorax transversely elevated. The antennæ of the male are as long as the body, and slender, with the joints elongate; those of the female are thickened towards the base. The head, pro- and mesothorax are dirty luteous, with several dusky lines, marked, especially on the head, with minute tubercles. The prothorax and mesothorax are flattened above and granulose, with the lateral angles acutely deflexed. The tegmina are oval, about as long as the head, pro- and mesothorax united; they are dirty luteous-coloured, with an ill-defined darker streak down the middle, the central ridge being but slightly indicated. The wings are large; the costal area obscurely coloured with dirty luteous and darker brown cloudings; the main vein is furcate at a short distance from the base; the posterior area of the wings is pellucid, with a small pale blue spot at the base, followed by a large dark brown patch, shaded gradually off behind; all the transverse veinlets of the wings clouded with brown. The legs are rather short, simple, and finely hirsute; the anterior femora subcompressed; the tarsi short, with the basal joint about as long as the second and third united.

The male is much narrower than the female, with the legs more slender, and generally of a paler luteous tint. The fifth, sixth and seventh segments of the abdomen are gradually widened; the eighth short, gradually narrowed, with the posterior margin deeply and acutely emarginate in the middle; and the ninth segment is very small and deeply notched, with the two anal styles porrected, curved, forming a small forcipated appendage; the three terminal segments beneath are nearly flat, and the last is rounded at its extremity. The abdomen of the female is gradually attenuated, with the terminal segments carinated and of nearly equal length, the last being bi-emarginate behind, exposing the porrected anal styles; the oviduct is very short, scarcely extending beyond the seventh dorsal segment, the interior appendages forming a double series of flattened plates.

PLATE XV. Fig. 1. The female, of the natural size. 1 *a*. The terminal segments of the abdomen seen from beneath. 1 *b*. The same seen laterally.

9. (424.) Metriotes venosa.

Olivaceo-fusca, antennis (corpore longioribus) pedibusque viridi annulatis; alarum area antica viridi venosa, postica fusca, nervis transversis infuscatis; capite triocellato; tegminibus tuberculo elevato obtuso subbasali.

Long. corp. fœm. unc. $2\frac{1}{2}$; cap. lin. $1\frac{2}{3}$; anten. unc. 3; proth. lin. $1\frac{2}{3}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. $4\frac{1}{2}$; abdom. lin. 18; tegm. lin. 6; alar. expans. unc. 4.

Phasma venosum, *Burmeister, Handb. d. Ent.* ii. 2. 585.
De Haan, Orth. Orient. p. 123.

Hab. In Brasilia.

The type of this species is contained in the Royal Museum of Berlin, and has supplied the characters and dimensions given above. It is closely allied to *M. Servillei.*

10. (425.) Metriotes acuticornis.

Pallide viridis, nigro reticulata; antennis nigris, albo annulatis; capite bicorni, cornubus brevibus acutis et ocellis tribus parum distinctis instructo; mesothorace brevi, subscabro; tegminibus longitudine metanoti, ante medium elevatis, areaque costali fasciis obscuris interruptis; area postica alarum nigrescenti; pedibus subbrevibus; abdominis segmentis sex basalibus marginatis, reliquis tribus brevioribus.

Long. corp. unc. 3, lin. 5; cap. lin. $2\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 4; metath. lin. 8; abdom. lin. 20 + lin. 4 = lin. 24; tegm. lin. 8; alar. expans. unc. $4\frac{3}{4}$.

Phasma acuticorne, *G. R. Gray, Syn. Phasm.* p. 26.
Phasma bicornuceps, —— *MS. in B.M.*

Hab. In America æquinoctiali. B.M.

The type of this species is preserved in the British Museum, and has supplied the above characters and dimensions in addition to those originally given by its describer. De Haan considers *M. Servillei* and *brevipennis* to be identical; with which opinion, however, I cannot agree.

11. (426.) Metriotes Servillei, *G. R. Gray.*

Obscure viridis; capitis vertice spinis duabus erectis nigris divergentibus armato; mesothorace rugoso, luteo granulato, carina mediana longitudinali vix distincta; tegminibus longitudine thoracis, subopacis, fusco-viridibus viridi punctulatis, apice venis viridibus, carina mediana distincta, apice spina terminata; alis circiter longitudine abdominis, obscure viridibus, area costali opaca, venis viridibus; pedibus et antennis viridi et nigro annulatis, his corpore longioribus.

Long. corp. unc. 3.

Phasma Servillei, *G. R. Gray, Syn. Phasm.* p. 26.
Serville, H. N. Orth. p. 267.
Phasma annulata, *Serville, Ann. Sc. Nat.* xxii. 31 (nec annulata, *Fabr.*).
Guérin, Icon. R. An. Ins. pl. 53. f. 1.
Griffith, An. K. Ins. pl. 110. f. 1.

Hab. In Brasilia.

12. (427.) Metriotes brevipennis.

Viridi-cinerea; capite 3-ocellato, utrinque bimaculato, vertice spinis duabus gracilibus armato; tegminibus alis triplo brevioribus, ellipticis, in disco mucronatis; mesothorace circiter duplo longiore prothorace; pedibus brevioribus, femoribus anticis paulo dilatatis; antennis fœminæ corpore multo brevioribus.

Long. corp. fœm. unc. $2\frac{1}{4}$; cap. lin. 2; anten. lin. 17; proth. lin. $1\frac{2}{3}$; mesoth. lin. 4; metath. lin. 4; abdom. lin. 12+lin. 3=lin. 15; tegm. lin. $4\frac{1}{2}$; alar. expans. unc. $2\frac{1}{3}$.

Phasma brevipenne, *Burmeister, Handb. d. Ent.* ii. 584.

Hab. In Brasilia interiori.

De Haan refers this species and *M. Servillei* to the *Platycrana acuticornis* of G. R. Gray. I am not able to determine whether Serville's insect be identical therewith, and have consequently given it as distinct, although there seems to be a great resemblance between the two. A careful examination of the type of Burmeister's species, in the Berlin Museum, has, however, satisfied me that there is no identity between it and *M. acuticornis.*

13. (428.) Metriotes rugicollis.

Pallide flavescenti-brunnea; pro- et mesothorace scaberrimis, tuberculis nigris; tegminibus basi lineis brevibus duabus nigris; alis flavo-albis, fasciis interruptis et nervis juxta basin nigris, basi coccineis; abdomine nigrescente; pedibus lineis elevatis striatis subhirsutis.

Long. corp. circ. (apice mutilato) unc. $2\frac{3}{4}$; cap. lin. 2; anten. lin. 25; proth. lin. 2; mesoth. lin. $4\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. —?; segm. 5 basal. lin. 13; tegm. lin. 6; alar. expans. unc. $4\frac{1}{6}$.

Phasma rugicollis, *Curtis, MS.*
G. R. Gray, Syn. Phasm. p. 38 (Platycrana r.).
Phasma lichenale, *Burmeister, Handb. d. Ent.* ii. 584.

Hab. In Brasilia; Rio Janeiro. Mus. Curtis.

I am indebted to Mr. Curtis (in whose collection the typical specimen described by Mr. G. R. Gray is still contained) for an opportunity afforded to Mr. Haliday for making a sketch of this species. The type is a male, of which the extremity of the abdomen is mutilated. Having also examined and drawn the typical specimens of *Ph. lichenale* of Burmeister, in the Berlin Museum, I have scarcely any doubt of their identity with Mr. Curtis's insect. The following are Burmeister's characters of his *Ph. lichenale*:—

"Viridi-cinereum; antennis annulatis, alarum area antica roseo fasciata, postica venis transversis nebulosis; elytris tuberculo medio rugoso; dehinc fascia rosea.

"Mas. Pedibus mesothoraceque elongatis gracilibus.

"Fœmina. Crassior, robustior; pedibus brevioribus, femoribus crassioribus, anticis compressis.

"*Hab.* In Brasilia interiori."

The male is very slender, with longer wings, legs, and antennæ than those of the female. The tegmina in the latter are elongate-ovate, with the median carina rather strongly elevated into a rounded tubercle near the middle; the costal area of the wings is much clouded, the markings near the extremity being darker than those in the basal half. The following are the dimensions of both sexes:—

Long. corp. maris, unc. $3\frac{7}{8}$; cap. lin. $1\frac{1}{2}$; anten. unc. 3; proth. lin. $1\frac{2}{3}$; mesoth. lin. 5; metath. lin. 5; abdom. lin. 19 + lin. 4 = lin. 23; tegm. lin. 5; alar. expans. unc. $3\frac{1}{2}$.

Long. corp. fœm. unc. $3\frac{1}{3}$; cap. lin. 2; anten. —?; proth. lin. 2; mesoth. lin. 6; metath. lin. $6\frac{1}{2}$; abdom. lin. 20+lin. 3=lin. 23; tegm. lin. 6; alar. expans. unc. 4.

Genus 35. **DINELYTRON**, *G. R. Gray.*

Platycrania, pars, *Burmeister, De Haan.*

Head moderate-sized. Ocelli obsolete. Antennæ scarcely longer than half the body. Body long. Thorax rather short. Mesothorax scarcely twice the length of the prothorax. Abdomen of the male filiform; of the female convex above, flat beneath; anal styles short. Tegmina linear-ovate, one-third or half the length of the wings; the latter large, semicircular in both sexes. Legs rather short, especially the anterior pair, with the margins of the fore femora compressed.

Inhabit South America.

The insects of this group are certainly very closely allied to those of *Metriotes*, with which they were united by Burmeister and De Haan. They are distinguished, however, by a very different facies and by the much greater length of the tegmina.

1. (429.) Dinelytron Grylloides.

Pallide brunneum vel viridi-cinereum; tegminibus areaque costali brunneo-griseis, obscuro-maculatis, hac basi pallidiori; alarum area postica hyalino-albida, apice obscura.

Long. corp. 1″ 9‴; alar. expans. 2″ 5‴.

Hab. In Brasilia. Olim in Coll. Soc. Zool. Lond.

Dinelytron grylloides, *G. R. Gray, Syn. Phasm.* pp. 27, 43.
Burmeister, Handb. d. Ent. ii. 2. 582 (Platycrania gr.).
De Haan, Orth. Orient. p. 124 (Platycrania gr.).

I have not been able to find the original typical specimen of this species, described by Mr. G. R. Gray, from the Museum of the Zoological Society, the entomological portion of which has been sold. A slight sketch of it was, however, made by its describer, who has kindly communicated it to me; and I have carefully examined a specimen, determined by Burmeister, in the Royal Museum of Berlin, of which the following are the proportions:—

Long. corp. lin. 25; cap. lin. $1\frac{3}{4}$; anten. lin. 13; proth. lin. 2; mesoth. lin. 3; metath. lin. 4; abdom. lin. 12 + lin. $2\frac{1}{2}$=lin. $14\frac{1}{2}$; tegm. lin. 9; alar. expans. lin. 32.

The fore legs are not quite an inch long; the femora have their inner margin dilated, the tibiæ very slightly dilated towards the base; the hind femora are slightly thickened, with the under edge armed with several small spines; the three terminal segments of the abdomen are very narrow, the eighth especially being very short.

2. (430.) Dinelytron Hipponax.

Cinereum; prothorace spinis duabus; tegminibus basi areaque costali alarum albis, viridi et brunneo reticulatis; alis albidis, maculis interruptis nigrescentibus.

Long. corp. ——?

Dinelytron Hipponax, *G. R. Gray, Syn. Phasm.* p. 27.
De Haan, Orth. Orient. p. 123 (Platycrania H.).

Hab. In Brasilia. Mus. Westwood??

I am unable to give any additional information of this species, originally described from my collection, the typical specimen having been lost.

3. (431.) Dinelytron Shuckardi.

"Brunneum; alis obscure hyalinis, nervis brunneis."

Long. ——?

Dinelytron Shuckardi, *G. R. Gray, Syn. Phasm.* p. 43.
De Haan, Orth. Orient. p. 124 (Platycrania Sh.).

Hab. In Brasilia. Olim in Mus. Soc. Zool. Lond.

I have never seen this species, and can add nothing to the description given by Mr. G. R. Gray, copied above.

4. (432.) Dinelytron Zymbræus, *Westw.*

Plate XV. fig. 3, female.

Elongatum, inerme; mesothorace abbreviato; luteo-viride; tegminibus virescentibus, ultra dimidium alarum extensis; alis albis, margine lato apicali nigro; abdomine fusco; pedibus brevibus, femoribus anticis ad basin parum emarginatis, posticis cum tibiis subserratis (mas et fœm.).

Long. corp. maris, lin. $12\frac{1}{2}$; cap. lin. 1; anten. lin. 10; proth. lin. 1; mesoth. lin. $1\frac{1}{3}$; metath. lin. $2\frac{1}{3}$; abdom. lin. $5\frac{1}{2}$ + lin. $1\frac{1}{2}$ = lin. 7; tegm. lin. $4\frac{1}{2}$; alar. expans. lin. 18.

Long. corp. fœm. unc. 2; cap. lin. 2; anten. lin. 16;

proth. lin. $1\frac{2}{3}$; mesoth. lin. 3; metath. lin. 4; abdom. lin. 10 + lin. 3 = lin. 13; tegm. lin. 9; alar. expans. unc. $2\frac{2}{3}$.

Hab. Magdalena (*D. Goudot*). In Mus. W. W. Saunders et Hopeiano Oxoniæ.

This pretty species is long and rather slender (especially the male), and is well distinguished by its peculiar colours and comparatively short mesothorax. The head is large, rounded, and very convex behind, with two small impressed lines between the eyes in front, and with traces of longitudinal pale lines in the hinder part; ocelli wanting. The antennæ are long and slender. The prothorax is square, with the anterior and lateral margins elevated. The mesothorax is short, being about one and a half times the length of the prothorax; its disc is granulose, the granules pale, a central line and the lateral margins slightly elevated. The tegmina are elongate-ovate, rather more than half the length of the wings, with a small raised tubercle near the base; they are pale green. The wings are large, opake white, with luteous longitudinal veins and a broad black apical margin; the costal area is pale along its basal half, the remainder being greenish brown; the chief vein is furcate near the base in both sexes. The abdomen is long and dark brown, slender in the male, with the tip recurved; the three terminal joints rather dilated at the sides above and carinated along the middle; the terminal ventral segments are dilated, gaping at the extremity, exposing a pair of horny hooks and the short anal styles; the three terminal segments of the female are short and narrow, with the anal styles exserted; the operculum short, exposing at its extremity a flattened internal plate, which reaches to the tip of the abdomen. The legs are short and robust, especially the hinder femora; the anterior femora are but slightly twisted at the base; the hind femora are dusky at the tips, and these, as well as the hind tibiæ, are finely serrated beneath; the tarsi have the basal joint rather longer than the three following joints united.

Plate XV. Fig. 3. The female, of the natural size. 3 *a*.* The terminal segments of the abdomen of the female seen sideways. 3 *b*. The same seen from beneath. 3 *c*. The terminal segments of the abdomen of the male seen from beneath. 3 *d*. The same seen sideways. 3 *e*. The same seen from above.

5. (433.) Dinelytron? Agrion, *Westw.*

Plate XXI. fig. 6, male.

Gracile, abdomine cylindrico, simplici; opacum, granulatum, pallide fusco-griseum; capite bispinoso; mesothorace brevi; tegminibus oblongo-ovalibus, fuscis, extus viridibus; alis albis, opacis, extus paulo obscurioribus, venis fuscis, area costali fuscescenti, ad basin punicea; pedibus perbrevibus, tibiis gracilibus vix lobatis (mas).

Long. corp. lin. 20; cap. lin. $1\frac{1}{2}$; anten. lin. 10; proth. lin. $1\frac{1}{3}$; mesoth. lin. 2; metath. lin. 2; abdom. lin. 10+ lin. 3=lin. 13; tegm. lin. 4; alar. expans. lin. 20.

Hab. In Brasilia apud Villam Novam (*D. Bates*). B.M.

I am only acquainted with the male of this curious and very slender species, which ill agrees with the preceding insects, and seems to approach the *Prisopi*. Its general colour is pale greyish brown, opake, with the head, pro- and mesothorax, and hinder part of the abdomen granulated. The head is short and rounded in front, convex, with two rows of short obtuse points on the hinder part of the crown, four in each row, the outer pair in the anterior row being the largest. The antennæ are rather short, 23-jointed, the third and three or four following joints very short, the remainder gradually lengthened. The pro- and mesothorax are of equal width, the latter about twice the length of the former; the metathorax shorter than the latter, its two divisions of equal length. The tegmina are oval, obscure light brown; the outer half of the anterior margin pale green; the median carina considerably arched towards the base. The wings are opake, brownish white, with a dark shade along the outer margin, the veins strongly marked and dark brown; the costal area pale brown, bright pink for about one-third of the length from the base; the chief vein is simple. The abdomen is long, cylindrical, simple, and narrower than the thorax, smooth at the base, slightly rugose beyond the middle; the three terminal joints dilated, the last truncate at the tips, with the sides oblique and emarginate, and the anal styles slightly produced; the terminal ventral segments are considerably swollen (the extremity is injured). The legs are short; the anterior femora curved, rather wide, and slightly waved along the hinder edge; the anterior tibiæ short, gradually narrowed to the tip, with a small hind lobe at the base; the four hind femora are short, thick, with three strong teeth on the under edges, slightly angulated near the extremity of the upper edge; the tibiæ rather slender and slightly bilobed; tarsi short, with the basal joint not longer than the second and third united. The metasternum is considerably dilated at the sides, with two deep punctures in the middle.

Plate XXI. Fig. 6. The male, of the natural size. 6 *a*. The terminal segments of the abdomen seen sideways.

6. (434.) Dinelytron Merismus, *Westw.*

Plate XIII. fig. 5, male.

Obscure luteo-fuscum, glauco tinctum; tegminibus ob-

* In fig. 3 *a* and fig. 3 *c*, the ♂ and ♀ are accidentally reversed.

scure viridibus, vitta obliqua pallide straminea; alarum area costali pallide virescenti-fusca, postica parte fusco parum tincta, venis distinctis nigricantibus; capitis vertice postico, pro- et mesothorace rugosis, pronoti lateribus in medio spina majori armatis; abdomine longitudinaliter 3-carinato, segmentis tribus ultimis dilatatis, stylis analibus porrectis et dilatatis; pedibus brevibus, latis, rugosis, femoribus 4 posticis infra spinis armatis (mas).

Long. corp. maris, lin. 19; cap. lin. $1\frac{1}{3}$; proth. lin. 2; mesoth. lin. $2\frac{1}{3}$; metath. lin. 2; abdom. lin. 9 + lin. 3 = lin. 12; tegm. lin. 4; alar. expans. lin. 24.

Hab. In Venezuela. B.M.

I have only seen a single specimen of the male of this species (which also differs considerably from the types of this group, and which, when the other sex is known, will probably be found to constitute a distinct genus), in the National Collection. It is of a dull luteous-brown colour, and opake with a greenish tinge, the head, pro- and mesothorax being finely granulose. The tegmina are dark green in the middle, the sides being of a browner tint, with a pale straw-coloured oblique vitta arising on the outside of each near the base and extending to the middle; the hind wings have the costal area pale greenish brown, with darker veins and veinlets, and the hinder area is very slightly tinged with dusky, with thick longitudinal blackish veins and dusky transverse ones. The head is broader than long, flattened between the eyes; the flattened part bordered by a semicircular row of about eight small conical points, the two central ones being the largest. The antennæ are thick and hirsute (the tips broken off in the specimen before me). The pronotum has two small erect spines in the middle of the hind part of its anterior division, the posterior division having also a pair of stronger laterally porrected spines near the hinder angles; the deflexed margins of the mesothorax are sinuated. The tegmina are about the length of the pro- and mesothorax united, elongate-ovate, narrowed behind. The wings moderately large. The abdomen is much narrower than the thorax, with a raised central line running down the middle; the fourth and following segments also with a similar raised line on each side; the seventh segment is gradually widened behind, the eighth long and gradually narrowed, the ninth small and subquadrate; the anal styles small; the eighth segment is furnished beneath with a broad foliaceous lobe extending considerably beyond the extremity of the body; the seventh ventral segment and the base of the ninth are moderately and roundly swollen, the last extending nearly to the extremity of the ninth dorsal segment. The legs are short and rugose; the femora dilated, especially the anterior pair, which are fulvous, with a broad black longitudinal mark beneath; the under edge of the four posterior with several short spines; the tarsi have the basal joint scarcely longer than the second joint. The prosternum has two minute setose lobes behind the base of the fore legs.

Plate XIII. Fig. 5. The male, of the natural size. 5 *a*. The three terminal segments seen laterally. 5 *b*. The same seen from beneath.

Genus 36. TROPIDODERUS.

Tropidoderus, *G. R. Gray* (*Syn. Phasm.* p. 31), *Burmeister*, *De Haan*.
Trigonoderus, *G. R. Gray* (*Ent. Austral.*).

Body large, with elongate-ovate tegmina and very large wings in both sexes. Head oblong, destitute of ocelli; of the female flat, posteriorly subconvex. Antennæ of the male as long as the entire thorax, 24-jointed; of the female scarcely longer than the mesothorax, 26-jointed. Mesothorax of the male slender, cylindrical, twice the length of the prothorax, sides finely serrated; of the female about twice the length of the prothorax, subtriangular, carinated in the middle, with the sides slanting and serrated. Tegmina of the male extending nearly to the middle of the first segment of the abdomen; of the female about half the length of the abdomen; median carina scarcely elevated in both sexes. Wings in both sexes large, nearly as long as the abdomen; those of the male narrower. Legs short, simple; basal joint of all the tarsi short; four posterior femora in the male slender and strongly serrated on all their angles, those of the female with the fore margin dilated and dentated. Abdomen of the male long, slender, and cylindric; of the female broad, gradually narrowed to the tip, sides margined; ovipositor large, boat-shaped, extending beyond the extremity of the abdomen, but shorter than the anal styles, terminated in both sexes by moderately long anal styles.

1. (435.) Tropidoderus Childrenii.

Mas. Brunneus; mesothorace scabriusculo; tegminibus postice olivaceis, disco antico albo, extrorsum viridi marginato, introrsum rufo marginato; alis hyalinis albidis, nervis brunneis basi violascentibus, area costali olivacea, margine anteriori juxta basin albo, hoc interne rufo marginato; foliolis duobus longis subfiliformibus; pedibus anticis longioribus, quatuor posterioribus mediocribus dentatis.

Fœm. Capite prothoraceque albidis; mesothorace scabro, subflavo; tegminibus viridibus; alis hyalinis albis, nervis flavescentibus, area costali viridi, juxta basin flava, basi vio-

lascenti; abdomine sulphureo, marginibus lateralibus viridibus; pedibus glaucis.

Long. corp. maris, unc. $4\frac{1}{3}$; cap. lin. $2\frac{1}{2}$; anten. lin. 18; proth. lin. $2\frac{1}{2}$; mesoth. lin. 6; metath. lin. 9; abdom. lin. 30 + lin. 5 = lin. 35; styl. anal. lin. 3; tegm. lin. 11; alar. expans. unc. $5\frac{7}{8}$.

Long. corp. fœm. major. unc. $5\frac{1}{2}$; cap. lin. $3\frac{2}{3}$; anten. lin. 10; proth. lin. 3; mesoth. lin. 6; metath. lin. 13; abdom. lin. 31 + lin. 10 = lin. 41; styl. anal. lin. $1\frac{1}{2}$; tegm. lin. 20; alar. expans. unc. 8.

Male. Diura Typhœus, *G. R. Gray, Ent. of Austr.* i. pl. 6. f. 2; *Syn. Phasm.* p. 40.
Female. Trigonoderus Childreni, *G. R. Gray, Ent. of Austr.* i. 26. pl. 3. f. 1.
Tropidoderus Childrenii, *G. R. Gray, Syn. Phasm.* p. 31.
Burmeister, Handb. d. Ent. ii. 2. 589.
De Haan, Orth. Orient. p. 125.

Hab. In Australia. B.M., &c.

Without any positive statement of the fact to rely upon, I believe there can be no doubt that the *Diura Typhœus* of G. R. Gray (which De Haan, *Orth. Orient.* p. 128, has, as it appears to me, improperly regarded as the male of *Cyphocrania Goliath*) is the legitimate partner of *Tropidoderus Childrenii*. The amount of development of the wings seems to be subject to some variation in this species, as Mr. Fortnum brought from Adelaide specimens of the female measuring $5\frac{1}{2}$ inches in the length of the body, with the wings expanding fully 9 inches, and with the tegmina broader than in the type figured by Mr. G. R. Gray. I cannot, however, discover any real specific character between these different specimens. It is true, that those from Adelaide have the basal portion of the costal area of the wings of a beautiful rose-colour; the under surface also of the whole of the costal area is of the same colour, with the longitudinal veins pale yellow, and the tegmina also tinged with rosy; whilst another specimen of the female, measuring 5 inches long, with the wings only expanding $6\frac{1}{4}$ inches, has the basal portion of the costal area half rosy and half pale yellow.

2. (436.) Tropidoderus? viridis.

"Vert; ailes transparentes blanches. Thorax lisse.
"Long. $2\frac{1}{4}$ pouces."
Hab. Woodlark Island.

Tropidoderus? viridis, *Montrouzier in Ann. Sci. Phys. et Nat. de Lyon*, 2 sér. t. vii. p. 80.

The above is all the description of this supposed new species which its author has thought it necessary to give us.

Genus 37. PRISOPUS.

Prisopus, *Serville, Enc. Méth.* t. x.
Burmeister; De Haan.
Prisopus et Platytelus, *G. R. Gray.*

Body of the male somewhat linear, of the female broad and subdepressed; terminal segments of the body generally furnished with membranous lobes at the sides; anal styles moderately long. Head subquadrate and subdepressed; ocelli wanting. Antennæ long, pubescent, multiarticulate. Prothorax and mesothorax of nearly equal length. Tegmina elongate-ovate, generally about two-thirds of the length of the wings. Wings very broad and rounded, generally not quite covering the extremity of the abdomen. Legs, especially the anterior and posterior pairs, with dilated membranous sinuated lobes on the femora, the margins of which are strongly ciliated; tibiæ dilated, the anterior pair with two small membranous detached lobes at the base; basal joint of the tarsi of moderate length. Abdomen of the females with the ovipositor flattened, and not extending beyond its extremity.

The general habitat of these curious insects appears to be South America, although Amboyna was given as that of the typical species by its first describers. Whether the "habitat in Indiis," given by Lichtenstein to *Ph. Ohrtmanni*, be intended for India, appears to me very doubtful. Two pupæ are, however, figured by Stoll, one of which is stated to be from Samarang, Java, and the other from India. Some credibility seems to be given to these localities by that of the Cape of Good Hope given by De Haan to *Ph. Horstokkii* (which may possibly be doubtful), and also possibly by that of the Isle de France given as the country where the unique specimen of *Pr. Marchali* (*Xeroderus? Marchali, ante*, p. 103) was taken by M. Marchal himself, who resided in that island.

Hitherto the characters of the genus have been derived from females alone, no specimen of the opposite sex having hitherto been described by any previous author: Burmeister indeed considered the genus *Xerosoma* as the males. The males of several species are described below.

1. (437.) Prisopus flabelliformis.

Depressus, obscure virescenti-cinereus; abdomine lato, fulvo, segmentis 6to, 7mo et 8vo lobatis; thorace brevi, depressiusculo, prothorace 2-spinoso; elytris viridibus obscure nebulosis, apice magis brunneis; alis albo-cinereis, venis basi viridibus, fusco undatis, costa pallida in medio maculis magnis fuscis, apice brunnea; pedum anticorum et posticorum femoribus late membranaceo-marginatis sinuatis;

mesosterni medio segmentisque ventralibus abdominis in medio nigro fasciatis (mas et fœm.).

Long. corp. maris, unc. $2\frac{1}{4}$; cap. lin. 2; anten. —?; proth. lin. 2; mesoth. lin. 2; metath. lin. 5; abdom. lin. 12+lin. 3=lin. 15; tegm. lin. 13; alar. expans. unc. $3\frac{1}{4}$.

Long. corp. fœm. unc. 3; cap. lin. 4; anten. ultra lin. 18; proth. lin. $3\frac{1}{2}$; mesoth. lin. $3\frac{1}{2}$; metath. lin. 6; abdom. lin. 17+lin. 4=lin. 21; tegm. lin. 16; alar. expans. unc. 4.

Phasma flabelliformis (Le Dragon d'Amboyne), *Stoll, Spectr.* pl. 18. f. 65, *and Append.*
G. R. Gray, Syn. Phasm. p. 27 (Prisopus f.).
Burmeister, Handb. d. Ent. ii. 2. 588.
Phasma Dracunculus, *Lichtenstein, Linn. Trans.* vi. p. 16.
Mantis sacrata, *Oliv. Enc. Méth.* vii. 639. no. 76.
Lepel. & Serville, Enc. Méth. x. 444; *Ann. Sci. Nat.* xxii. 63 (Prisopus sacr.).
Prisopus spinicollis, *Burmeister, o. c.* p. 588.

Hab. In Brasilia; Cayenna. In Mus. Hopeiano Oxoniæ (mas et fœm.). B.M., &c.

The locality of Amboyna given to this species by Stoll, together with the circumstance that the membranous lobes of the terminal segments of the abdomen in the specimen of the female figured by that author were incurved beneath the body, as is often the case, and consequently not represented in his figure, led Burmeister to consider Stoll's insect as forming a distinct section in the genus, and consequently as distinct from the Brazilian insects which he had before him. This circumstance he corrected in his memoir in Germar's *Zeitschrift*, where, however, he considers his *Prisopus spiniceps* as identical with Stoll's insect, retaining *Pr. spinicollis* as distinct. I am unable to separate the last-named species from Stoll's figure, believing that the want of a pair of spines on the pronotum in that figure is an error of the artist. On the contrary, Burmeister's short description of *Prisopus spinicollis* is as follows:—

"Cinereo-viridis; spinis verticis minoribus simplici serie; pronoto scabro, bispinato; alarum area postica albida; venis transversis nigris.—Long. corp. unc. $2\frac{1}{2}$.—Habitat in Brasilia*."

Burmeister's description of *Pr. spiniceps* accords better with Serville's description of the insect, which the latter regarded as the *Pr. flabelliformis*, but which seems to me to differ from Stoll's figure, judging as I do from a specimen evidently named by Serville himself, formerly in M. Marchal's collection, now preserved in the Hopeian Museum. This wants the two spines on the pronotum, which, on the contrary, is granulated, as well as the mesonotum; and the wings have the posterior area black, the spaces between the broadly-stained transverse veins being very small, and stained with light brown, and not greenish white and distinct as in the other species.

The male of this species, which appears to be extremely rare, not having been seen by any previous writer, has long been in my Collection. It agrees in general characters with the female, except in being smaller and much more slender, the basal segments of the abdomen not being more than 2 lines broad, which is indeed the general width of the insect.

2. (438.) Prisopus spiniceps.

Cinereo-viridis; spinis verticis majoribus triplici serie; pronoto granulato; alarum area postica nigra, albo tessellata.

Long. corp. $2\frac{1}{2}$".

Prisopus spiniceps, *Burmeister, Handb. d. Ent.* ii. 2. 588.
Prisopus flabelliformis, *Serville, H. N. Orth.* p. 283.

Hab. In Brasilia; Cayenna.

Referring to the observations on the preceding species, I shall here merely add, that the specimen of the female in the Hopeian Collection, which agrees with Burmeister's characters, but which bears Serville's label *Pr. flabelliformis*, has the following proportions:—

Long. corp. unc. $3\frac{1}{3}$; cap. lin. 4; proth. lin. $3\frac{1}{2}$; mesoth. lin. 5; metath. lin. 7; abdom. lin. 18 + lin. 4 = lin. 22; tegm. lin. 17; alar. expans. unc. $4\frac{1}{4}$.

The spines at the back of the head are not larger than those in *Pr. flabelliformis*; the surface of the head is nearly smooth; the pronotum and mesonotum are distinctly granulated; the costal area of the wings is more tessellated in the middle, the hinder area very much darker, and the ventral segments of the abdomen are marked on each side with a triangular dark patch united in the middle, but not forming distinct fasciæ.

3. (439.) Prisopus Ohrtmanni.

Thorace brevi, teretiusculo, granulato; elytris mediocribus ovato-oblongis; alis rotundatis, abdomine brevioribus, costa concolori griseo-fusca; pedibus anticis latissimis, omnibus membranaceis marginato-ciliatis; capite antice granulato, postice spinoso, spina sesquialtera longiori auriformi; antennis longitudine corporis, articulis oblongis depressis.

Phasma Ohrtmanni, *Lichtenstein in Linn. Trans.* vi. p. 17. t. 2. f. 1.
G. R. Gray, Syn. Phasm. p. 28 (Prisopus Ohr.).

Hab. In Indiis. Mus. Ohrtmann (India orientali, *G. R. Gray*. An recte?).

De Haan has given this species as identical with Bur-

* The reference by Burmeister of this species to *Xerosoma canaliculatum*, and by De Haan to *Platytelus horridus* of G. R. Gray, cannot be adopted.

meister's *P. spiniceps*. The character of the spines of the head, even supposing the locality of "India orientalis" to be incorrect, seems to militate against such an opinion.

4. (440.) Prisopus horridus.

Obscure brunnescenti-niger; capite subplano, granulis albis, posticis majoribus; prothorace et mesothorace supra granulatis, haud spinosis; tegminibus pallidioribus, obscure fusco-albidis, basin versus fusco irroratis; alarum area costali obscure fusco-albida, medio nigro maculata, apiceque obscuriori; area postica nigra, lineis gracilibus albis valde tessellata; pedibus luteo-brunneis, femoribus (præsertim anticis et posticis) membrana lata sinuata instructis; tibiis dilatatis, foliolis duobus ad basin anticarum adjectis; metasterno fascia lata nigra in qua ferrum equinum reversum fulvum; abdominis segmentis ventralibus postice margine tenui nigro notatis, segmentis 5to, 6to et 7mo utrinque membrana lata instructis (fœm.).

Long. corp. fœm. fere unc. 3; cap. lin. 4; anten. —?; proth. lin. 3; mesoth. lin. $3\frac{1}{2}$; metath. lin. 6; abdom. lin. 15 +lin. 4=lin. 19; tegm. lin. 18; alar. expans. unc. $4\frac{1}{6}$.

Prisopus horridus, *Westw. MS.*; *Brit. Cyclop. Nat. Hist.* pl. *Orthopt.* fig. med.
Platytelus horridus, *G. R. Gray, Syn. Phasm.* p. 28.
Hab. In Columbia.

The general appearance of the unique female hitherto known of this species, formerly in my Collection, is so similar to that of *Phasma Horstokkii* of De Haan, that, were it not for the difference of locality, I should be tempted to consider them as varieties of the same species. The suggestion of De Haan, that it is possibly identical with *Pr. spinicollis*, is destitute of foundation. I can find no generic characters to separate this species from the typical *Prisopi*.

5. (441.) Prisopus Horstokkii.

Fœm. Alis oblongo-arcuatis, pellucidis, nervis transversis fusco maculatis, area antica pallide cinerea; nigro maculata; apice uti et elytris cinereo-fuscis; capite depresso, plano, inæquali, posterius spinuloso, pone oculos carinato; prothorace et mesothorace pallide cinereis, lævibus, suberosis.

Long. corp. 2″ 6‴; proth. $2\frac{1}{2}$‴; mesoth. 3‴; elytr. 1″ 5‴; alar. 2″; lat. alar. 1″ $5\frac{1}{2}$‴.

Phasma (Prisopus) Horstokkii, *De Haan, Orthopt. Orient.* p. 113. pl. 12. f. 1, fœm.
Hab. Promont. Bonæ Spei.

6. (442.) Prisopus Berosus, *Westw.*

PLATE XX. fig. 7, male.

Griseo- vel olivaceo-fuscus, opacus, rugosus, subdepressus; vertice postice serie transversa tuberculorum acutorum; mesothorace haud pronoto longiori; tegminibus elongatis, alarum dimidium longe superantibus, olivaceo fuscoque variis; alis magnis, subalbis, venis transversis fusco late suffusis, area costali carnea fusco variegata, apice fusco; abdominis segmentis apicalibus rotundato-lobatis, deflexis, lobis analibus depressis.

Long. corp. maris, unc. $2\frac{1}{5}$; cap. lin. 2; anten. unc. $1\frac{1}{5}$; proth. lin. 2; mesoth. lin. 2; metath. lin. 5; abdom. lin. 11+lin. 3=lin. 14; tegm. lin. 13; alar. expans. unc. 3.

