

ARCANA ENTOMOLOGICA;

OR

Illustrations

OF

NEW, RARE, AND INTERESTING

INSECTS.

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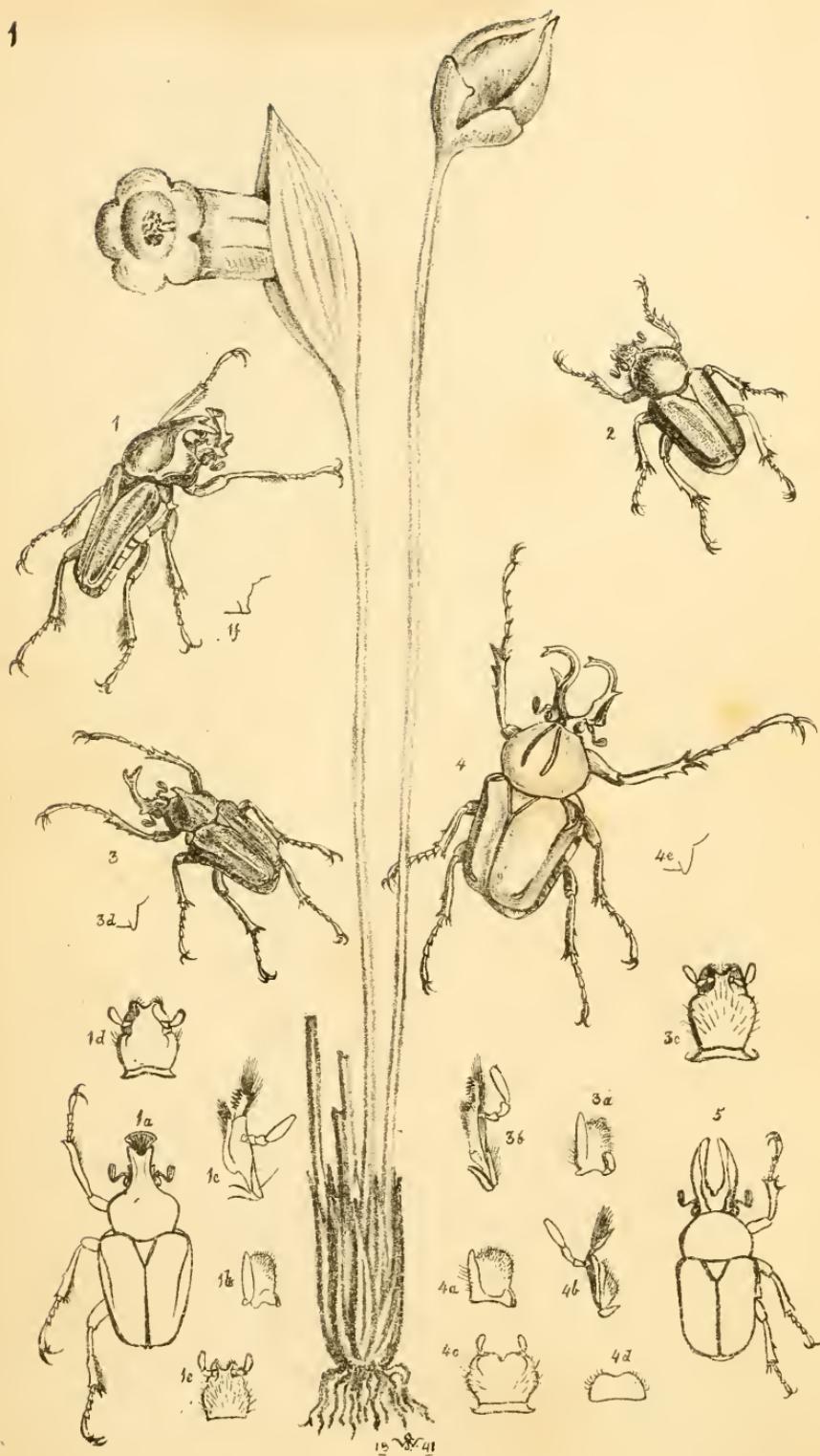
IN TWO VOLUMES.

VOL. I.

"———These waved their limber fans
For wings and smallest lineaments exact,
In all the liveries decked of summer's pride,
With spots of gold and purple, azure and green." —MILTON.

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ARCANA ENTOMOLOGICA.

PLATE I.

DESCRIPTIONS OF SOME ASIATIC CORNUTED SPECIES OF CETONIIDÆ.

No group of insects has attracted so much observation as the large species of Cetoniidæ, in which the head of males is armed with horns, and which compose the genus *Goliathus** of Lamarck, their extreme variety and singular formation having rendered them objects of attention. In its original condition, as established by Lamarck, this genus was characterised chiefly by the circumstance that the head was armed with horns. A stricter analysis of the family to which the genus belongs, however, appears to prove that many of the species which had been thus associated together belong to distinct groups, whilst the species which still constitute the group have been distributed into various sub-genera. We accordingly find that Gory and Perchéron, in their "Monographie des Cétoines," have separated *Goliathus rhinophyllus* of Weidemann (placing it in the genus *Macronata*) ; they have also adopted the genus *Ynea* for the Brazilian species, as proposed in the *Encyclopédie Méthodique*. All the other species peculiar to the Old World (including also *G. Hoepfneri*, Desj., an American insect) remain together under the generic name of *Goliathus*. Mr. Hope, however, in the first part of his Coleopterist's Manual, relying chiefly on the form of the prothorax and toothing of the legs, has separated *G. Polypheus* under the name of *Mecynorrhina* †, *G. micans* under that of *Dicro-*

* Dr. Thaddeus W. Harris, one of the most acute American Entomologists, in some recent "Remarks upon *Scarabaeus Goliatus* and other African Beetles allied to it," published in the 1st Volume of the Journal of the Essex county (U. S.) Natural History Society, proposes the name of *Hegemon* in lieu of *Goliathus* for this genus, in order to restore to the typical species its true specific name of *Goliatus*.

† The second species of this genus, stated by Mr. Hope to be in the possession of Mr. Joseph Hooker, is the male of *G. torquatus*, of which species Mr. Hope has recently received a specimen from Mr. Strahan, who also possesses a fine male, which has been described and figured by Mr. Waterhouse, in the Magazine of Natural History.

norrhina, G. Heros, &c. under that of Rhomborhina, and G. Hoepfneri as an unnamed new genus. The same author, in a previous work, had proposed the genus Dieranocephalus for the G. Wallichii, whilst Mr. W. W. Saunders described another remarkable Indian form under the name of Jumnos Ruckeri, in the Transactions of the Entomological Society of London, and M. Dupont two other Indian species under the generic name of Narycius.

Still more recently, Mr. W. S. Mac Leay, in his memoir on the Cetoniidæ, published in Dr. A. Smith's work on African Zoology, has given the G. Rhynophyllus as a new sub-genus (Philistina) of the genus Gymnetinus (Gymnetis). Narycius olivaceus, Dup.; G. Hardwickii, Gory; G. opalinus, Gory (*Trigonophorus* op., Hope [olim]), and Jumnos Ruckeri are given as separate sections of *Coryphe*; whilst G. torquatus, G. Polyphebus, G. micans, G. Smithii, G. 4-maculatus, G. Hoepfneri, G. Drurii, G. Inca, G. Wallichii, and Narycius opalus of Dupont, are given as the respective types of so many distinct sections of *Goliathus*, to one of which, typified by G. Smithii, Mr. A. White has applied the name of *Eudacilla*, adding a new species named E. Morgani. Two species of *Goliathus*, from Madagascar, are also described by Messrs. Gory and Perchéron in the 15th number of Silbermann's *Revue Entomologique*, and a fine new species from the Neilgherries (forming a distinct section), by M. Guérin Meneville, in the *Revue Zoologique*, 1839, p. 230.

Such is a sketch of the chief modifications which have been made by recent authors in the genus *Goliathus*, and which I have introduced into this place, not only in illustration of the insects figured in the accompanying plate, but also because it will be further requisite on a future occasion to refer to it.

The *Goliathus rhinophyllus* of Wiedemann (*Zool. Mag.* vol. 2, p. 82) *, is an insect of great rarity, found in the interior of Java, which Latreille first asserted to possess "tous les caractères essentiels des Cétoines," except that the prothorax is more rounded and narrowed behind. Messrs. Gory and Perchéron, therefore, detached it, as already mentioned, from *Goliathus*, and gave it as a *Macronata* (*Monogr. d. Cétoines*, pl. 62, fig. 5.). Their figure of this insect is, however, so slightly recognizable that I have not hesitated in refiguring it (pl. I, fig. 3), adding, also, figures of the essential parts of the mouth, with the view to enable us to judge of the true relations of the species. Mr. Mac Leay, who divides the great family Cetoniidæ into five genera, places this insect in his

* "Cupreus, clypeo cornu erecto, apice dilatato emarginato, thorace cornu declinato."



fourth genus *Gymnetinus* [*Gymnetis*], which he distinguishes from his genus *Cetoninus*, merely by having the middle of the thorax produced behind into a lobe that conceals the scutellum in a greater or less degree. This, however, appears to me to be far too trivial a character to separate species which agree in other important respects, especially as we find that the form of the hind margin of the thorax is liable to several variations even in *Goliathus*, sub-generically restricted as it is by Mr. Mac Leay. The characters which Mr. Mac Leay gives of the sub-genus which he forms for this insect, namely, "Maxillæ armed with corneous teeth, scutellum distinct, male clypeus porrect and bifid at the apex, female clypeus quadrate, entire," are in effect as applicable to *Goliathus* as they are to *Philistina*, the sub-generic name given by Mr. Mac Leay to this species, but which must be changed, in favour of that of *Mycteristes* of Laporte—*Hist. Nat. Art.* vol. 2. p. 162.

It is further requisite to observe that my dissections have been made with the greatest care, inasmuch as they materially differ from Mr. Mac Leay's description. This gentleman observes, that this group differs from *Goliathus*, which he places in his genus *Cetoninus*, "in the long corneous part of the mandibles, in the maxillæ being armed with corneous teeth, in the mentum being very slightly emarginate" (p. 25), in the thorax being cornuted (p. 31), and other particulars. In the specimen of *G. rhinophyllus* which I dissected however, I found the lanceolate part of the mandibles (fig. 3 a) not more than one-fourth longer, instead of being "twice as long as the square membranaceous part." The maxillæ (fig. 3 b) are rather long and slender, instead of being short and prismatic, the apical lobe being armed with at least five teeth. Moreover this character of the toothing of the maxillæ, which is so rare amongst the Cetoniidæ, exists in a remarkable degree in the typical *Goliathi*, as I discovered in making the dissections for Mr. Hope's Coleopterist's Manual, but not in *Macronata*, nor *Gymnetis*. Mr. Mac Leay further describes the mentum as "quadrate, truncated in front, and very little emarginate," a description which ill accords with my figure 3 c. The mesosternum (fig. 3 d), as Mr. Mac Leay says, is not produced, that is porrected anteriorly, but it is produced downwards, extending lower than the front of the metasternum.

The specimen figured in the plate enriches the collection of the Rev. F. W. Hope, and is a male. The female differs in having the front of the head square and unarmed; the front of the thorax is

also unarmed, and the anterior tarsi are much shorter than in the male *; the anterior tibiae are externally tridentate, as in the opposite sex.

As *M. rhinophyllus* is the only species hitherto described belonging to the group *Mycteristes*, I consider myself very fortunate in being enabled, by the kindness of H. Cuming, Esq., to commence the present work with a description and figures of both sexes of a new species brought by him from the Philippine Islands. A pair only of this beautiful species were taken, and they are destined for the cabinet of the British Museum. From *rhinophyllus*, however, they differ in several respects. The body in the male (fig. 1 and 1 a) is shorter, broader at the base of the elytra, which are more flattened and triangular behind, and destitute of the scales which ornament *rhinophyllus*; the thorax is exceedingly brilliant and polished, and the horn at its fore part is much deflexed and strongly notched at the tip, with a tubercle within; the horn of the clypeus is also furnished with a tubercle in front. The female (fig. 2) is smaller, and has the head and thorax unarmed, the elytra flatter, and not so triangular. The mesosternum (fig. 1 f) is slightly protracted in front, and does not extend lower than the front of the metasternum. The parts of the mouth (fig. 1 b, mandible of the female, 1 c, maxilla, 1 d, instrumenta labialia of the male, 1 e, ditto of the female) scarcely differ from those of *rhinophyllus*; the horny, lanceolate part of the mandibles is, however, shorter; there appears to me no difference between the palpi of the two sexes. The legs of the male are larger than those of the female, but the anterior pair are not so long as in *rhinophyllus*, and the fore tarsi are not so long as the tibiae. All the tibiae in the male are clothed for about half their apical portion on the inside with fine hairs. They are all unarmed with teeth; a very slight angular prominence on the outside of the four posterior tibiae obscurely indicates the place of the ordinary teeth. The unguis are particularly large, and between them at the base is a very small plantula, with two very short pseudonychia. The anterior tibiae of the female are armed with three teeth, and the four posterior with one on the middle, and two at the tip, with two calcaria.

As it has been thought convenient to name the divisions of *Goliathus* proper, which differ in the toothing of the fore legs, the present insect may be regarded as a division of *Mycteristes*, and I am indebted to my friend G. R. Waterhouse, Esq., who first

* In both figures 3 and 4 the fore tarsi are represented scarcely long enough.

directed my attention to this interesting novelty, for the following description and name :—

MYCTERISTES (PHAEDIMUS) CUMINGII.

M. viridis, nitore resplendens, elytris pedibus et corpore subtus flavescente lavatis, corpore subtus paullo pubescente; capite cornu erectum exhibente (hoc quoad caput longitudinem æquante) ad apicem latum et paullo emarginatum, postice concavum, antice tuberculo uno obsitum; thorace convexo postice augustinore quam ad medianam, marginibus lateralibus pone medianam fere rectis, antice constricto, margine posteriore in medio paullo producto, antice porrecto in cornu validum ad apicem bifidum super caput impendente; scutello mediocri triangulari, elytris longioribus quam latis, postice attenuatis, disco plano, apice subtruncato; pedibus validis, tibiis scopula pilorum subtus instructis et externe haud denticulatis. tarsis quam tibiæ paullo brevioribus, unguibus permagnis. ♂ Long. corp. lin 12 $\frac{1}{2}$. Differt fœmina corpore minore capite thoraceque hand cornutis, pedibus mediocribus, tibiis anticus externe tridentatis, reliquis denticulo externo parvo infra medium instructis, unguibus mediocribus. Elytra in fœmina quasi flavescentia aureo-viridi lavata apparent, sutura et linea longitudinali prope marginem intense viridibus.

In the two species above described, the middle of the front of the head is produced into a single upright horn; but in the two other species figured in plate 1, each side of the clypeus, or front of the head, is produced into a horn, giving the insects a greater resemblance to certain cornuted quadrupeds.

Dicranoccephalus Wallichii (fig. 4) is an exceedingly rare insect, first brought to Europe from Nepaul by the late Major-General Hardwicke, and shortly characterised by the Rev. F. W. Hope in Gray's Zoological Miscellany (1831, p. 24). The male is well figured in Gory and Perchéron's Monographie des Cétoines, tab. 26, fig. 1, under the name of *Goliathus Wellech*. The specimen, however, which they figure, has the horns of the head of small size; whilst in those of the fine specimen represented in my plate (preserved in the Cabinet of the British Museum), they are very greatly elongated and recurved *. The parts of the mouth are represented in figures 4 a (one of the mandibles), 4 b (one of the maxillæ), 4 c (instrumenta labialia), and 4 d (labrum). The mesosternum (fig. 4 e) is prominent but deflexed, extending lower than the front part of the metasternum.

The female has the fore tibiae spined, as in the male; and the head, instead of being cornuted, has each of the front angles produced into a tooth.

The outline, fig. 5, represents the *Narycius opalus* of Dupont, a species from Madras, of which I believe no specimen exists in this country; figured in Guérin's Magazin de Zoologie, Insectes, pl. 128:

* This specimen affords another instance of the great development of the horns in certain individuals of cornuted species, which are almost invariably (as in this instance) of larger size than the ordinary individuals.

it is of a golden green colour, the thorax being coppery green. Mr. MacLeay forms it and *Dicranoccephalus Wallichii* into subsections, but I have no doubt that when its female is known, and the structure of the mouth investigated, each will be found to form a section of equal rank with the gigantic and Smithian Goliaths; the metallic colour, size of the fore feet, form of the horns of the head, bidentate anterior tibiae, and especially the very prominent *porrected* mesosternum of *N. opalus*, being its distinguishing external peculiarities. In this case, it will be proper to restore to this insect the name of *Narycius*, which Mr. MacLeay has applied to a section of *Coryphe*, containing, as he supposes, Dupont's second species *N. olivaceus*.

With the view of facilitating the consideration of the preceding remarks, as well as other future ones, upon the relations of the Goliath-beetles, a sketch of the distribution of the Cetoniidæ, given by Mr. Mac Leay in the work above referred to, will be a useful supplement to the present memoir. It will be scarcely needful to add that the quinarian distribution and parallelism, or analogy of groups, form the principal peculiarities of Mr. Mac Leay's arrangement. The family Cetoniidæ is therefore divided into five genera, each of which contains five sub-genera, which analogically represent each other, thus:—

GEN. I. TRICHINUS.	II. CETONINUS.	III. GYMINETINUS.	IV. MACROMINUS.	V. CRYPTODINUS.
SUB-GEN. 1. <i>Osmoderma</i>	<i>Schizorhina</i> . .	<i>Lomaptera</i> . . .	<i>Oplostomus</i> . .	<i>Genuchus</i> .
2. <i>Valgus</i> . .	<i>Coryphe</i> . . .	<i>Aegestrata</i> . . .	<i>Anoplocheilus</i> .	<i>Cyclidius</i> .
3. <i>Trichius</i> . .	<i>Goliathus</i> . . .	<i>Philistina</i> . . .	<i>Diplognatha</i> . .	<i>Cremastocheilus</i> .
4. <i>Campulipus</i>	<i>Ischnostoma</i> . .	<i>Macronata</i> . . .	<i>Gnathocera</i> . .	<i>Cryptodus</i>
5. <i>Platygenia</i>	<i>Cetonia</i> . . .	<i>Gymnetis</i> . . .	<i>Macroma</i> . . .	<i>Cymophorus</i> .

(The Genera printed in italics are those by which the passage is made from one Genus to another.)

Goliathus, the third sub-genus of the genus Cetoninus, is arranged in the following manner:—

SECT. I. Smithii, M'L.

SUB-SECT. 1.	G. torquatus.
—	2. (<i>Mecynorrhina</i> , Hope)	G. Polypheus.
—	3. (<i>Dicronorrhina</i> , Hope)	G. micans and G. splendens.*
—	4. (<i>Eudacilla</i> , White)	G. Smithii, Grallii, Daphnis, [and Morganii.]
—	5.	G. 4-maculatus.

SECT. 2. Höpfneri, M'L.

. G. Höpfneri.

SECT. 3. Gigantei, M'L.

. G. Druri, giganteus, regius, cacificus, and princeps.

SECT. 4. Inca, Lep. and Serv.

. I. Ynca, and four other South American species.

SECT. 5. Dicranoccephali [*Dicranoccephalus*, Hope]

SUB-SECT. 1. Unknown.

— 2. [*Dicranoccephalus* proper] . . . G. Wallichii.

— 3. Unknown.

— 4. Unknown.

— 5. [*Narycius*, typ. *verus*] . . . G. opalus, Dup.

The singular leafless plant figured is the *Æginetia Indica*.

* Mr. Strahan's specimen from Sierra Leone, mentioned by Mr. Mac Leay as another species of this section, is certainly nothing else than G. micans.



PLATE II.

DESCRIPTIONS OF VARIOUS SPECIES OF THE HETEROPTEROUS GENUS
PHYLLOMORPHA.

WHEN Sparrman first published his account* of the *Cimex paradoxus*, a lively degree of interest was excited by his description of the singular creature, which at once found its way into all the popular treatises upon natural history. His paper (Swedish Transactions, 1777) was illustrated by three figures of the insect of the natural size (one seen from above, copied in my plate 2, fig. 1*, and the other two profiles). He likewise mentions, that the insect was captured at a considerable distance ("250 timars reise") from Cape Town. About ten years afterwards Stoll figured an insect from the Cape of Good Hope, which, judging from its natural size, and the nearly equal size of the fourth and fifth lobes of the abdomen, is evidently identical with Sparrman's. As other species were discovered, they were, however, referred at once to the *Cimex paradoxus*. Thus Wolff, Dumeril, and Duncan (Introd. to Ent. in Nat. Library pl. 20, fig. 1), have figured a European species under that name; whilst, still more recently, a smaller species, brought by M. Verreaux from the Cape of Good Hope, has been described under the same name. As I possess a specimen of the latter insect, from M. Verreaux, and as there is a specimen of Sparrman's insect in the British Museum, and which agrees in size &c. with Sparrman's figures, I am happy in being enabled to exhibit the differences between the two South African species.

PHYLLOMORPHA, *Lap.* (*Syromastes p. Latr.*)

SECTION I.—Prothorax with its posterior margin not produced into two long lobes, nor prolonged over the base of the Hemelytra.

SPECIES I.—*Ph. paradoxa*, Plate 2, fig. 1 and 1*. Lutea, fuso et sanguineo varia, prothoracis lacinii antice porrectis abdominis lacinii 4 et 5 fere æqualibus, his ad apicem vix emarginatis. Long. corp. lin. 5 $\frac{3}{4}$.

* Sparrman relates that when at the Cape, he observed this insect at noontide as he sought for shelter among the branches of a shrub from the intolerable heat of the sun. Though the air was extremely still and calm, so as hardly to have shaken an aspen leaf, yet he thought he saw a little withered, pale, crumpled leaf, eaten as it were by caterpillars, fluttering from the tree. This appeared to him so very extraordinary, that he thought it worth his while suddenly to quit his verdant bower in order to contemplate it; and he could scarcely believe his eyes when he saw a live insect, in shape and colour resembling the fragment of a withered leaf, with the edges turned up, and eaten away as it were by caterpillars, and at the same time beset all over with prickles creeping on the ground.

Syn.—*Cimex paradoxus*, *Sparrman*, (*Stoll.* Punaises, fig. 101 ?) nec *Guérin*, *Dumeril*, *Duncan*.

Habitat in Africa australi. Mus. Brit. (D. Smith).

Obs.—Dr. Smith's specimen was taken at a considerable distance from Cape Town, inland. Fig. 1* is copied from Sparrman's original figure.

SPECIES II.—*Ph. Capicola*, W., Plate 2, fig. 2, and 2*. Lutea, lacinii prothoracis et abdominalibus 4ti parisi brunneo et sanguineo variis, duabus sequentibus albidis apice obscurioribus minoribus et ad apicem acute emarginatis. Long. corp. lin. 4.

Syn.—*Ph. paradoxus*, *Guérin*, Revue Zool. 1839, p. 232; Dict. Pitt. d'Hist. Nat., pl. 673, fig. 5. (*Burmeister*, Handb. d. Ent. 2, p. 310 ?)