Long. corp. fœm. unc. $2\frac{3}{4}$; cap. lin. 3; anten. —?; proth. lin. 3; mesoth. lin. $3\frac{1}{2}$; metath. lin. $6\frac{1}{2}$; abdom. lin. 15 + lin. 4 = lin. 19; tegm. lin. 18; alar. expans. unc. $3\frac{7}{5}$.

Hab. Litt. occid. Americæ septentrionalis. Panama. B.M.

This species is depressed, of a brown or greyish-brown colour. The head, pro- and mesothorax, and extremity of the abdomen thickly covered with small granules of a whitish colour; the hind part of the head also with larger tubercles, of which the hinder form an irregular transverse series rather larger than the rest. The antennæ are setose, rather thick, with the fourth and following joints short, but gradually lengthening; in the male they are 25-jointed. The pro- and mesothorax are nearly of equal size and appearance, being rugose; the former is spiraculiferous at its fore angles, the sides being rather dilated in the middle. The metathorax is as long as the pro- and mesothorax united, its hinder division being nearly twice as long as the fore part. The abdomen is narrow and parallel in the male, but broader and gradually widening to the sixth segment in the female, the sides being strongly deflexed; the fifth and following segments produced at their posterior lateral angles into a rounded, setose, deflexed lobe; the terminal ventral segments in both sexes are flat, and the anal styles are long and flattened. The metasternum is marked on each side with a black spot, and the ventral segments of the abdomen are fasciated with black. The tegmina are about two-thirds of the length of the wings, brown or greyish, varied with darker shades, the colour of the veins being more or less interrupted; the main vein is elevated near the base into a small tubercle. The wings are large, opake whitish, with the transverse veins very broadly stained with brown; the costal area is strongly shaded with pink throughout its greater portion, varied with brown patches with paler round spots; the apex is more uniformly

brown; the principal vein is simple, except towards the apex, where it emits two or three branches running to the fore margin. The legs are broad and hairy, rather short, especially in the female; the fore femora are strongly arched, the outer edge scolloped; the tibiæ with two lobes at the base; the four hind femora and tibiæ are scolloped along the lower margin, as also more slightly so on the fore or upper margin.

Plate XX. Fig. 7. The male, of the natural size. 7 *a*. The extremity of the abdomen seen from beneath. 7 *b*. The same sideways (the anal styles are both broken off). 7 *c*. The same parts in the female seen sideways. 7 *d*. The tip of the abdomen.

7. (443.) **Prisopus Phacellus**, *Westw.*

Elongatus, gracilior, luteo-fuscus haud granulosus; capite tuberculis 6 in linea transversa postica; pro- et mesonotis tuberculis nonnullis discoidalibus; abdomine elongato, segmentis 6to, 7mo et 8vo utrinque in lobum magnum apice rotundatum deflexum productis; pedibus brevibus, dilatatis, sinuatis; alarum venis late griseo suffusis, area costali pallide fuscescenti, maculis irregularibus fuscis in medio notata; tarsis gracilibus.

Long. corp. maris, unc. $2\frac{1}{2}$; cap. lin. 2; anten. lin. 19; proth. lin. 2; mesoth. lin. 3; metath. lin. 5; abdom. lin. 14 + lin. 3 = lin. 17; tegm. lin. 14; alar. expans. unc. $3\frac{1}{4}$.

Hab. Ega, in Brasilia (*D. Bates*). B.M.

This species is very closely allied to *Pr. Berosus*, but differs in its generally longer and more slender structure and smoother surface. The head is comparatively broader and flattened, with two small tubercles behind the eyes, and a row of six similar ones across the hind part of the head. The antennæ are 27-jointed. The pro- and mesonotum are armed with a few small tubercles. The abdomen is elongated, with the 6th, 7th and 8th segments produced on each side into an elongated lobe rounded at the extremity and deflexed; the anal styles are of moderate length and flattened. The tegmina and wings are coloured as in *Pr. Berosus*, except that the costal area is destitute of the pink tint. The legs are also similarly formed to those of that species, except that the hind ones are rather longer and the tarsi are more slender. The metasternum is entirely luteous brown; but the abdominal segments are fasciated with black.

These differences seem to me sufficient, in conjunction with the locality of the specimen described above, to warrant its being considered as specifically distinct from *Pr. Berosus* of Western North America.

8. (444.) **Prisopus incertus.**

Pupa. Brunnea; thorace albo maculato; pedibus omnibus membranaceis, ciliatis, nigro annulatis.

Long. corp. 2″ 3‴; anten. 2″ 2‴.

Phasma Nympha (Le petit Dragon), *Stoll, Spectr.* pl. 5. f. 18, *and App.*
G. R. Gray, Syn. Phasm. p. 28.
Mantis Draco, *Oliv. Enc. Méth.* vii. 636. no. 59.
Phasma Dracunculus, pupa, *Lichtenstein, Linn. Trans.* vi. 16.
Prisopus Draco, *Lepel. et Serv. Enc. Méth.* x. 444; *Serv. Ann. Sc. Nat.* xxii. 63.

Hab. Samarang, Java.

9. (445.) **Prisopus cornutus.**

Pupa. Capite postice bicorni; obscure brunnea, obscurius maculata; pedibus membranaceo-dilatatis, luteis, fusco variegatis.

Long. corp. 2″ 3‴; anten. 9‴.

Le petit Dragon cornu, *Stoll, Gryll.* pl. 20 *b*. f. 79.
Prisopus cornutus, *G. R. Gray, Syn. Phasm.* p. 43.

Hab. In India.

10. (446.) **Prisopus Cepus**, *Westw.*

Plate XX. fig. 1, male.

Elongatus; mesonoto et abdominis basi lævibus; capite, pro- et mesonotis et abdominis apice granulatis, opacis; obscure fuscus, vertice serie transversa postica spinularum; tegminibus alarum dimidio longioribus, fuscis; alis fuscescentibus, area costali pallide puniceo-grisea, apice fusca; pedibus dilatatis (mas).

Long. corp. lin. 19; cap. lin. $1\frac{1}{2}$; anten. lin. 11; proth. lin. $1\frac{1}{2}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. 4; abdom. lin. $8\frac{1}{2}$ + lin. $2\frac{1}{2}$ = lin. 11; tegm. lin. 9; alar. expans. lin. 25.

Hab. Apud Magdalenam, Bolivia (*M. Goudot*). In Mus. W. W. Saunders.

Of this species I am only acquainted with a single male. It is of an obscure brown colour, with the anterior and posterior parts of the body finely granulose; the hinder part of the head with a transverse row of six small spines. The antennæ are somewhat more than 20-jointed, the second and few following joints very short, the remainder gradually elongate and attenuated. The mesothorax is not more than one-third longer than the prothorax. The metathorax has the posterior division occupying two-thirds of the length of the whole. The tegmina are about two-thirds of the length of the wings, obscure brown, with the median carina scarcely distinct, and not elevated near the base. The wings are opake, rather smoky with brown veins, the transverse ones paler smoky; the costal area obscure greyish

pink, with the extremity brown; the principal vein is forked about the middle of its length. The legs are rather short; the fore femora arched and broadly dilated; the outer margin waved and hairy; the tibiæ gradually narrowed, slightly waved; the base with a small oval lobe, hairy on the hind margin; tarsi flattened. The middle legs are short and dilated; the femora with three or four waves; the hind femora flattened, with the anterior margin slightly, and the hind one strongly, waved and hairy; the tibiæ with the inner edge waved and hairy; tarsi flattened. Abdomen long, with the centre of each segment elevated, so as to form an acute ridge; terminal joints gradually widened, the eighth lobed on each side; terminal segment rounded; anal styles rather broad and prominent; terminal segments beneath flat, not extending beyond the eighth dorsal segment.

PLATE XX. Fig. 1. The male, of the natural size. 1 *a*. The extremity of the body seen sideways. 1 *b*. The same seen from beneath.

11.. (447.) **Prisopus Guerinii**, *Westw.*
PLATE XXI. fig. 1, male.

Pallide fusco-luteus, fusco variegatus; capite, pro- et mesonotis muricatis, hoc brevi, postice sensim dilatato; tegminibus griseis, albido subtessellatis; alis pallide lutescentibus opacis fusco subfasciatis, area costali ad basin punicea fusco varia; femoribus tibiisque posticis serratis (mas et fœm.).

Long. corp. maris, unc. 2; cap. lin. $2\frac{1}{3}$; anten. lin. 10; proth. lin. 2; mesoth. lin. 4; metath. lin. $4\frac{1}{2}$; abdom. lin. $9+$lin. $2\frac{1}{2}=$lin. $11\frac{1}{2}$; tegm. lin. 5; alar. expans. lin. 21.

Long. corp. fœm. lin. 21; proth. lin. 2; mesoth. lin. $3\frac{1}{2}$; metath. lin. $3\frac{1}{2}$; abdom. lin. 12.

Hab. In 'île Maurice.' In Coll. Dom. Guérin-Méneville Parisiis.

This species is of a dull pale luteous colour, varied, especially on the legs, with brown shades. The head, pro- and mesonotum are covered with numerous granules and small conical tubercles; the head is nearly square. The antennæ slender and few-jointed. The mesothorax is short, and gradually widened from the front to the hind part; and the abdomen is gradually narrowed from the base to the apex in the male, but widened in the middle in the female; in the former sex the segments are also slightly lobed at the extremity of each, and they are marked with longitudinal posteriorly diverging carinæ down the centre. The tegmina are oval, with the central carina scarcely elevated into an angle towards the base; they are grey-coloured, varied with white spots. The wings are dull opake buff-coloured, varied with irregular brownish fasciæ; the costal area is pinkish grey, brighter-coloured at the base, and varied with brown markings; the main vein is furcate at about one-third of the length of the wing from the base. The legs are moderately long; the fore femora arched and strongly serrated on each angle, the serratures clothed with curved hairs; the fore tibiæ are slender and but slightly lobed, but the four posterior tibiæ are lobed, especially on the upper edge, and subserrated.

The female has the oviduct wide at the base and truncate at the extremity, which does not extend beyond the eighth dorsal segment; it is flattened, and followed by a furcate appendage, the divisions of which are obtuse; the anal styles are minute and lateral.

I am indebted to M. Guérin-Méneville of Paris for a knowledge of this remarkable species.

PLATE XXI. Fig. 1. The male, of the natural size. 1 *a*. The extremity of the body seen sideways. 1 *b*. The extremity of the body of the female seen sideways. 1 *c*. The same seen from beneath.

Genus 38. EXTATOSOMA.

Extatosoma, *G. R. Gray, Serv., Burm., De Haan.*
Tropidoderus, *Brullé.*

Body spinose; of the male long, slender, and winged; of the female with the abdomen broad and dilated, and with rudimental wings; in both sexes with the middle segments furnished with membranous lobes at the sides. Head small, pyramidal, spinose at the apex. Ocelli in the male distinct, wanting in the female. Antennæ of moderate length, pubescent, longer in the male. Mesothorax dilated behind, not twice the length of the prothorax. Tegmina of the male oval, as long as the metathorax; those of the female broader, scarcely more than half the length of the metathorax. Wings of the male very large, with the costal area distinct; of the female rudimental, shorter than the tegmina, and only extending to two-thirds the length of the metathorax. Legs short, trigonate, broadest in the female, margined, dilated; femora not ciliated; anterior sinuated at the base, with lateral membranes along their whole length; tibiæ dilated and spined; tarsi with the basal joint of moderate length. Abdomen truncate at the tip; the sides of the apex greatly deflexed and gaping below. Ovipositor boat-shaped, extending beyond the extremity of the abdomen, and furnished with two long curved filaments.

1. (448.) **Extatosoma tiaratum.**

Mas. Luteo-viridis; mesothorace antice angustato, spinis duabus; tegminibus areaque costali alarum viridibus, ul-

tima undato-fasciata; alarum area postica hyalina, pallide fusca, fasciis interruptis subalbidis; pedibus gracilioribus, nigro fasciatis; tarsorum anticorum articulo 1mo elongato, vix dilatato; abdomine lævi, segmentis margine integris, segmentis tribus ultimis ventralibus in operculum conicum vix apicem abdominis attingente dilatatis.

Fœm. Multo major et robustior, luteo-brunnea, viridi tincta; tegminibus alisque rudimentalibus pallide viridibus; abdominis segmentis (præsertim 4° et 5°) supra laminis binis spiculiferis in medio armatis, marginibus lateralibus denticulatis; pedibus membranaceo-dilatatis, marginibus serratis et spinosis, tarsorum anticorum articulo 1mo brevi, dilatato, erecto.

Long. corp. maris, unc. 3, lin. 10; cap. lin. 2; anten. —?; proth. lin. 2; mesoth. lin. 5; metath. lin. 8½; abdom. lin. 24 + lin. 4 = lin. 28; tegm. lin. 8; alar. expans. 5″ 6‴.

Long. corp. fœm. circ. unc. 5¼; cap. lin. 4; proth. lin. 4; mesoth. lin. 8; metath. lin. 10; abdom. lin. 30 + lin. 9 = lin. 39; tegm. lin. 7; alæ, lin. 7.

♀ Var. *α*, e Nova Guinea.

"Thoracis et abdominis spinis mediis ternis vel quaternis, abdominis articulo 4°, 5°, 6° latere lobo dilatato aucto, lobis conjunctis formam ovatam describentibus; abdomine infra parcius spinoso; vagina incurvata, medio carinata et lobo foliaceo aucta, femoribus et tibiis posticis parte superiore lobo valde arcuato auctis; tibiarum mediarum posticarumque lobis inferioribus intus nigro marmoratis et fasciatis."—*De Haan.*

Long. corp. 6″; proth. 4‴; mesoth. 8‴; alæ, 4½.

♀ Var. *β*, e Terra Van Diemenii. Long. 4″ 10‴.

"Thoracis et abdominis spinis mediis simplicibus crebrioribus; abdomine infra spinosissimo, articulo 4°, 5° et 6° lobo angustiore breviore acuto spinoso aucto; vagina subcarinata; femoribus posterioribus lobo breviore vix arcuato vix armato; tibiis lobo medio sinuato auctis."—*De Haan.*

Male. Extatosoma Hopei, *G. R. Gray, Ent. Austral.* i. pl. 8. f. 1; *Syn. Phasm.* p. 29 (Ectatosoma H.).
Serville, H. N. Orth. p. 285.

Fem. Phasma tiaratum, *MacLeay in King's Survey of Australia, App.* ii. 455. t. B. f. 3, 4, fem.
G. R. Gray, Ent. Austral. i. pl. 8. f. 2; *Syn. Phasm.* p. 29 (Extatos. t.).
Serville, H. N. Orth. p. 286.

Male and fem. Ectatosoma tiaratum, *Burm. Handb. d. Ent.* ii. 2. 576.
De Haan, Orth. Orient. p. 110. pl. 10. f. 2 (fem.).

Hab. In Australia; Paramatta (*Gray*). Terra Van Diemenii et Nova Guinea (*De Haan*). In Mus. Hopeiano Oxoniæ (mas, cum larva, pupa, et imag. fœm.) et B.M.

I consider that Burmeister and De Haan are fully justified in regarding the *E. Hopei* as the male of *E. tiaratum*. The former of these names, according to the ordinary rule of retaining that given to the male, would have been adopted if Mr. MacLeay's name had not the priority, and were equally applicable to both sexes. The specimen figured by Gray as a male pupa is an immature female, and is preserved in the Hopeian Museum. The curved black horny appendage at the extremity of the body appears to me to be a mass of excrement emitted by the insect.

Genus 39. **PHYLLIUM.**

Phyllium, *Illiger, Latreille, Serville, Gray, Burmeister, De Haan, &c.*

Pteropus, *Thunberg, Mem. Acad. St. Pétersb.* v. 1815, p. 286.

Body dilated; the abdomen with the sides flattened and membranous, the ovipositor of the female not extending beyond its extremity. Head of the male with three ocelli; of the female without ocelli. Antennæ of the male long, pilose; of the female shorter than the head, 9-jointed. Mesothorax very short, with the sides dilated and spined. Tegmina of the male rather longer than the metathorax; of the female very large and foliaceous, nearly covering the abdomen. Wings of the male large, extending nearly to the extremity of the abdomen, semioval, of delicate texture; costal arch distinct and broad, but not coriaceous; wings of the female rudimental, or much shorter than the tegmina. Legs short; the femora, and often the tibiæ, with broad membranous lobes.

These insects recede so much further from the ordinary type of the family than any of the other species, that they have received the common name of Walking-leaves, whilst that of Walking-sticks is given to the more ordinary form. The former of these names is indeed very applicable, for both whilst alive and seated among the leaves of the trees on which they live, and also when dead and faded in colour, it is impossible to conceive a more exact representation of a growing or withered leaf. Indeed, Mr. Murray informs us, that it was only on pointing out the living specimen reared at Edinburgh, whilst resting quietly on the plant on which it subsisted, that many of the visitors were able to perceive it.

I have represented at the foot of Plate XXXI. several specimens, illustrating the transformations of this genus. Fig. 4 represents a young larva of a species allied to *Ph. crurifolium* and *Scythe* (*Ph. Agathyrsus*?). Fig. 5 represents a female larva with slightly developed rudiments of the wing-covers, and with one of the hind legs of diminished size, having probably been reproduced at an earlier period

of its existence. This individual is in the British Museum Collection, from Ceram, and appears to be a larva of *Ph. siccifolium*, having simple posterior tibiæ. Fig. 1 *b*. represents a male larva of *Ph. Scythe*, having small rudiments both of wings and wing-covers; and 1 *c*, a male pupa of the same species, having the alary rudiments still more developed, and the antennæ consisting of about twenty joints, the outer half having been developed at the extremity of the short thickened antennæ of the larva, as may be clearly perceived by the more slender form of the supplemental joints.

1. (449.) Phyllium siccifolium.

Viride; alis rudimentalibus; abdominis segmento 3^{tio} ultra medium reliquis latiori, hinc ad apicem 6^{ti} paulo angustato, 7mo lateribus rotundatis, postice multo angustiore, segmentis 2 apicalibus subito angustatis; femoribus anticis dilatatis, lobis internis et externis ejusdem latitudinis, lobi interni margine basali integro, margine apicali dilatato, rotundato, dentato, lobo externo semiovali, integro; femoribus intermediis ovalibus, posticis semiovatis, tibiis anticis intus lobo semiovali instructis; tibiis 4 posticis gracilibus, inermibus; operculo fœminæ e basi segmenti 7^{mi} ventrali exeunti, carinato, basi rotundato, dimidio apicali trigono, acuto, ad medium segmenti 9^{ni} dorsalis extenso, lobis internis duobus apice acutis, ad apicem abdominis extensis.

Long. corp. fœm. unc. 3, lin. 6; cap. lin. 4; proth. lin. 3; mesoth. lin. 6; abdom. lin. 20+lin. 7=lin. 27; lat. tegm. lin. 8; lat. fem. ant. lin. 6, fem. 2 post. lin. 4. Lat. corp. fœm. unc. $1\frac{1}{3}$.

Gryllus folium Lauri, *Linnæus, Mus. Adolph. Frid.* p. 83.
Gryllus siccifolius, *Linnæus, Mus. Reg. Ulr.* p. 111; *Syst. Nat.* p. 425. n. 3.
Roesel, Ins. Bel. ii. pl. 17. f. 4, 5.
Edwards, Aves, pl. 258 (The Walking-leaf).
Merian, Ins. t. 66.
Mantis ficifolia, *Linnæus, Syst. Nat.* ed. xii. p. 689. n. 3.
Phasma siccifolia (La feuille de Citron), *Stoll, Spectr.* pl. 7, & *App.*
Mantis siccifolia, *Fabricius, Ent. Syst.* ii. 16.
Gmelin, Syst. Nat. (*Linn.*) no. 2049.
Olivier, Enc. Méth. vii. 626.
Lamarck, An. s. Vert. iv. 253.
Phyllium siccifolium, *Latr. Gen. Cr. et Ins.* iii. 89.
Lepel. et Serv. Enc. Méth. x. 115 (Phyllium s.).
Serv. Ann. Sci. Nat. xxii. 63; *H. N. Orth.* p. 290.
Phyllium brevicorne, *Latr. Gen.* iii. 8, 9, fem.
Pteropus siccifolius, *Thunberg, Mem. Acad. Imp. Sc. St. Pétersb.* v. 286.
Phasma citrifolium, *Lichtenstein, Linn. Trans.* vii. 17.
Dry-leaf Mantis, *Shaw, Nat. Misc.* pl. 119; *Gen. Zool.* vi. 1. pl. 47.
Cuvier, Règne An. (*ed. Crochard*) *Ins.* pl. 79. f. .
Donovan, Ins. India, pl. fig. inferior.
Dry-leaf Mantis, *Dict. d'Hist. Nat.* xxvi. pl. G. 42. f. 4.
Duméril, Cons. Cl. Ins. pl. 23. f. 2; *Enc. Méth. Ins.* pl. 133. f. 2; *Enc. portatif, Orth.* pl. 27. f. 1.
G. R. Gray, Syn. Phasm. p. 30; *also in Zoologist*, 1843, i. p. 118.
Burmeister, Handb. d. Ent. ii. 2. 590.
De Haan, Orthopt. Orient. p. 111.
Laporte et Blanchard, Hist. N. Ins. iv. pl. 5, fem.
Mantis foliatus, *Perry, Arcana of Nature*, no. 6. pl. 4.
Phyllium Gorgon, *G. R. Gray, Syn. Phasm.* p. 31; *and in Zoologist*, 1843, i. 119.

Hab. In India orientali. In Musæo Hopeiano Oxoniæ, B.M., &c.

As some confusion has arisen as to the real species described by Linnæus, I have thought it useful to copy his original description from the 'Museum Ulricæ Reginæ':—

"Caput ovatum, lævе; antennæ brevissimæ, obtusæ, articulis 9, quorum 1 baseos latior, 2 brevissimus, 3 major reliquis, 4, 5, 6, 7 brevissimi lenticulares, 8, 9 ovati.

"Collum cordatum. Thorax subtrigonus, lateribus denticulatis, longitudine capitis.

"Elytra incumbentia, parallela, simul ovata, virescentia, singula folium Lauri referentia, obtusa, venosa, margine interiore approximata. Alæ brevissimæ, emarcidæ aut vix ullæ.

"Abdomen ovatum, membranaceo-planum, segmentis 8.

"Pedes corpore breviores.

1 femora plana, obovata, antice dentata, juxta caput excisa; tibiæ lanceolatæ, membranaceæ.

2 femora obovata, oblongiuscula, membranacea, antice et carina denticulata; tibiæ triquetræ, læves.

3 femora lanceolata, membranacea, antice et carina subserrata; tibiæ triquetræ, læves, squama obtusa inter ungues."

De Haan gives the following measurements of various individuals, all of which are females. From the relative length and width of some of the specimens, I should apprehend that the whole of them could scarcely be referable to one species.

a. Long. corp. 4″ 2‴; lat. corp. 1″ $4\frac{1}{2}$‴.
b. Long. corp. 3″ 5‴; lat. corp. 1″ 2‴.
c. Long. corp. 3″ 3‴; lat. corp. 1″ 6‴.
d. Long. corp. 3″ 2‴; lat. corp. 1″ $7\frac{1}{2}$‴ (*Gray*).
e. Long. corp. 3″ 2‴; lat. corp. 1″ 5‴; lat. elytr. 7‴; femoribus anticis 6‴ latis, posticis $3\frac{1}{2}$‴ latis. — Java; Timor.
f. Long. corp. 2″ 6‴; lat. corp. 13‴; lat. elytr. $5\frac{1}{2}$‴; femoribus anticis 3‴ latis, posticis 2‴ latis.—Timor; N. Guinea.

De Haan has added the following description of a pupa, of which he has also given a figure (pl. 15. f. 7), which

Mr. G. R. Gray has considered as more probably that of a different species (*Ph. Geryon*):—

"Nympha maris antennis 3‴ longis glabris crassis, latere interiore planis, exteriore rotundatis, ex 24 articulis compositis; alis usque ad marginem posteriorem articuli 1mi abdominis productis; vagina convexa, apice rotundata; tibiis uti in characteribus specificis laudatis, femoribus anticis parte interiore tantum lobatis."

I cannot bring myself to think that Perry's *Mantis foliatus*, on which Mr. G. R. Gray has founded his *Ph. Gorgon*, is anything else than an ill-drawn figure of a female of *Ph. siccifolium*, rather increased beyond the true size, and with the sides of the abdomen distorted and probably bent upwards. Rösel's figure, referred to by Linnæus, represents a female specimen, in which the four anterior legs have evidently been broken off and transposed, the middle pair as represented being evidently the fore legs. The insect represented as the male in the Crochard edition of the *Règne Animal, Ins.* pl. 79. f. 1 *b*, is a male pupa, with the antennæ of the intermediate size between that of the larva and the perfect male.

Most of the specimens of the female which I have seen are old ones, to which no precise locality is attached; but in the Hopeian Collection there is one from the Collection of Latreille with the locality "Seychelles" attached to it in his handwriting.

2. (450.) Phyllium chlorophyllum.

Mas. Pallide flavus; abdomine lato, subcyathiformi vel cymbiformi; femoribus anticis dilatatis, membrana interna mediocri, margine basali integro, apicali valde dentato; membrana externa angusta, rotundata, integra.

Long. corp. 3″; anten. 1″ 8‴; alar. expans. 3″ 11″.

Phasma chlorophyllia (La patte feuillette), *Stoll, Spectr.* pl. 23. f. 89, *and App.*
Phasma Stollii, *Lepel. et Serv. Enc. Méth.* x. 115.
Phyllium chlorophyllum, *G. R. Gray, Syn. Phasm.* p. 31, *and in Zoologist*, 1843, i. 119.
Burmeister, Handb. d. Ent. ii. 2. 590.
Ph. (Phyllium) siccifolium, mas, *De Haan, Orth. Orient.* p. 111. pl. 15. f. 7, pupa maris?
Hab. ——?

There is a specimen in the Collection of the Jardin des Plantes, which appears to agree with Stoll's figure above referred to; but it is only $2\frac{2}{3}$ inches long; the tegmina are long, extending to the extremity of the second segment of the abdomen, which latter is rounded at the sides, the widest part being at the extremity of the fourth segment; the sides are, however, bent upwards. I was for some time deceived as to this specimen, in consequence of its having had a fore leg replaced by a hind one, and am still by no means satisfied that it is anything else than a discoloured and somewhat ill-dried specimen of the male of *Ph. siccifolium*.

3. (451.) Phyllium Celebicum.

Plate XL. fig. 6, male.

Mas. Læte viridis; antennis 25-articulatis, articulis pone medium elongato-ovalibus, angulo interno haud prominenti ut in *Ph. crurifolio*, ultimis sensim brevioribus; mesonoti lateribus epimerisque mediis obtuse tuberculatis, tegminibus ad medium segmenti 2di alisque ad apicem 8vi extensis; femoribus anticis latis, lobo externo elongato-triangulari, margine apicali serrato, lobo interno paulo minori, luteo-bimaculato, margine apicali profunde dentato; femoribus intermediis anticis paulo minoribus, attamen forma similibus; femoribus posticis membrana nulla marginis antici, lobo postico elongato subtriangulari, margine apicali serrato; tibiis anticis 2 intus lobatis luteoque variegatis; tibiis 4 posticis absque membrana, posticis 2 vix rectis; abdomine subconico, segmento basali lateribus parallelis, 2di apice sensim paulo latiori, 3tio ultra medium 6ti sensim dilatato, 4to bioculato, 6ti apice subito utrinque incurvo, 7mo multo angustiori et cum 8vo et 9no triangulum parvum reversum fingente.

Fœm. Femorum anticorum lobis internis et externis inæqualibus, hisce bis latioribus, basi sinuatis, angulatis, limbo integro vel subserrato, illis angustis, eroso-tridentatis; pedibus mediis et posticis uti in *P. siccifolio*; tibiis 4 posticis simplicibus; alis elongatis, abdominis articuli 3tii apicem vix adæquantibus, pellucidis; nervis longitudinalibus 4, alarum area antica a postica non distincta, nervis vero sejunctis; tegminibus usque ad articuli 5ti apicem productis, limbo inferiore sub nervo postico dilatato; capite convexo, abdominis articulis duobus anterioribus sensim a basi latioribus, 3tio medio angulato, 4to, 5to et 6to parallelo, 7mo abrupte angustiore, reliquis sensim attenuatis; vagina carinata, basi rotundata, dimidio apicali trigono, acuto, fere ad apicem abdominis articuli ultimi extenso; lobis internis acutis, apicibus ad apicem stylorum analium extensis.

Long. corp. maris, unc. $2\frac{1}{3}$; cap. lin. 2; anten. lin. 17; tegm. lin. 9; alar. expans. unc. $3\frac{1}{2}$; lat. segmenti 6ti abdominis in medio, lin. 10.

Long. corp. fœm. unc. 3, lin. 7; tegm. unc. 2; ejusd. lat. lin. $8\frac{1}{2}$; lat. lob. post. femor. ant. lin. 4; lob. ant. lin. $2\frac{1}{2}$; lat. segm. 3tii abdom. ultra medium, lin. $17\frac{1}{2}$; segm. 6ti lin. 17.

Phasma (Phyllium) Celebicum, *De Haan, Orthopt. Orient.* p. 111, fem.

G. R. Gray in Zoologist, 1843, i. 121.

Hab. In Celebes (*De Haan*); Manilla. In Mus. Hopeiano Oxoniæ (mas et fœm.) et B.M.

The dimensions of the female given above are taken from the typical specimen described by De Haan, still in the Museum at Leyden. In the Hopeian Museum is another female, from Manilla, in which the wings are still larger, reaching rather beyond the middle of the fifth segment of the abdomen.

I have no hesitation in giving the male insect described above, from the Hopeian Collection, as that of this species, it having also been received from Manilla.

Plate XL. Fig. 6. The male, of the natural size.

4. (452.) Phyllium Athanysus, *Westw.*

Plate XXXI. fig. 3, female.

Viride; capite magno; alis membranaceis, reticulatis, ad apicem segmenti 1^mi^ abdominis extensis; femoribus anticis latis, lobis internis et externis inæqualibus, externo multo majori, subtriangulari, lateribus fere æqualibus, integris, et vix arcuatis, lobo interno margine basali parum emarginato, apicali longiori, fere recto, eroso-sinuato; tibiis anticis extus simplicibus, intus lobo membranaceo subtriangulari instructis; femoribus intermediis elongato-ovalibus, utrinque lobo minori instructis, margine infero ultra medium serrato; femoribus posticis supra fere rectis, subtus membrana sensim dilatata apiceque rotundato, serrato præditis; tibiis 4 posticis intus rectis, extus membrana angusta integra (pedum intermediorum minori) instructis; abdomine oblongo-ovali, segmento 3^tio^ exacte in medio parum rotundato, hinc ad apicem sensim attenuato; operculi parte postica libera acuta, carinata, lateribus liberis emarginatis, ad apicem segmenti 8^vi^ dorsalis extensa, lobis internis planis, apice acutis, fere ad apicem stylorum analium extensis (fœm.).

Long. corp. fœm. fere unc. 3; cap. lin. $3\frac{1}{2}$; proth. lin. 2; mesoth. lin. 3; metath. lin. 4; abdom. lin. 17 + lin. 6= lin. 23; lat. partis med. segm. 3^tii^ abdom. lin. 13; lat. fem. ant. lin. 6, fem. intern. lin. 3, post. lin. $2\frac{1}{2}$; lat. tegm. med. lin. 7; long. alæ, lin. 6.

Hab. Ceylon. B.M.

I have only seen a single specimen of this very distinct species, in the Collection of the British Museum. It agrees with *Ph. Celebicum* in possessing moderately developed (although shorter) wings, but differs entirely from that species in the form of the femora and abdomen, and in the lobed condition of the posterior tibiæ. In the shape of the abdomen it approaches *Ph. Geryon*, but differs from that species in the developed wings and in the lobed hind tibiæ.

Plate XXXI. Fig. 3. The female, of the natural size. 3*a*. The terminal segments of the body seen from beneath.

5. (453.) Phyllium Geryon.

Parvum, viride; alis rudimentalibus (1 lin. longis); fœminæ abdominis segmento 1mo angusto, ultra medium 3^tii^ sensim dilatato, inde ad apicem abdominis sensim attenuato, obconico; femoribus anticis extus membrana vix auctis, intus membrana parva, semiovali, antice denticulata; femoribus posticis subtus mediocriter dilatatis, serratis, tibiis posticis simplicibus; operculi parte postica libera triangulari, apice acuto, ad apicem segmenti 8^vi^ dorsalis extenso; lobis internis planis, apice acutis, et ad apicem abdominis extensis.

Long. corp. fœm. unc. $2\frac{1}{4}$; cap. lin. 3; proth. lin. 2; mesoth. lin. 3; metath. lin. $2\frac{1}{2}$; abdom. lin. 13+lin. 4= lin. 17; lat. segm. 3^tii^, lin. 10; long. tegm. lin. 16; lat. tegm. sing. ultra med. lin. 6.

Phyllium Geryon, *G. R. Gray in Zoologist*, 1843, i. 118, fem. Pupa maris ?, *De Haan, Orth. Orient.* pl. 15. f. 7.

Hab. Philippine Islands (fem. in B.M.).

The measurements given above are taken from the original specimen in the British Museum Collection, described by Mr. G. R. Gray. The fore legs are now wanting (if indeed the character of the anterior femora given by that writer were not derived from De Haan's figure of a male pupa above quoted). In both the latter and the British Museum specimen the body may be said to form an elongated lozenge or diamond, the anterior point being placed at the front of the prothorax, and the widest part being near the end of the third segment of the abdomen.

6. (454.) Phyllium lobiventre.

Plate XXXIX. fig. 5, female.

Mas. "Gracile, testaceo-virescens; prothorace medio sulcato; elytris concoloribus; alis hyalinis, costam versus testaceis, vel virescentibus; femoribus gracilibus, extus haud dilatatis; abdomine lateribus lobulato.

"Long. 35–38 mill.; extens. alar. 55–58 mill."

Phyllium lobiventre, *Blanchard in Dumont d'Urville, Voy. au Pôle Sud, Zoologie*, iv. 359, *Orthopt.* pl. 1. f. 9.

Hab. Lebouka; Feejee Isl. Archipel Viti. In Mus. Paris.

"Corps grêle, comparativement à celui des autres espèces du genre; entièrement d'une teinte jaunâtre testacée pâle, probablement d'un vert tendre pendant la vie. Tête un peu inégale en dessus, très-légèrement tuberculée. An-

tennes soyeuses. Prothorax marqué d'un sillon en avant. Élytres verdâtres, presque transparentes. Ailes hyalines, avec la portion antérieure légèrement lavée de jaunâtre ou de vert. Pattes de la même nuance que les autres parties du corps : les cuisses et les jambes carénées en dessus, ne présentant aucune dilatation extérieure ; les cuisses antérieures offrant vers leur extrémité une petite expansion triangulaire, légèrement dentelée, les jambes n'ayant qu'une expansion plus petite dans leur milieu ; les cuisses intermédiaires et postérieures offrant une expansion analogue à celle des antérieures, mais remontant davantage vers la base, leurs jambes grêles et totalement dépourvues d'expansion. Abdomen assez étroit, ayant ses quatrième, cinquième et sixième segments dilatés sur les côtés en forme de lobes."

Fœm. Parva, læte viridis ; capite et thorace brunneo-luteis ; tegminibus viridibus flavo venosis ; capite postice femoribusque granulatis ; mesonoto abbreviato, margine antico excavato, dente elevato medio ; alis rudimentalibus ; femoribus omnibus lobo externo angusto, lobo interno anticorum abbreviato, semiovali, apice denticulato, quatuor posticorum elongato-ovali, denticulato ; tibiis anticis lobo parvo in medio marginis interni, 4 posticis simplicibus ; abdomine basi lato, ad medium segmenti 3^{tii} sensim dilatato, hinc ad apicem 5^{ti} angustato, segmentis 6to, 7mo et 8vo utrinque postice lobatis, 9no triangulari ; operculi parte libera trigona, apice acuto, apicem segmenti 8^{vi} dorsalis attingente, lobis internis planis, apice acutis, ad apicem stylorum analium extensis.

Long. corp. fœm. unc. 2, lin. 5 ; cap. lin. 2$\frac{3}{4}$; proth. lin. 2$\frac{3}{4}$; mesoth. lin. 2 ; abdom. lin. 16+lin. 5=lin. 21 ; tegm. long. lin. 18, lat. lin. 7.

Hab. Insula Ovalau ; Feejee Islands. B.M.

The minute granulation of the head, legs, under side of the thorax, and margins of the segments of the body, is a peculiar character of this species. I have no hesitation in giving the insect described above as the female of *Ph. lobiventre* of Blanchard.

PLATE XXXIX. Fig. 5. The female, of the natural size.

7. (455.) Phyllium bioculatum.