Habitat apud Caput Bonæ Spei. D. Verreaux. Mus. Hope. nostr.

SPECIES III.—*Ph. Latreillii*, Plate 2, fig. 3. Albida, fusco-venosa, breviter spinosa, laciniarum angulis anticis obscurioribus, lacinii maximis, abdominalibus figuram oblongo-transversam efficientibus; antennarum articulo 2do, 3tio fere dimidio breviore. Long. corp. lin. 4½.

Syn.—*Coreus* (*Syromastes*) *phyllomorphus*, *Latreille*, R. An. 2nd edit. t. 3, p. 438, pl. 19, fig. 3; *Phyllomorpha Latreillii*, *Guérin*, Dict. Pittor. d'Hist. Nat., pl. 673, fig. 6; Rev. Zool. 1839, p. 233; *Syromastes hystrix*, *Burm.*, Handb. d. Ent. 2, p. 310 (nec *hystrix*, *Latreille*).

Habitat apud Senegalliam. Mus. nostr.

I am indebted to Messrs. Audouin and Guérin Meneville (by the latter of whom they were also supplied to Latreille) for my specimens of this species, which are, I believe, the only ones in this country. The latter author describes the species (*loc. cit.*) as being 11 millemètres, or rather more than $5\frac{1}{2}$ lines long; which is considerably larger than my specimens, although agreeing in all other respects.

SPECIES IV.—*Ph. Persica*, W., Plate 2, fig. 4. Pallide albida, longe spinosissima, lacinia conicis, apice obtusis autennarum articulo 3tio 2do fere duplo longiori. Long. corp. lin. 5. Habitat in Persia, prope oppidum "Teheran" dictum.

Obs.—I am indebted to M. V. Andouin for my specimen of this new species (which is I believe the only one in this country). The species is also undescribed by Burmeister, Guérin, or any recent hemipterologists. It was collected near Teheran most probably by Olivier.

SECTION II.—Prothorax with its posterior margin produced into two long lobes extending over the base of the Hemelytra.

SPECIES V.—*Ph. laciniata*, Vill., Brullé, *Burm.*, *Guér.*; *Cor. hystrix*, *Latr.*, nec *Burm.*; *Cim. paradoxus*, Wolff, *Dumeril*, *Duncan*, H. Schaff.

SPECIES VI.—*Ph. lacerata*, H. Schaff. Nom. Ent. p. 41. (Piedmont.)

SPECIES VII.—*Ph. Algirica*, *Guér.* Dict. Pitt. d'H. N.; Rev. Zool., 1839, p. 232.

SPECIES VIII.—Unnamed. (Erichson, Wiegmann. Arch. 1840, vol. 2, p. 317. Balkan mountains.) The plant figured from the Cape of Good Hope is the *Lobelia gracilis*.

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PLATE III.

THE TRANSFORMATIONS OF PAPILIO HECTOR ILLUSTRATED.



THE genus *Papilio*, even in its most restricted modern state, comprises a very numerous assemblage of species—nearly 250 being known—differing greatly, not only in the imago, but also in the preparatory states. The larvæ of many Indian species have the body smooth, with the two segments succeeding the head slender and retractile beneath the third segment, which is dilated and ocellated ; thus resembling the caterpillars of some of the Sphingidæ, (*P. Memnon*, *Arjuna*, *Cresphontes*, *Polites*, and *Pammon*). The larvæ of others have the tail bifid (*P. Agamemnon*, *Pompilius*, as well as *P. Demoleus*, according to Fabricius). Others again have the body armed with fleshy tubercles, as in *P. Polydorus* and *Hector*, and *P. (Ornithopterus) Amphrisius* ; whilst in *P. dissimilis*, these warts are replaced by recurved spines *. The chrysalides of the tuberculated larvæ are remarkable for having the abdominal part of the body much curved, and armed with several strong dorsal prominences.

Our knowledge of the transformations of the Indian Lepidoptera is almost exclusively derived from the researches of Dr. Horsfield in Java, and Major-General Hardwicke in India. The former of these authors has representated the larva and pupa of *P. Polydorus* in his *Lepidoptera Javanica* ; and the similarity of the preparatory states of *P. Hector* with that species is mentioned by Boisduval and De Haan. The figures illustrating the latter species (contained amongst Major-General Hardwicke's Zoological drawings in the library of the Linnaean Society) have not, however, been published † ; and as it is essential in determining the relations of the species of this intricate genus that every fact should be brought under notice, I have thought it not unnecessary to publish a copy of

* Mr. Swainson has refigured as the larva of *Papilio Protesilaus*, Linn., the caterpillar of one of the Nymphalidæ from Madame Merian, who gave it as the preparatory state of that *Papilio*, adding however, that the chrysalis is suspended by the tail ; which is the case with no species of Papilionidæ, and ought to have induced Mr. Swainson to hesitate in adopting it, as he has done, as an illustration of the merits of his "*Natural System*."

† It is proper to observe, that Boisduval states that "La chenille est figurée par Esper, mais probablement si inexactement que nous n'osons pas la décrire d'après cet auteur," Hist. Nat. Lépid. i., p. 270.

the figures of the preparatory states, adding an original figure of the perfect state of this Indian butterfly.

Fig. 1, Papilio Hector, *Linnæus*, Syst. Nat. 2, p. 745 ; *Cramer*, pl. 143, fig. A ; *Clerck*, Icones, tab. 33, fig. 1, 2 ; *Sulzer*, Gesch., pl. 12, fig. 1.

The plant figured, upon which the larva feeds, is the Aristolochia India.

The chrysalis differs from that of P. Polydorus, figured by Dr. Horsfield, in having the dorsal protuberances much smaller.

M. De Haan, in his elaborate memoir on the Papilionidæ of the Dutch-Indian Settlements, just published, has given Papilio Mutius as the female of this species.

Fig. 2. Caterpillar of P. Hector. Fig. 3. Chrysalis—ventral aspect. Fig. 4. Chrysalis—dorsal aspect.

EMONGST the leaves she made a butterfly,
With excellent device and wondrous slight,
Fluttering among the olives wantonly,
That seem'd to live, so like it was in sight—
The velvet nap which on his wings doth lie,
The silken down with which his back is dight ;
His broad outstretched horns, his airy thighs,
His glorious colours, and his glistening eyes.

His head two deadly weapons fixèd bore,
Strongly out-lancèd towards either side,
Like two sharp spears, his enemies to gore :
Like as a warlike brigandine applide
To fight, lays forth her threatful pikes afore
The engines which in them sad death do hide ;
So did this fly outstretch his fearful horns,
Yet so as him their terrour more adorns.

What more felicity can fall to creature
Than to enjoy delight with liberty ;
And to be lord of all the works of Nature,
To reign in th' air from earth to highest sky ;

* * * *

To take whatever thing doth please the eye !
Who rests not pleasèd with such happiness,
Well worthy he to taste of wretchedness. (SPENSER.)

4

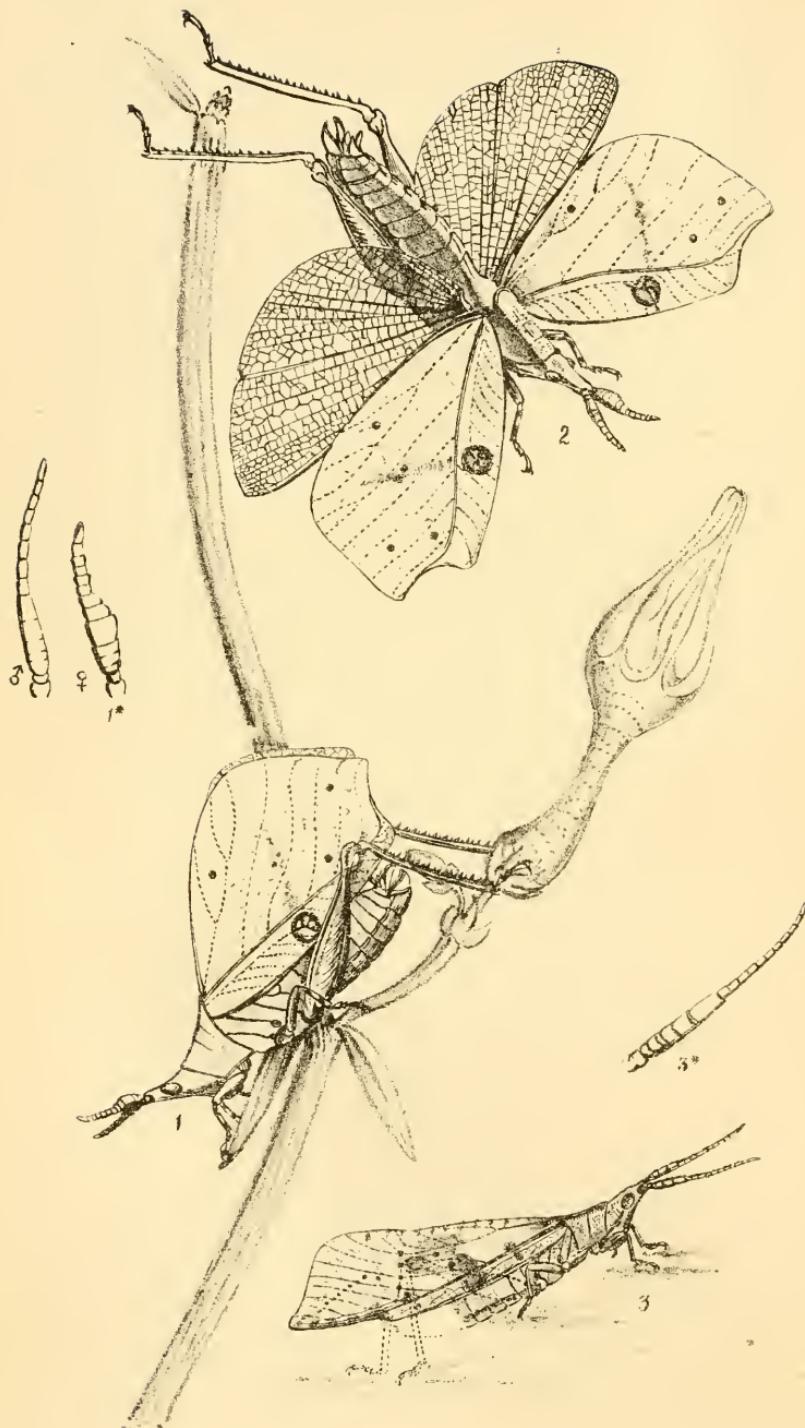


PLATE IV.

DESCRIPTION OF A NEW GENUS BELONGING TO THE FAMILY OF
THE LOCUSTS.

THE family of the locusts, *Locustidæ*, Leach; (*Acridites*, Latr., Serv.; *Acridiodes*, Burm.) is one of very great extent, and contains many species remarkable for their extraordinary powers of devastation, (it being now ascertained that other species besides the *L. migratoria* migrate in vast swarms, spreading alarm throughout their route,) as well as many others, which, from their remarkable forms and brilliant colours, do not fail to attract attention.

The distribution of the family into sub-families and genera has been but comparatively little attended to; and it is greatly to be regretted that the works of Burmeister and Serville appeared almost simultaneously, so that a considerable diversity exists between them, not only in the nomenclature of the genera and species, but also in their classification and the limits of the genera. Two of Serville's sub-families, namely, the *Truxalides** and the *Conophori*†, appear to blend together very naturally: the genus *Pækilocera*, Serv., (*Pœcilocera*, Burm.,) which is placed by Serville amongst the *Truxalides*, being considered by Burmeister as referable to the *Conophori*; indeed, the last-named author unites Serville's genera *Pækilocera*, *Petasia*, and *Phymatea*, into one genus.