Mas. Viridis ; tegminibus ad medium segmenti 1^{mi} abdominis extensis, alisque hyalinis, ad basin segmenti 8^{vi} abdominis extensis ; abdomine maculis duabus nigro-ocellatis rotundatis, medio hyalinis ; abdomine ad basin valde angustato, ad basin segmenti 4^{ti} sensim dilatato, hinc ad basin 7^{mi} sensim attenuato, reliquis subito angustatis ; femoribus anticis dilatatis, membrana interna mediocri, margine basali curvato et integro, apicali subdentato, membrana externa magna, subtriangulari, margine obtuse dentato ; tibiis 4 posticis membrana elongata apice emarginato instructis.

Long. corp. maris, 2″ 4‴ ; alar. expans. 3″ 3‴.

Long. corp. fœm. 3″ 2‴ ; lat. corp. 1″ 7‴.

Phyllium bioculatum, *G. R. Gray in Griff. An. Kingd. Ins.* ii. 191. pl. 63. f. 3 ; *Syn. Phasm.* p. 30 ; *and in Zoologist*, 1843, i. 122.

Burmeister, Handb. d. Ent. ii. 2. 590.

Hab. In India orientali. In Mus. Brit. et Hopeiano Oxoniæ.

"*Hab.* Ins. Mauritius. In Mus. Hope."

The original type of the male of this species, represented in *Griffith's Animal Kingdom*, is preserved in the Hopeian Collection. Except in the more gradually narrowed form of the fifth and sixth segments of the abdomen, this male seems to me scarcely to differ materially from that of *Ph. Scythe*.

8. (456.) Phyllium Gelonus.

Fœm. Alis rudimentalibus ; abdomine ad basin subangusto, ad segmentum 3^{tium} sensim dilatato, 4to paulo latiori et ad latera rotundato, hinc ad apicem sensim angustato ; operculi parte libera acute triangulari, ad apicem segmenti 8^{vi} haud extensa, stylis internis acutis, vix ultra medium segmenti 9^{ni} extensis, membranis inæqualibus ; femoribus dilatatis, membrana interna integra, margine basali curvato, apicali subdentato ; membrana externa magna, triangulari et subintegra ; femoribus intermediis (posticis detritis) subovalibus, membranis æqualibus, singulæ dimidio apicali vix sinuato ; tibiis anticis utrinque, intermediis extus lobatis.

Long. corp. unc. 2$\frac{3}{4}$; lat. segm. 4^{ti} abdom. lin. 17.

Phyllium crurifolium, mas ?, *Serville, H. N. Orth.* p. 290.
Phyllium Gelonus, *G. R. Gray in Zoologist*, 1843, i. 121.

Hab. Insulis Sechellarum. B.M.

9. (457.) Phyllium bilobatum.

Fœm. Alis rudimentalibus ; tegminibus apice angustioribus ; abdomine ad basin angusto, sensim ultra medium segmenti 3^{tii} dilatato, hinc ad apicem 5^{ti} attenuato, marginibus lateralibus segmenti 6^{ti} et 7^{mi} postice lobatis, ultimo subito angustato ; operculi apice elongato-acuto, ad medium segmenti 9^{ni} extenso, lobis internis acutis, ad apicem abdominis extensis ; femoribus anticis dilatatis ; membrana interna margine basali integro, apicali valde dentato, membrana externa ovali, integra ; femoribus intermediis utrinque, posticis intus dilatatis ; tibiis anticis intus lobatis, tibiis quatuor posticis simplicibus.

Long. corp. unc. 2$\frac{3}{4}$; lat. segm. 3^{tii} abdom. lin. 16$\frac{1}{2}$.

Phyllium bilobatum, *G. R. Gray in Zoologist*, 1843, i. 120.

Hab. Ins. Philippinensibus. B.M.

10. (458.) **Phyllium Agathyrsus.**

Fœm. Alis rudimentalibus; abdomine latissimo, basi subangusto, ad apicem segmenti 3^{tii} dilatato, 4to ad basin 7^{mi} sensim attenuato, 7mo subito intus curvato, reliquis ad apicem valde attenuatis; operculi parte libera parva, apice obtuso; stylis internis brevibus, acutis; pedibus ut in *Ph. Scythi* formatis; femoribus anticis valde dilatatis, membrana interna mediocri, margine basali integro, curvato, apicali acute dentato; membrana externa magna, margine externo integro, et longe ultra coxam postice extenso, margine basali acute serrato; tibiis anticis utrinque, posticis 4 extus lobatis.

Long. corp. unc. 3; cap. lin. 4; abdom. unc. 2; lat. bas. segm. 4^{ti} abdom. lin. 19; lat. apic. segm. 6^{ti} abdom. lin. 14; long. tegm. lin. 24; lat. tegm. sing. lin. 8.

Phyllium Agathyrsus, *G. R. Gray in Zoologist*, 1843, p. 122.
Hab. Ceylon. B.M.

11. (459.) **Phyllium Donovani.**

Pupa. Viridis; abdomine ad basin angusto, sensim ad medium segmenti 3^{tii} dilatato, hinc ad apicem sensim attenuato, in medio maculis duabus hyalinis subquadratis; tibiis 4 posticis simplicibus.

Long. corp. 1″ 5‴; lat. corp. $6\frac{3}{4}$‴.

Phyllium Donovani, *Donovan, Ins. Ind.* pl. 11, fig. superior.
G. R. Gray, Syn. Phasm. p. 31; *and in Zoologist*, i. 120.
Hab. "One of the islands of the Indian Seas."

I feel satisfied, from an attentive examination of the development of the tegmina and wings in the two sexes of this genus, that Donovan's figure above referred to, notwithstanding the minute size (probably inaccurate) of the antennæ, is intended for the pupa of a male insect, and not that of a female, as suggested by Mr. G. R. Gray. Without a more precise knowledge of its locality, it seems scarcely possible to identify it with the perfect insect, of which it is in so immature a condition.

12. (460.) **Phyllium crurifolium.**

Fœm. Folio desiccato similis; capite supra subdepresso; mesothoracis margine antico vix distincto, carinis lateralibus alisque tuberculis spinosis distinctis, denticulis laterum vix distinctis; tegminum margine suturali vena crassa longitudinali venas fortes obliquas emittente; alis rudimentalibus (2 lin. longis); pedibus concoloribus, femoribus anticis latissimis, membranis inæqualibus, externa majori quam in *Ph. siccifolio*, triangulari, margine interno dentato, membrana interna versus apicem denticulata; tibiis anticis dilatatione foliacea utrinque valde distincta, interna latiori; femoribus intermediis utrinque dilatatione rotunda lata, interna distincte denticulata; femoribus posticis minus dilatatis, præsertim externe; dilatatione interna denticulata, angulo femorum 4 posticorum subtus denticulis nonnullis armatis; tibiis 4 posticis extus tantum foliaceis, in pedibus 2 posticis majoribus; abdomine ovali; operculi parte postica abbreviata, obtusa vel subacuta et subtrigona; lobis vaginæ internis dimidium articuli 9^{ni} vix attingentibus, angustis, acutis.

Mas? Læte viridis; tegminibus apicem segmenti 1^{mi} abdominis haud attingentibus, 4to utrinque macula ocellata notato, dilatatione segmenti 1^{mi} angusta, in 2^{ndo} sensim latiori, 3^{tio} et 4to reliquis latioribus; antennis 22-articulatis, setosis, articulorum apicibus intus acute productis, articulis penult. et antepenult. abbreviatis; femoribus anticis dilatatione externa obtuse trigona, margine interno haud denticulato, dilatatione externa femorum intermediorum versus apicem distincte denticulata; tibiis quatuor posticis extus lobatis.

Long. corp. fœm. unc. $2\frac{3}{4}$; maris, $2\frac{1}{4}$.

Phyllium crurifolium, *Serville, H. N. Orth.* p. 291.
De Haan, Orth. Orient. p. 112.
G. R. Gray in Zoologist, 1843, i. 120.

Hab. In India orientali (*Serville*); Borneo (*De Haan*); Seychelles (*Marchal*). "Mas ex insulis Seychelles" (*Serville*). B.M.

The Hopeian Museum possesses two of the supposed males of this species: one from the Collection of M. Marchal, named by Serville, with "Seychelles" indicated as the habitat, in the handwriting of Latreille; and the other, which I obtained from the Collection of Serville itself. I can discover no difference between these two specimens and the typical specimen of the male of *Phyllium bioculatum*, as represented from my drawing in *Griffith's Animal Kingdom*, both exhibiting traces of the two spots on the inner margin of the fore femora, notwithstanding Serville, in a note, implies the want of these two marks, and consequently thereupon maintains the distinction of the two species. It is proper to observe also, that the margin of the basal half of the outer lobe of the fore femora exhibits traces of the three minute denticles which exist in the same part of the male of *Ph. bioculatum*. The Hopeian Collection also possesses several females of this species, also labelled from the Seychelles and East Indies, from the Collections of Marchal and Serville, which agree with the description given by Serville.

13. (461.) **Phyllium Dardanus**, *Westw.*
PLATE XL. fig. 5, male.

Obscure fusco-luteum; antennis setosis, articulis brevioribus quam in *Ph. crurifolii* mare, angulo interno apicali

prominente, ultra articulum 21um fractis, articulo 21mo præcedente haud breviori; tegminibus apicem segmenti 1^{mi} abdominis haud attingente; alis magnis, apicem extremum abdominis tegente; femoribus anticis magnis, lobis inæqualibus, externo elongato-triangulari, margine basali 4-denticulato, apicali fere inermi, recto, lobo interno in medio fere recto, margine apicali 3-denticulato; femoribus intermediis multo minoribus, lobis fere æqualibus, denticulatis; femoribus posticis lobo externo valde angusto, margine integro, lobo interno ut in pedibus intermediis, tibiis anticis utrinque, posticis 4 tantum extus membrana auctis; abdomine (segmento 1mo lateribus parallelis excepto) ovali, plano, haud biocellato, segmento 4to basin versus reliquis parum latiori, hinc ad apicem 7^{mi} sensim attenuato, duobus ultimis minutis.

Long. corp. unc. 2, lin. 5; anten. (art. 21 basal.) lin. 12; tegm. lin. 6; alar. expans. unc. 3, lin. 10; lat. segm. 4^{ti} bas. abdom. lin. 10; segm. 6^{ti} apic. lin. 6½; lat. fem. ant. lin. 3½.

Hab. Ins. Seychelles. In Mus. Hopeiano Oxoniæ (e Mus. Marchal).

I am compelled to propose a new species for the male insect above described, on account of the structure of the antennæ, the length of the wings, the form of the abdomen, and the want of the ocelli on the fourth segment of that part of the body. I do not know whether we may not already possess the legitimate female. In the general form of the legs it agrees with the male of *Ph. crurifolium* and *Ph. Scythe*, and, as in those species, the fore femora exhibit traces of the two pale marginal spots.

Plate XL. Fig. 5. The male, of the natural size.

14. (462.) Phyllium pulchrifolium.

Læte viride, parte postica tegminum rufescenti; alis rudimentalibus; femoribus omnibus foliaceis; femorum anticorum lobis inæqualibus, externis ter latioribus, internis valde angulatis trigonis; femoribus mediis rhomboideis, dentatis; tibiis anticis utrinque, mediis et posticis parte superiore foliaceis; abdomine medio subquadrato, lateribus parallelis, segmentis duobus anticis angustioribus, 3^{tio} in medio angulato, 7mo ad apicem fere semicirculariter emarginato, 8vo multo angustiori; operculo ad basin cum segmento 7mo ventrali fere connato, apice abbreviato obtuso vel subacuto, ad medium segmenti 8^{vi} dorsalis extenso; lobis vaginæ internis dimidium articuli 9^{ni} haud attingentibus, angustis, acutis (fœm.).

Long. corp. fœm. unc. 3; cap. lin. 3; proth. lin. 2; mesoth. lin. 3½; metath. lin. 4; abdom. lin. 17+lin. 6½ =lin. 23½; tegm. lin. 21; tegm. lat. lin. 8½; lat. segm. 4^{ti}, 5^{ti} et 6^{ti} abdominis, lin. 17.

Phyllium pulchrifolium, *Serville, H. N. Orth.* p. 292.
De Haan, Orth. Orient. p. 112. pl. 15. f. 6, fem.
G. R. Gray in Zoologist, 1843, i. 122.
Walking Leaf, *Edwards, Birds*, t. 258?

Hab. In insula Java (China, Borneo, Sumatra, *DeHaan*). Individua typica Servilleana in Mus. Hopeiano Oxoniæ.

15. (463.) Phyllium Scythe.

Plate XXXI. fig. 1, male; fig. 2, female.

Mas. Capite, pro- et mesothorace gracilibus; tegminibus paulo pone medium segmenti 1^{mi} abdominis extensis; alis latis, apice rotundatis; abdomine ad basin valde angusto, segmento basali quadrato, ad medium 2^{di} sensim dilatato, 3^{tio} in medio obtuse angulato, 4to, 5to et 6to subæquilatis, 4^{ti} basi parum latiori, 7mo subito versus 8^{vum} rotundato, 4to bioculato; femoribus anticis dilatatis, membrana interna angusta, elongata et valde incisa, membrana externa elongato-triangulari, margine externo integro, interno vix dentato, femoribus et tibiis posticis ut in fœmina.

Fœm. Alis rudimentalibus; abdomine ad basin angusto, sensim ad medium segmenti 3^{tii} dilatato, 4to parum latiori basique parum arcuato, hinc ad 7^{mum} sensim angustato, 7mo subito versus 8^{vum} rotundato inciso, reliquis conicis; femoribus anticis dilatatis, membranis valde inæqualibus, membrana interna mediocri, ante medium profunde sinuata, apice irregulariter dentato, membrana externa magna, margine externo rotundo integro, margine interno late sinuato-serrato, angulo postice valde producto; femoribus intermediis late ovatis, membranæ inferæ margine toto, superæ dimidio externo serratis; femoribus posticis angustioribus, membrana infera parva semiovata serrata, supera valde angusta vix curvata; tibiis duabus anticis membrana interna trigona, omnibus externe membrana elongata, in pedibus 4 posticis apicem versus emarginata; operculi parte postica libera, abbreviata, ad medium segmenti 8^{vi} dorsalis extensa, apice acuto, lateribus emarginatis; lobis internis acutis, planis, angustis, ad medium segmenti 9^{ni} extensis.

Long. corp. maris, unc. 2⅓–2⅔; lat. corp. ad basin segmenti 4^{ti} abdom. lin. 11; tegm. lin. 6; alar. expans. unc. 3¾.

Long. corp. fœm. magn. ordinar. unc. 3, lin. 7; cap. lin. 3½; proth. lin. 3; mesoth. lin. 3½; metath. lin. 4½; abdom. lin. 22 + lin. 8 = lin. 30; long. tegm. lin. 25; lat. segm. 4^{ti} abdom. lin. 20.

Phyllium Scythe, *G. R. Gray in Zoologist*, 1843, i. 122.

Hab. Sylhet. In Mus. Hopeiano, B.M., &c.

A gigantic specimen of the female of this species is contained in the Ashmolean Museum, measuring 4⅓ inches in

length. Its proportions agree in all respects with those given above.

The figures representing this species in Pl. XXXI. have been drawn from a series of specimens preserved in spirits, in the Collection of W. W. Saunders, Esq. It will be seen that in the more immature state the insect is destitute of the two ocelli-like marks on the fourth segment of the abdomen.

A very interesting account of the habits, metamorphoses, and growth of a male specimen of this insect, reared in the Royal Botanic Garden of Edinburgh, has been published by Andrew Murray, Esq., in the 'Edinburgh New Philosophical Journal,' new series, January 1856; and the curiosity of the public to see this interesting animal during the eighteen months of its existence in the active state in one of the hot-houses of that establishment was so great, that the Curator of the Gardens, to whose care and judicious management the prolonged life of the insect was entirely due, found it necessary, for the health of the creature itself, to forbid its being shown on more than four days in the week.

PLATE XXXI. Fig. 1. The male, of the natural size. 1 *a*. The terminal segments of the abdomen seen from beneath. 1 *b*. The male larva, full-grown. 1 *c*. The male pupa.
Fig. 2. The female, of the natural size.

ADDENDA.

Page 5.—Sp. 10*. (464.) **Bacillus Mozambicus,** *Westw.*

Elongatus, cylindricus; capite oblongo, antennis capite plus duplo longioribus; metathorace longitudine capitis, prothoracis et mesothoracis simul sumptis; abdomine longo, gracili; pedibus anticis longis, quatuor posticis brevioribus; abdominis segmentis tribus apicalibus oblongo-ovalibus, stylis analibus elongatis, gracilibus, forcipatis.

Long. corp. unc. 4; cap. lin. 2; anten. lin. 5; proth. lin. 2; mesoth. lin. $7\frac{1}{2}$; metath. lin. 11; abdom. lin. 20 + lin. 6=lin. 26.

Hab. Mozambique. Mus. Berol. cum nomine "Bacteria Capensis" Servillei inscriptus.

Page 9.—Sp. 20*. (465.) **Bacillus Makassarinus,** *Westw.*

Gracilis, cylindricus, obscure fuscus, opacus, linea media lutescenti per thoracem et basin abdominis extensa; capite spinis duabus inter oculos; antennis capite duplo longioribus, gracilibus, 16-articulatis, articulo 1mo modice depresso, ultimo præcedentibus duobus æquali; pronoto spinis duabus anticis, mesonoto duabus anticis, duabus ante, et duabus pone medium, alterisque duabus lateralibus ante pedes medios, metanoto spinis duabus fere mediis, unica in medio marginis postici, alterisque duabus lateraliter porrectis ante pedes posticos, segmentisque sex basalibus abdominis spina erecta in medio marginis postici (magnitudine decrescentibus) armatis, segmentis tribus apicalibus ventralibus paulo dilatatis, 8vo in medio acute angulato; pedibus gracilibus, inermibus (mas).

Long. corp. lin. 21; cap. lin. 2; anten. lin. 4; proth. lin. $1\frac{2}{3}$; mesoth. lin. 5; metath. lin. 4; abdom. lin. $7\frac{1}{2}$+ lin. $2\frac{1}{2}$=lin. 10.

Hab. Makassar (*D. Wallace*). In Mus. W.W. Saunders.

Allied to *Bacillus Darnis, ante*, p. 8, Pl. XXIII. f. 2, 3.

Page 12.—Sp. 30. **Bacillus australis.**

Specimens of both sexes of this species exist in the Berlin Museum, to which the manuscript name of *B. spinicrus*, Erichson, is applied.

Page 23.—Sp. 7. **Bacteria muricata.**

The following are the dimensions of both sexes of this species preserved in the Royal Museum of Berlin. They are labelled "Para."

Long. corp. maris, unc. $4\frac{1}{10}$; cap. lin. 2; anten. fere unc. 3; proth. lin. 2; mesoth. lin. 13; metath. lin. $9\frac{1}{2}$; abdom. lin. 21 + lin. 4 = lin. 25.

Long. corp. fœm. unc. $6\frac{5}{12}$; cap. lin. 3; anten. fere unc. $3\frac{1}{2}$; proth. lin. $2\frac{1}{2}$; mesoth. lin. 19; metath. lin. 12; abdom. unc. 2, lin. 10 + lin. $5\frac{1}{2}$ + operc. apic. lin. $1\frac{1}{2}$ = unc. 3, lin. 5.

The operculum of the female extends about a line and a half beyond the truncated extremity of the terminal dorsal segment of the abdomen. The legs in this sex are moderately long,—less so, however, than in the male, in which they are very slender.

Page 23.—Sp. 9. **Bacteria hastata.**

I have examined and drawn the typical specimens of both sexes of this species in the Berlin Museum, of which the following are the relative measurements:—

Long. corp. maris, unc. $2\frac{7}{8}$; cap. lin. $1\frac{7}{8}$; anten. —?; proth. lin. $1\frac{1}{2}$; mesoth. lin. 9; metath. lin. 7; abdom. lin. 12 + lin. 4 = lin. 16.

Long. corp. fœm. unc. $4\frac{7}{8}$; cap. lin. 3; anten. —?; proth. lin. 2; mesoth. lin. 12; metath. lin. 10; abdom. lin. 20 + lin. 6 + operc. ultra apicem abdominis extenso, lin. 11=lin. 37.

Page 26.—Sp. 19. (71.) **Bacteria (Bacunculus) spatulata.**

Deceived by the specimen from Chili, in the Jardin des Plantes, described and figured by M. Blanchard as *Bacteria spatulata*, I considered that the *Prisomera*? *Phyllopus* of Gray was a distinct species. Having, however, subsequently examined the type-specimens of *B. spatulata*, described by Burmeister, in the Berlin Museum, I find the female identical with the Hopeian insect described by Gray,

and doubtfully considered by Burmeister as identical therewith. The name of the species will therefore stand—

19. (71.) **Bacteria (Bacunculus) phyllopoda.**

Syn. Prisomera? phyllopus, *G. R. Gray, Syn. Phasm.* p. 16 (nec Acanthoderus phyllopus, *De Haan, ante*, p. 50, sp. 9 (137)).

Bacteria (Bacunculus) spatulata, *Burmeister, Handb. d. Ent.* ii. 566 (nec *Blanchard in Gay's Hist. Chili*, vi. 25, *Orth.* pl. 1. f. 6: see *subtus*).

Hab. Valparaiso (Mus. Hopeiano Oxoniæ) et Chili (Mus. Berol.).

The following is a detailed description of the female type, contained in the Hopeian Collection:—

Body long and cylindrical, brownish green, rather shining; meso- and metathorax and basal segments of the abdomen finely granulated, especially the former. Head oblong, simple. Antennæ very long and slender, with very long joints; the hind margin of the metathorax and of the two basal segments of the abdomen with a small raised tubercle in the middle, the fifth segment with a larger tubercle in the same situation, the eighth with the middle of its hind margin raised into an obtuse conical point; the operculum extending far beyond the extremity of the abdomen. The fore legs are moderately long and simple; the middle and posterior are shorter and stronger; their femora with two foliated lobes near the base on the under side, and two similar ones on the upper side near the tips. The four posterior tibiæ have the apex triangularly dilated. The Berlin specimen of the female has the upper surface of the body rather more strongly granulated, and the five basal segments of the abdomen have the raised tubercle in the middle of the hind margin. The following are the dimensions of the Hopeian specimen of the female:—

Long. corp. fœm. cum operc. unc. $5\frac{1}{2}$; cap. lin. $3\frac{1}{3}$; anten. unc. $2\frac{1}{2}$; proth. lin. 3; mesoth. lin. $13\frac{1}{2}$; metath. lin. $9\frac{1}{2}$; abdom. lin. 22+ lin. 6 + operc. ultra apicem abdom. extenso, lin. 8=lin. 36.

Note.—I think it not improbable that the typical specimen of *Bacteria foliacea* of Blanchard (*ante*, p. 26, sp. 17 (70)) may prove to be a young individual of *B. phyllopoda*.

Page 26.—Sp. 19*. (466.) **Bacteria Chilensis,** *Westw.*

Elongata; metathorace latiori; capite inter oculos bispinoso; mesothorace simplici, tuberculo minimo in medio partis posticæ; metathorace segmentisque abdominis supra in medio marginis postici lobo tenui minuto transverso instructis; pedibus anticis simplicibus, femoribus intermediis ad apicem lobo parvo instructis, tibiis mediis ad apicem paulo dilatatis (pedibus posticis et abdominis apice detritis) (fœm.?).

Long. corp. unc. $4\frac{1}{2}$; cap. lin. 3; proth. lin. $2\frac{1}{2}$; mesoth. lin. 13; metath. lin. 9; abdom. unc. $2\frac{1}{3}$.

Hab. In Chili. In Mus. "Jardin des Plantes."

Bacteria spatulata, *Blanchard in Gay's Hist. Chili*, vi. 25, *Orth.* pl. 1. f. 6 (nec *Burmeister*).

The unique specimen in the Jardin des Plantes is mutilated at the extremity of the body, so that its sex is not easily determined. I, however, believe it to be a female, from its general agreement in the proportions of its parts with that sex of *B. phyllopoda*.

Page 27.—Sp. 20*. (467.) **Bacteria bituberculata,** *Schaum, MSS.*

Valde elongata, subcylindrica; capite tuberculis duobus inter oculos; pro-, meso- et metathoracibus cum abdomine inermibus, hujus segmentis tribus apicalibus abbreviatis; operculo valde elongato; pedibus mediocribus, femoribus anticis lobis tribus conicis paulo ante et pone medium, et prope apicem marginis superi positis; tibiis anticis lobo simili ante medium armato, tarsorum articulo basali haud cristato; femoribus intermediis spinis circiter 5 prope basin irregulariter in angulos positis, tibiisque spinis duabus approximatis ante medium marginis superi; femoribus posticis tuberculis duobus conicis prope basin subtus alterisque duobus prope medium supra armatis, tibiisque tuberculis tribus inter basin et medium anguli superi instructis (fœm.).

Long. corp. fœm. cum operculo, unc. $7\frac{1}{2}$; cap. lin. 3; anten. unc. $4\frac{3}{4}$; proth. lin. 3; mesoth. lin. 17; metath. lin. 14; abdom. unc. 3 + lin. 6 + operc. ultra apicem abdominis extenso, lin. 11=unc. 4, lin. 5.

Hab. Inhambane (Mozambique). In Mus. Berol.

Page 28.—Sp. 24. **Bacteria striata.**

The following are the dimensions of the typical specimen of the male of this species contained in the Royal Museum of Berlin (the female described by Burmeister, from the same Museum, being evidently immature):—

Long. corp. maris, unc. $2\frac{3}{4}$; cap. lin. $1\frac{1}{2}$; anten. unc. $2\frac{1}{4}$; proth. lin. $1\frac{1}{2}$; mesoth. lin. 8; metath. lin. 7; abdom. lin. 13+lin. 3=lin. 16.

This sex is extremely slender; the prothorax is finely granulated; the legs very long and slender; the terminal ventral segments of the abdomen produced very much beneath, but not extending beyond the middle of the eighth dorsal segment; and the anal styles are long, extending considerably beyond the extremity of the body, curved,

slender, and crossing each other at the tips like a pair of forceps.

Page 49.—Sp. 2*. (468.) **Acanthoderus Wallacei**, *Westw.* PLATE XL. fig. 7, male; fig. 8, female.

Gracilis; pedibus longitudine mediocribus, femoribus 4 posticis prope apicem subtus spinis nonnullis minutis armatis; prothorace spinis duabus anticis et una postica; mesothorace spina in medio marginis postici duabusque lateralibus; metathorace spina erecta pone medium alteraque in medio marginis postici duabusque lateralibus; segmentis abdominalibus spina unica in medio marginis postici (3^{tia} multo majori) armatis.

Mas. Fere lævis, cylindricus, rufo-luteus; femoribus margineque postico segmentorum viridi tinctis.

Fœm. Robustior, granulosa, fusca, segmento ultimo abdominis in caudam elongatam corneam recurvam apice acutam subtus concavam producto.

Long. corp. maris, unc. $2\frac{1}{6}$; cap. lin. $1\frac{1}{2}$; anten. lin. 24; proth. lin. $1\frac{1}{2}$; mesoth. lin. 7; metath. lin. 5; abdom. lin. 10 + lin. 2 = lin. 12.

Long. corp. fœm. unc. $3\frac{1}{2}$; cap. lin. 2; anten. unc. $2\frac{1}{2}$; proth. lin. 2; mesoth. lin. 10; metath. lin. 6; abdom. lin. 14 + lin. 9 = lin. 23.

Hab. In insula Aru prope Nov. Guineam (*D. Wallace*). In Mus. Hopeiano Oxoniæ, W. W. Saunders, et B.M.

The two sexes of this curious species differ greatly in appearance, although the identity in the arrangement of the spines with which they are armed admits of no doubt as to their being legitimately united. The singular structure of the terminal segments of the abdomen of the female especially merits attention.

PLATE XL. Fig. 7. The male, of the natural size. 7 *a*. The terminal segments of the body seen sideways.

Fig. 8. The female, of the natural size. 8 *a*. The second and third segments of the abdomen seen sideways. 8 *b*. The terminal segments of the abdomen seen sideways.

Page 74.—Sp. 4*. (469.) **Phibalosoma Apollonius**, *Westw.* PLATE XL. fig. 4, female.

Fœminæ præcedentis (*Ph. Pythonio*) valde affinis et ejusdem magnitudinis, differt tamen capite et mesothorace, pro ratione, evidenter longioribus; mesonoti disco et lateribus spinis validis armatis, spinisque epimerarum meso- et metathoracis multo majoribus; segmentis abdominalibus basalibus parum brevioribus, horum 1mo ad 6^{tum} lamina rotundata plana utrinque instructis; operculo breviori, stylis duobus internis ultra operculi apicem retro-extensis; pedibus anticis latioribus, femoribus membrana lata serrata extus instructis; pedibus quatuor posticis brevioribus et crassioribus (fœm.).

Long. corp. fœm. unc. $8\frac{1}{2}$; cap. lin. $6\frac{1}{2}$; anten. lin. 24; proth. lin. 6; mesoth. lin. 21; metath. lin. 13; abdom. unc. 3, lin. 9 + lin. 9 + operc. ultra apicem abdom. lin. 4 = unc. 4, lin. 10.

Hab. In insula Vanua Levu, "Feejee Islands" (*D. F. M. Rayner*).

Specimens of this fine insect were collected by F. M. Rayner, Esq., Surgeon R.N., of H.M.S. 'Herald' (Capt. Denham, R.N.), in September 1857. Although here given as a distinct species, it will require a knowledge of the male to determine satisfactorily whether it ought to take a higher rank than that of a local variety of *Ph. Pythonius*, to which it bears so strong a general resemblance.

PLATE XL. Fig. 4. The female, of the natural size.

Page 82.—Sp. 1. **Heteropteryx dilatata.**

A specimen of the female of this remarkable species has recently been obtained by W. W. Saunders, Esq., from Borneo, agreeing with the original figure, and of which the following are the proportions:—

Long. corp. fœm. cum operc. unc. $6\frac{1}{2}$; cap. lin. 6; anten. —?; proth. lin. 6; mesoth. lin. 11; metath. lin. 11; abdom. lin. 25 + lin. 12 + segmentum supplem. lin. $6\frac{1}{2}$ = lin. $43\frac{1}{2}$; tegm. lin. 23.

The wings, when closed, extend to the extremity of the tegmina, which reach to the extremity of the second segment of the abdomen; the ninth segment is followed by a supplemental joint, which is flat above, rather constricted in the middle, terminated by a small narrowed part bifid at its extremity; the operculum is large and boat-shaped, and extends to the extremity of this supplemental tenth dorsal segment.

Page 122.—Sp. 17. **Phasma Pholcus.**

Mr. Bates has sent specimens of the female of this species from Ega, which are rather larger than the males; the fore tibiæ with obscure transverse fasciæ, and the costal area slightly clouded; the posterior area of a browner colour, and not so grey as in the male.

Page 128.—Sp. 3. **Necroscia diacanthos.**

A female of this species, collected at Sarawak, in Borneo, by Mr. Wallace, is in the Collection of W. W. Saunders, Esq., of the same size as the female described and figured above, but with the head produced into two short spines at the top of the crown, the antennæ with four white rings

(the first at a distance of an inch from the base), and the costal portion of the wings without any darker shades.

A specimen of the male, also from Sarawak, is contained in the same Collection, rather larger than that described and figured above,—the thorax not being quite so long, the hind femora rather (1 line) shorter, the hind tibiæ of equal length; the expansion of the wings 2 inches 11 lines; the top of the head produced into two small points; and the antennæ with several not very distinct white rings.

Page 157.—Sp. 78*. (470.) **Necroscia Hippolyte**, *Westw.*

Mediocriter elongata; capite rotundato, convexo; mesothorace abbreviato, supra in medio tuberculis duobus rotundatis instructo; tegminibus minutis, carina absque elevatione prope basin; alis magnis, areæ costalis vena mediana paulo ante medium bifida, venulis transversis rectis numerosis; abdomine simplici, operculo depresso, medium segmenti 9ni dorsalis attingente; pedibus perbrevibus, simplicibus, femoribus anticis ad basin curvatis; capite, thorace, tegminibus, pedibus et area costali alarum flavo-viridibus; capite postice lineis nonnullis longitudinalibus cæruleo-viridibus; area postica alarum albida fulvo parum tincta, versus apicem paulo infuscata; antennis et palpis lutescentibus; abdomine (desiccato) obscuro (fœm.).

Long. corp. fœm. unc. 2, lin. 7; cap. lin. 2; anten. lin. 18; proth. lin. 2; mesoth. lin. 3; metath. lin. 6; abdom. lin. 15+lin. 3=lin. 18; tegm. lin. 2; alar. expans. unc. 4.

Hab. Makassar (*D. Wallace*). In Mus. W.W. Saunders.

UNDETERMINED SPECIES.

1. Bacteria Servillei.

"Mâle. Brun, très-allongé, cylindrique. Pattes grêles, non épineuses; une petite épine sur chaque segment du thorax au-dessus de l'insertion des pattes, et deux autres sur les côtés du métathorax. Antennes longues de seize lignes, sétacées. Articles des tarses de même largeur partout.

"Femelle. Semblable au mâle, mais plus grande, et non munie d'épines sur le milieu du corselet.

"Long. 2 pouces (♂), 3 pouces (♀)."

Bacteria Servillei, *Montrouzier in Ann. Sci. Phys. et Nat. de Lyon*, 2 sér. t. vii. p. 8.

Hab. Woodlark Island.

"Cette espèce n'est pas une vraie *Bactérie*, n'ayant pas le premier et le dernier article des tarses plus large que les intermédiaires, et il est probable qu'il fait partie d'un des douze genres de M. Gray sur les *Phasmiens Aptères*; mais ne possédant pas l'ouvrage de ce savant, je ne puis pas l'assurer."

2. Pachymorpha longipennis.

"Brun. Ailes roses à la base, brunes tachées de blanc à la partie membraneuse. La tête est ovale, bombée, munie d'ocelles, plus grosse que le thorax. Le mésothorax est granuleux. Les élytres n'atteignent pas les jambes postérieures; mais les ailes, plus de quatre fois plus longues, arrivent presque jusqu'à l'extrémité de l'abdomen.

"Long. 5 pouces."

Hæc species cum præcedente ab incolis devoratur teste D. Montrouzier.

Pachymorpha longipennis, *Montrouzier in Ann. Sci. Phys. et Nat. de Lyon*, 2 sér. t. vii. p. 81.

Hab. Woodlark Island.

3. Pachymorpha Grayi.

"Brun, gris, ou verdâtre selon l'âge. Tête ovale, bombée; yeux saillants; deux petits ocelles; un sillon léger longitudinal sur le vertex. Antennes cinq fois plus courtes que le corps, de plus de vingt articles. Prothorax de la largeur de la tête, sillonné en long et transversalement, quatre fois plus court que le mésothorax; celui-ci granuleux. Elytres courtes, dépassant à peine les pattes postérieures, brunes, à nervures saillantes. Ailes grandes, deux fois et demie plus longues que les élytres, leur partie coriacé grise, rose à la base; la partie membraneuse brune, tachée de blanc transparent. Les pattes sont à peu près de la même gran-

deur, triangulaires, et armées d'épines sur tous les angles excepté sur l'intérieur de la première paire.

"Cette espèce est identique pour les formes et la taille avec le *P. squalida* de la Nouvelle Hollande, mais elle s'en distingue par ses couleurs.

"Long. 7½ pouces."

Pachymorpha Grayi, *Montrouzier in Ann. Sci. Phys. et Nat. de Lyon*, 2 sér. t. vii. p. 80.
Hab. Woodlark Island.

4. Phasma elongata.

"Aptera; thorace lævi; corpore cinereo. Corpus teres, læve, fuscum, palmare, fili crassioris crassitie, immaculatum."

Phasma elongata, *Thunberg in Mém. Acad. Pétersbourg*, v. 299.
Hab. —— ?

5. Phasma trigona.

"Aptera, trigona, viridis; thorace scabro. Corpus apterum, viride, trigonum, glabrum, læve, angulis integris, tripollicare. Pedes omnes virides."

Phasma trigona, *Thunberg in Mém. Acad. Pétersb.* v. 300.
Hab. —— ?

6. Phasma inermis.

"Aptera, lævis, viridis; pedibus inermibus. Similis valde *P. labiatæ*, sed paulo crassior, tota viridis, nec lateribus capitis et thoracis flava; antennæ filiformes, attenuatæ, unguiculares; thorax convexus, lævis; pedes inermes."

Phasma inermis, *Thunberg in Mém. Acad. Pétersb.* v. 300.
Hab. —— ?