The remarkable insects here figured constitute a new genus, which still more closely unites these two sub-families. We have in fact the pyramidal head, with the oblique face, of the *Truxalides*, and the flattened and dilated basal joints of the antennæ, and the forehead produced into an obtuse point between the antennæ, of the *Conophori*. The remarkable distinction which exists in the structure of the antennæ of the opposite sexes is a peculiarity which exists, as far as I recollect, in no other species of this family. Another striking peculiarity consists in the form of the wing-covers. In the typical species, these represent a broad, fresh leaf; while in the Chinese species, they are narrower, and resemble a withered

* Distinguished by having the head pyramidal in front, with the face more or less oblique and the antennæ often ensiform, with prismatic joints.

† Distinguished by having the face vertical, the antennæ but rarely ensiform, with the joints distinct; the forehead produced between the antennæ in a thick joint, with a deep groove beneath to receive the base of each of the antennæ.

leaf. No other instance of this kind of analogy occurs to my recollection amongst the Locustidæ, although it is of constant occurrence amongst the grasshoppers with long antennæ.

From the very compressed form of the body (another remarkable character) the genus may be named

SYSTELLA, W.

Corpus compressissimum. Caput ante oculos et inter antennas productum, facie valde obliqua convexa integra sc. haud carinata. Clypeus distinctus. Labrum antice in medio fissum. Palpi breves filiformes, labiales minores. Antennæ secundum sexum formæ varia; in fossula tuberculi frontalis utrinque insertæ, articulis 2bus basalibus distinctis, sequentibus 4 aut 5 arete coalitis, deplanatis margine interno crassiori, externo acuto, in ♂ multo latioribus; articulis reliquis distinctis gracilioribus (in ♂ multo longioribus), apicali attenuato. Prothorax compressus, dorso plano integro, lateribus angulatis. Prosternum tuberculo acuto armatum. Abdomen compressum alis brevius, segmento ultimo ventrali in ♂ maximo inflato. Pedes 4 antici breves, 2 postici saltatorii; tibiis serie duplice spinarum æqualium extus armatis; tarsi 3-articulati unguibus acutis, pulvillo magno. Tegmina magna foliiformia, supra dorsum horizontaliter elevata, angulo externo antico emarginata.

This genus appears to me, from the structure of its antennæ, to be most nearly allied to *Akicera* and *Porthetis*, Serville, (*Pamphagus*, Burm.,) and to *Xiphicera*. From these, however, as well as all the other genera of the family, it is separated by the peculiar characters above noticed.

SPECIES I.—*Systella Rafflesii*, W. *Luteo-viridis, tegminibus viridibus latissimis, ocello magno fusco in area costali notatis*. Long. corp. ♂ lin. 13½, ♀ 18. Expans. tegmin. lin. 34½.

Antennæ 15-articulatae in ♂, 14 in ♀; articulis 3—7 in ♂, 3—6 in ♀, coalitis dilatatis subprismaticis, in ♀ multo latioribus, 8 reliquis in ♂ fere equalibus et filiformibus, in ♀ vero articulis 7 et 8 sensim angustatis, reliquis 6 distinctis irregularibus. Vena postcostalis tegminum ramos 5 simplices punctatos emitit; vena mediana duos tantum. Apex marginis costalis in ♀ valde, in ♂ parum, emarginatus. Tibiae 4anticæ fusco-annulatae.

A single female specimen of this species is in the collection of the Zoological Society, and was presented by Sir Stamford Raffles, by whom it was most probably collected in Sumatra. I also detected a male in the collection formed by H. Cuming, Esq., in the Philippine Islands, and destined for the British Museum.

SPECIES II.—*Systella Hopei*, W. *Fusca, tegminibus fusco luteo albidoque variis, angustioribus; emarginatura apicali marginis antici vix conspicua*. Expans. tegmin. lin. 35.

Præcedenti multo tenuior, fusca, dorso prothoracis et capitis scabro, linea tenui fulva inter oculos; antennæ (♂?) 17-articulatae, articulis 11 ultimis distinctis longitudine decrescentibus, luteis. Tegmina luteo-fusca nubila magna media (albido posticè cincta) ad costam angustata maculisque quadratis minoribus marginis postici fuscis, venis punctatis punctisque nonnullis majoribus inter venas. Abdomen et pedes postici mutilati.

This species is unique in the collection of the Rev. F. W. Hope, F. R. S., &c., and is a native of China.

The plant figured is the Indian *Ceropegeia Juncea*.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

BRITISH MUSEUM.—The situation of the Curator of the entomological department in the British Museum has become vacant by the removal of Mr. Samouelle. It is to be hoped that, for the sake of science, a successor of competent ability will be appointed in his stead. When the state of the entomological collections in this national establishment is taken into consideration, and when it is stated that in the national museums of France, Prussia, Austria, Holland, &c., several persons * (some of them men of renown) are engaged in the entomological department of each, it is not too much to express a hope that the trustees of the British Museum will again endeavour to follow up the recommendations of the parliamentary committee, by “obtaining the whole time and services of the ablest men,” as they have already done in the appointment of the present chief superintendant of the entire zoological collections.

ENCYCLOPÆDIAS OF NATURAL HISTORY.—The French have long taken precedence over us, and indeed all other nations, in the publications of Dictionaries of Natural History. The entomological portion of the great “*Encyclopédie Méthodique*” is a distinct part of the work, and alone occupies ten quarto volumes ; the “*Dictionnaire des Sciences Naturelles*,” of which the portion relative to insects was written by M. Dumeril (and was subsequently republished in his “*Considérations Générales*”), occupied fifty-six octavo volumes ; the entomological articles of the “*Dictionnaire d’Histoire Naturelle*,” in twenty-four octavo volumes, and the “*Nouveau Dictionnaire d’Hist. Natur.*” in thirty-six octavo volumes, were written by Latreille, who also, in conjunction with Messrs. Audouin and Guérin, wrote the entomological articles of the “*Dictionnaire Classique d’Hist. Nat.*,” in seventeen octavo volumes. More recently, M. Guérin has edited a cheap “*Dictionnaire Pittoresque d’Hist. Nat.*” in small folio, extending through several volumes with many plates, which is not yet completed ; and a new and more im-

* At the Jardin des Plantes, Messieurs Audouin, Brullé, Blanchard, Lucas, and one or two assistants. At the Berlin Museum, Drs. Klug and Erichson, and two assistants. At Vienna, M. Köllar. At Leyden, M. De Haan.

portant “ Dictionnaire Universel d’Histoire Naturelle,” edited by M. D’Orbigny, assisted in the articulated portion by Messieurs Audouin, Blanchard, Brullé, Doyère, Desjardins, Duponchel, Lucas, and Milne Edwards.

The natural history portion of the Cabinet Cyclopædia was chiefly written by Mr. Swainson, with the view of developing his peculiar views of classification, and in which there is no attempt at alphabetical arrangement; the British Cyclopædia of Natural History, in three large octavo volumes, is therefore the only dictionary we yet possess upon general natural history. This work, of which the entomological articles, commencing with the word *Aphodiidae*, were written by me, was intended to take a generalised view of the operations of nature rather than to afford minute and technical details. The families, therefore, and chief genera were alone treated upon, such of the latter as afforded no materials beyond structural details being but slightly mentioned, and the sub-genera only named in the family articles. The nomenclaturist and collector have need, however, of more precise details relative to genera, sub-genera, and species; and from the great additions recently made to this branch of the science in numerous works, the labour of research is so much increased as to deter many from describing new objects, under the fear that they may have already been described. The announcement, therefore, of an English Encyclopedia of Natural History, in which every genus and sub-genus, and even synonymous names, are intended to be comprised, will be greeted by English zoologists—although from the great extent to which such a work must run (and it will be worse than useless unless it be carried throughout to this extent), its success as a commercial speculation appears highly doubtful. The public mind in fact has not yet been sufficiently awakened to the advantages and pleasures to be derived from the cultivation of the science of natural history in general; nor can such a result be reasonably expected until natural history be made a branch of general education, as it is in several Continental States.

ON THE STUDY OF NATURAL HISTORY AS A BRANCH OF GENERAL EDUCATION
IN SCHOOLS AND COLLEGES. By ROBERT PATTERSON, Vice-President of the
Natural History Society of Belfast.—Belfast, 1840, 8vo, 28 pages.

No stronger proof of the propriety of the views detailed by Mr. Patterson in this pamphlet can be given than in the circumstances stated in the preceding article. When we find, that “ in the great

majority of the Continental schools," (as stated by the American Professor, Dr. Baché, who inspected 278 schools in England, Scotland, Ireland, France, Belgium, Holland, Switzerland, and the principal states of Germany,) "Natural History forms a regular part of the course of instruction, and usually occupies from two to four hours in the week," we can at once perceive the reason why our countrymen are so slow in supporting works upon Natural History.

INSECTS OF THE PHILIPPINE ISLANDS.—The geographical situation of these islands necessarily gives to their zoological productions a peculiarly interesting character, whilst the number of travellers or naturalists who have visited them has been so small that the insects which inhabit them are for the most part unknown. A few indeed were collected by Dr. Meyen, in his voyage round the world, and have been described by Drs. Erichson and Burmeister; (*Nova Acta*, vol. 16, suppl.) ; others also were collected by Eschscholtz. A noble collection has, however, recently been formed in those islands, by H. Cuming, Esq., during a visit of several years' duration, made expressly with the view of forming collections of Natural History. Since his return home the collection has been arranged; the most complete series being destined for the British Museum. Another set has been liberally presented to the Entomological Society of London by Mr. Cuming, who proposes to dispose of the duplicates.

ENTOMOLOGICAL SOCIETY OF LONDON.—The Journal of the Proceedings of this society, which has hitherto been published with the Transactions (whereby great delay has occurred in the publication of papers containing descriptions of genera and species), has, since the commencement of the present year, been published from time to time in the "Annals of Natural History," and contains, in addition to the accounts of the ordinary business of the meetings, abstracts of the memoirs and short descriptions of the new genera and species described in them.

SILK, A MODIFICATION OF CAOUTCHOUC.—An aerimonious juice is found in almost all euphorbiaceous plants; yet it is strange, as remarked by Dr. Lindley, that from such plants should be obtained Caoutchouc, a most innocuous substance. But what appears still more remarkable is the fact that silk is not improbably a modification of the Caoutchouc of these plants elaborated by the silk-

worms, which, it has been maintained, feed exclusively on milky-juiced and caoutchouc-yielding plants. Such at least seems to be the legitimate inference from the extensive generalization of Dr. Royle, whose statement is as follows :—" In a paper read to the British Association at Bristol on the plants which yielded caoutchouc, I observed that they all belonged to the milky-juice families of Chicoraceæ, Lobeliaceæ, Apocynaceæ, Asclepiadaceæ, Euphorbiaceæ, and Artocarpeæ, a tribe of Urticaceæ. In the first place, it may be observed that many of the plants of these families are remarkable for the strength and tenacity of the fibre they yield for rope-making ; secondly, that bird-lime is prepared from plants belonging to families which yield caoutchouc, as from the Apocynaceous Voacanga in Madagascar ; and in India, from different species of Ficus and Artocarpus. But the most interesting fact which I obtained from the investigation was one most unexpected and the least connected with the subject. Having been previously employed in considering the proper means for extending the cultivation of silk in India, it struck me as singular that so many of the plants which silk-worms prefer next to the mulberry leaf should be found in those families which yield caoutchouc. Thus, in England, the lettuce and dandelion leaves belonging to Cichoraceæ, and, in India, *Ficus religiosa*, belonging to Artocarpeæ, have been ascertained to be the best substitutes for the mulberry leaves ; while the Arrindi silk-worm of India, *Phalæna Cynthia*, feeds upon those of the castor-oil plants, *Ricinus communis*, belonging to Euphorbiaceæ. Considering that a circumstance of this nature was not likely to be accidental, I was induced to think that it depended upon the presence of some principle common to all these vegetables, and therefore that caoutchouc (perhaps in a modified state) might really be contained in the juice of the mulberry, though this is described as not being milky. I, therefore, requested Mr. Sevier, who has made so many discoveries in the properties of caoutchouc, to ascertain whether my conjecture was well founded. In a few days he informed me that the mulberry-tree sap was of a milky nature, and did actually contain caoutchouc, especially on dry and bright sunny days."

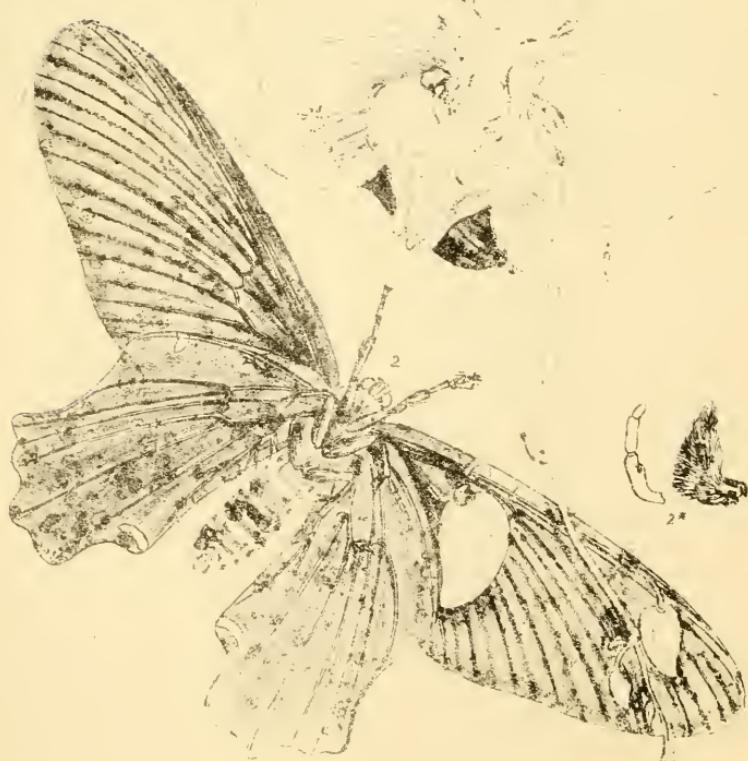
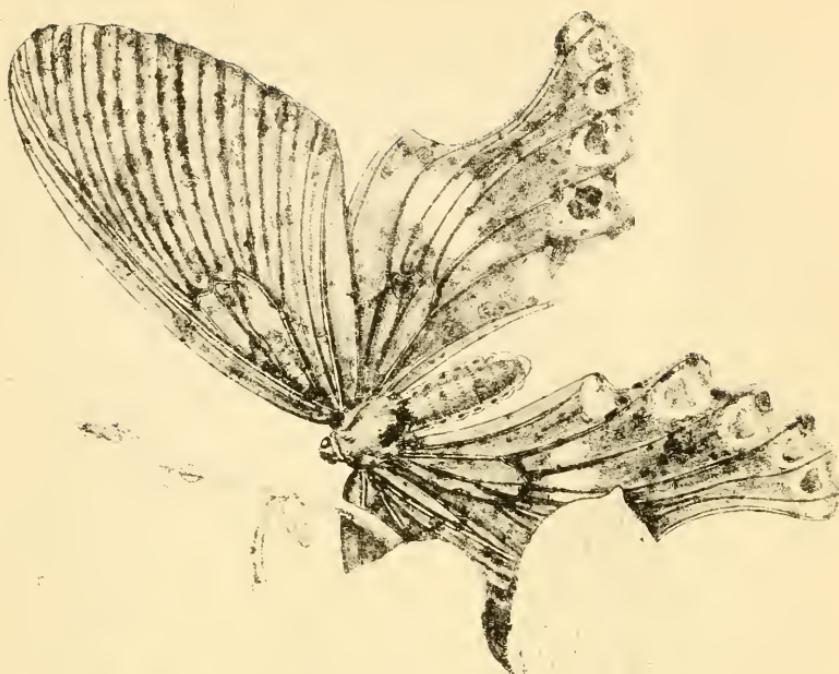


PLATE V.

DESCRIPTIONS OF TWO PAPILIONIFORM MOTHS FROM ASSAM.

INTENDING to illustrate in this work such species of the beautiful genus *Papilio* (as restricted by modern authors), as have not hitherto been described and figured (of which a considerable number exist in English cabinets), I selected from the collection of R. H. Solly, Esq., formed in Assam by Mr. Griffith, the two insects in the accompanying plate, which, although peculiar in the form of the hind wings, I considered to be new species of that genus. The size of the insects, their general form, and, above all, the distribution of their colours, gave to them so great a similarity to various species of *Papilio*, that it was not until I examined the arrangement of the veins of the wings, and the structure of the feet, that I perceived that the two insects were, in fact, not only not *Papiliones*, but even not Diurnal Lepidoptera. The antennæ, unfortunately, are wanting in both the specimens, but the characters noticed above at once prove them to be moths, which have assumed, or to speak more correctly, which exhibit, the general appearance of species of the restricted genus *Papilio*. These circumstances, united with the impossibility of arranging these insects in any of the already characterised genera with which I am acquainted, render necessary the establishment of a new genus, which may be named, in allusion to the extraordinary incision at the outer angle of the hind wings,

EPICOPEIA W.

Corpus debile, magnitudine minori. Caput parvum, oculi laterales. Palpi minuti, supra hand conspicui, 3-articulati, articulo basali valde squamoso (fig. 2 • palpus tectus et nudus) 3tio ad apicem subnudo. Mandibulæ minutæ distantes; maxillæ nullæ. Alæ magnæ, valde elongatae, antice integræ, postice incisuris semicircularibus inter venas, incisura externa et anali (illa præsertim) valde elongatis. Hamus et tendines omnino carent. Area discoidalis alarum anticarum vix pone tertiam partem alæ extendit. Vena mediastina simplex; vena postcostalis ante apicem areæ discoidalis emittit ramum simplicem fere ad apicem costæ extensum; ex apice supero et antico hujus areæ ramum alterum etiam emittit, hic ramus ramulos duos superos ad apicem alæ extensos emittit. Vena ordinaria transversa (aream discoidalem claudens) valde angulata, venasque duas simples emittit. Vena mediana brevis triramosa. Cellula discoidalis alarum posticarum brevis, vena valde angulata (ramum unicum emittente), postice clausa; vena mediastina simplex, vena postcostalis bifida ramis valde elongatis, externo intra marginem incisionis currente; vena mediana 3-ramosa.

Pedes crassiusculi, longitudine mediocri. Tibiæ antice intus spina lata mobili instructæ, apice inermes; tibiæ intermediae apice bicalcaratæ, postice vero, ante apicem, ut et in apice ipso, bicalcaratæ.

The natural relations of this singular genus are by no means easily to be determined. As already stated, the peculiar arrangement of the veins of the wings, and the number of the spurs of the tibiæ, remove it from the Diurnal Lepidoptera, whilst the obsolete structure of the spiral tongue, and the want of a bridle to the wings beneath, are characters which it possesses in common with several moths.

Mr. Edward Doubleday (who has long carefully studied exotic Lepidoptera, and whose opinion I requested as to the group of moths to which it was allied), after noticing its perplexing character, observes "that it seems to partake of the characters of *Papilio*, *Urania*, and that group of the Bombyces to which *B. Luna** belongs. This last named species has no bridle to the wings, no maxillæ, and there is some resemblance in the neuration of the wings. But I must confess that I see no real connexion between the two insects. My impression is, that it must be nearer the *Uraniae*, some of which, in form, nearly resemble it, but all these have maxillæ and the discoidal cell of the posterior wings open, and two pairs of spines, I think, to the posterior tibiæ. The one middle spine to the anterior tibiæ is found in some *Uraniae*."

The relationship suggested with *B. Luna* and its allies appears to me to be only analogical; that with the *Uraniae* is certainly stronger; but it appears to me that a much nearer approach is made to Callimorpha and some of the aberrant Arctiidæ, such as *Hypercompa Dominula*, in the general weakness of structure and splendour of colours. There is also an extensive group of weak-bodied moths, chiefly natives of India, in which we find the elongated fore wings (some having them similarly marked with black lines between the veins), and a nearly similar arrangement of the veins of the wings, such as *Gymnautocera papilionaria*, Guér., and some splendid species, figured by Mr. Hope in the Linnæan Transactions, from Assam; and even in *Ph. Rhodope* of Cramer (*pectinicornis* Fab.), we find an approach made to the peculiar form of the hind wings. The arrangement of the veins of the wings of *Agarista* also closely resembles that of *Epicopeia*. It is to be feared, however, that, from our general ignorance of the exotic forms of Nocturnal Lepidoptera, it will be long before we can speak with precision on the relations of such insects as the present.

The following are the specific descriptions of the two insects represented in the accompanying plate.

* *Tropaea*, Hübner. *Actæas*, Leach, Zool. Misc. Both these names were, I believe, published in the same year, 1816.

SPECIES I. *Epicopeia Polydora* (Plate 5, fig. 1). E. alis anticis luteo-griseis nigro-lineatis, posticis nigris, fascia media alba maculisque cuneatis submarginalibus rufis in medio nigris. Expans. alarum unc. 5.

Habitat in agris Assamensis. In Mus. D. Solly.

Alæ anticae elongato-triangulares, supra et subtus luteo-griseæ, venis lineisque tenuibus inter venas nigras. Posticæ basi concolores, dimidioque apicali nigrae, fascia media irregulari e maculis sex albis, quarum mediae majores, macula transversa ad angulum analem, alteris 4 triangularibus (medio nigris), aliâque ad angulum apicalem ovali, sanguineis supra nigro-irroratis, subtus vero pallidioribus; venis etiam fasciam albam dividentibus, subtus sanguineo-irroratis. Corpus nigrum, capite, collo tenui, coxis, lateribus apiceque segmentorum abdominalium subtus sanguineis.

SPECIES II. *Epicopeia Philenora* (Plate 5, fig. 2). E. alis anticis griseis nigro-lineatis, subtus ad costam macula sanguinea, posticis nigris chalybeo nitidis, subtus macula parva versus angulum externum lineaque tenui brevi ad angulum analem sanguineis. Expans. alar. unc. 4½.

Habitat cum præcedenti. In Mus. D. Solly.

Alæ anticae elongatae, multo angustiores, griseo-nigricantes basi nigrae, venis lineisque inter venas nigras; subtus ad apicem purpureo-nitidae, macula costali fere ad apicem areæ discoidalis sanguinea. Alæ posticæ supra nigrae chalybeo nitidæ, subtus ejusdem coloris. Macula parva costali prope angulum externum lineaque tenui curvata ad angulum analem sanguineis. Corpus nigrum, capite, collo tenui, ano coxisque sanguineis, segmenta abdominalia ad latera et margines posticos subtus carneis. An mas præcedentis?

I have intended by the specific names applied to these two insects to express the relation of analogy which they respectively exhibit to *Papilio Polydorus*, and *Philenor*.