7. Phasma labiata.

"Aptera, teres, viridis; thoracis lateribus flavis. Corpus teres, læve, viride, bipollicare; labium argenteum; palpi rufi; antennæ filiformes, setaceæ, semipollicares; caput planiusculum, postice flavo-bilineatum; thorax convexus, lateribus flavus; abdomen basi testaceum, apice viride; pedes inermes."

Phasma labiata, *Thunberg in Mém. Acad. Pétersb.* v. 300.
Hab. —— ?

8. Phasma coronata.

"Aptera; thorace spinoso; capite spinis duabus serratis. Corpus totum teres, fuscum, digitale, crassitie calami scriptoris; caput postice bispinosum, spinis compressis erectis serratis; thorax spinulosus et scaber; abdomen antice asperum, postice lævius."

Phasma coronata, *Thunberg in Mém. Acad. Pétersb.* v. 299.
Hab. —— ?

9. Phasma bicornis.

"Aptera, trigona, cinerea, vertice bispinoso. Corpus totum subdepressum, trigono-angulatum, cinereum, scabridum, bipollicare; caput scabrum, cornubus antice duobus prominulis; thorax antice sulcatus, cornubus duobus minutis armatus, lateribus integer; pedes inermes."

Phasma bicornis, *Thunberg in Mém. Acad. Pétersb.* v. 299.
Hab. —— ?

10. Phasma bidentata.

"Thorace lævi; trigona, viridis; femoribus bidentatis; alis fuscis albo-maculatis. Corpus subtrigonum, læve, flavescens, palmare, crassitie calami; thorax lævis, pollicaris; hemelytra lineam longa, fusca, maculis plurimis albis; femora basi bidentata."

Phasma bidentata, *Thunberg in Mém. Acad. Pétersb.* v. 298.
Hab. —— ?

11. Phasma costata.

"Thorace scabro, alis fuscis nigro irroratis, hemelytris costato-angulatis. Corpus teres, subpalmare, totum fuscum; thorax teres, scaber, unguicularis; hemelytra alis octies breviora, subrugosa, singularia ob costam elevatam flexuosam exstantem et planitiem supra formantem; alæ convolutæ, fuscæ, punctis nigris sparsis irroratæ."

Phasma costata, *Thunberg in Mém. Acad. Pétersb.* v. 297.
Hab. —— ?

12. Phasma lugens.

"Thorace tereti, scabro; alis nigris maculis fenestratis, basi rufa. Corpus teres, fuscum, palmare, crassitie calami dimidia; thorax teres, rarioribus papillis scaber, pollicaris; abdomen læve, alis paulo longius; hemelytra brevissima, alis octies breviora; alæ fuscæ, margine opaco, basi rufæ, cæterum totæ fuscæ maculis sparsis fenestratis albis."

Phasma lugens, *Thunberg in Mém. Acad. Pétersb.* v. 297.
Hab. —— ?

13. Phasma grandis.

"Cinerea, tota lævis, glabra. Hemelytra vix pollicaria, convexa, medio costata; alæ plus duplo longiores, abdomine

fere duplo breviores; abdomen magis latum quam in *Ph. gigante*.

"Duplo minor *P. gigante*."

Phasma grandis, *Thunberg, Hemipt. Max. Gen. Illustr. in Mém. Acad. St. Pétersb.* v. 295.

Hab. ——?

The above is the whole of Thunberg's description of this insect, of which also he has omitted to publish the habitat.

Obs. Phasma acicularis, Stoll (*Phasma*, pl. 25. f. 97), referred to *Mantis* by Mr. G. R. Gray (*Syn. Phasm.* p. 44), appears to me to be a specimen of a *Ranatra* deprived of its tails.

P.S.—Mr. Bates has just forwarded to England a remarkable species, of which the following are the characters:—

P. 164.—Sp. 4*. (471.) **Dinelytron Batesianum**, *Westw.*

Elongatum, cylindricum, lævе; capitis viridis vertice conico, elevato, bispinoso; prothorace nigricante; mesothorace brevissimo, albo; metathorace abdomineque piceis; tegminibus nigris macula maxima costali alba; alis nigris macula magna basali triangulari alba; pedibus obscure viridibus (fœm.).

Long. corp. unc. $2\frac{1}{4}$; cap. lin. 2; anten. lin. 12+—?; proth. lin. $1\frac{3}{8}$; mesoth. lin. $2\frac{1}{2}$; metath. lin. 5; abdom. lin. $13\frac{1}{2}$+lin. 3 =lin. $16\frac{1}{2}$; tegm. lin. 10; alar. expans. unc. 3.

Hab. In Brasilia, ad fluv. Amaz. super. (*D. Bates*).

Closely allied to *D. Zymbræus*. Head green, large, hind part conically elevated, and armed with two acute divergent black spines, separated by an impressed line. Ocelli wanting. Antennæ moderately long, the 4th to the 9th joints short, the remainder gradually elongated and black; first and second green. Prothorax quadrate, glabrous, dirty blackish, with a transverse impression in front. Mesothorax rather longer than the prothorax; cream-white, except at its dirty posterior margin, with a very thin central green line. Metathorax and abdomen pitchy and glossy; three terminal segments of the latter short and compressed; two anal styles short, slender, and divergent. Operculum thin and flat, not extending beyond the eighth dorsal segment. Tegmina oval, half the length of the wings, slightly elevated towards the base; black, marked with a large oblong cream-white patch along the costal area, extending into an oval spot on the disc between the middle and base. Wings large and black, with a large triangular cream-white spot extending from near the base to beyond the middle of the wing, and reaching from the costal margin halfway across the wing; chief vein of the costal area trifid. Legs short, spineless, dirty greenish black; fore femora slightly curved; under side of the body pitchy brown, with the metasternum pale dirty white, except at its hinder margin.

I have named this species after its discoverer, to whose indefatigable exertions in Brazil, English entomologists are indebted for many of the finest acquisitions to their cabinets.

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Page 10, col. 2, add after the description of *Bacillus Alauna*, PLATE XXIII. fig. 6. The insect (male?).
Page 11, col. 1, add after the description of *Bacillus? Artemis*, PLATE XXVI. fig. 9. The female insect.
Page 11, col. 2, add after the description of *Bacillus Amathia*, PLATE XXIII. fig. 9. The female insect.
Page 13, col. 1, line 31, dele PLATE VIII. fig. 2, female.
Page 13, col. 2, dele lines 27 and 28. (See *Anophelepis Periphanes*.)
Page 22, col. 2, dele the two bottom lines.
Page 23, col. 1, line 1, dele *Phasma cornutum*, and insert in its stead *Bacteria filiformis* from the end of the line.
Page 23, col. 1, line 5, add, Small Brazil Quill Locust, *Petiver, Gazoph.* pl. 60. f. 2.
Page 29, col. 2, line 7, PLATE XXIV. instead of PLATE XXVI.
Page 34, col. 2, *Phasma Havaniense*. See page 84, Note under *Diapherodes*.
Page 91, col. 2, compare the description of the female of *Palophus Haworthii* with that of *Cyphocrania? hectica*, p. 109.
Page 132 misprinted 123.
Page 136, col. 1, line 18, for *Styxius* read *Stygius*.
Page 142, col. 1, add, as the locality of *Necroscia Erechtheus*, *Hab.* Ceylon; Borneo (Sarawak). B.M., &c.

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Obs. The names printed in ordinary type are those of the Species; those in small capitals, the Genera; and those in larger capitals, the Family and Sectional titles. The names to which an asterisk is prefixed are Synonyms.

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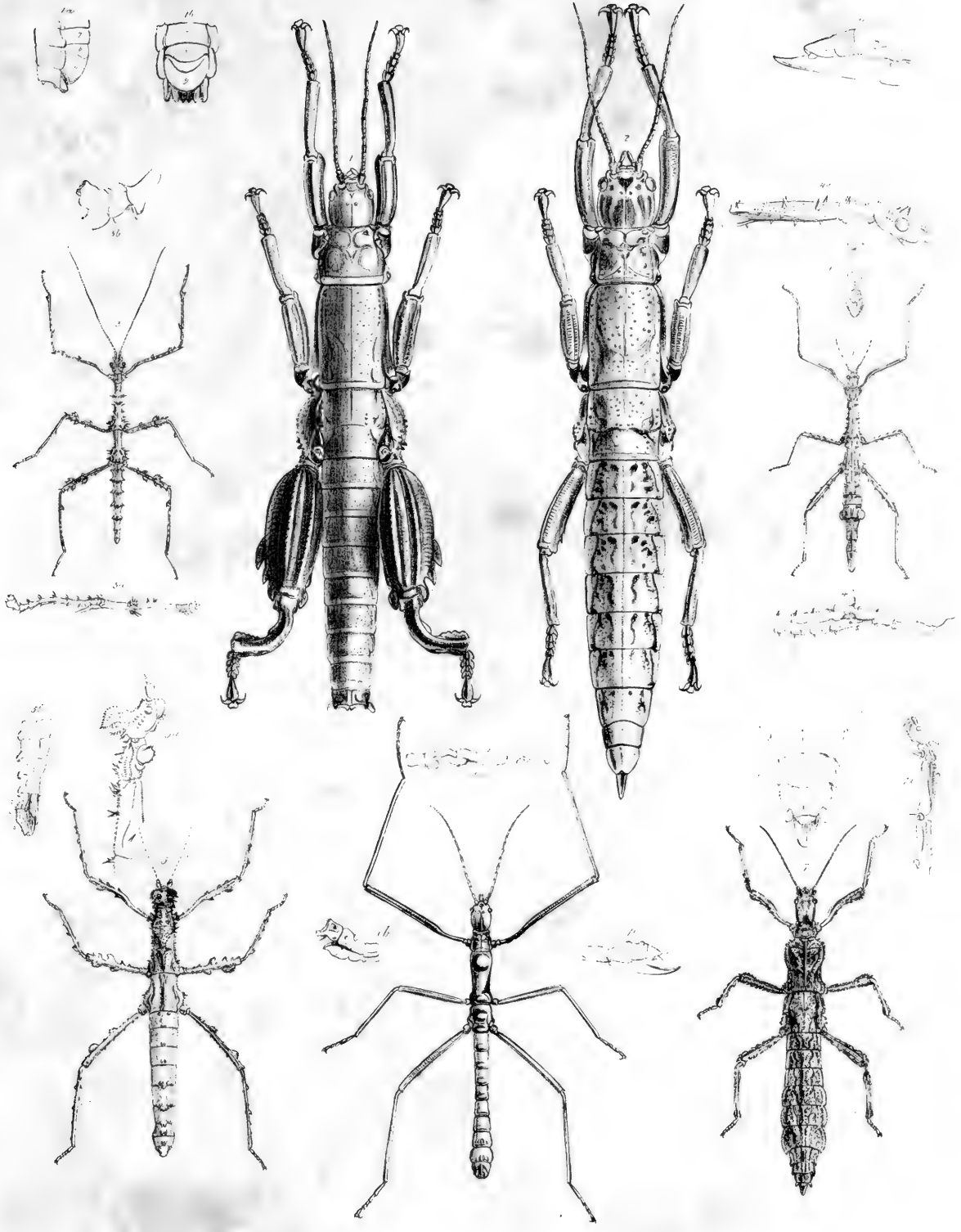

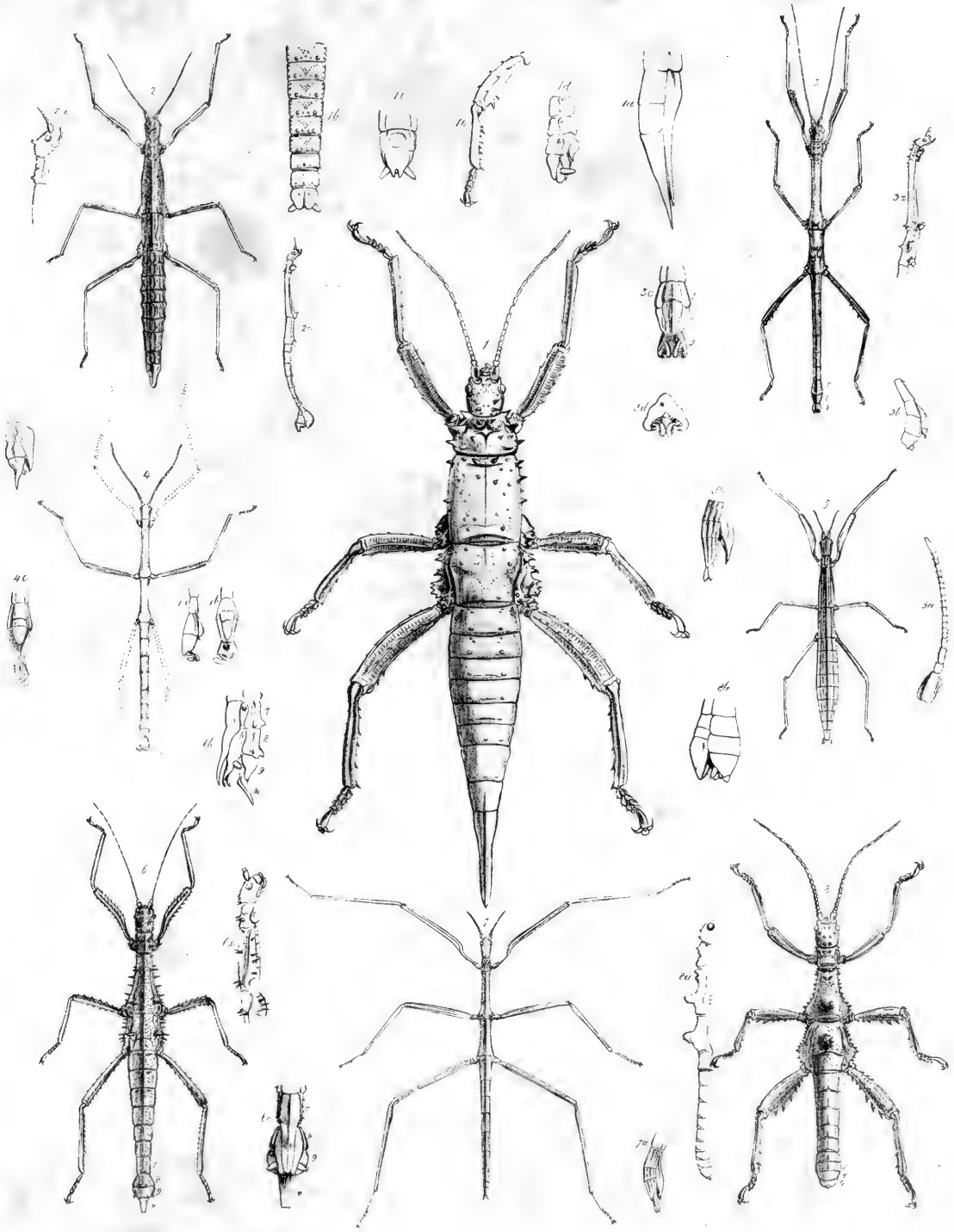

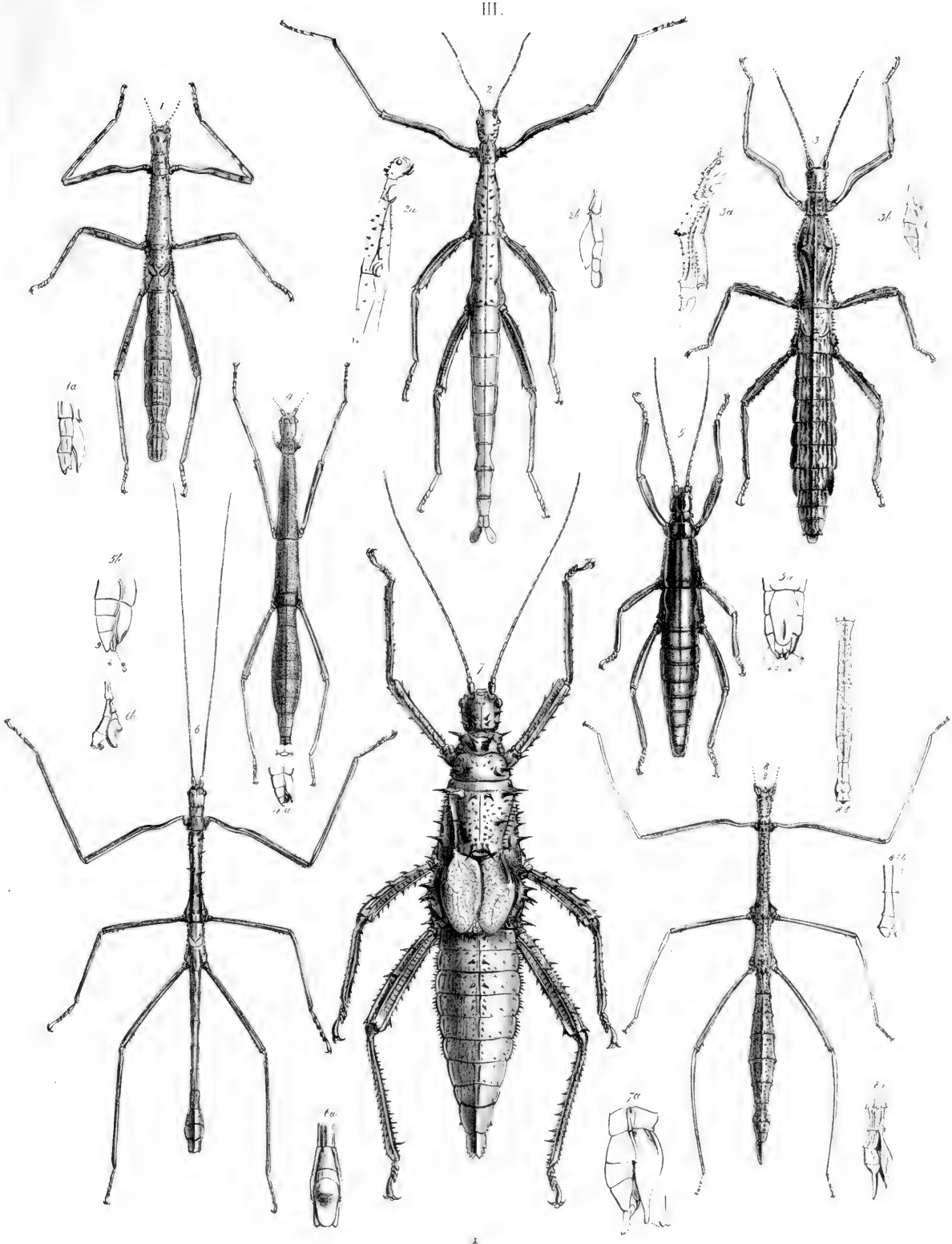

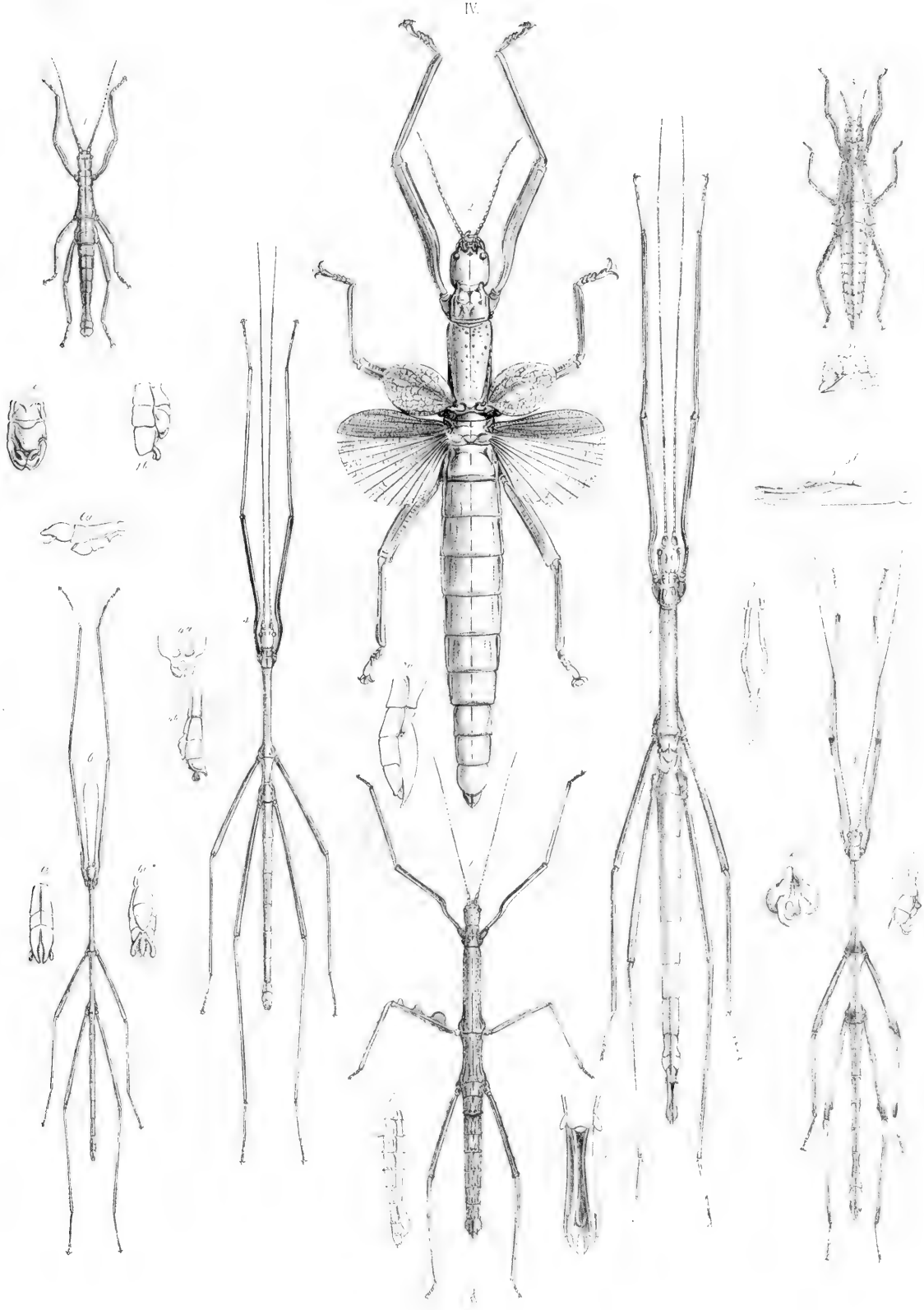

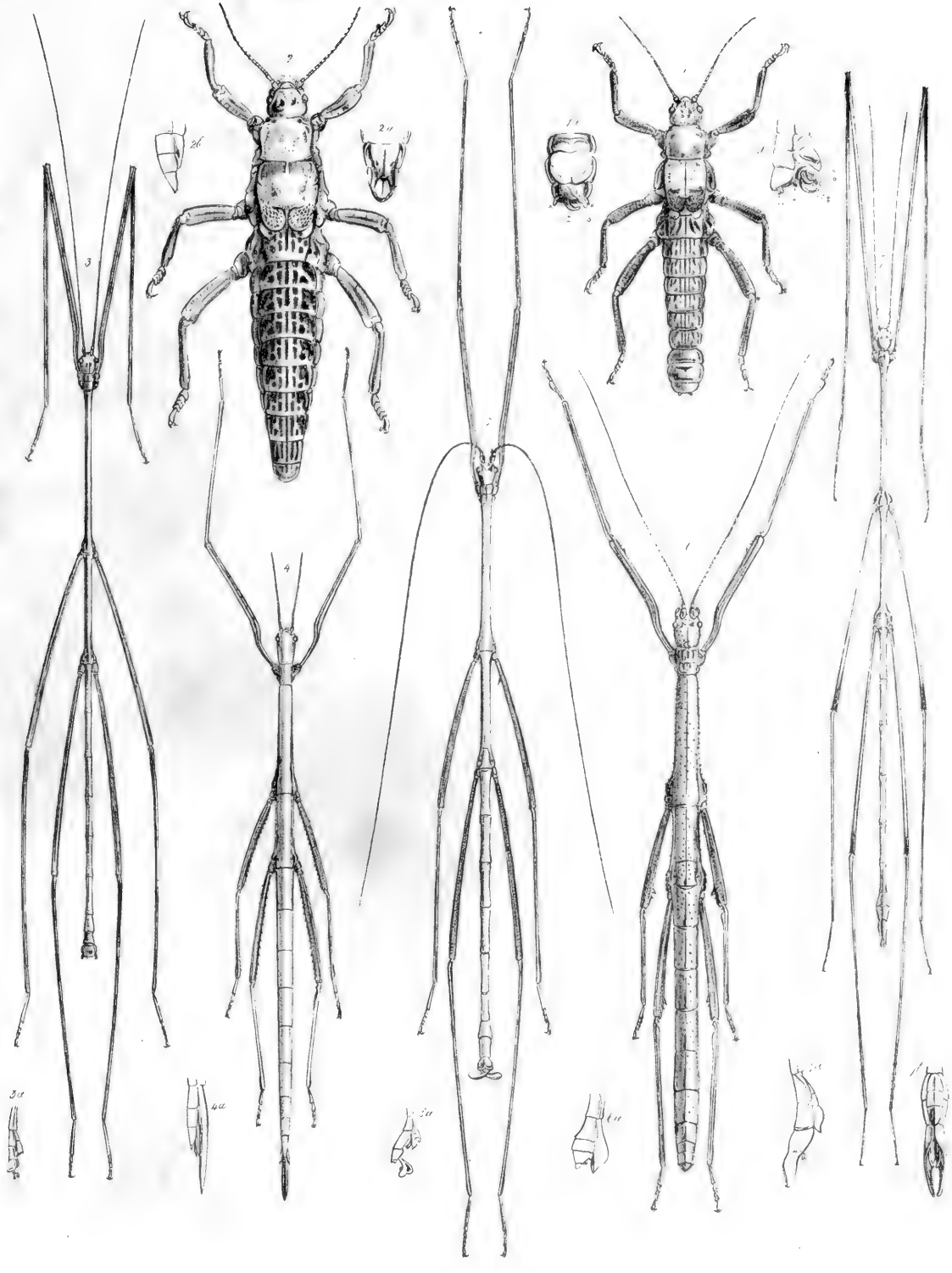
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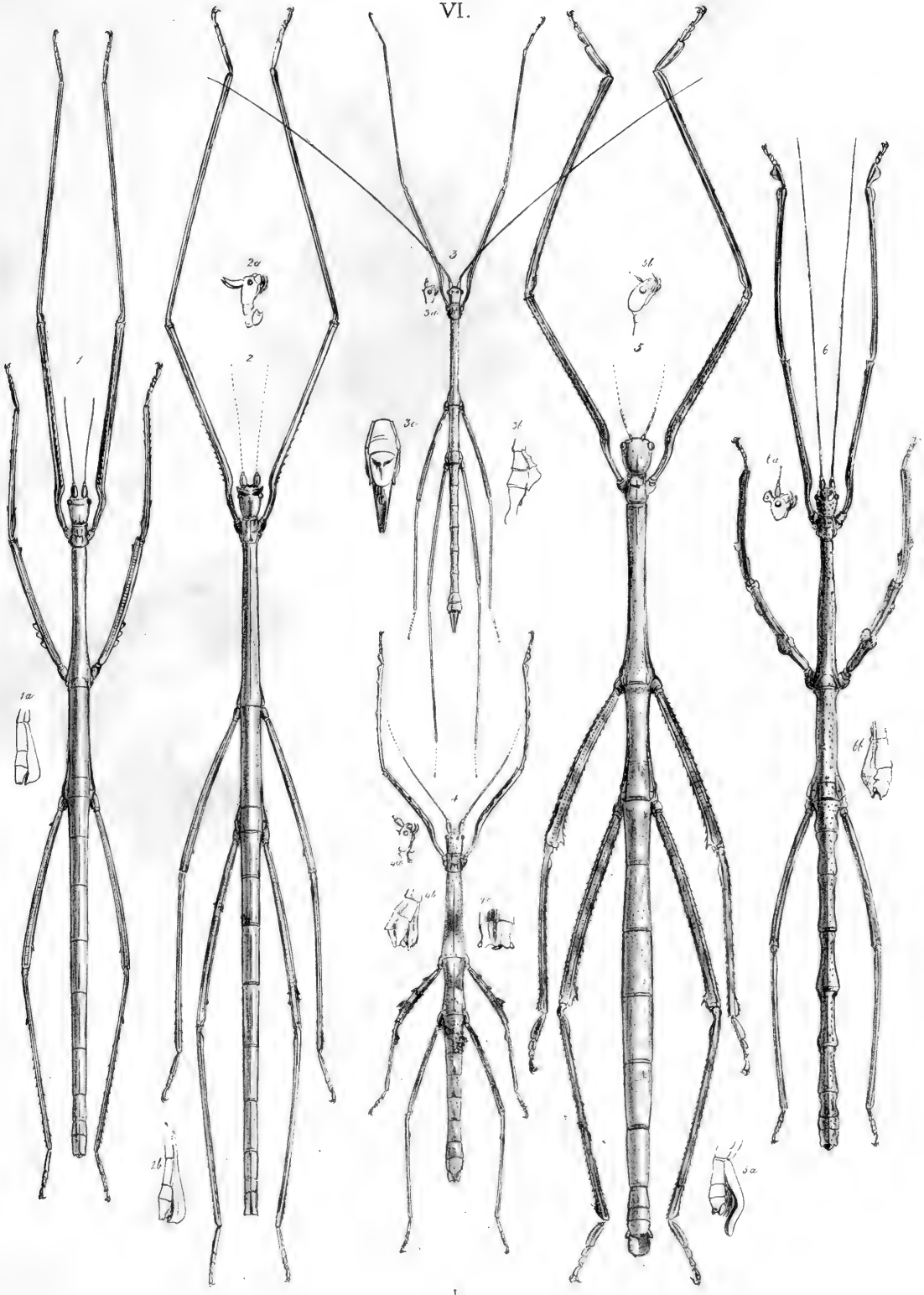
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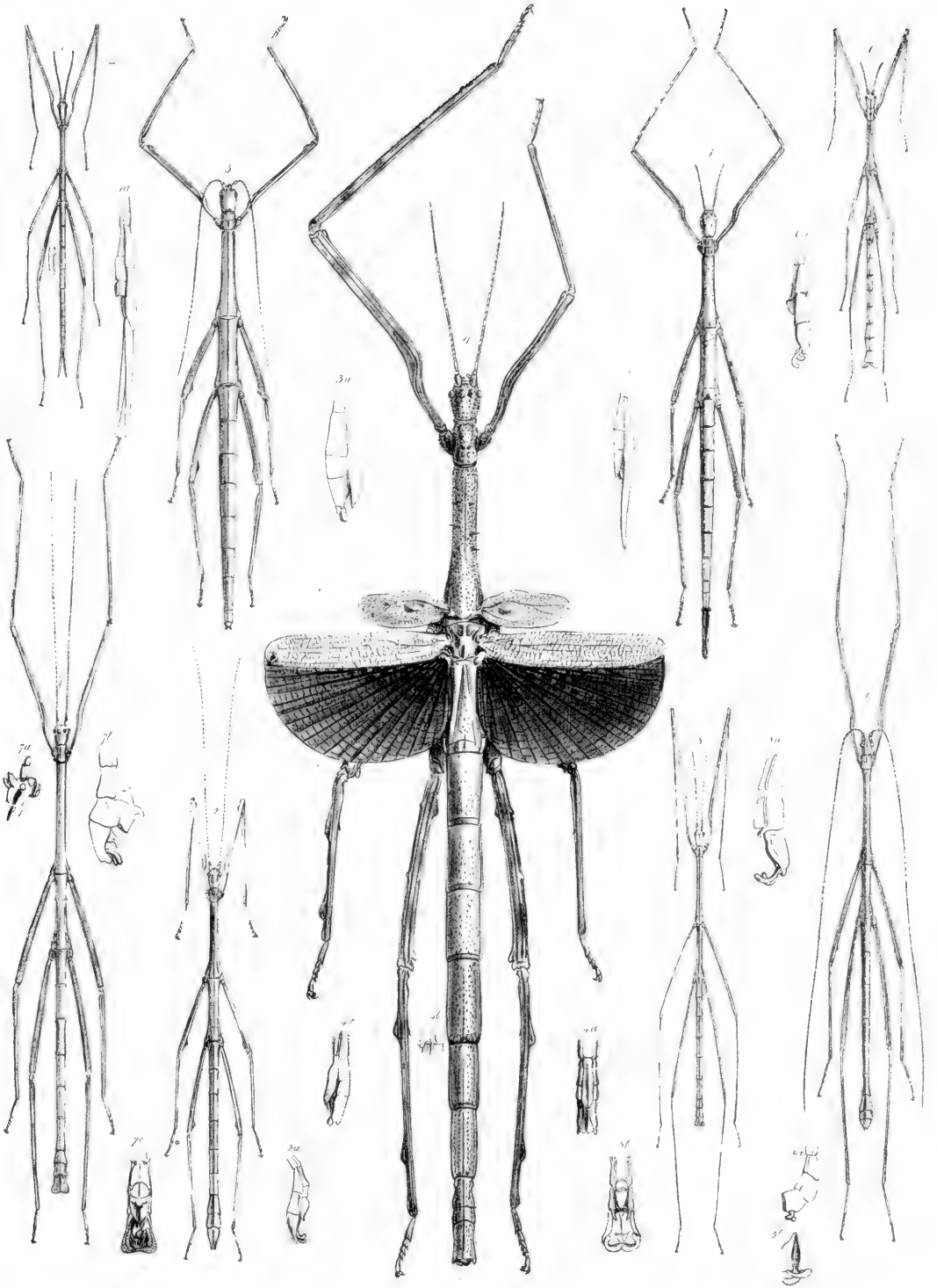

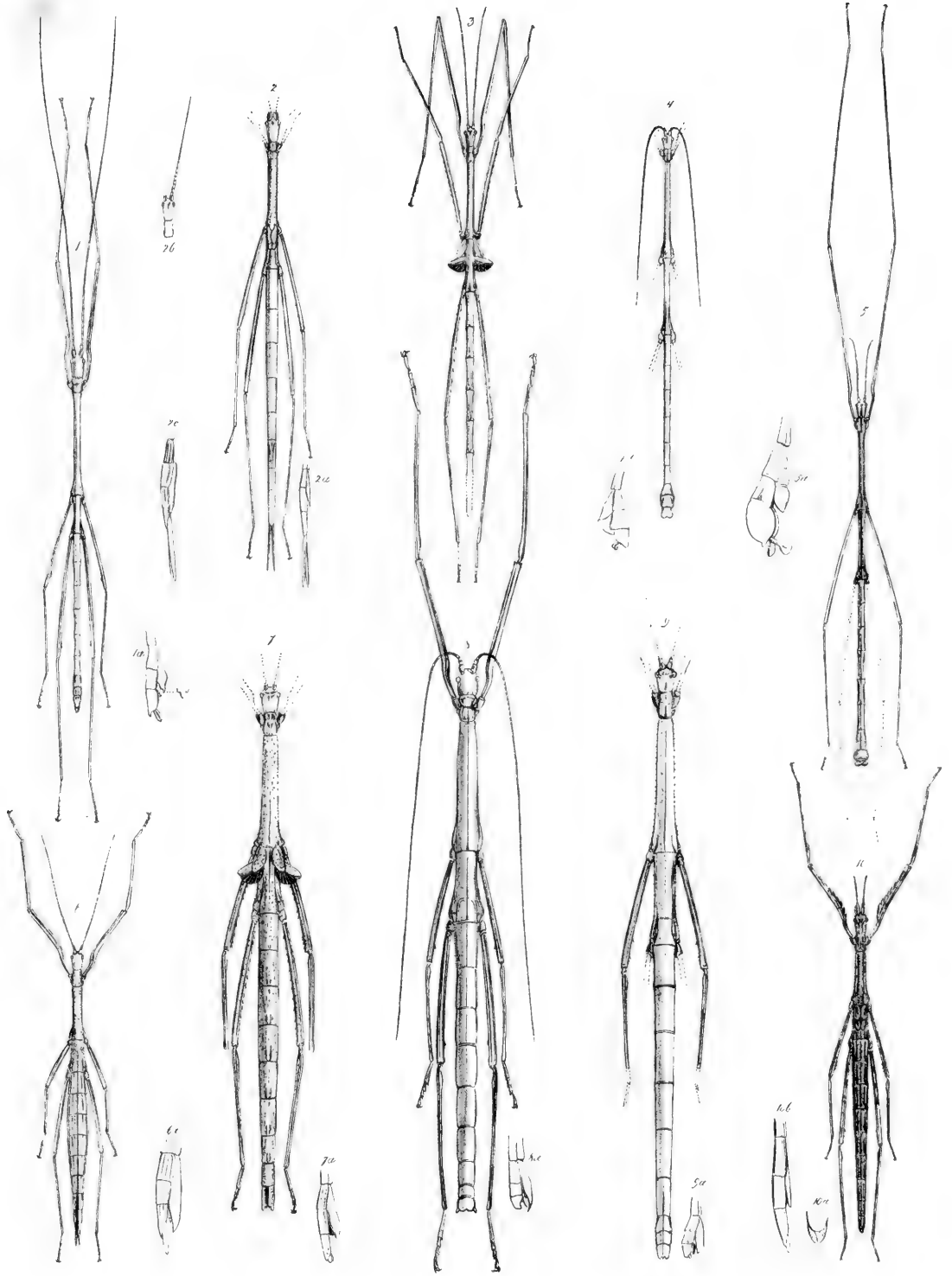
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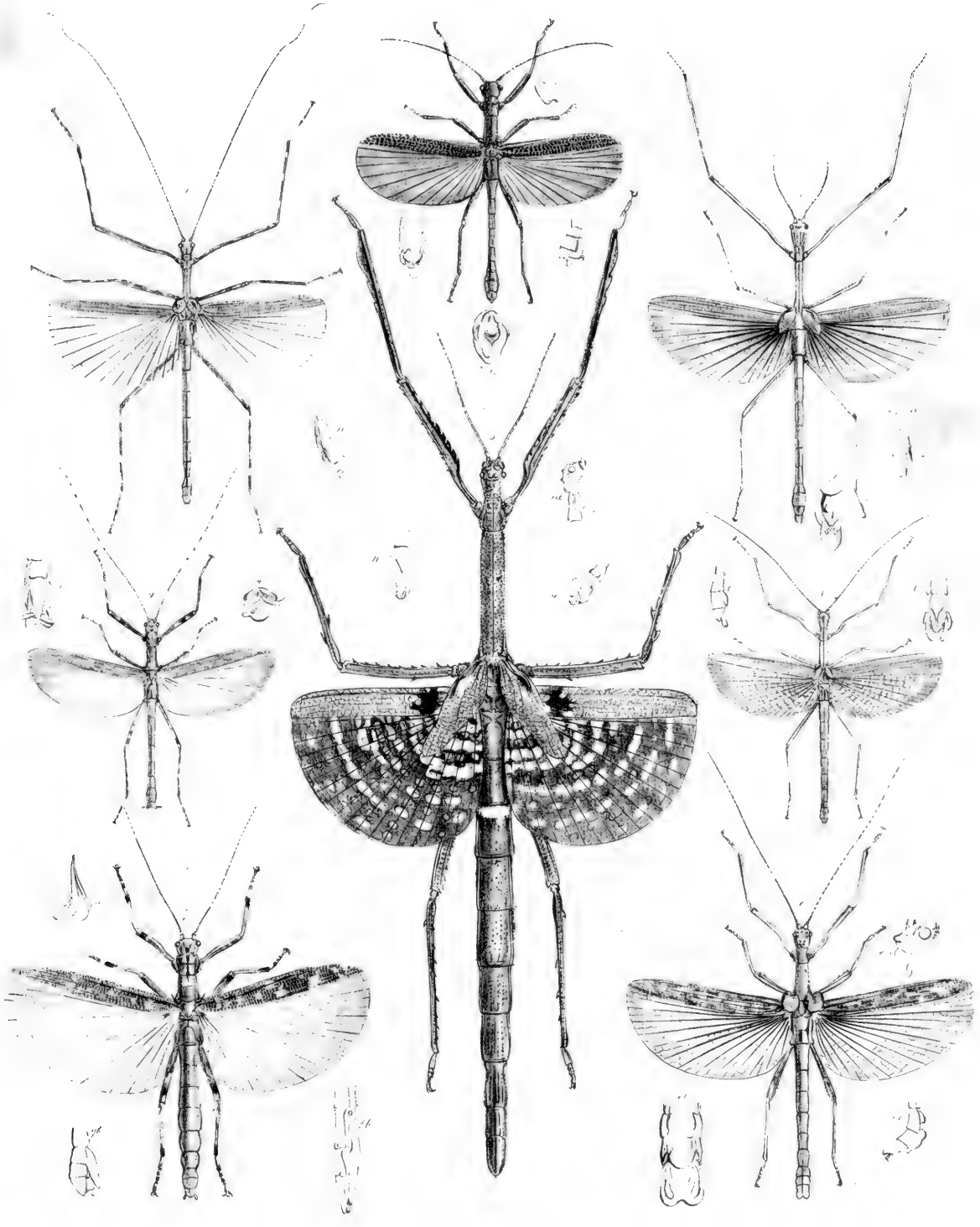

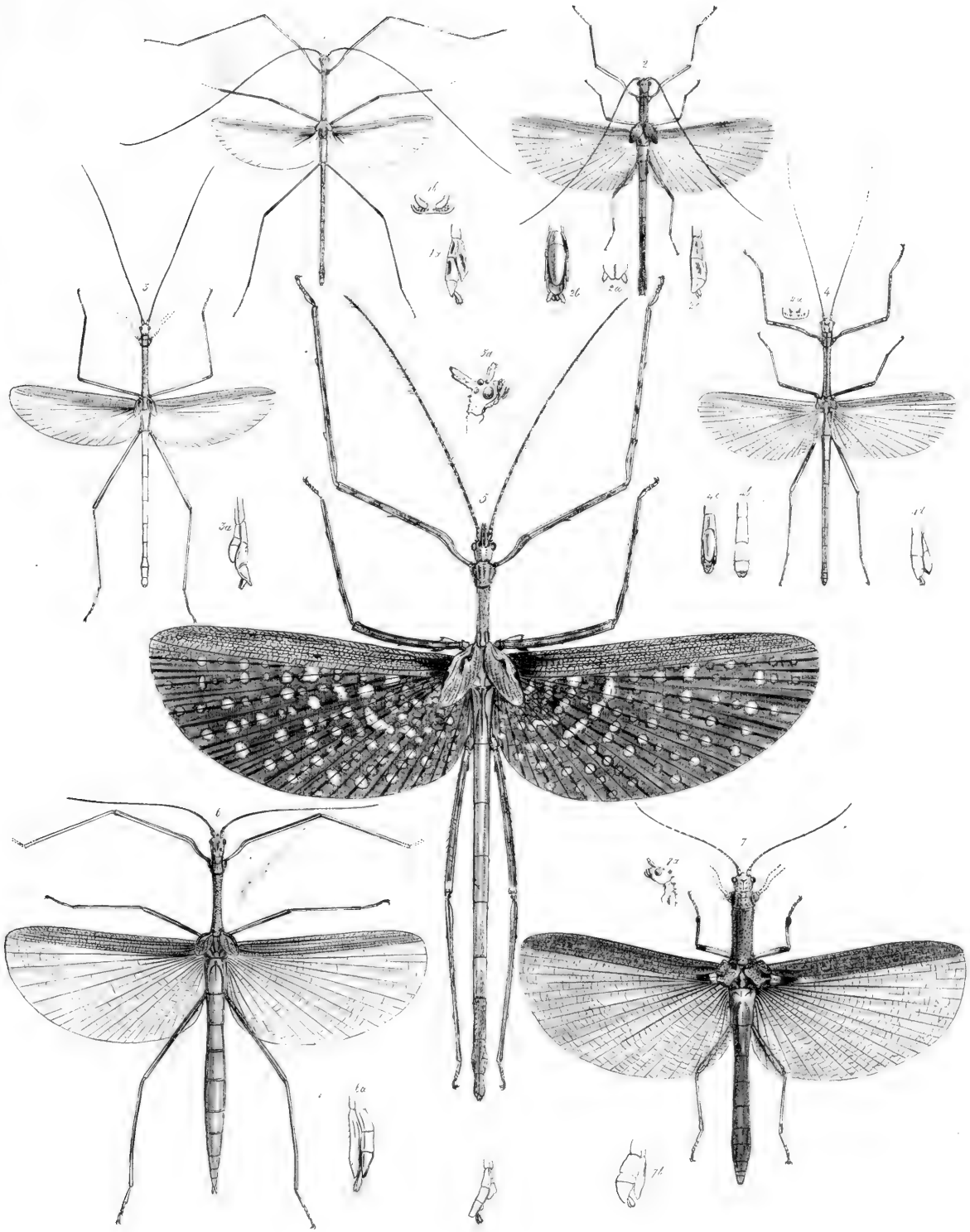

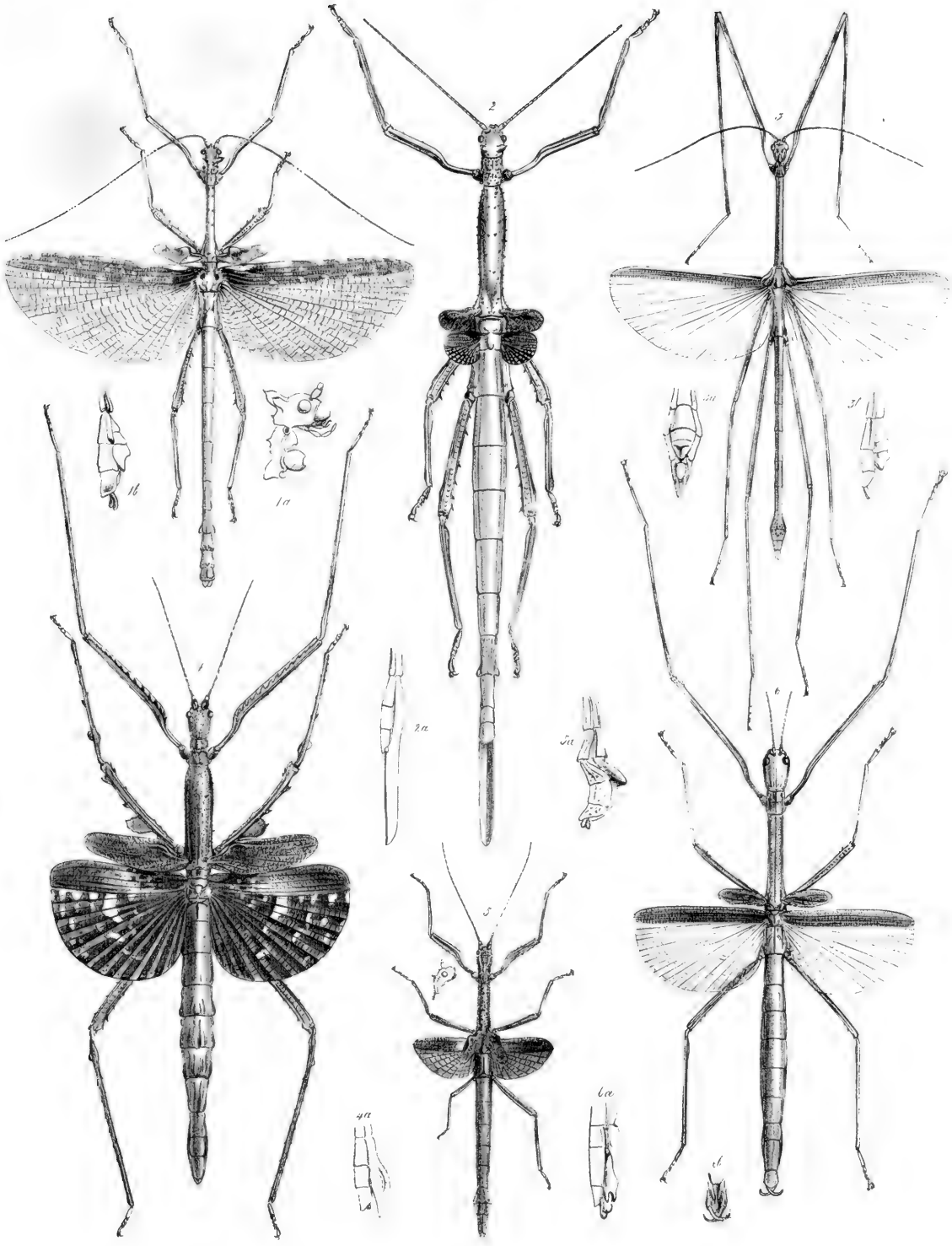

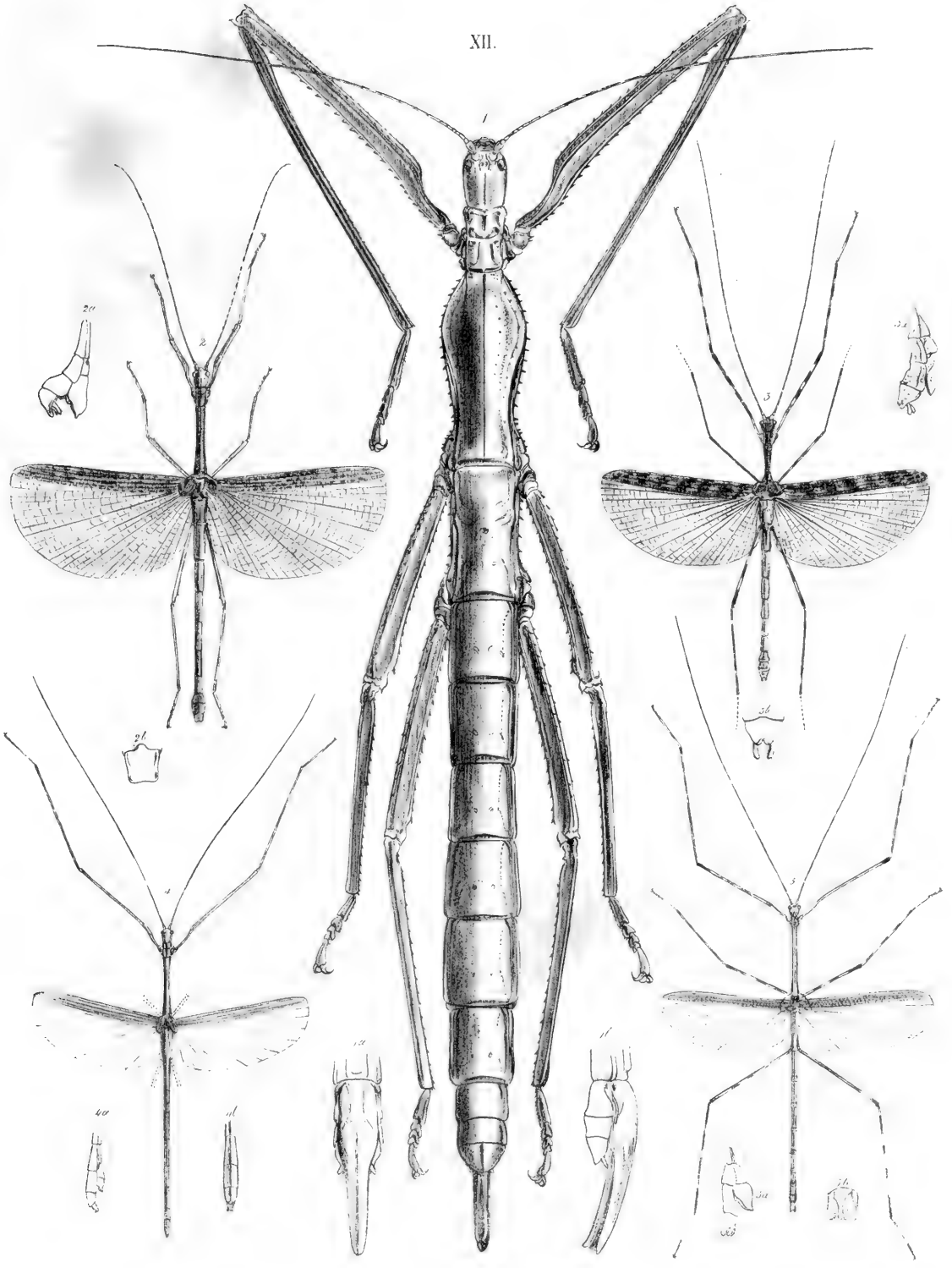

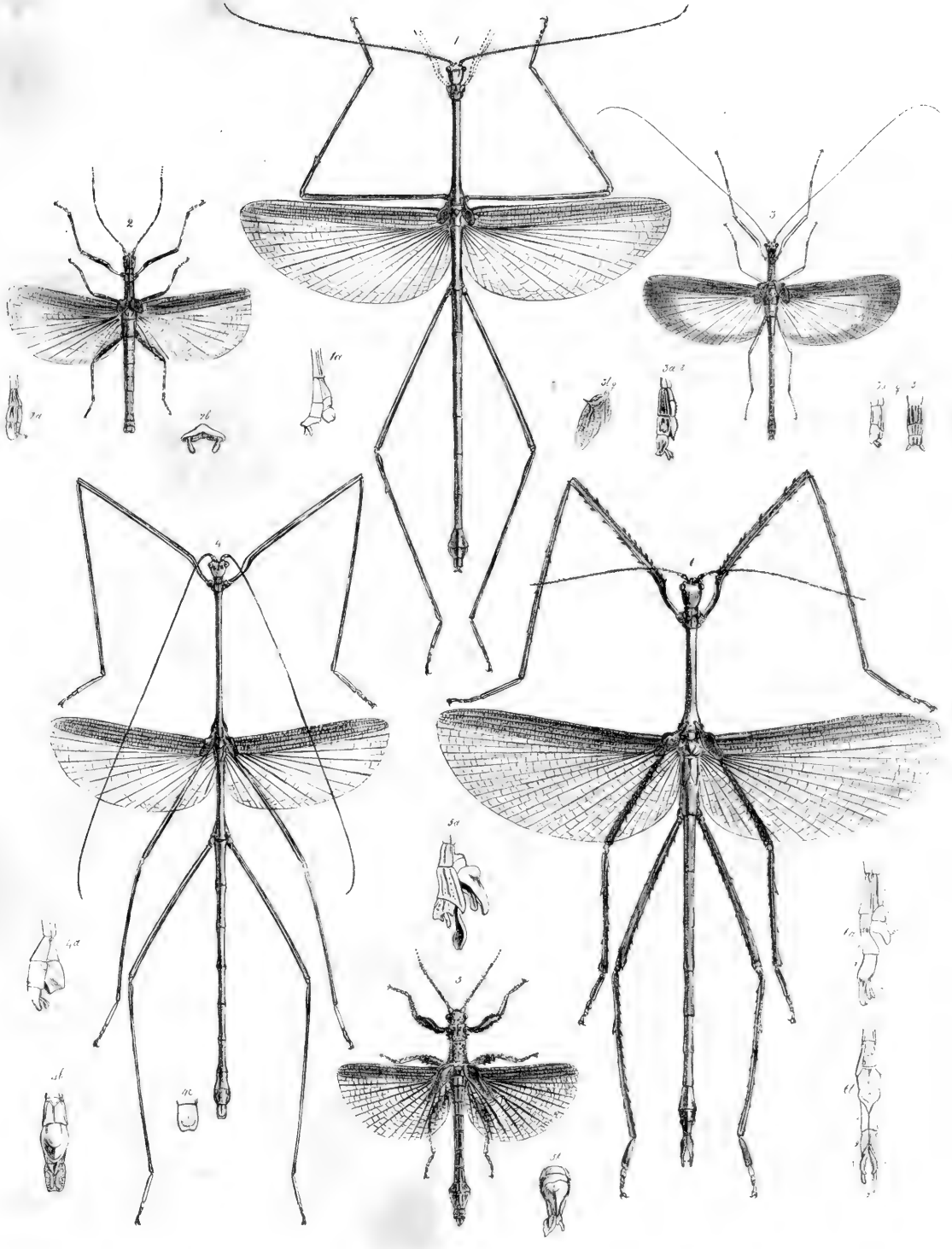

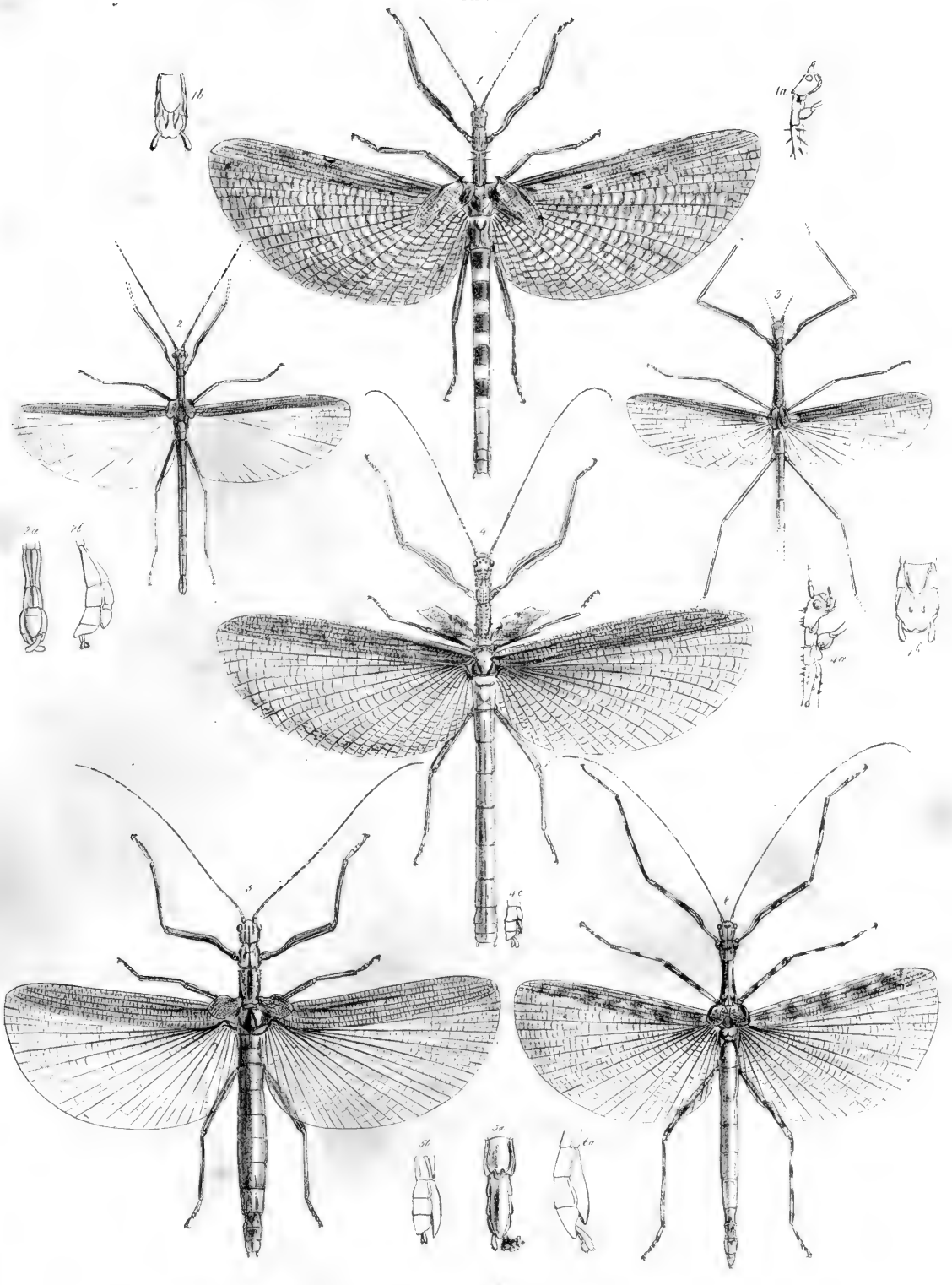

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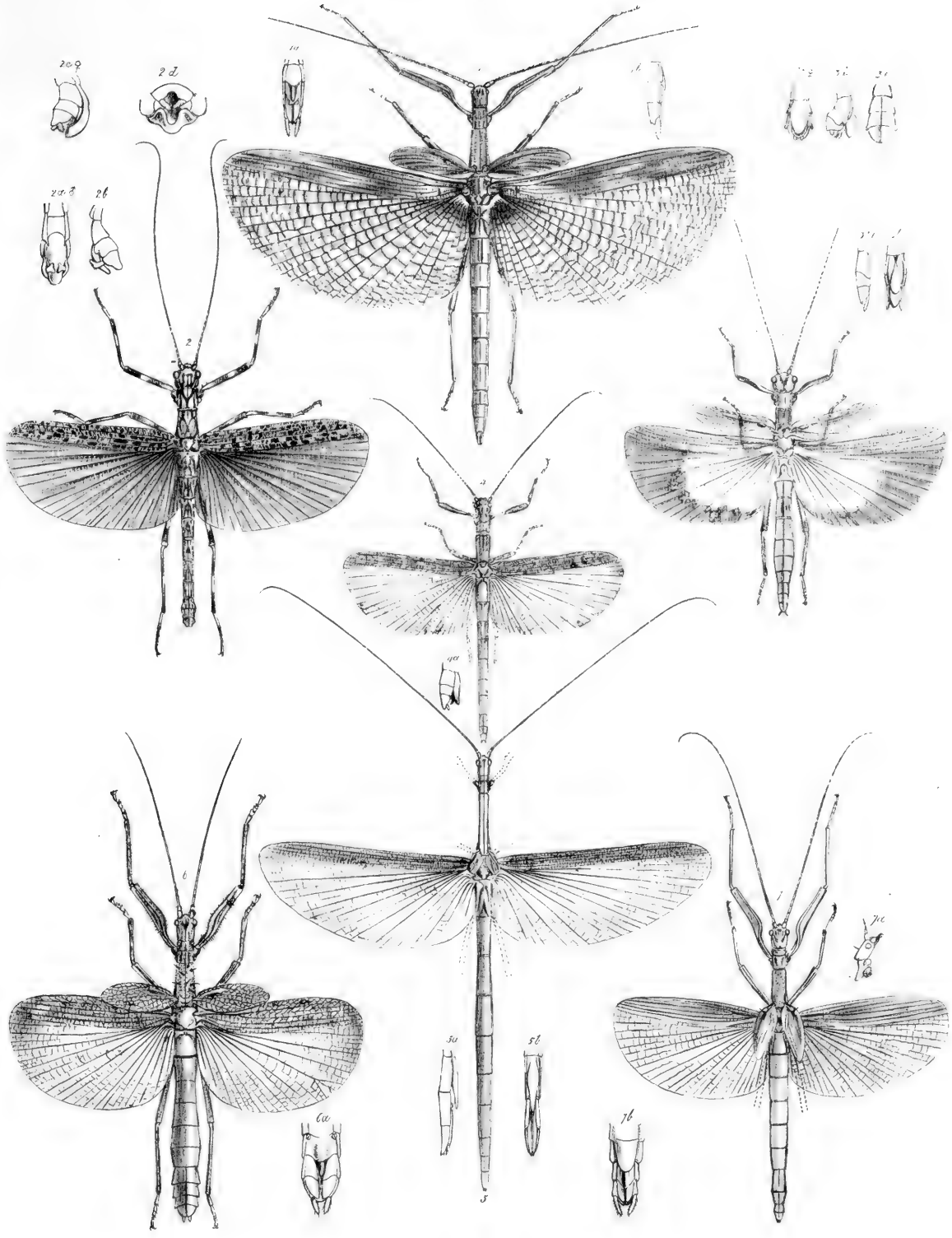