As the moths represented in the plate exhibit an instance in which one group of insects assumes the appearance of distinct tribes, the beautiful moth plant of India and the Indian islands (*Phalaenopsis amabilis*, *Blume*,—*Epidendrum amabile*, *Linn*), is also represented: affording an instance of the analogy between plants and insects of which the *Orchidaceæ* afford such numberless examples.

I take this opportunity of bringing together the descriptions of the several genera of Indian moths alluded to in the preceding observations as most nearly allied to *Epicopeia*, and which are scattered in various works.

Eterusia, Hope, Linn. Trans., vol. 18 (1840), p. 445.—Alæ angustæ integræ, nervo antico apicali trifurcato; nervo medio etiam trifurcato, furcis fere rectis, alæ posticæ breviores, integræ, cellulæ elongatæ apiceque nervos fere rectos emittente. Antennæ ♀ graciles vix uniserratae. Lingua spiralis elongata. Palpi breves; abdomen terebra parva exserta instructum.

Eterusia tricolor, Hope, op. cit. tab. 31, fig. 4.—Alis anticis viridibus, variisque maculis albis notatis, posticis basi aurantiis, apicibus externe violaceis et albo maculatis. Caput atro-violaceum, antennæ nigris, thorax niger antice et postice violaceus. Corpus infra cyaneo-violaceum, segmentis abdominis albo nigroque alternè variegatis.

Long. corp. lin. 10½. Expans. alar. 2 unc. 3 lin. Habitat in agro Assamensi.

Erasmia, Hope, Linn. Trans. vol. 18 (1840), p. 446.—Antennæ ♂ bipectinatae, pectinibus medioribus; alæ anteriores oblongæ subovales integræ, nervis posticis paullo curvatis, cellula discoidalia clausa. Alæ posticæ subrotundatae, nervis posticis curvatis. Corpus gracile subcylindricum. Caput parvum, palpis parvis. Lingua spiralis et elongatæ. Pedes graciles.

Erasmia pulchella, Hope, op. cit. pl. 31, fig. 5.—Argenteo-viridis, alis anticis nigris inaculis viridi-cæruleo-argenteo ornatis, fascia irregulari ante medium rufa, maculisque majoribus albis pone medium positis. Alæ posticæ stramineæ basi apiceque nigris, nervis viridi-cærulescentibus.

Long. corp. unc. 1. Expans. alar. 3 unc. 2 lin. Habitat Assam.

Chelura, Hope, Linn. Trans. vol. 18 (1840), p. 444.—Caput antice angustum, postice latius. Lingua spiralis subelongata. Palpi breves; antennæ ante oculos insertæ à bipectinatæ. Thorax connexus magnitudine mediocri. Abdomen subcylindricum, annulis ad apicem magnitudine decrescentibus, octono minori. Cauda forcipe acuto armata, et in parte media duplii hamo instructa. Alæ angustæ, marginibus posticis submarginatis. Pedes simplices.

Chelura bifasciata, Hope.—Straminea, antennis nigris; alis anticis fasciis binis aurantiis insignitis fasciisque nigris utrinque positis. Caput nigrum; thorace glabro nitido; abdomen annulis 7 primis obscure atris, octono rubropiceo; cauda concolor. Corpus infra nigrum. Long. corp. lin. 11 $\frac{1}{2}$. Expans. alar. 3 unc. 2 lin. Habitat Assam.

Gymnautocera, Guérin, Mag. d'Entomol. tab. 12 (1831).—Caractères génériques—Trompe longue, palpes inférieures, très courtes, ne dépassant pas le chaperon; antennæ pectinées dans les deux sexes; ailes étendues, grandes, ayant souvent des formes analogues à celles des papillons troyens; les supérieures et les inférieures également colorées; corps allongé, assez mince.

Ce nouveau genre ressemble un peu aux callimorphes et aux écailles, près desquelles nous le plaçons, mais les antennes, pectinées dans les deux sexes, l'en séparent bien nettement. La forme des ailes, dans plusieurs espèces, leur donne une grande ressemblance avec les papillons proprement dits; enfin la coloration de leurs quatre ailes étant également foncée indiquerait que les supérieures ne recouvrent pas les inférieures dans le repos, comme cela a lieu chez les écailles et les callimorphes.

G. pavilionaria, Guérin.—G. alis atris anticis subfalcatis, posticis disco macula alba, suturis divisa in medio disco; singulis subtus maculis miniatis; corpore nigro, lateribus miniatis, vitta rubro. Envergure 90 mill.

On la trouve au Bengale.

Nota. Nous rapporterons à ce genre trois espèces inédites provenant des îles de la Sonde, de la Cochinchine, et du Japon, ainsi qu'une espèce figurée par Hübner sous le nom de *N. tibetina*.

Campyloetes, Westw., in Royle's Illustrations of the Botany, &c., of the Himalayan Mountains, Part XI., 1840, p. liii.

Genus anomalam Heleonæ et Anthomyzæ, Sw. Gymnautoceræque Guér. affine.—Alæ oblongæ subovales integræ, nervis apicalibus valde curvatis; anticæ cellula discoidali clausa, nervos duos postice emittens, quorum exterior trifurcatus, posticæ etiam cellula discoidali clausa, nervo recurrente intermedio bifurcato. Corpus parvum, abdomen gracili, pone alas haud protenso. Caput parvum, ocelli 2. Antennæ gracieles biramosæ. Palpi brevissimi, supra haud discernendi, maxillæ elongatae spirales.

Campyloetes histrionicus, Westw. Aeneus, alis ad costam rufo-, interne flavo-lineatis; maculisque apicalibus albis. Tab. 10, fig. 1. Long. corp. lin. 11. Expans. alar. unc. 3. Habitat in Nepalia, Hardwieke; in Montibus Himalayanis, Royle.

Corpus nigro-aeneum patagii maculisque abdominalibus lateralibus flavis. Alæ anticæ aeneæ; costa fasciisque duabus discoidalibus rufis, fasciisque tribus internis per totam longitudinem alarum currentibus flavis; maculis 8 vel 9 (spatium inter nervos apicales occupantibus) albis. Alæ posticæ similiter coloratae at maculæ terminales flavo ornantur.

This remarkable insect appears to be the extreme type of a very numerous Indian group of Lepidoptera, to which belong the species named *Capys pectinicorius* Thallo et Rhodope. It is impossible to decide upon their real affinities until we obtain a knowledge of the metamorphoses of some of the species.

I have also formed *Bombyx sanguiflua* of Drury into the genus *Amesia*, of which the description, accompanied by a new figure of this remarkable *Assamese* type, will appear in the forthcoming volume of Moths in Jardine's Naturalist's Library.

Several other closely allied species from India with which I am acquainted will probably appear in a future part of this work.

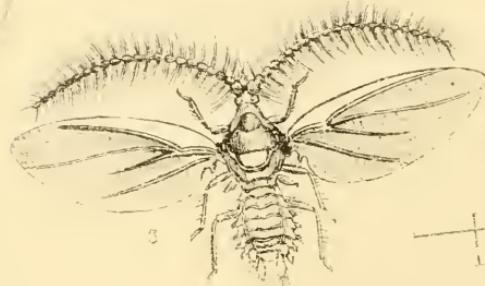
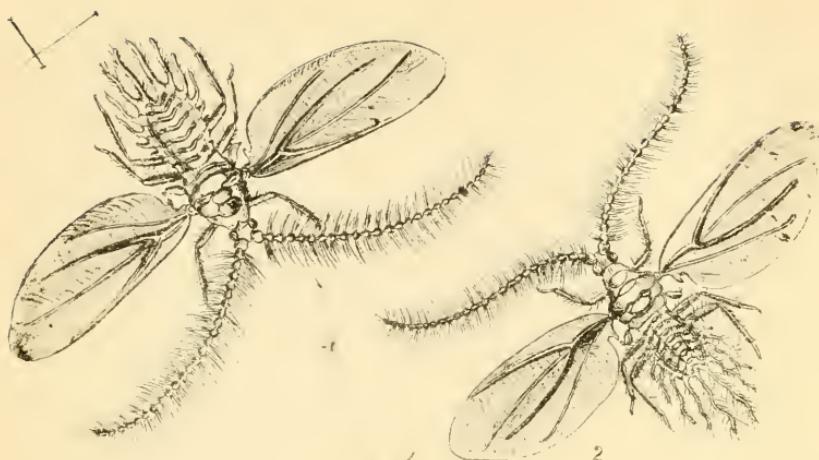


PLATE VI.

ILLUSTRATIONS OF VARIOUS SPECIES OF COCCIDÆ, BELONGING TO
THE GENUS MONOPHLEBUS.

THE family of the well-known scale insects, Coccidæ, presents to us some of the most singular of annulose animals. Without speaking of their singular habits, we find some of them on arriving at their last state, so far departing from the typical characters of the winged insects, as to prove that Ptilota may exist, which in the imago state are not only wingless, but also footless, and antennæless, and in which even all appearance of annulose structure is lost, the creature in fact becoming an inert mass of animal matter; a slender seta arising from the breast, and thrust into the stem or leaf on which the animal is fixed, being the only external appendage to the body. Such is the case with the imago state of the females of many of the species—the males on the other hand are small, active-winged creatures provided with legs, long antennæ, and anal filaments; but, as if to keep up the anomalous character of the group, even these males possess but a pair of wings, the wanting pair being represented by two small appendages, somewhat like the halteres of the Diptera.

Some of the females are, indeed, more active than those mentioned above; they, however, undergo no change from their larva state, but continue to creep about with short legs and rudimentary antennæ, and are always destitute of wings. Such is the case with the females of *Pseudo-coecus*, *Westw.* (*Coecus* *, *Burm.*) *Cacti*, *Adonidum*, &c., and with those of the genus *Monophlebus* of Leach. In the females of the former genus, the body is covered with a white powder, and the sides furnished with appendages. These are well known to horticulturists under the name of the *Mealy bug*; whereas in *Monophlebus*, the females have the body naked, without either lateral appendages or anal filaments. Such at least is the case with the European species, *M. fuscipennis*, *Burm.*, an insect I had the pleasure to capture, in company with its talented describer, Burmeister, on the trunks of fir-trees, in the Thiergarten, near the Brandenburg Thor of Berlin. The males have very long multiarticulate verticillated antennæ, which, with

* I regard the *Coccus* of the ancients, the female of which is fixed and gall-like, as the true type of *Coccus*.

the possession of only a pair of wings, led Fabricius to place one of the species in company with the Dipterous Cecidomyiae.

SPECIES I.—*Monophlebus Fabricii*, W.

M. thorace atro nitido, margine sanguineo, abdomine nigro, apice plano bifido rufo, lobis setis tribus porrectis elongatis; alis atris, lineis duabus albo-hyalinis; pedibus nigris. ♂.

Syn.—*Chironomus dubius*. *Fabr.* Syst. Antl. p. 46.

Habitat in Sumatra.

Obs.—The insect, described by Fabricius as the male of this species, being nearly half as small and with the setae of the abdomen short, was evidently the male of a distinct species.

SPECIES II.—*Monophlebus atripennis*, Klug. Burm. (Handb. 2. 80. exclus. syn. *Chir. dubius*, *Fab.*) M. fusco-ater, abdomine scutello alarumque basi obscure-coccineis, sub-pruinosis, antennis corpore longioribus hirsutissimis; alis piceis, lineis duabus albo-hyalinis; abdomine plano hirto, incisionibus profundis inter segmenta, appendiculisque duobus carnosis hirtis ($\frac{1}{2}$ lin. long.) apicalibus. Long. corp. $3\frac{1}{2}$ lin.

Habitat in Java.

SPECIES III.—*Monophlebus Leachii*, Westw. (Zool. Jl. No. 20, p. 452.) Plate 6, fig. 1.