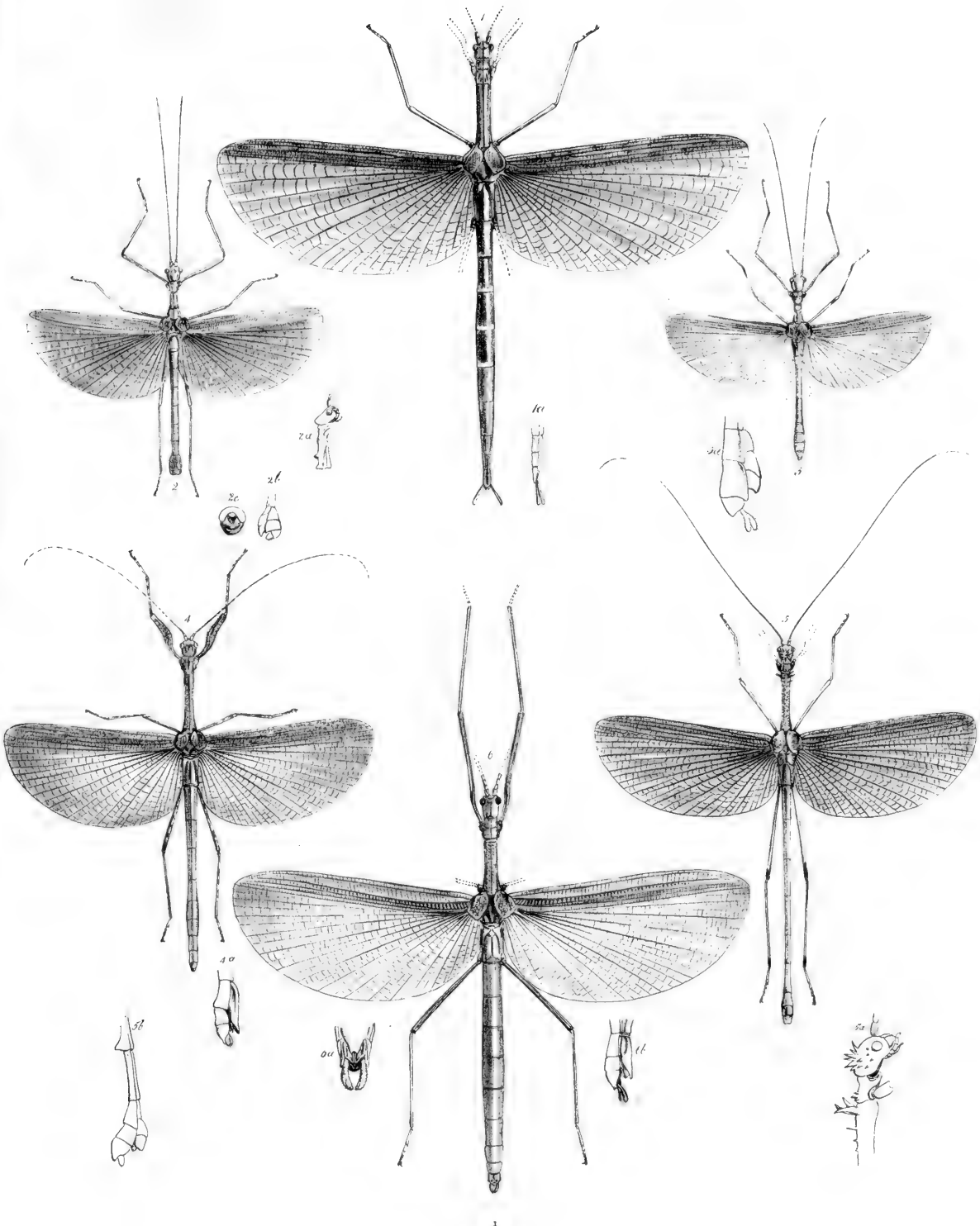

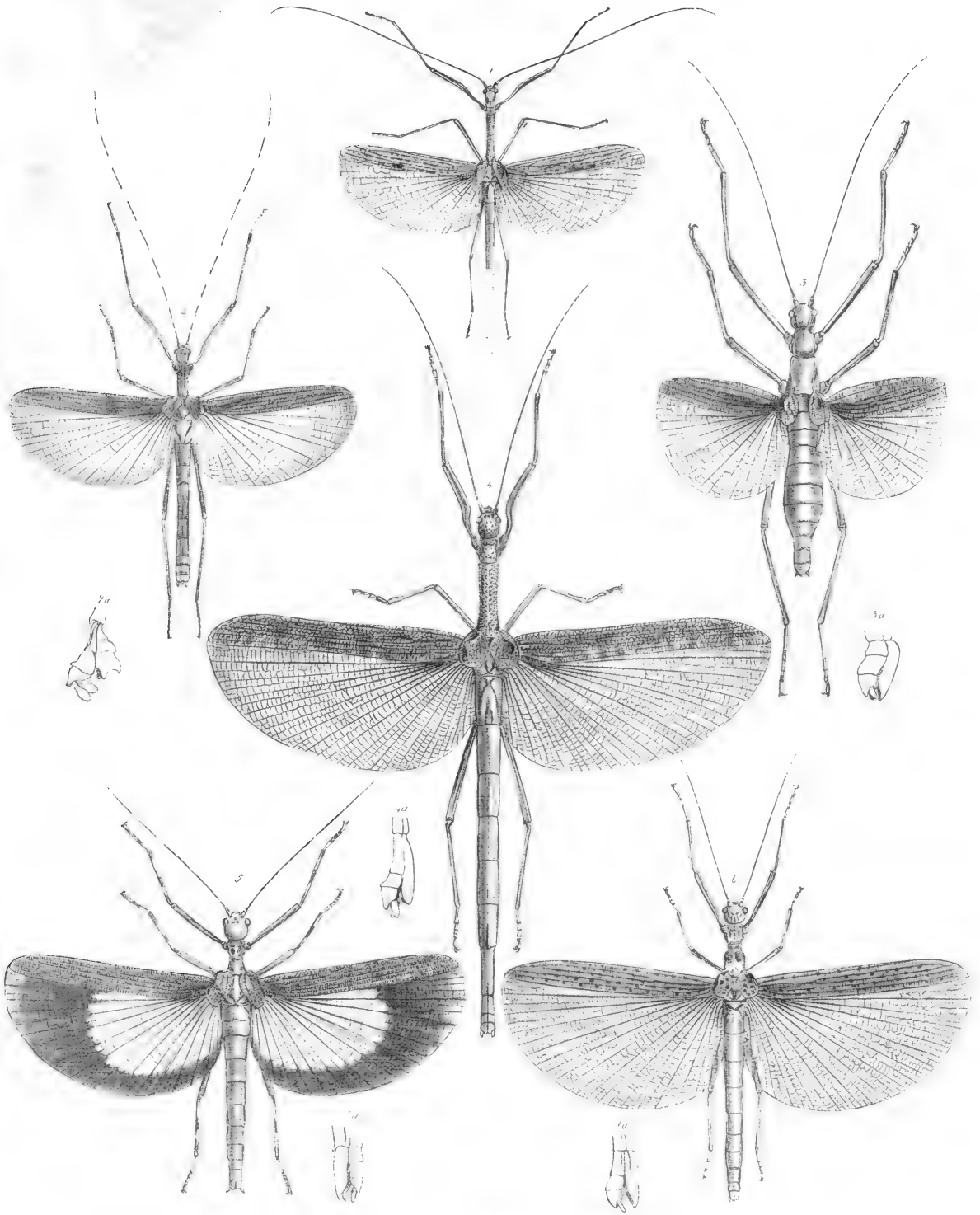

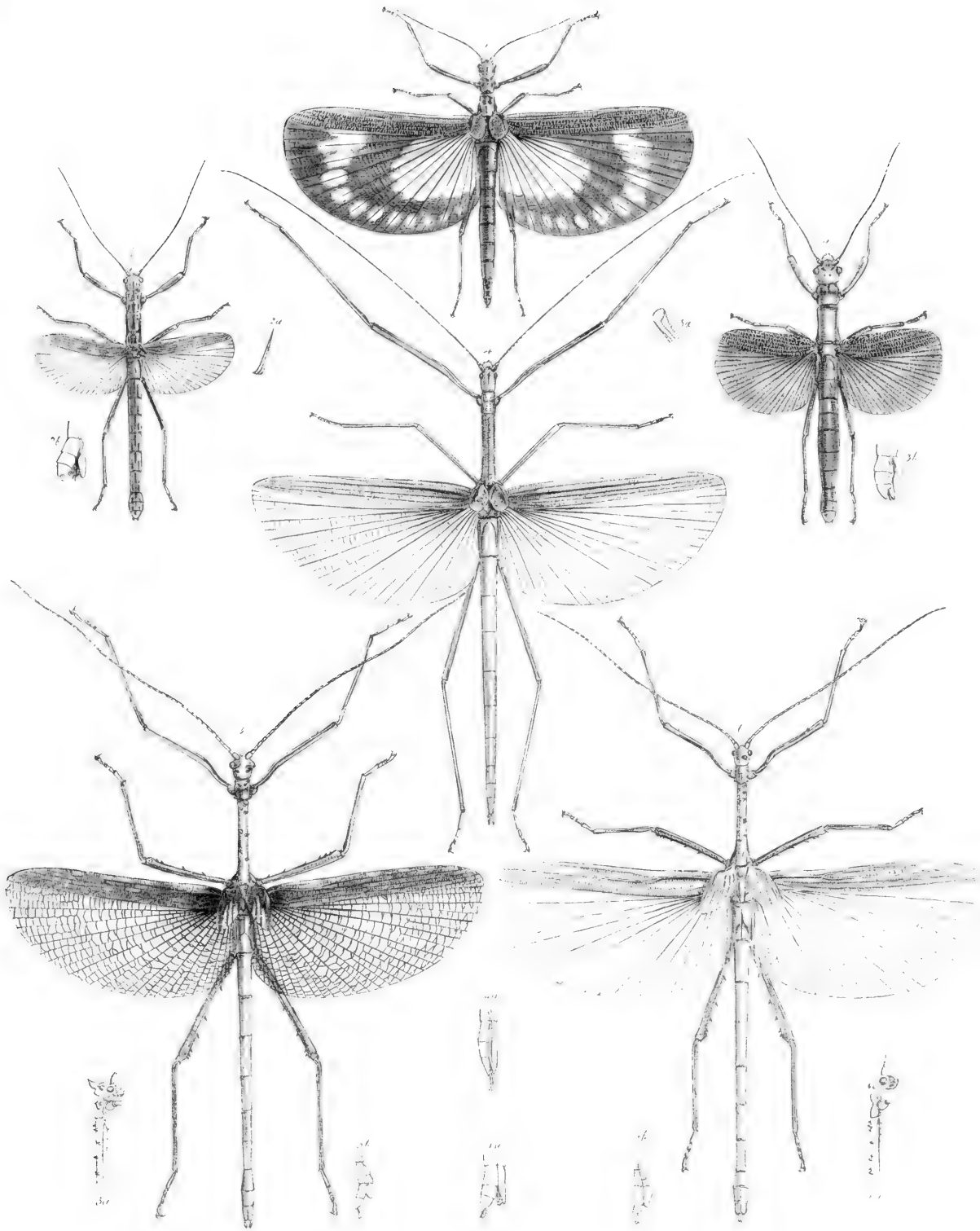

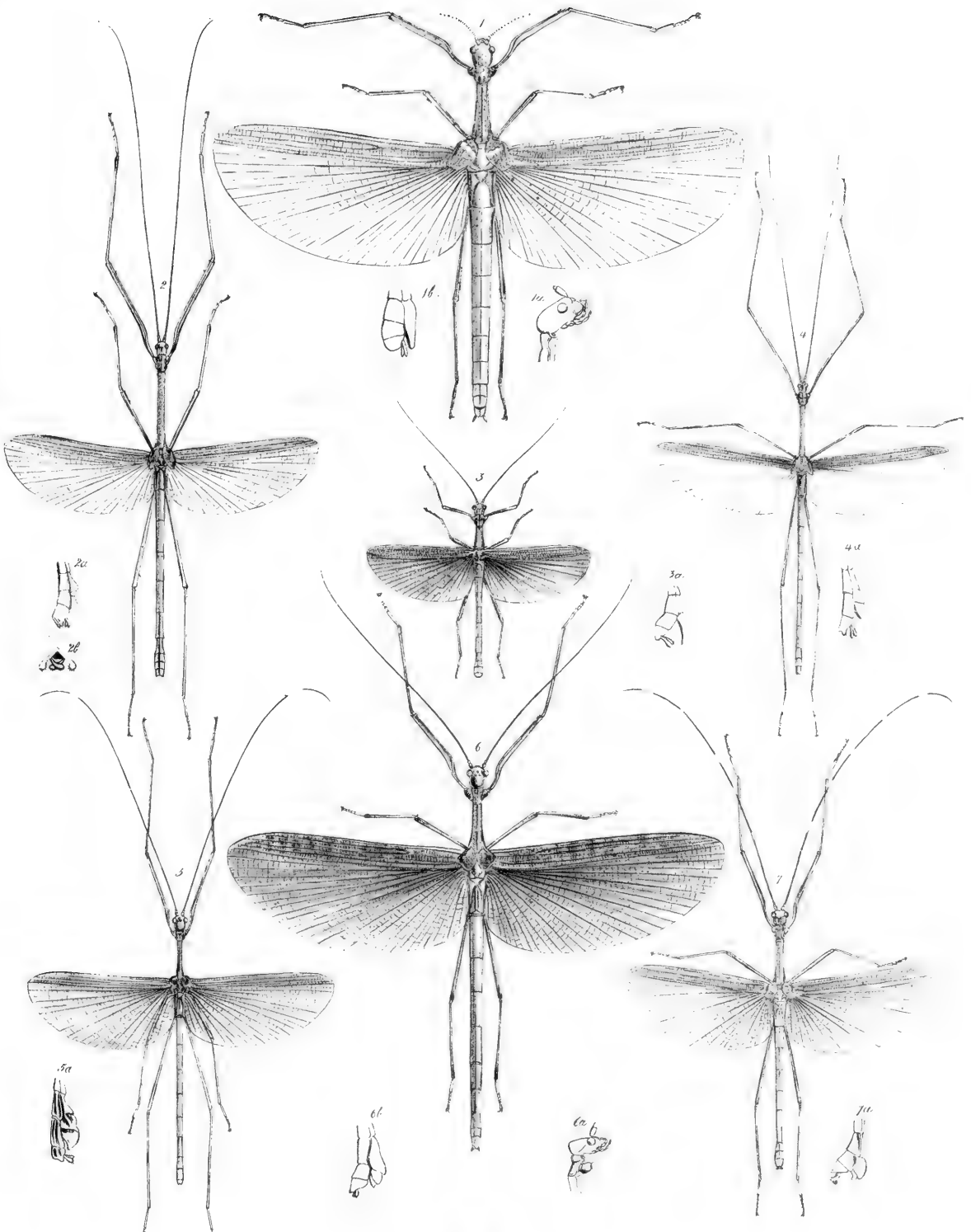
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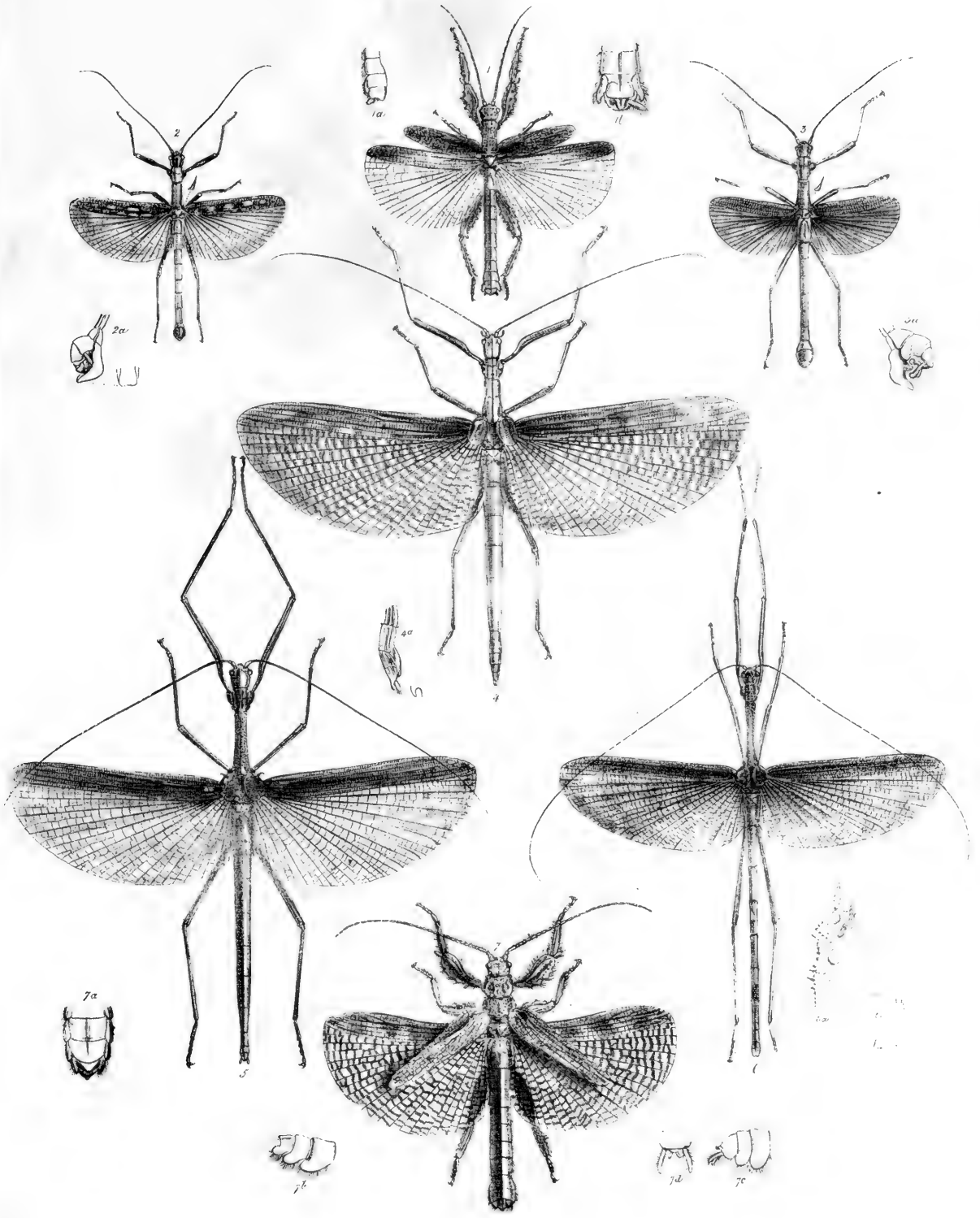
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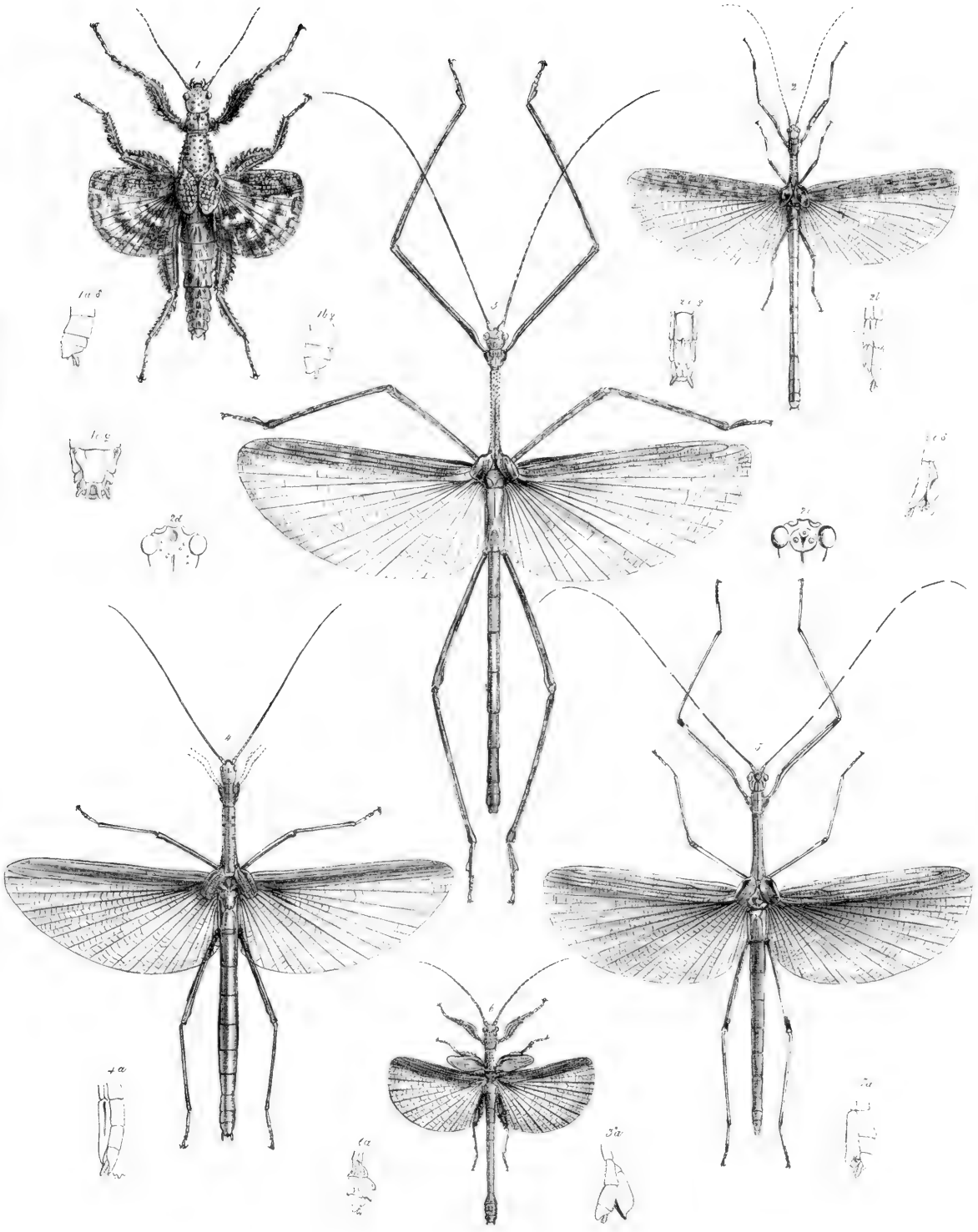

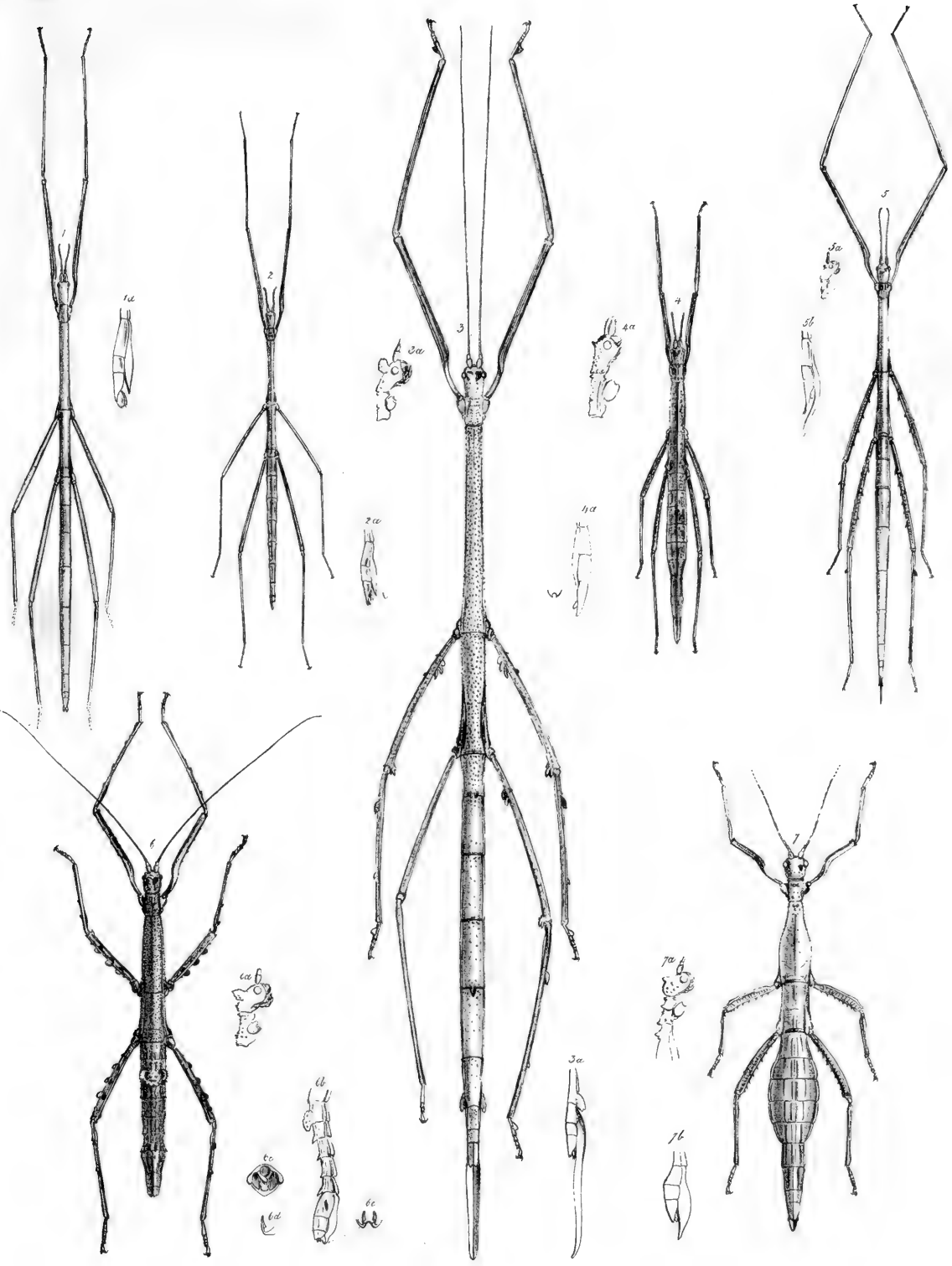
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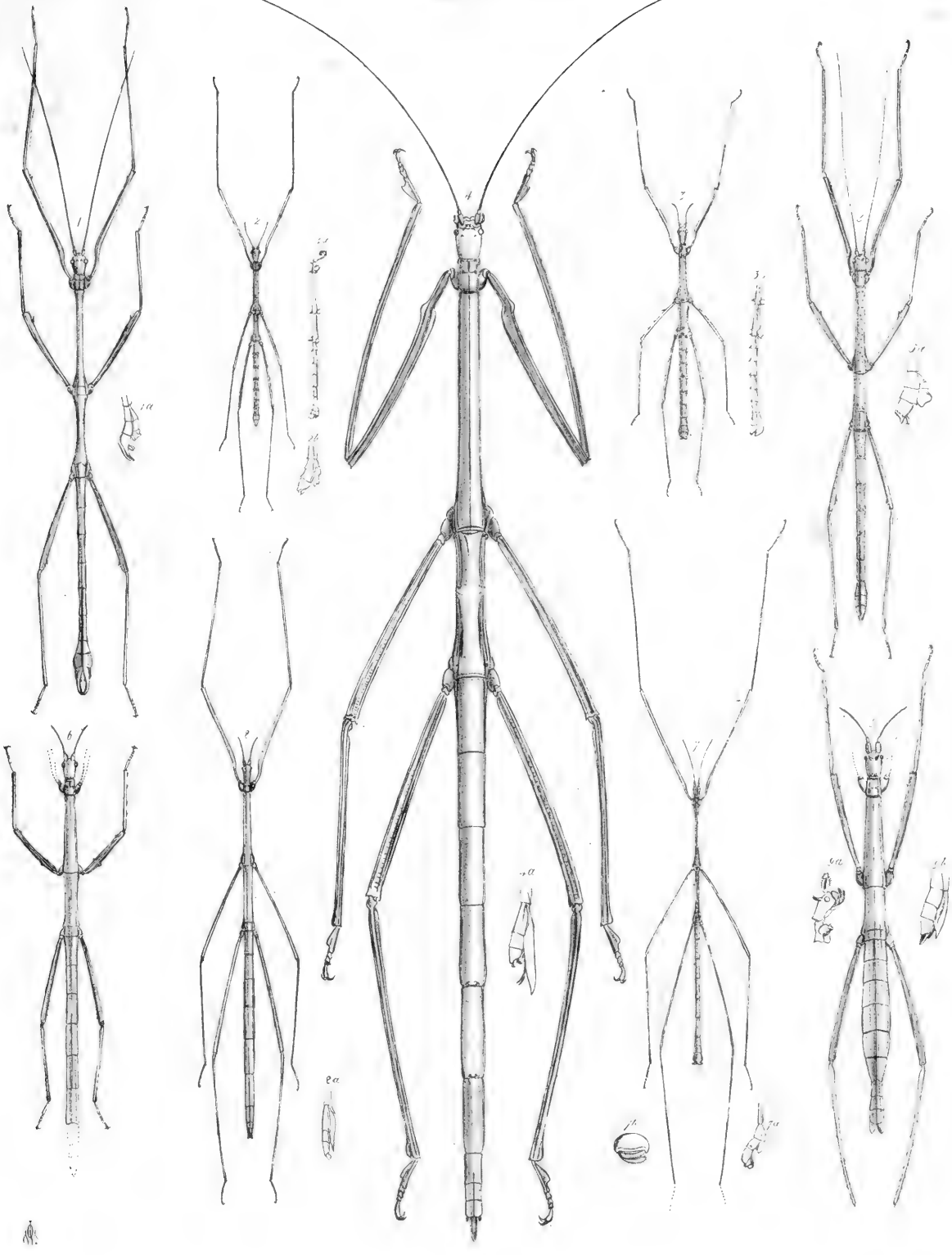