M. piceo-niger, abdomine prothoraceque fusco-carnicis, scutello albido; alis piceis, lineis duabus albo-hyalinis; antennis longissimis 25-articulatis; abdomine plano, apice inciso, segmentis 5 ultimi ramum longum (longitudine crescentes) pilosum utrinque emittebantibus.

Long. corp. lin. $3\frac{1}{4}$. Long. rami ultimi lin. 1; long. antenn. lin. 4; expans. alar. lin. 8. Habitat in Malabarria—In Mus. nostr.

SPECIES IV.—*Monophlebus Burmeisteri*, Westw. (Plate 6, fig. 2.) M. piceo-niger, prothorace abdomineque fusco-carnicis, scutello fasciaque inter alas albidis; alis latioribus piceis, basi parum pallidioribus lineisque duabus albo-hyalinis; antennis corpore longioribus; abdomine utrinque ramos 5 longiores et pilosos emittentes.

E praecedenti differt alis brevioribus latioribus, margine postico magis rotundato; et filamentis abdominalibus longioribus.

Habitat —? In Mus. nostr. Long. corp. lin. $2\frac{1}{4}$. Expans. alar. lin. $6\frac{1}{2}$.

SPECIES V.—*Monophlebus Saundersii*, Westw., M. Burmeisteri affinis at multo minor, albo-farinosis ramisque abdominalibus brevioribus, caput antennae pedes et dorsum thoracis brunneo-fusca, thoracis lateribus abdomineque testaceo-carnicis, hoc ad latera ramis brevioribus hirtis instructo duobusque apicalibus longioribus. Alae fuscae margine postico dilatato, lineis duabus albo-hyalinis. Penis ex ano prodiens, crassus cylindricus curvatus, ramis posticis longior, apice crassior truncatus. Long. corp. lin. $1\frac{1}{2}$. Expans. alar. lin. 4.

Habitat in partibus septentrion. India orientalis, D. Campbell. In. Mus. D. W. W. Saunders.

SPECIES VI.—*Monophlebus Raddoni*, Westw., (Plate 6, fig. 3.) M. fulvo-carneus, antennis pedibusque concoloribus, his articulis circiter 20; thoracis dorso piceo; alia apice subacutis, margine postico magis rotundato, fuscis lineis duabus albo-hyalinis (antica fere ad apicem alarum ducta), costa fulvo-carna, vena postcostali sanguinea; abdominalis lateribus lobis parvis hirtis instructis, segmento ultimo appendiculis duabus majoribus ovalibus. Long. corp. lin. $2\frac{3}{4}$. Expans. alar. lin. $7\frac{1}{2}$.

Habitat apud "the Gold coast" Africa occidentalis. In Mus. nostr. communic. D. Raddon.

SPECIES VII.—*Monophlebus Illigeri*, Westw. (Plate 6, fig. 4.) M. nigricans, capite marginibus thoracis abdomineque sanguineo-fuscis; antennis (corpore paulo longioribus 22-articulatis) pedibusque nigris; alis elongatis angustioribus, apice rotundatis, fuscis; costa obscuriori; vena postcostali sanguinea, vena mediana abbreviata, lineisque duabus tenuibus albo-hyalinis; abdomine impressionibus profundis inter segmenta, lateribusque lobis parvis ovatis hirtis instructis. Long. corp. lin. $1\frac{1}{4}$. Expans. alar. lin. 5.

♀? depressa coccinea albo-farinosa, pedibus 6 crassis, antennisque duabus longitudine tibiarum concoloribus. Long. corp. lin. $2\frac{1}{4}$.

Habitat in Terra Van Diemenii. D. Ewing, ♂ ♀. In. Mus. nostr.

SPECIES VIII.—*Monophlebus fuscipennis*, Burm. (Handb. d. Ent. 2, p. 80, pl. 2, fig. 46.) M. ex coccineo aurantiacus, ♂ antennis articulis 25. Capite thorace pedibusque fuscis; alis lineis duabus hyalinis; ♀ undique subpubescens, antennarum articulis 11 pedibusque fuscis. Expans. alar. ♂, lin. 4.

Habitat in Germania supra trunços quercuum, pinorum, &c. In. Mus. nostr. ♂. ♀. Dedit. D. D. Burmeister.

The plant represented in the plate is the Indian *Periploca esculenta*.

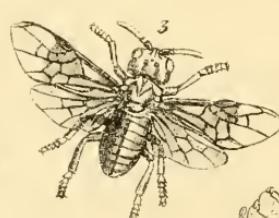
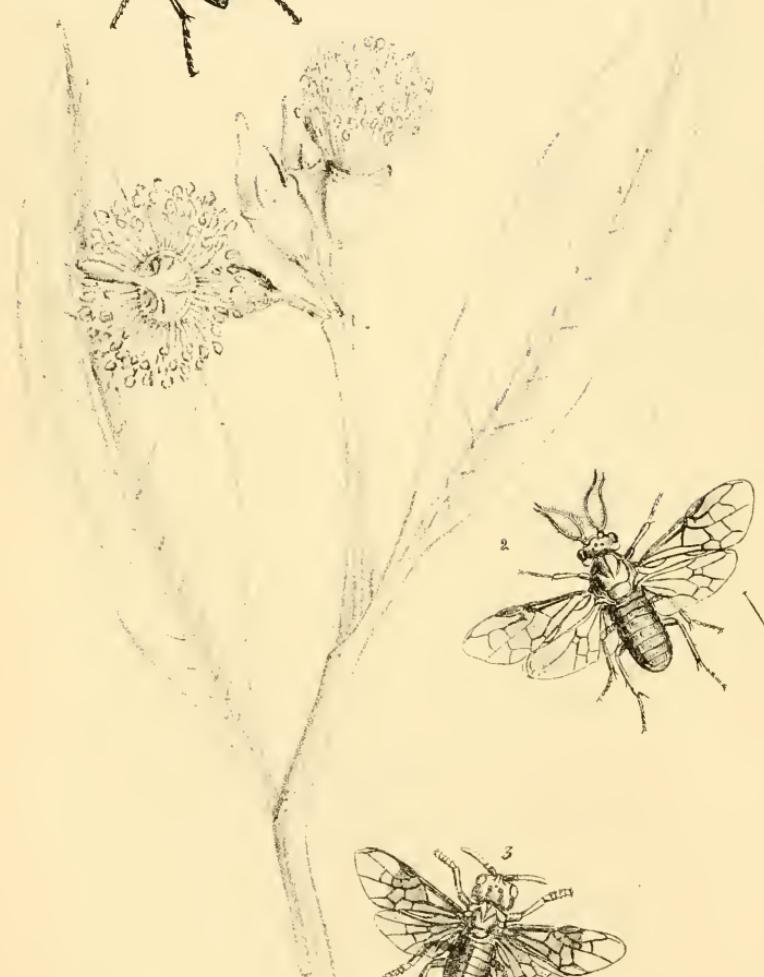
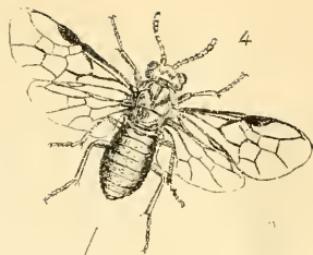


PLATE VII.

DESCRIPTIONS OF SOME EXOTIC SPECIES OF SAWFLIES.

THE family Tenthredinidae is one of great extent, and is distinguished by the peculiar structure of the ovipositor, which is constructed so as to act like a pair of saws in forming channels in the bark of twigs and ribs of leaves, in which the eggs are deposited. The caterpillars are also remarkable as being the only Hymenopterous larvae furnished with prolegs, thus resembling the caterpillars of the Lepidoptera. The insects figured on the opposite plate present some striking instances of departure from the general characteristics of the family or those particular groups to which they belong.

Figure 1 represents the female of *Perga Lewisii*, *Westw.* (*Trans. Ent. Soc.* 1. p. 234), a species discovered in Van Diemen's Land, by Mr. R. H. Lewis, who observed its singular economy. "The maternal solicitude of insects for their offspring," observes the writer, "has been seldom observed to extend beyond the various contrivances which instinct directs them to make at the time of the deposition of the egg, the female insect dying in most cases immediately after*." The female *Perga*, on the contrary, after depositing her eggs in a longitudinal incision between the two surfaces of the leaves of one of the gum trees (*Eucalyptus*), sits on the spot until the exclusion of her young, upon which, when hatched, she sits with outstretched legs, preserving them from the heat of the sun, and protecting them from the attacks of enemies, with admirable perseverance. From the various experiments with the insects and their broods, described by Mr. Lewis in his paper in the *Transactions of the Entomological Society*, it is quite evident that the female insect constantly watches over the young until death terminates her own existence.

HYLOTOMA (Schizocera) australis, W. (Plate 7, fig. 2.) *Laete cyanea, ore maenulisque duabus pone oculos fulvis; alis fascia lata pone medium fuscis; abdomine transverse striatulo, alis anticus et posticus cellula marginali appendiculata; tibiis posticis calcari medio instructis, pedibus nigris, tibiis tarsisque anticus anoque fulvis; antennis nigris.* Long. corp. lin. 3.

Habitat in Australasia occidentali. D. Gould. In *Mus. D. Hope.*

This species differs from all the Schizocerous Hylotomæ described

* In social insects, the honey-bee, for example, the care of the young devolves upon a particular portion of the community allotted for that purpose (the neuters or workers), which are incapacitated by their structure from having any offspring of their own.

by Dr. Klug (*Jahrbuch. d. Entom.*) in the appendiculated marginal cells of the wings and the middle-spurred hind tibiae. In these respects, the insect is a true *Hylotoma*, thus confirming Dr. Klug's union of *Schizocera* with *Hylotoma*.

PACHYLOTA, *Westw.* (Plate 7, fig. 3.)

*Corpus breve crassum, capite magno quadrato plano. Ocellus medius parvus. Antennæ capite vix longiores 3-articulatæ, articulo 2ndo minuto, 3to longo fere cylindrico. Clypeus transversus brevis in medio emarginatus. Labrum transversum breve, in medio emarginatum ciliatum; mandibulae (fig. a) magnæ crassæ apice acutæ, extus curvatae intus sub apicem rectæ, margine acuto. Maxillæ et labium membranaceæ parvæ, maxillæ (b in situ et b *) lobo apicali magno tenui apice dilatato et reflexo, lobo interno minuto attenuato. Palpi maxillares breves 4-articulati, articulo 1mo minuto intus appendiculo triangulari instructo; 4to magno ovato. Mentum (c) basi quadratum, supra dilatato-rotundatum gibbum, palpi labiales (c *) ad ejus angulos anticos inserti, brevissimi 4-articulati, articulis basalibus brevibus, 4tamen tenui longiori. Labium e lobis tribus brevissimis formatum.*

Aleæ anticæ (fig. d) cellula unica marginali apice appendiculata, 4 submarginales, 1ma brevissima, 2ndæ longiori venas duas recurrentes excipiente, 3ta parva, 4ta apicem ale attingente, ale posticæ cellula marginali band appendiculata. Pedes breves crassissimi subdepressi, tibis apice omnino ecalcaratis, tarsi omnibus dilatatis (e), articulis basalibus subtus lobo minuto instructis, unguibus minutis distantibus pulvilloque transverso brevissimo.

Obs. Characteres e femina desumpti.

This is one of the most anomalous forms yet described amongst the Tenthredinidae. It is most nearly allied to *Hylotoma* in the antennæ and wings; but differs from that as well as from every yet known species in the family, in the remarkable structure of the dilated feet destitute of tibial spurs. The structure of the mouth is also equally unlike that of every known sawfly. In the Australian genus *Perga* we, however, met with 4-jointed maxillary palpi.