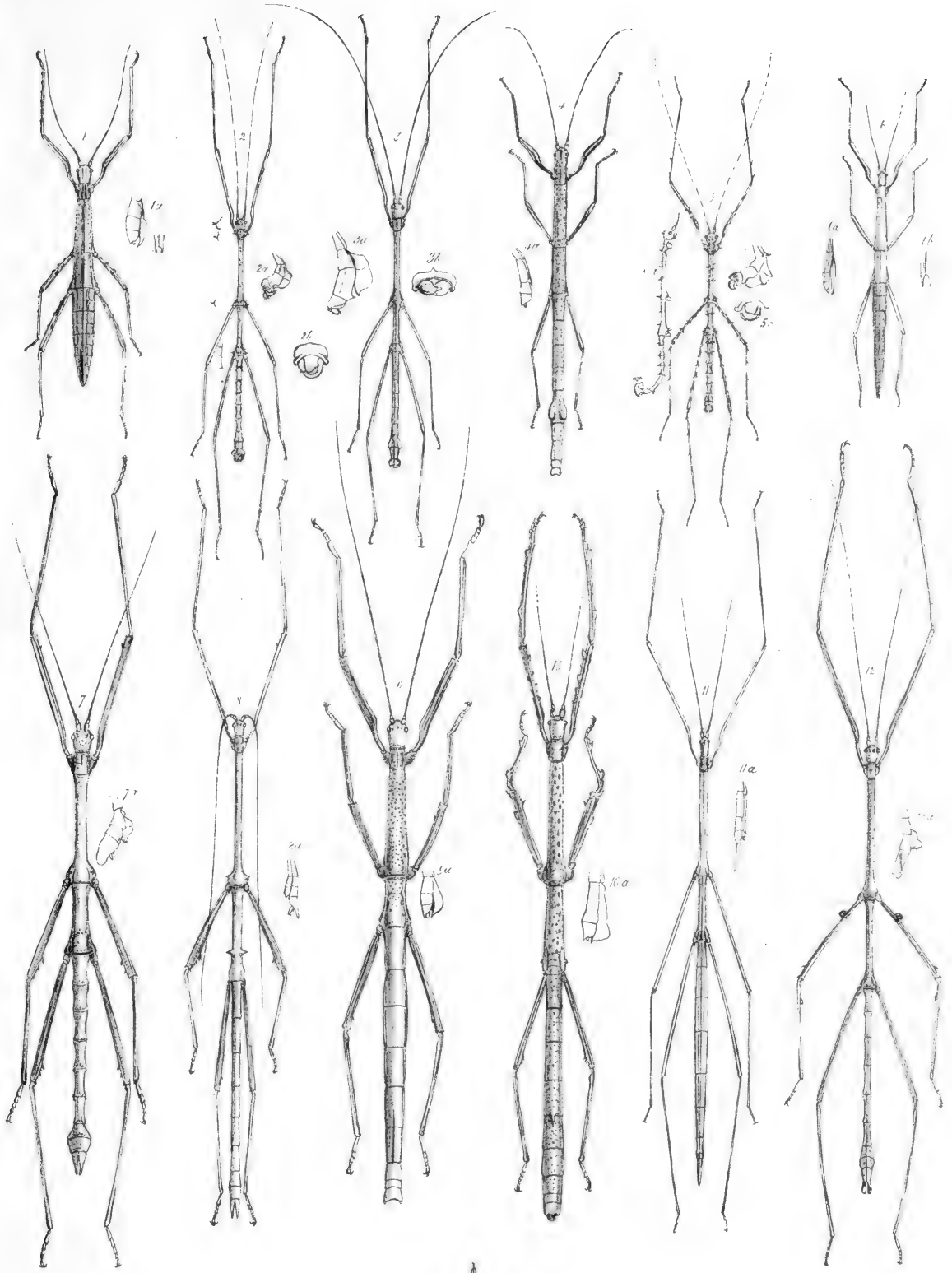

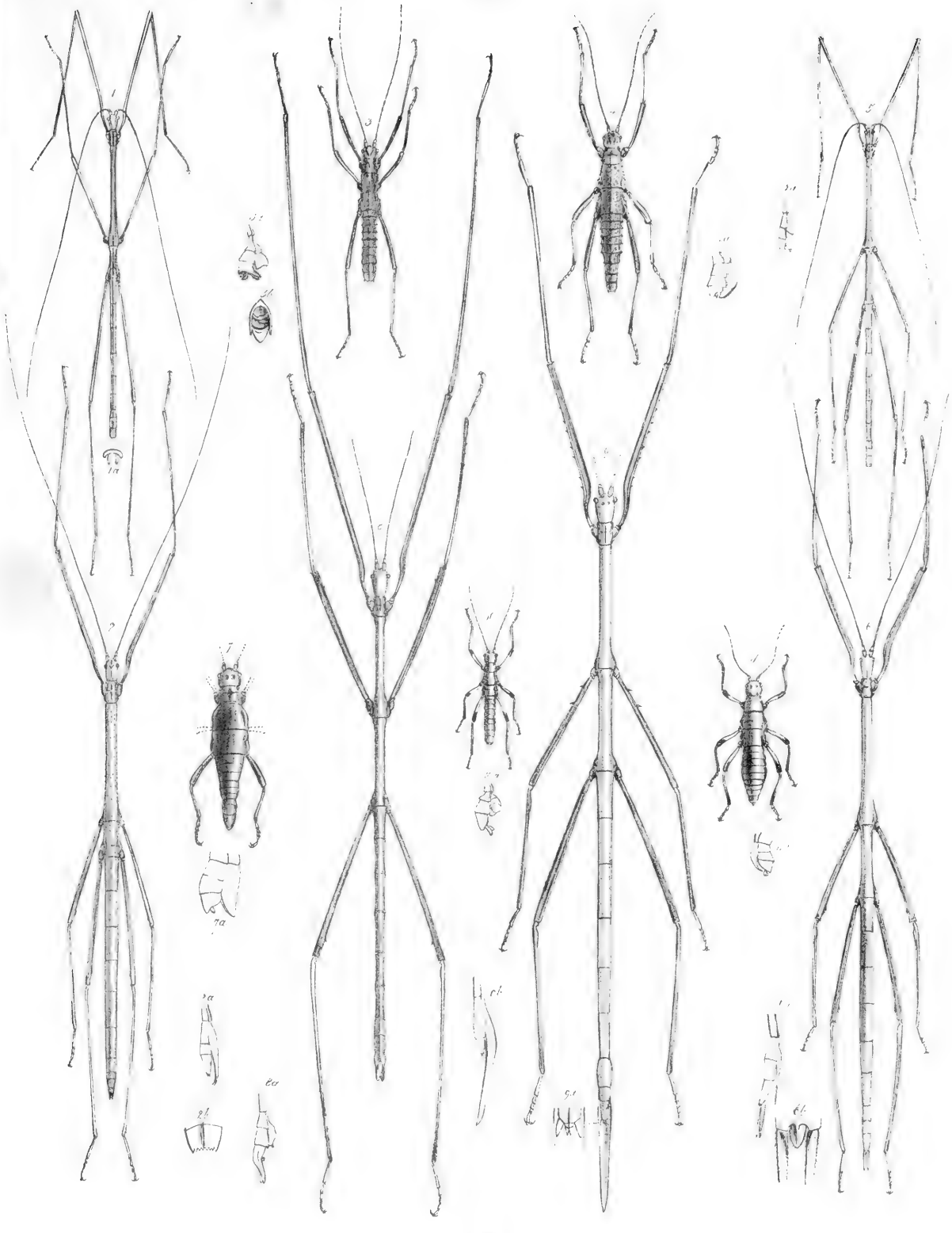

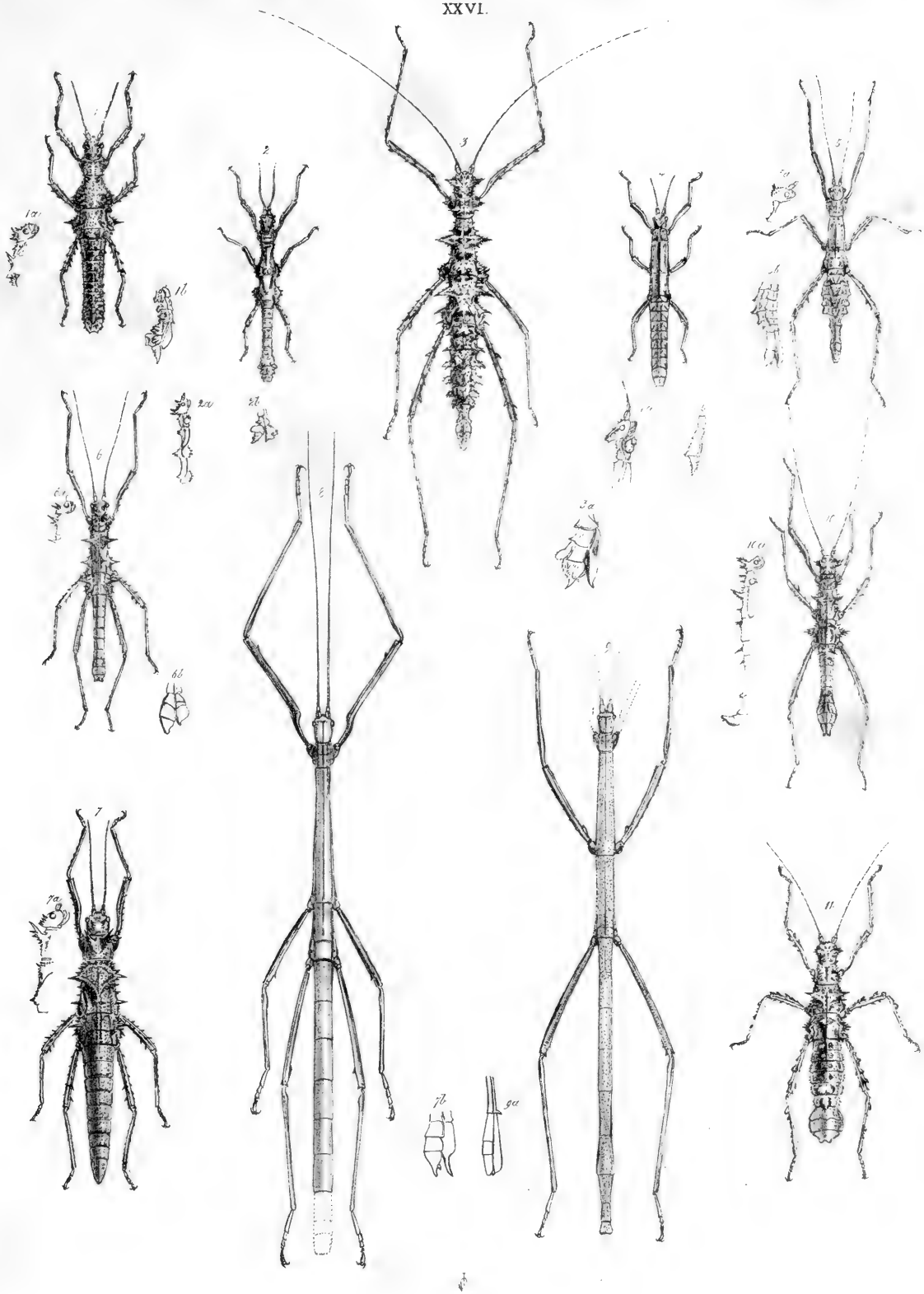

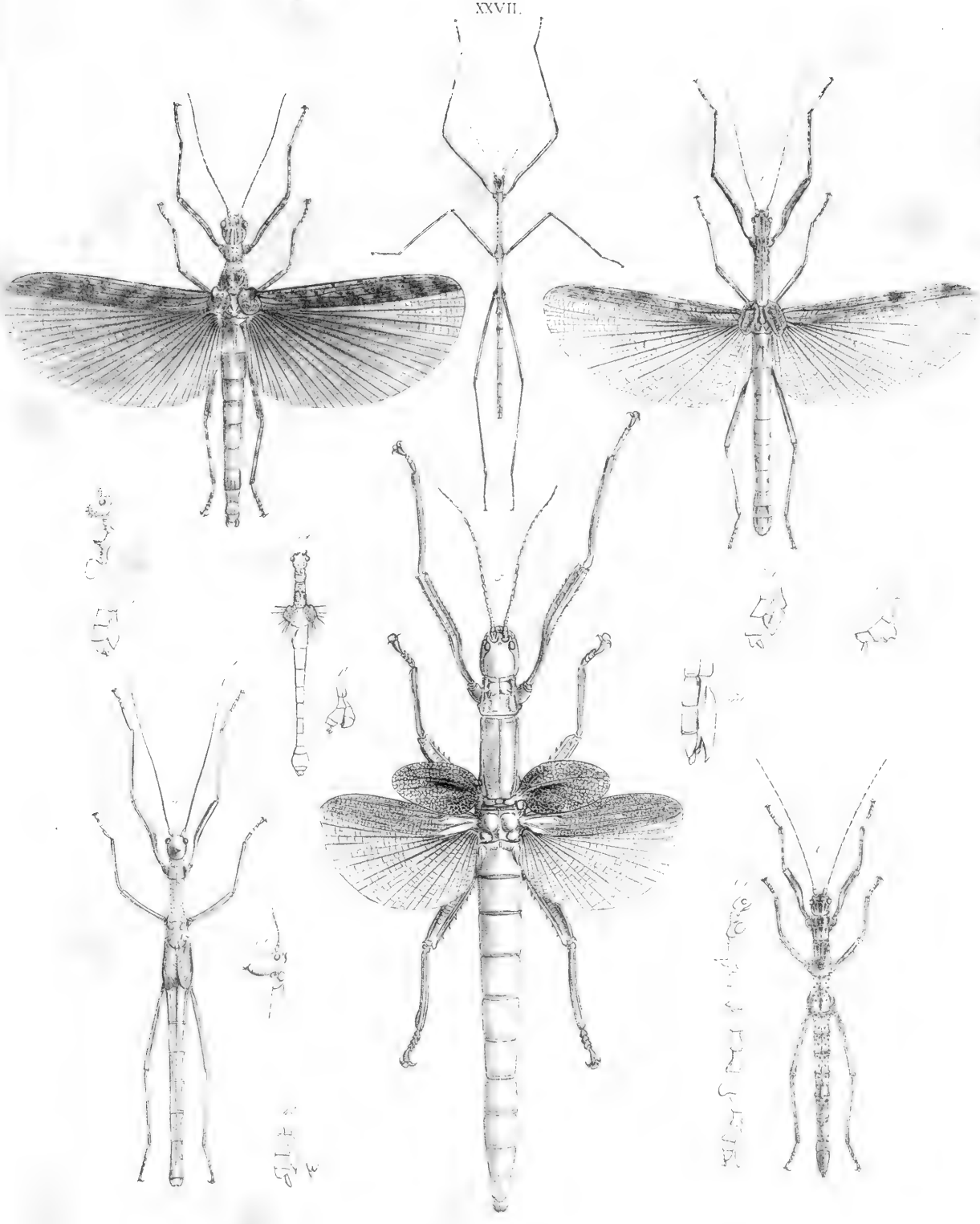

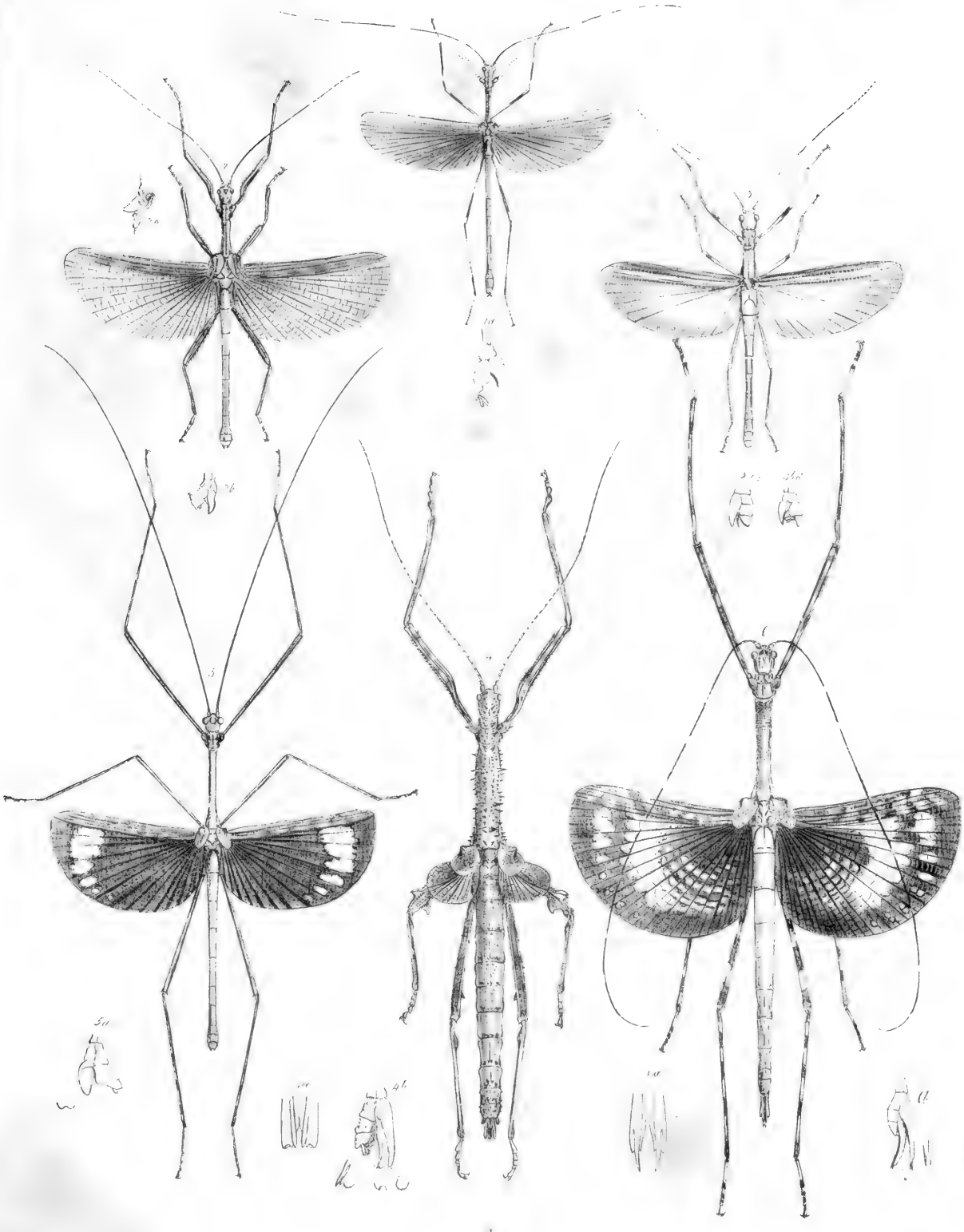

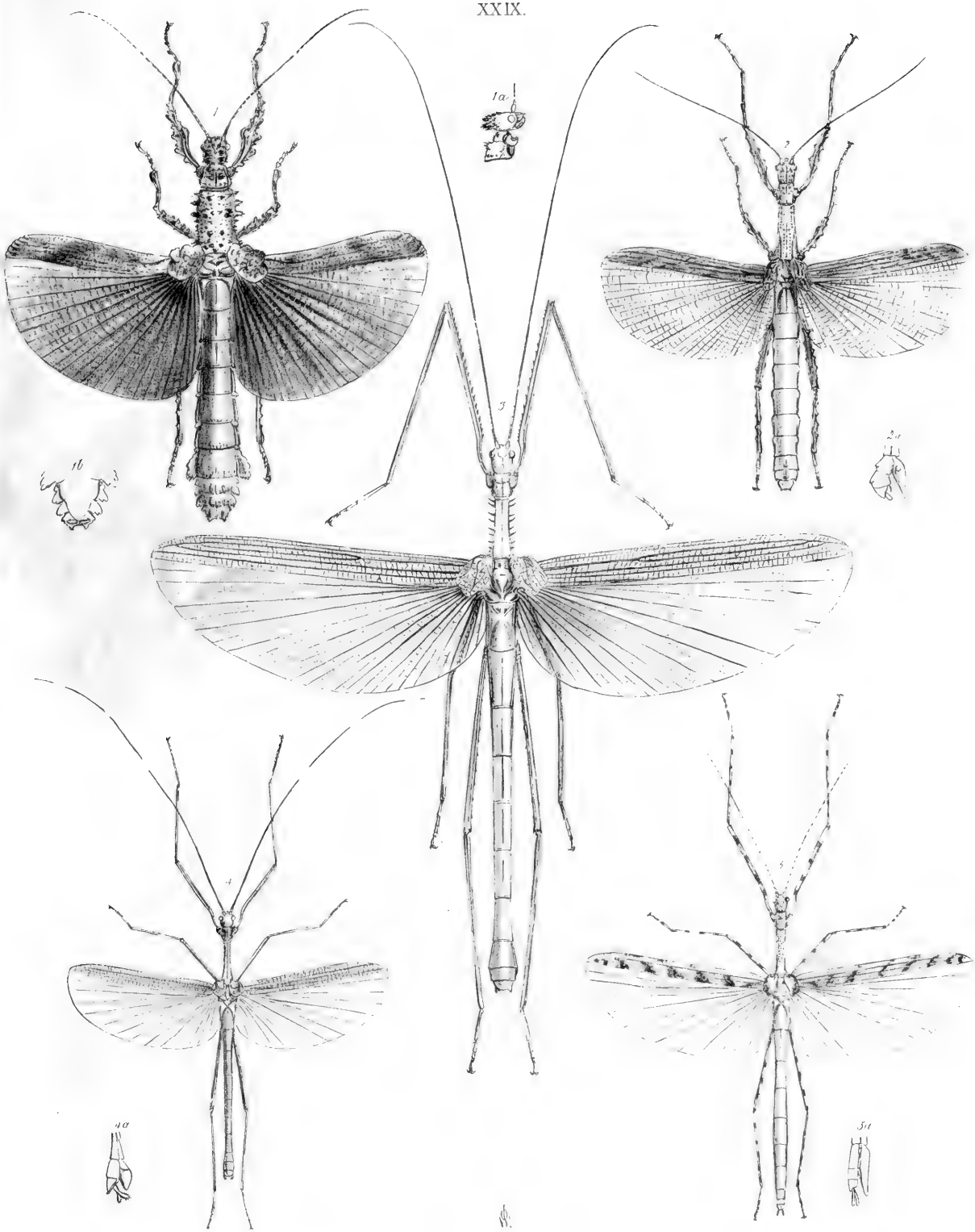
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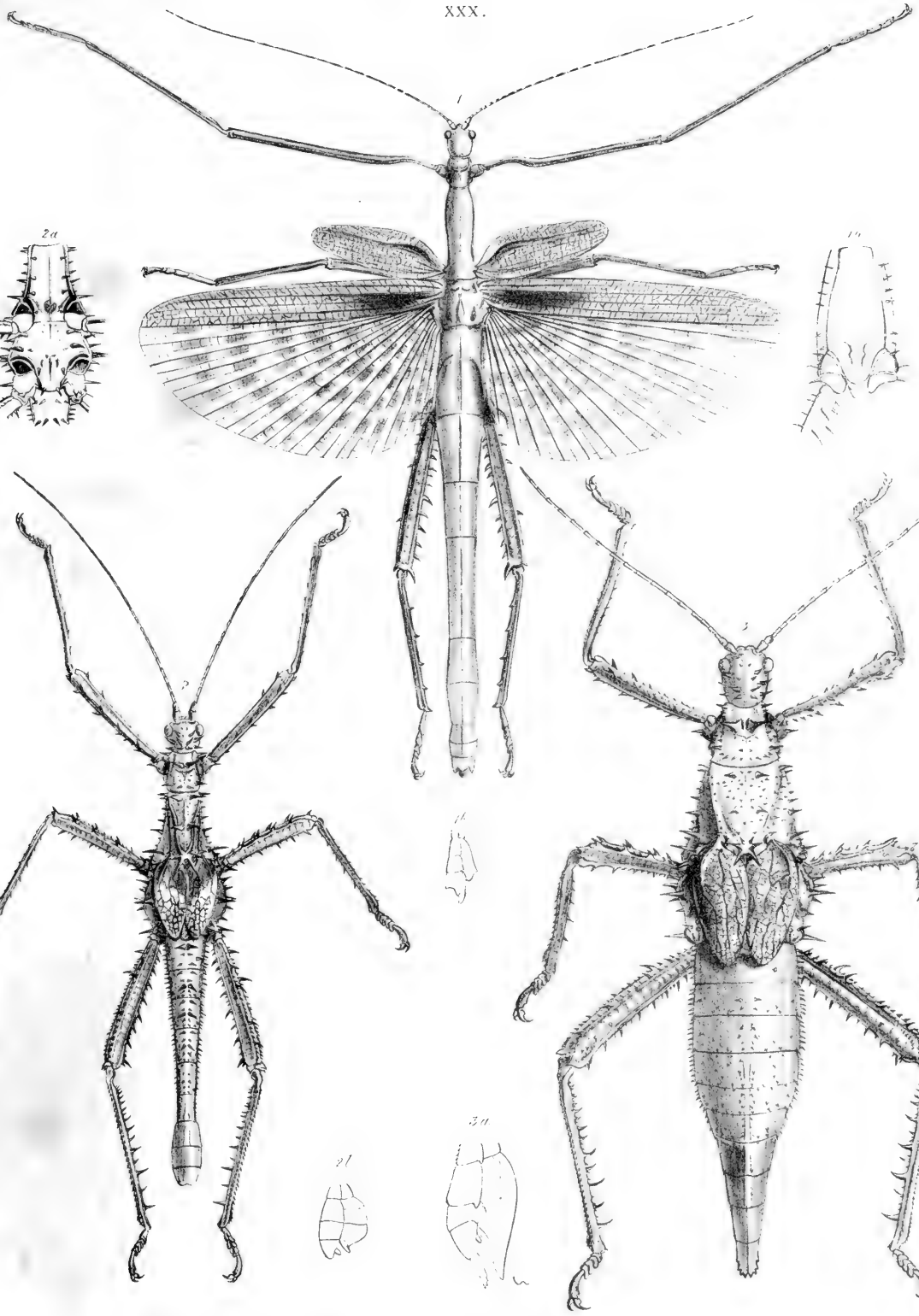

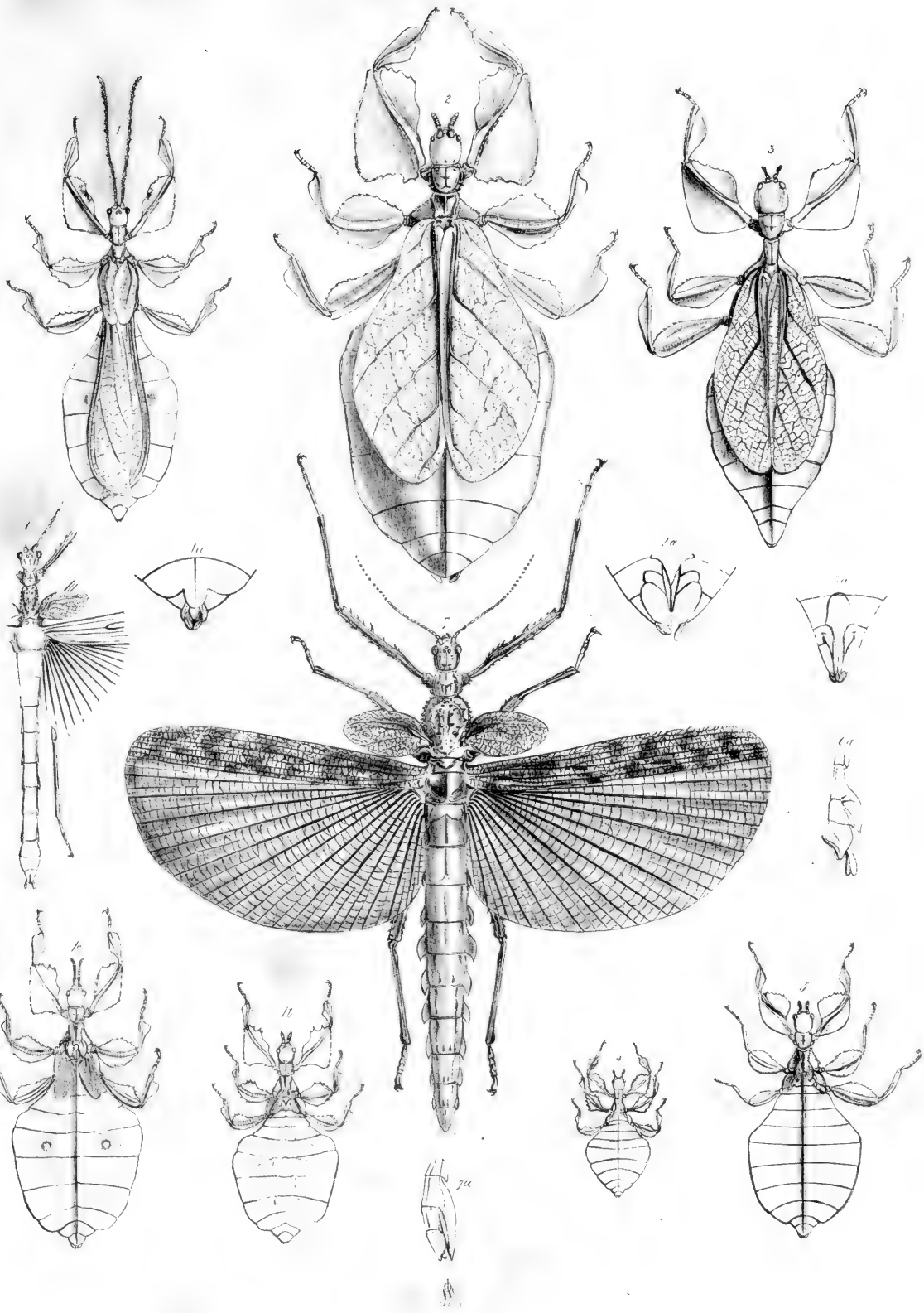
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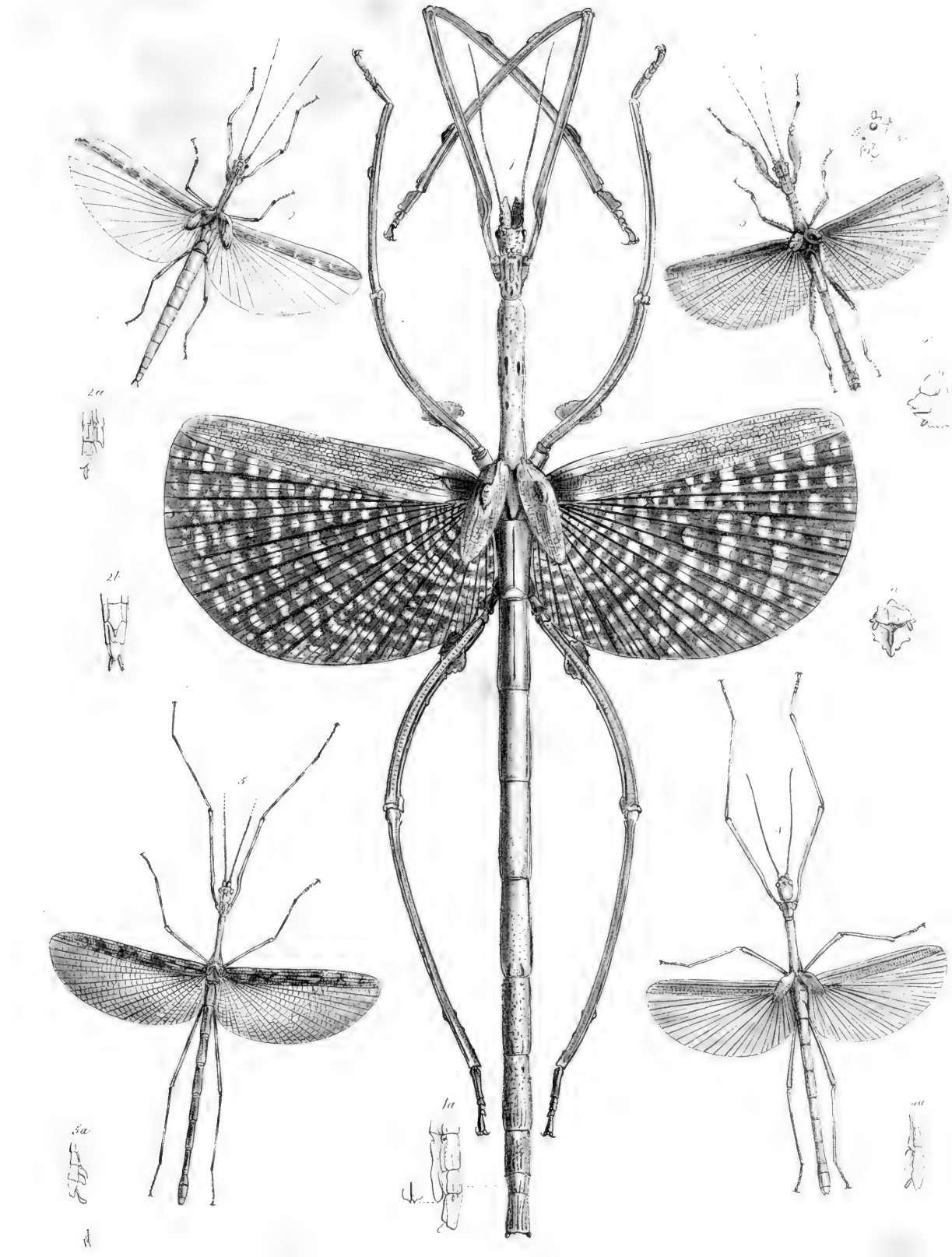

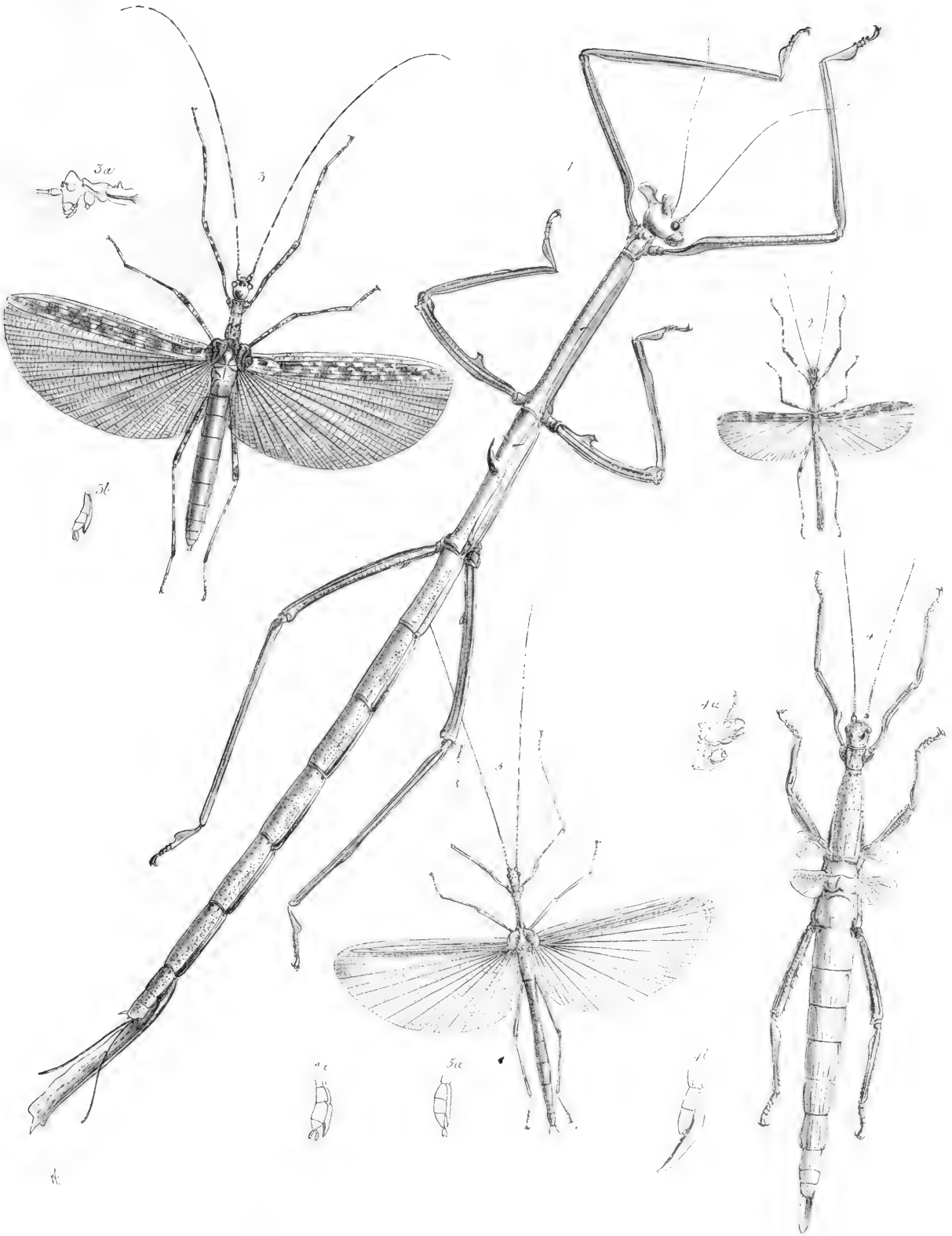
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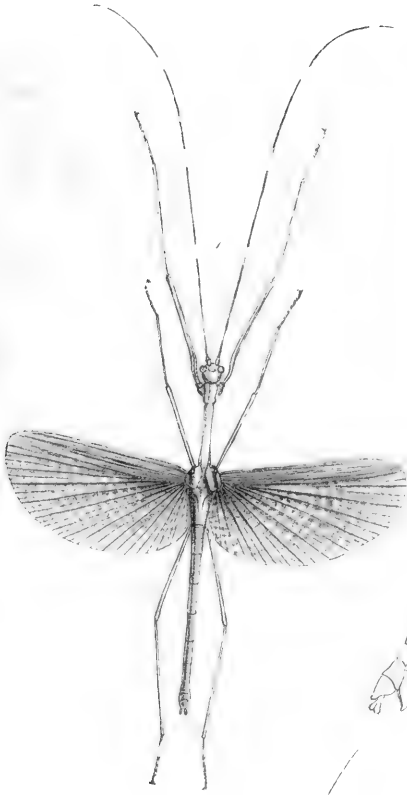

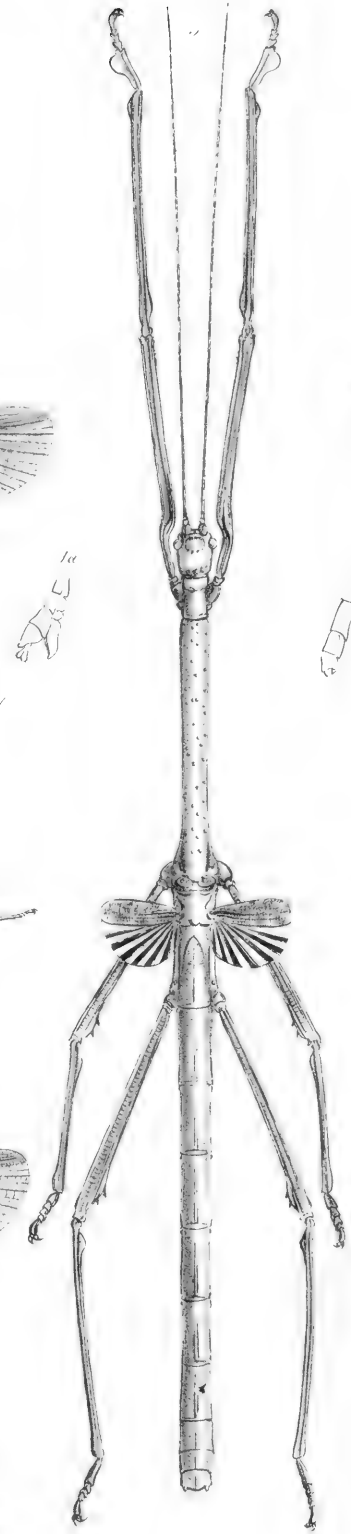

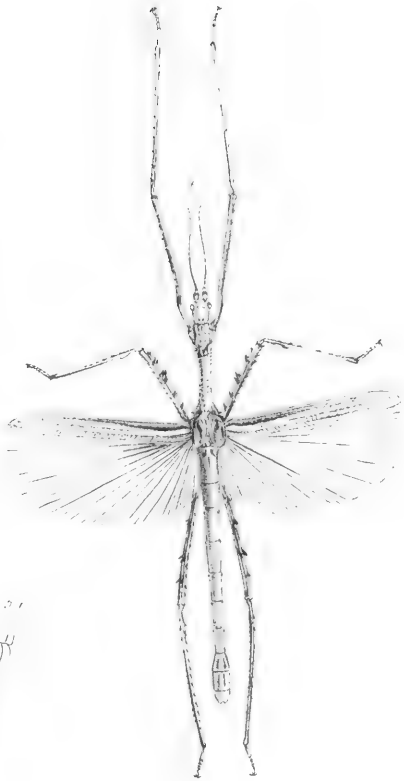

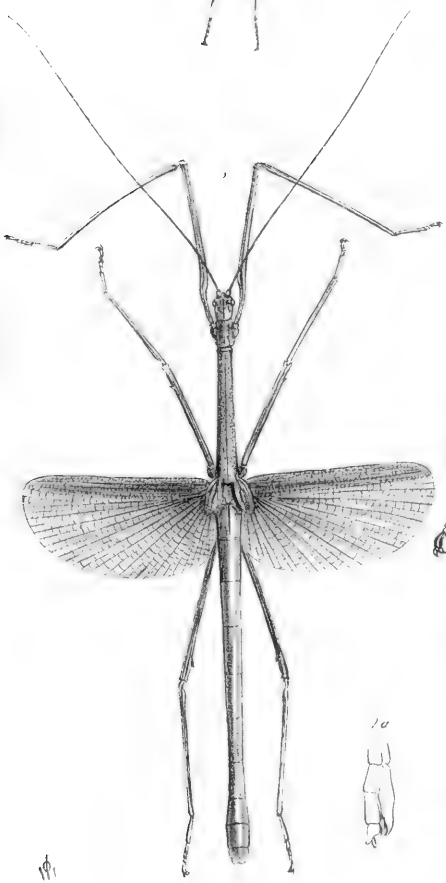

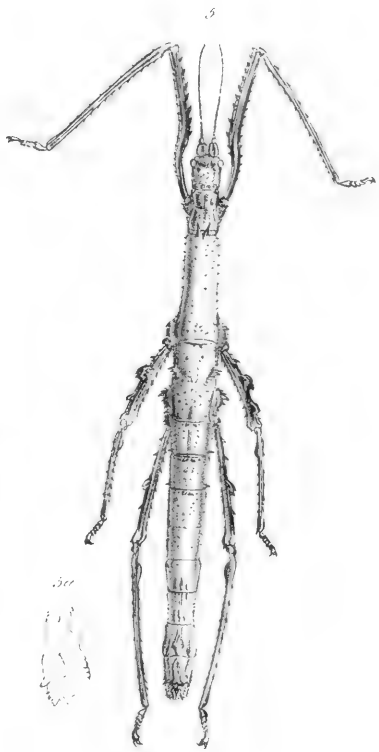

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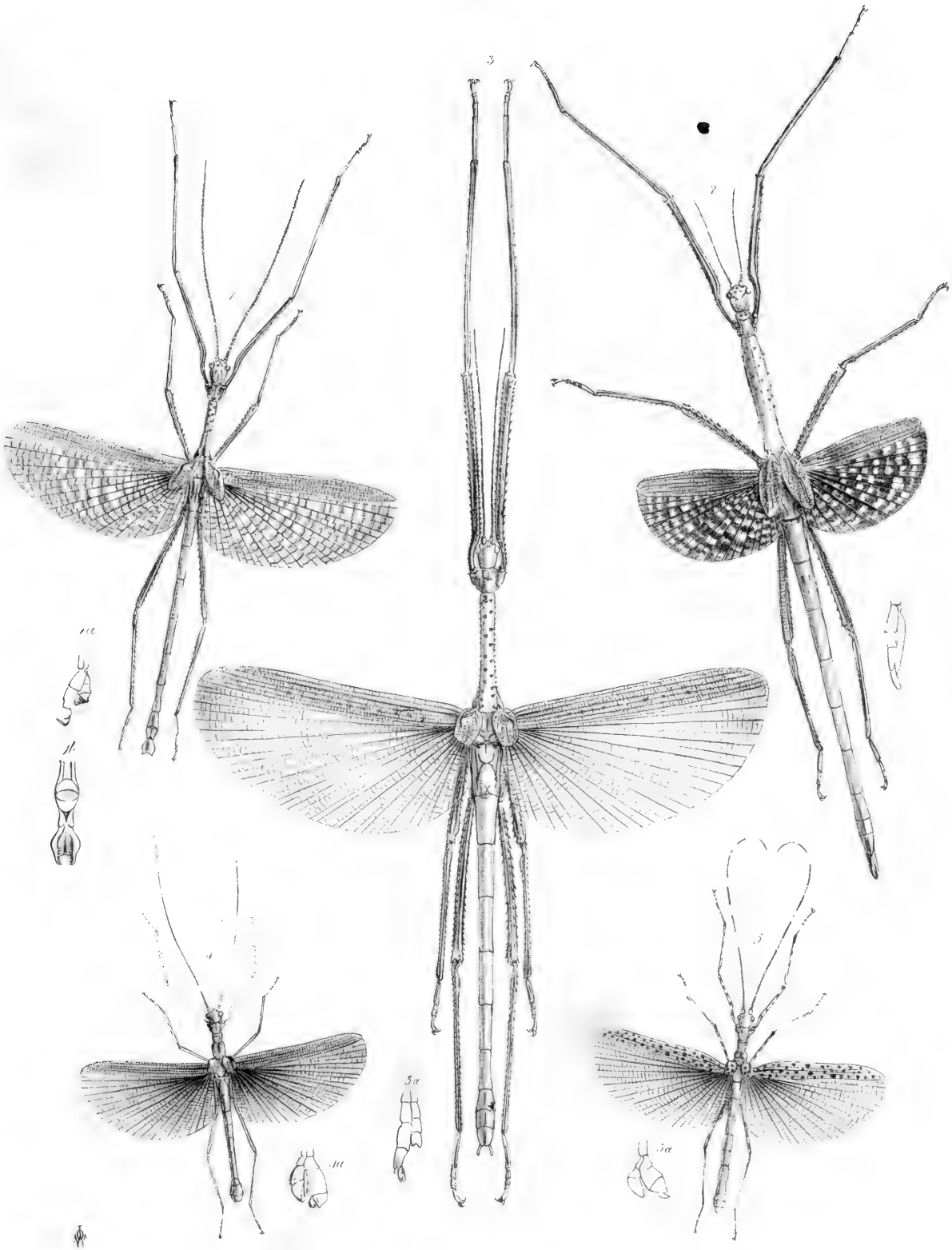

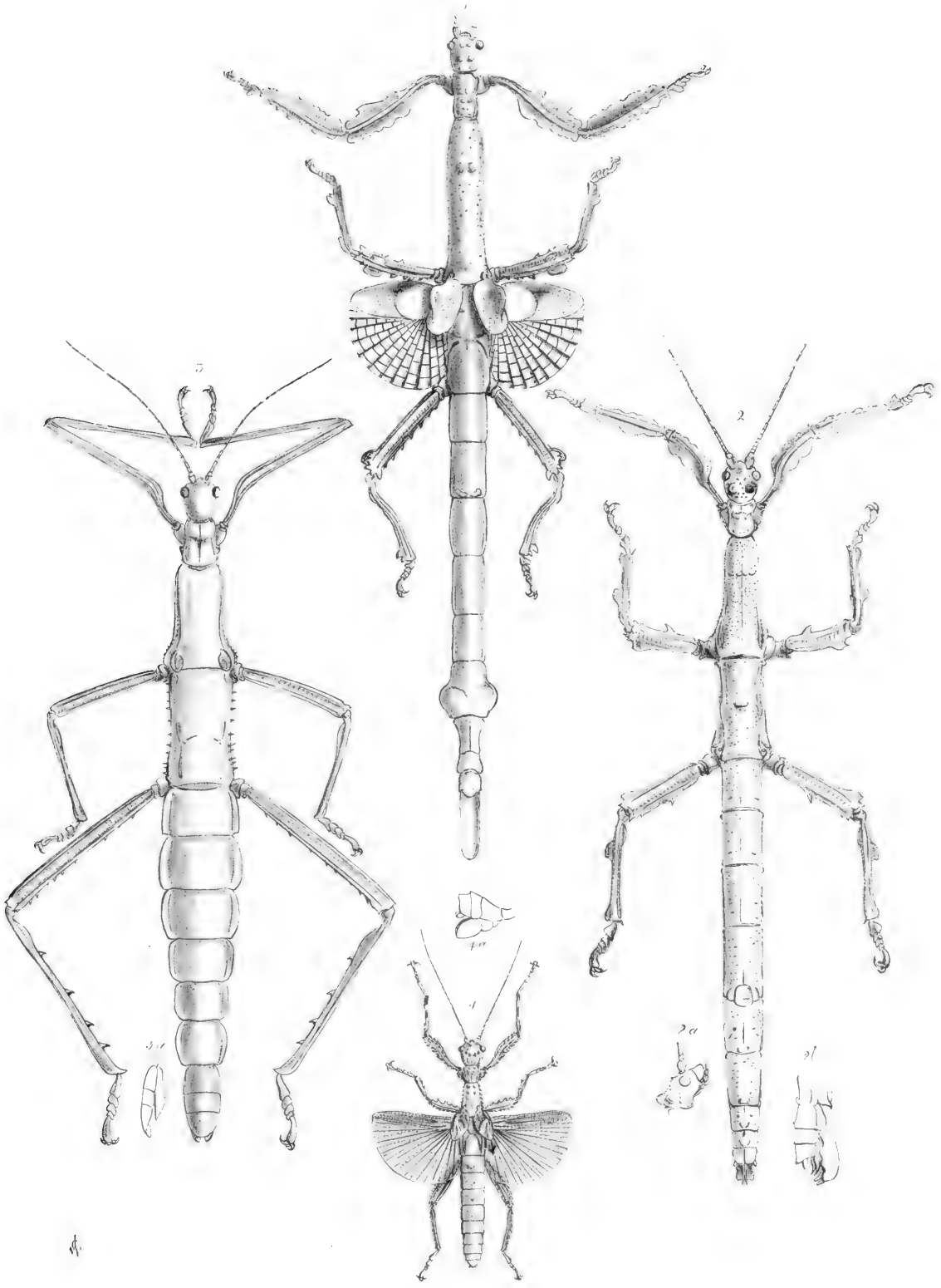

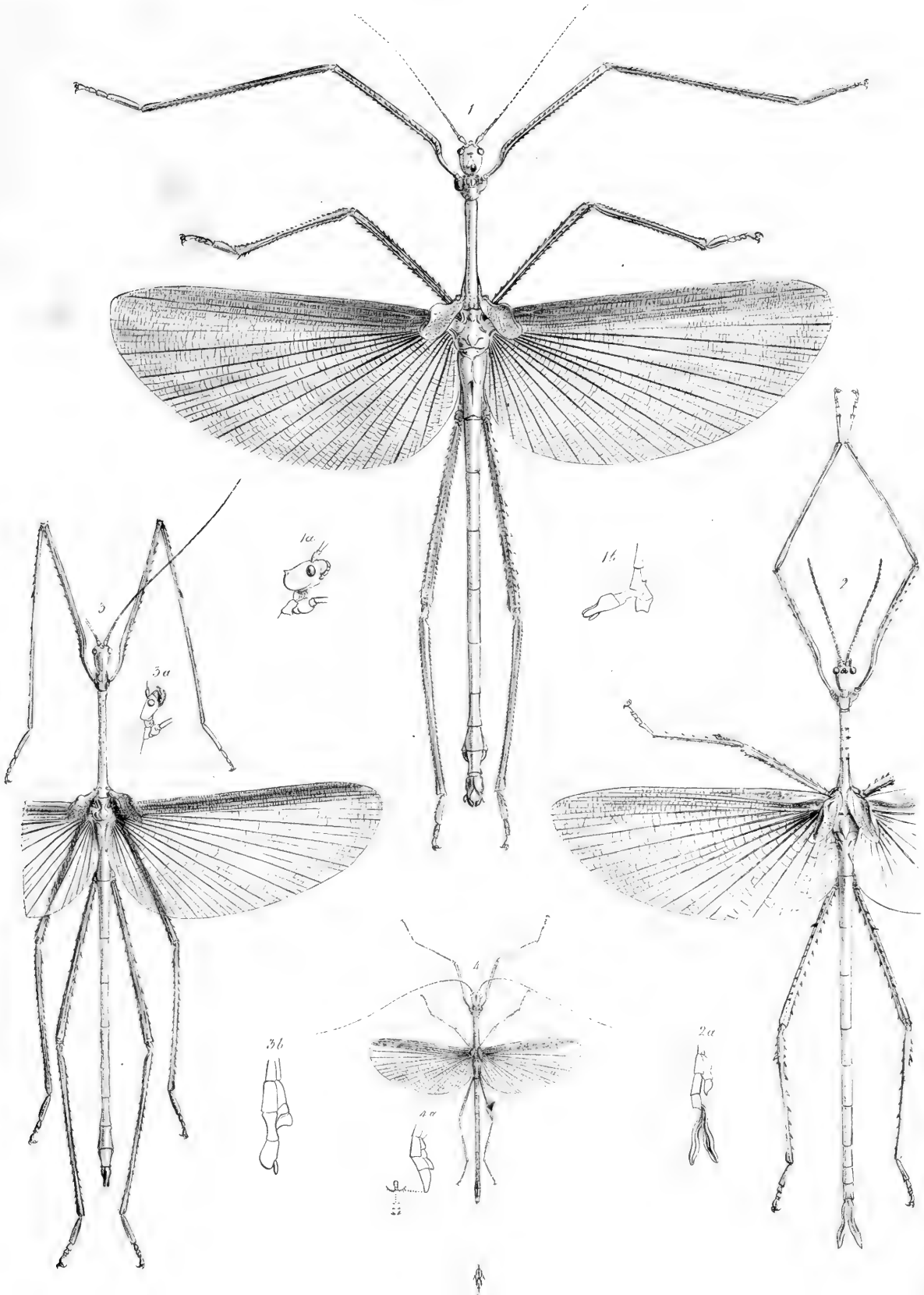
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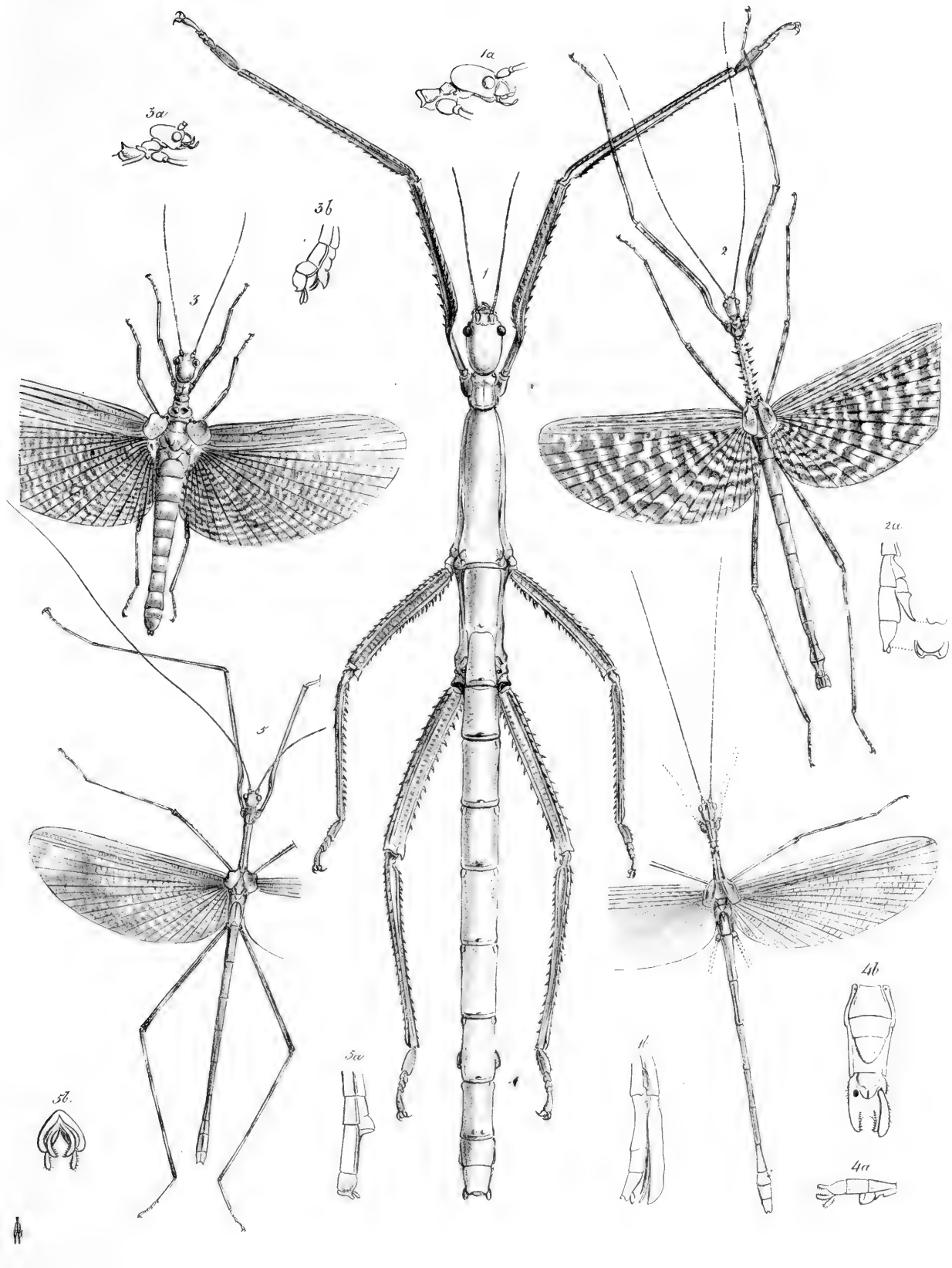
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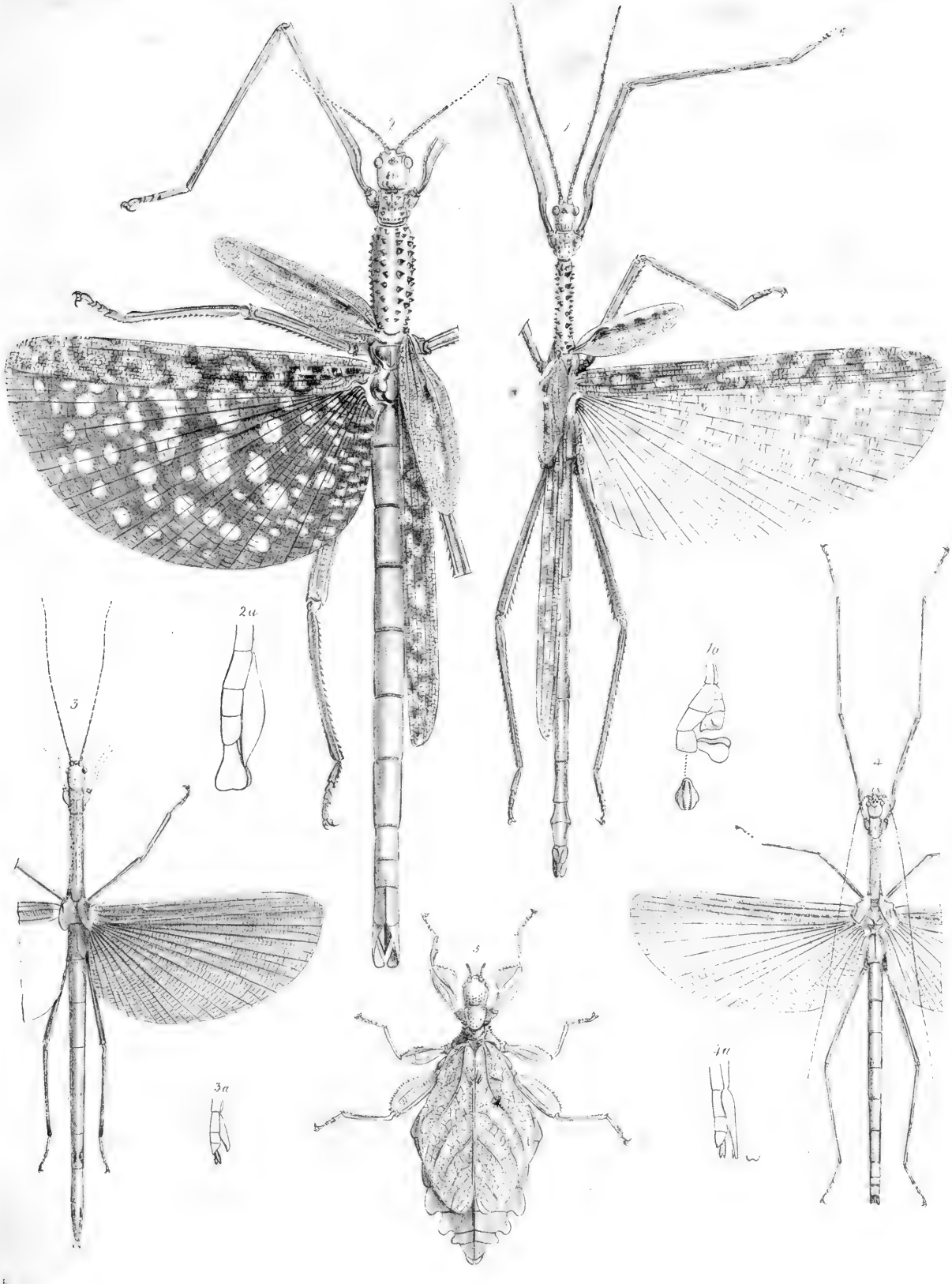
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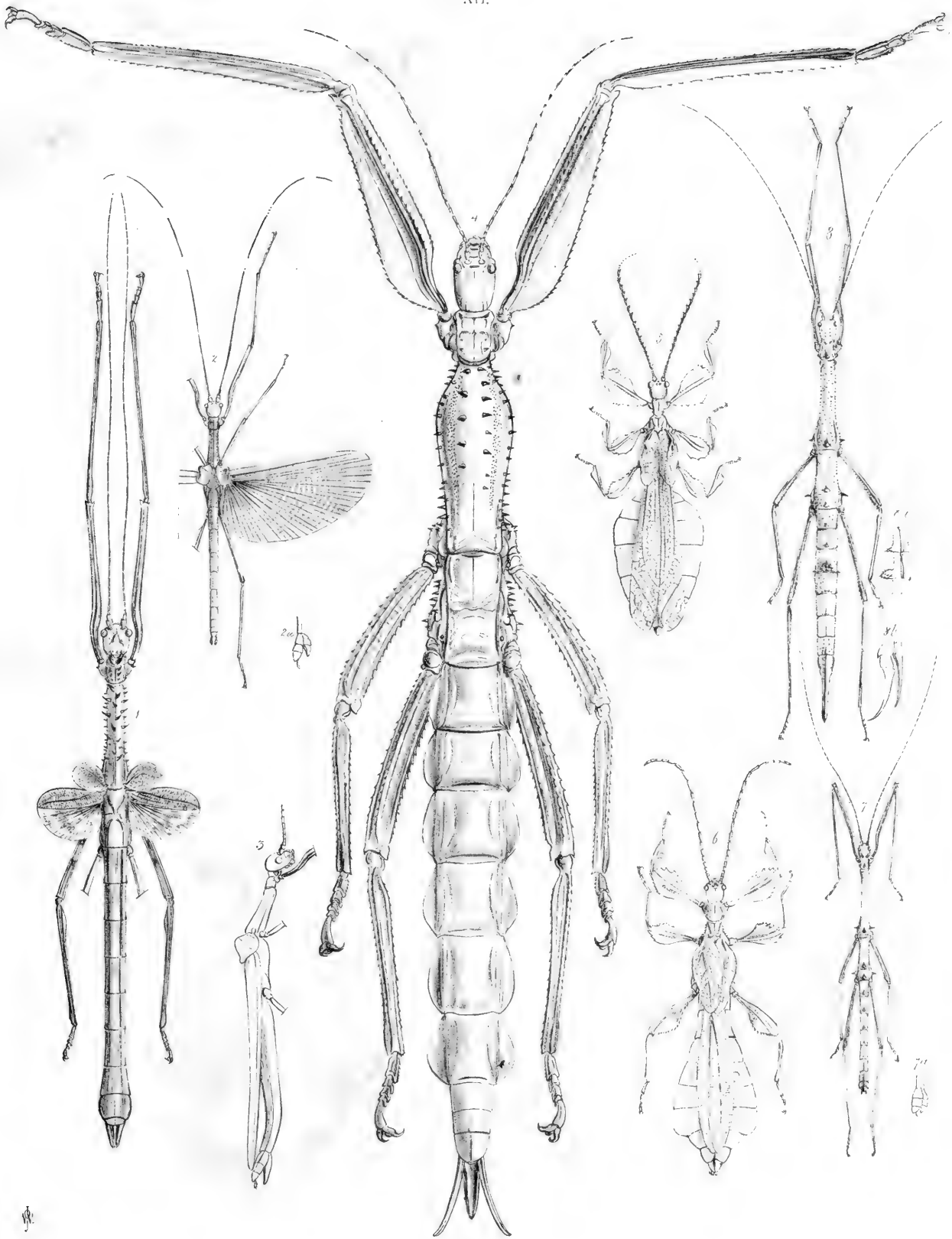

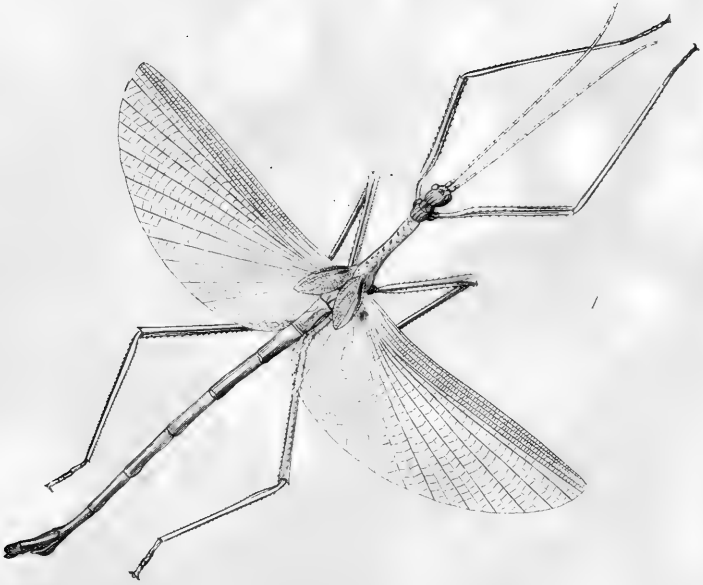

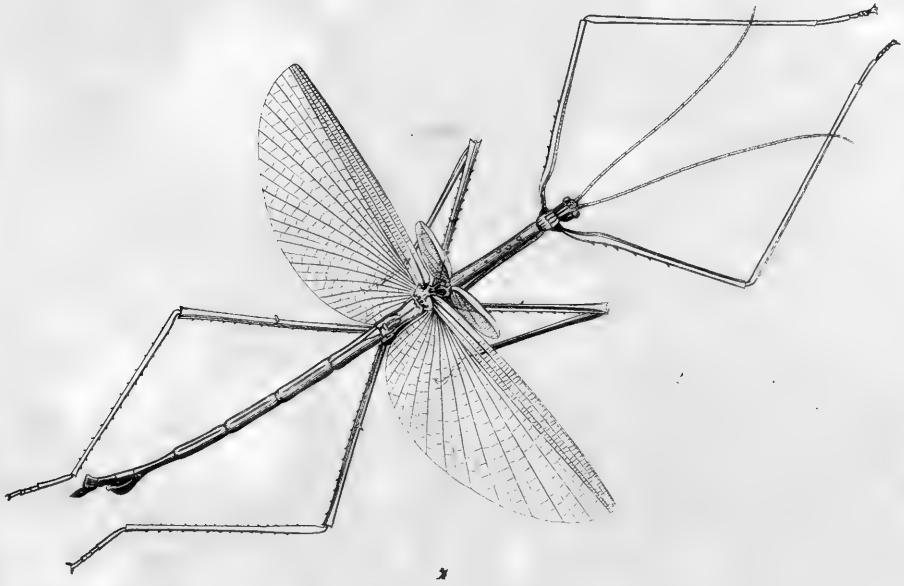

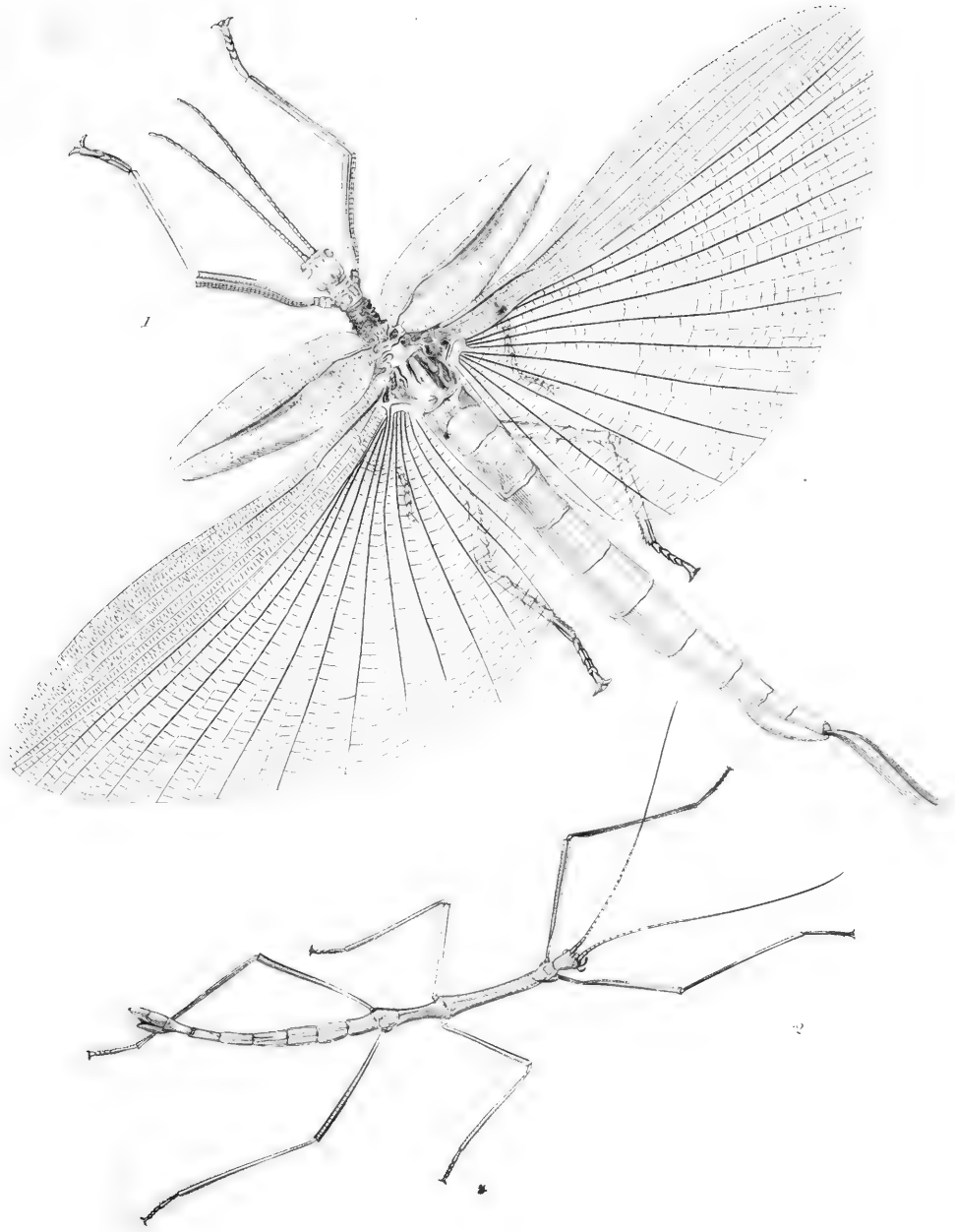

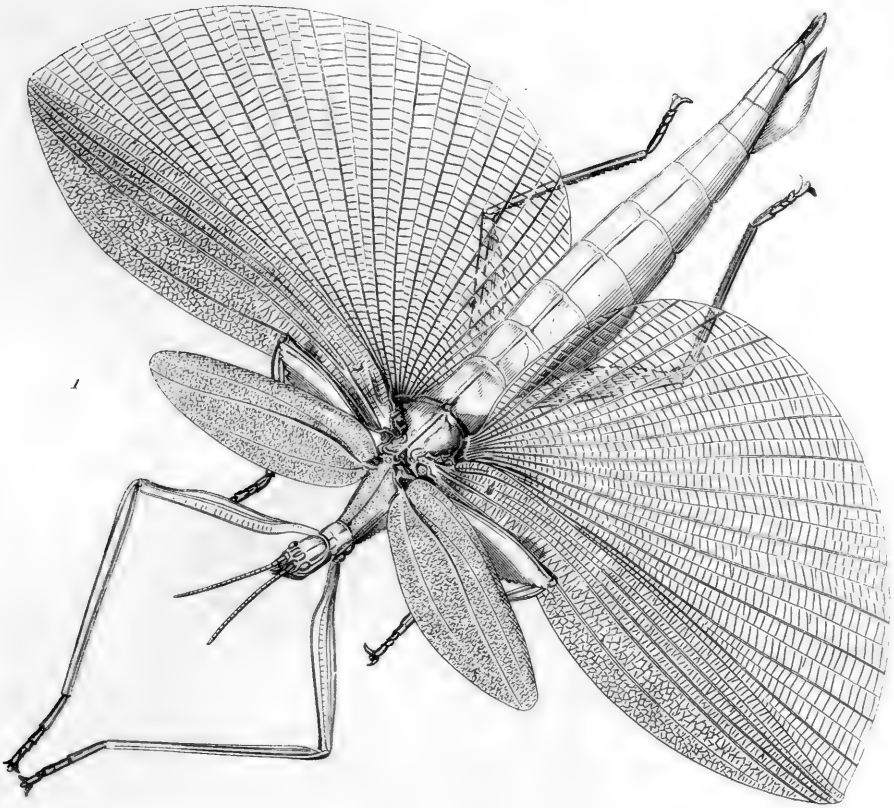

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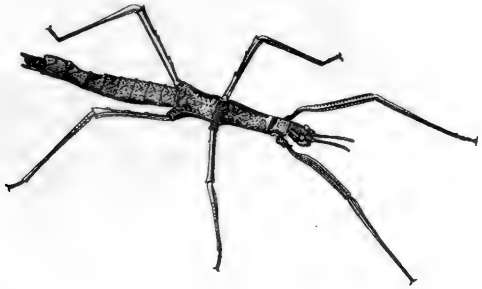

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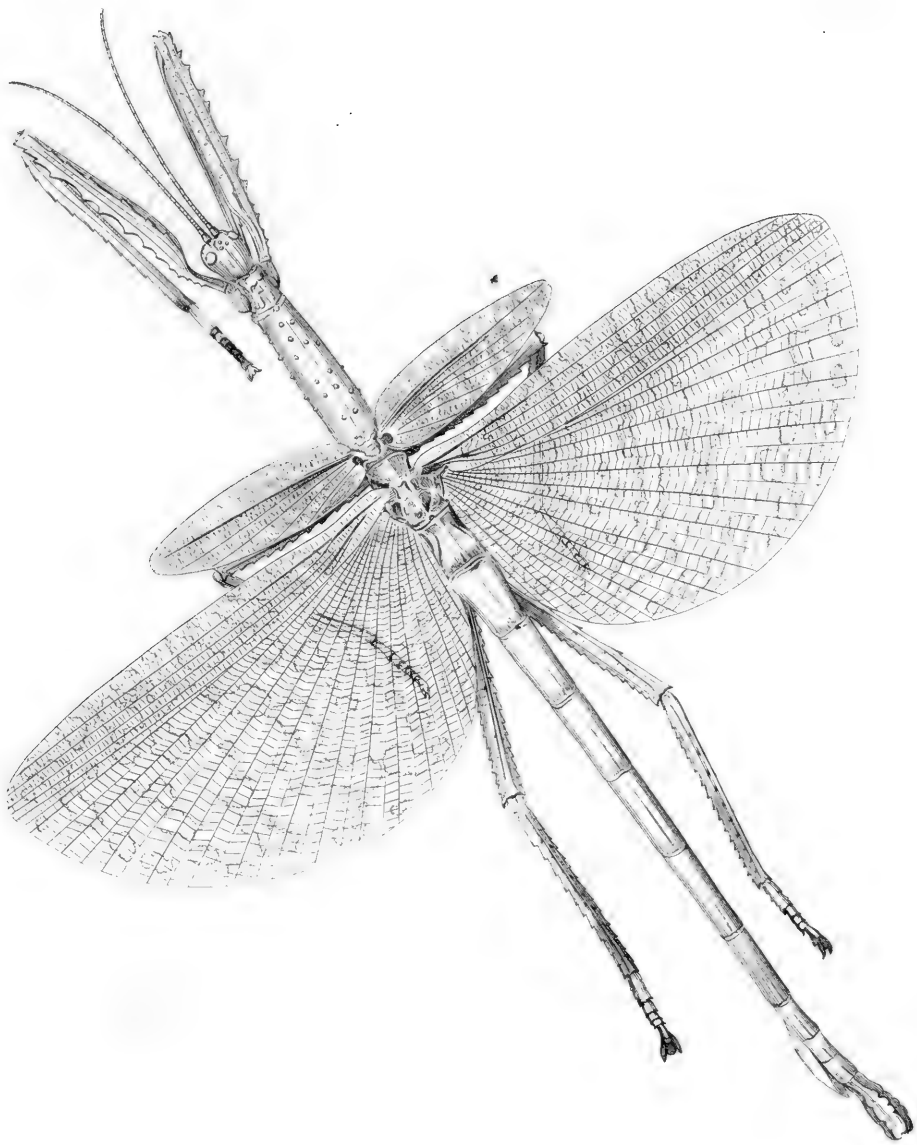

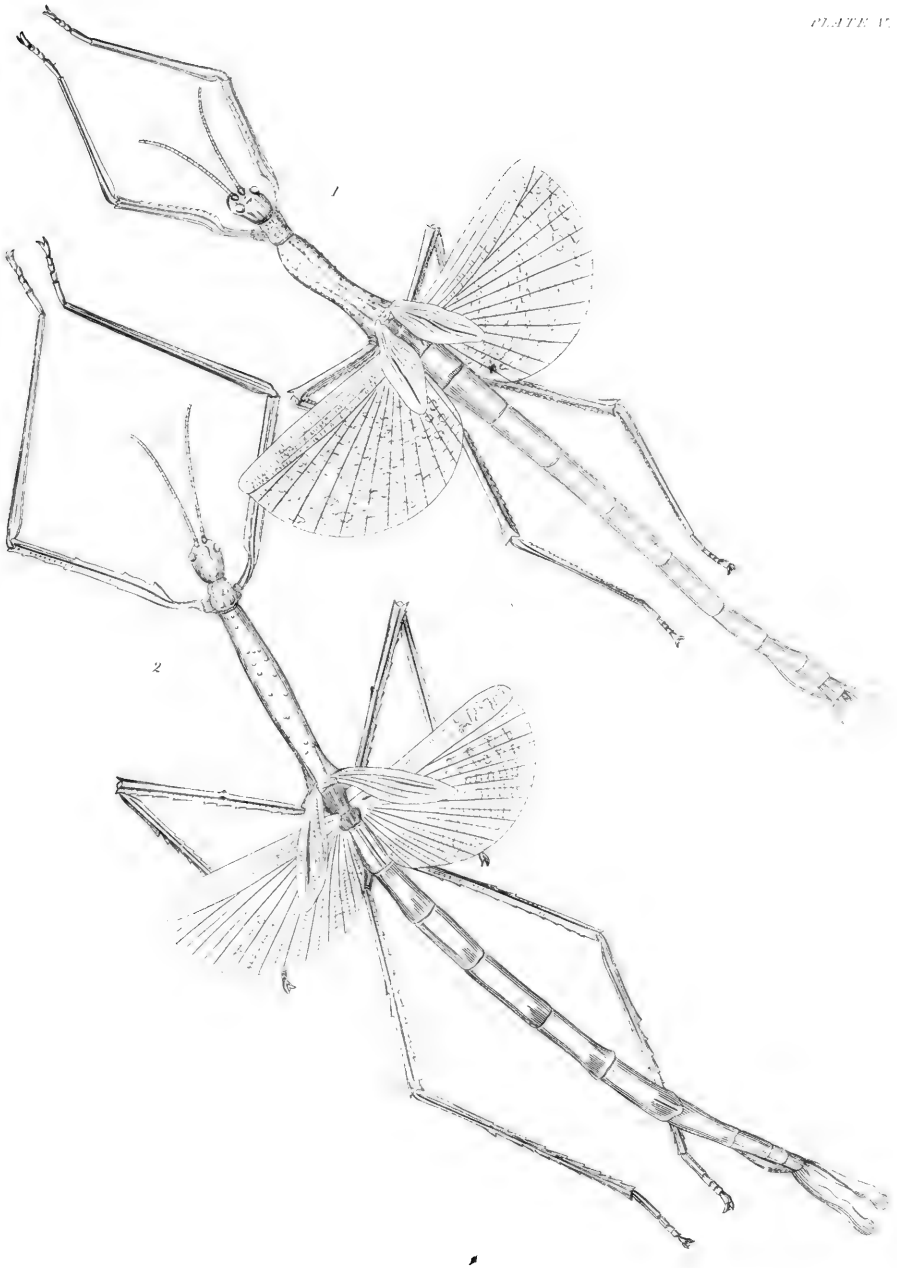
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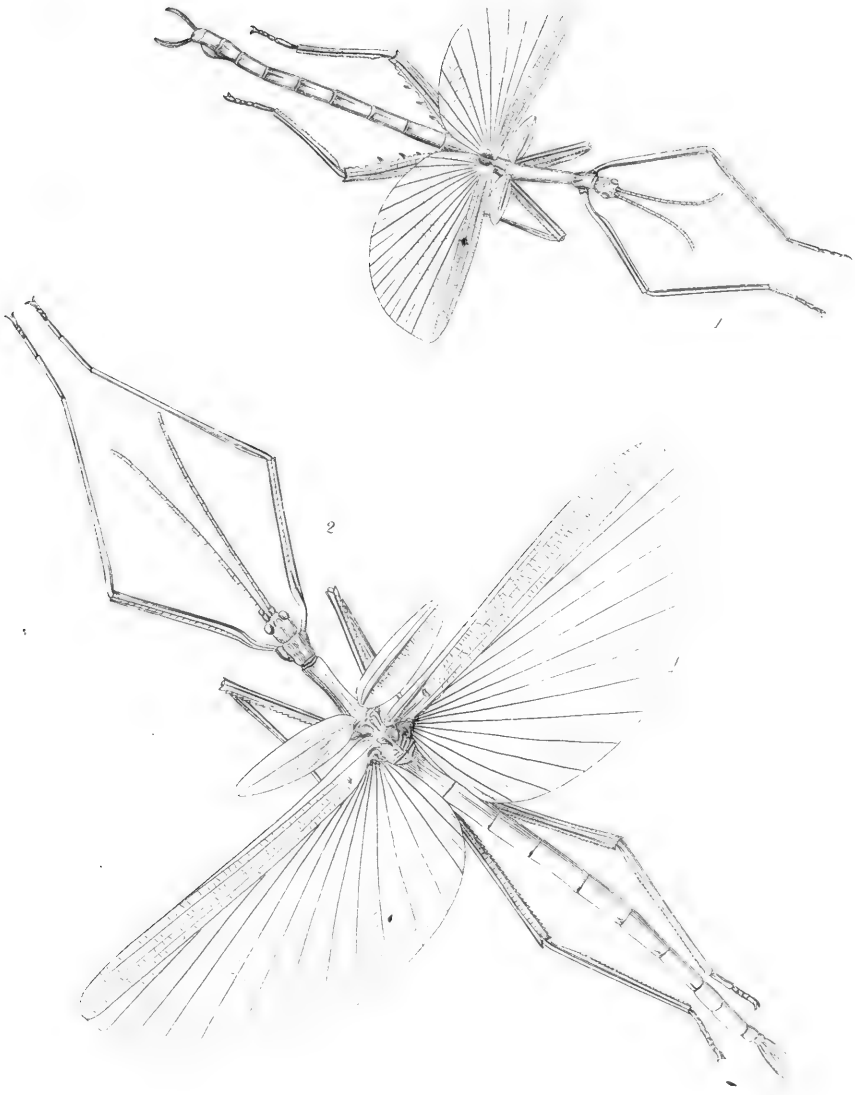
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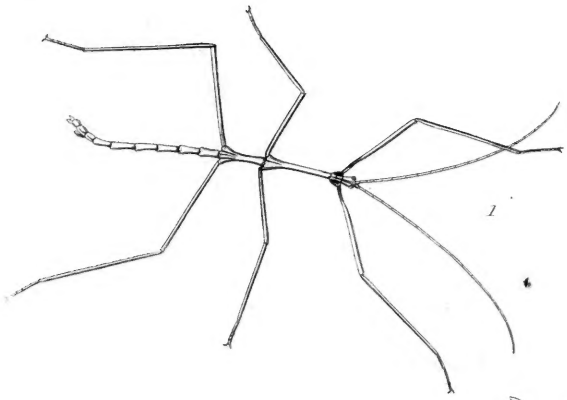

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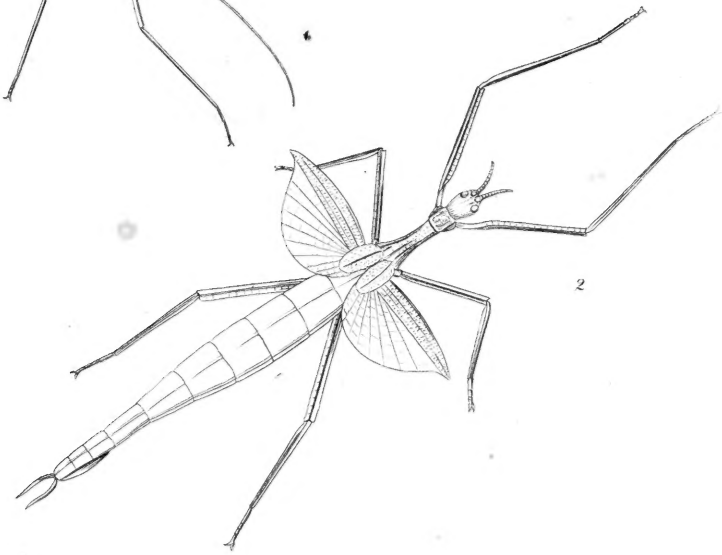

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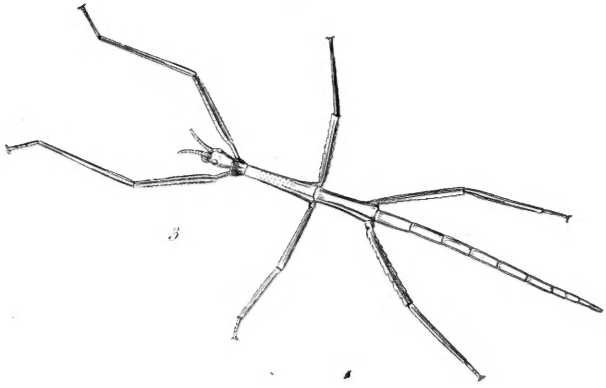

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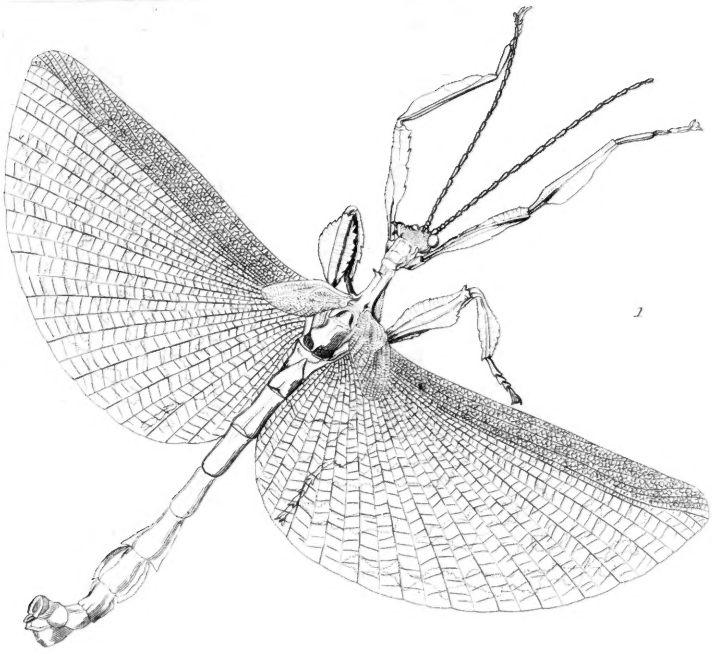

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