Pachylota Audouinii, *Westw.* *P. nigro-cyanæ, capite antennis prothorace pedibusque anticus luteis; pedibus 4 posticis nigris; alis fuscis, anticus' macula trianguli subcostali, apicque maculaque ovata in cellula marginali posticarum pallidis; costa stigmateque nigra.* Long. corp. lin. 7. Expans. alar. lin. 15.

Habitat in Africa (tropicali ?) In Mus. nostr.

I have great pleasure in dedicating this most interesting insect to my friend Professor Audouin, by whose kindness I received it from the Jardin des Plantes.

DICTYNNA, *Westw.* Plate 7, fig. 4.

Antennæ capite cum thorace breviores 9-articulatæ, articulo 3to longiori, sequentibus sensim crassioribus; aleæ anticæ cellula unica marginali magna, appendiculata, 4 submarginales, 2da et 3ta venam recurrentem recipiunt. Ale posticæ cellula marginali appendiculata. Corpus breve robustum. Tibiæ 4 posticæ medio inermes.

This genus connects *Athalia* with *Hylotoma*. The species figured is, in fact, an *Athalia* with the wings of *Hylotoma*. Its beautiful colour is met with in no other species of the great section of the family which have multi-articulate antennæ.

Dictynna leta *W.* (Plate 7, fig. 4.) *Viridis nitida, abdomine subsericea; antennis nigris; pedibus testaceis tarsorum apice (præsertim posticorum) fuso; alis fusco nonnihil tinctis; costa stigmateque nigra.* Long. corp. lin. 3½.

Habitat in Terra Van Diemenii. In. Mus. nostr. Commun. D. Lewis, M. E. S.

The plant figured is the Australian *Eucalyptus robusta*, *Smith*.

8.

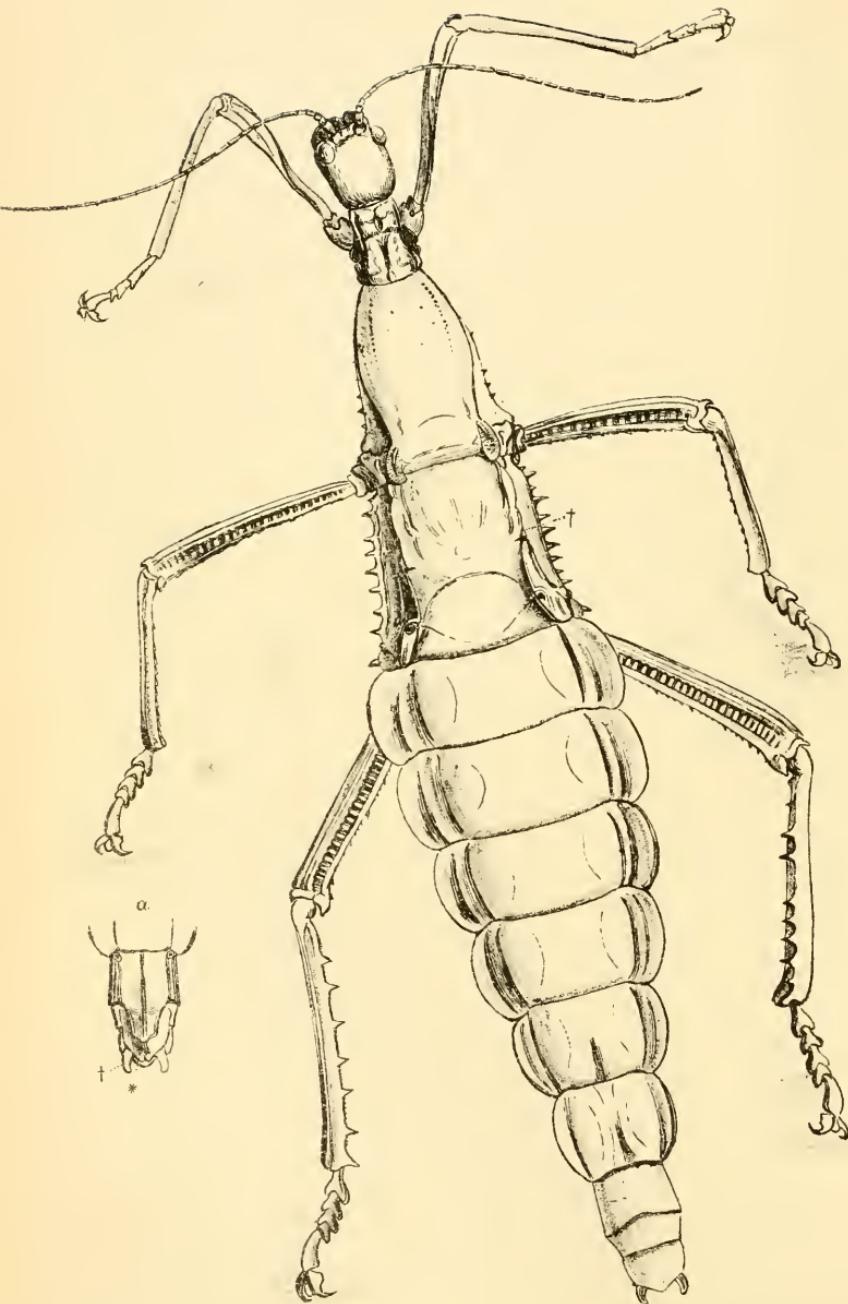


PLATE VIII.

ILLUSTRATION OF A LARGE SPECIES OF WINGLESS PHASMA.

The family of Phasmidæ comprises numerous singular species of Orthopterous insects, which, from their striking resemblance to shrivelled leaves and pieces of dried stricks, have received the ordinary names of walking-leaves and walking-stick-insects. If therefore, in a former plate (5) we have given an instance in which flowers assume the appearance of insects, we here find the analogy reversed by perceiving that insects may assume the exact appearance of parts of plants; indeed, so close is the resemblance in the genus *Phyllum*, or *Folium ambulans*, as the type of that genus used to be named, that we find even a Fellow of the Royal Society (Dr. Bradley) gravely endeavouring to explain the singular production by informing us that “the insect is nourished by the juices of the tree, and grows together with the leaves till all the body is perfected, and at the fall of the leaf drops from the tree with the leaves growing to its body like wings, and then walks about.” Another division of the family (composed of the stick-insects) has received the systematic name of *Phasma*, from the spectre-like appearance of the creatures, compared with the ordinary form of the insect tribes, and in many of these the wings are wanting in both or one of the sexes.

The insect before us, one of the largest in the family, belongs to the last-named group, but differs from all the genera and subgenera recently proposed by Gray, Burmeister, and Serville. It approaches the *Phasma dilatata* (*Heteropteryx d.* Gray) and *Diapherodes Gigas*, of the West Indies, but differs from both in the ovipositor, tarsi, and very minute state of the wings, (* and †), of which only the slightest rudiments are visible. I therefore propose to regard it as a separate intermediate sub-genus, under the name of

CRASPEDONIA.

♀. Corpus magnum planum subapterum. Caput ocellis destitutum. Antennæ longæ, articulo 1mo crasso, 2ndo brevi, 3to et sequentibus (longioribus) æqualibus, apicibus longioribus. Prothorax longitudine capitis. Mesothorax prothorace triplo longior, postice sensim dilatatus, lateribus utrinque spinis nonnullis brevissimis armatis. Alaæ antice rudimentales minutæ, ad apicem mesothoracis affixæ*. Metathorax mesothoraci longitudine æqualis sed latior, lateribus spinosis; alæ postice minutissimæ, in medio metathoracis vix distinguendæ†. Abdomen thorace toto fere dimidio longius, supra segmentis 9 constans, basi metathorace latius, sensim vero

angustatum, segmentis basalibus utrinque membrana tenui semicirculari instructis, oviductus brevis haud exserta (fig. a, segmenta tria postica abdominalia subtus visa,* oviductus,† lobi duo plani laterales). Pedes antici simplices, tarsis 4-articulatis. Femora 4 postica triquetro-trigona subtus parum serrulata, tibiæ 2 posticæ intus spinose. Tarsi 4 postici crassi 5-articulati.

Phasma (Craspedonia) gibbosa. Prasina, lateribus thoracis pedibusque magis luteo-brunneis. Long. corp. unc. $5\frac{1}{2}$.

Habitat.—Brasilia teste Burmeistero. In. mus. nostr.

Syn. *Diapherodes gibbosa.* *Burm.* Handb. d. Ent 2, p. 575.

This fine insect is remarkable for having only four joints in the anterior tarsi, differing in this respect from all the known species of the family to which it belongs. The details of the mouth of this insect are figured in my "Introduction to the Modern Classification of Insects," vol. 1, p. 431, fig. 53, 2—6.

Obs.—Dr. Burmeister unites this insect with *Heteropteryx dilatata*, *Diapherodes Gigas* (*M. angulata Fabr.*), and some others, into the genus *Diapherodes*.

THE Insect legions, prank'd with gaudiest hues,
Pearl, gold, and purple, swarm'd into existence.
Minute and marvellous Creations these !
Infinite multitudes on every leaf,
In every drop, by me discern'd at pleasure,
Were yet too fine for unenlighten'd eye.
Some barely visible ; some proudly shone
Like living jewels ; some grotesque, uncouth,
And hideous—giants of a race of pygmies.
These burrow'd in the ground, and fed on garbage ;
Those lived deliciously on honey-dews,
And dwelt in palaces of blossom'd bells.
Millions on millions, wing'd and plumed in front,
And arm'd with stings for vengeance or assault,
Fill'd the dim atmosphere with hum and hurry.
Children of light, and air, and fire, they seem'd ;
Their lives all extacy and quick cross motion.

MONTGOMERY'S PELICAN ISLAND.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW WORKS, &c.
(No. II.)

SOCIÉTÉ ENTOMOLOGIQUE DE FRANCE.—English entomologists will, I am sure, be as much gratified as myself in learning that the Entomological Society of France, whose proceedings were for a time suspended owing to the too great expense incurred in the publication of its transactions as well as to dissensions amongst some of its leading members—and which led to the idea in this country that the society was in fact broken up—has again resumed its former vigour, and that its “Annales” are not only being again published quarterly, but that the parts which had been delayed have, owing to the generous assistance offered to the society by several of the members, also been published. The usefulness of the society has been so long acknowledged, that it now behoves English members who had delayed paying their “cotisations” to do so without further delay; as the society, in consequence of the deficiency caused by the delay in these payments during the last year or two, has not yet entirely disburdened itself of its engagement to the publishers of its “Annales.” In the part of the “Annales” recently published, may be mentioned the continuation of Solier’s memoir on the Heteromera, and descriptions of numerous new and interesting species of different orders; particularly very long and elaborate articles, by the Marquis Spinola, upon the Hymenoptera of Egypt and Cayenne, and upon the family Fulgoridæ. These parts also present to us a far greater number of memoirs upon the economy and habits of various insects than are to be found in the earlier volumes.

POPULAR INFORMATION RELATIVE TO THE HABITS OF INSECTS OBNOXIOUS TO VEGETABLE PRODUCTION.—The reproach which has so often been made against the entomologist, that his attention is not sufficiently devoted to the investigation of obnoxious insects, and to the discovery of beneficial remedies for destroying them or preventing their attacks, has now lost much of its weight. In Germany, works expressly addressed to the horticulturist, agriculturist, and arboriculturist, have long been numerous and valuable; the greater number however being devoted to forest insects, as the great extent and value of the German forests necessarily induce a greater degree of

attention to the insects which attack trees. It would occupy far too great a space to give even the names of the German works upon obnoxious insects, but the work of Ratzeburg, of which two quarto volumes devoted to the Coleoptera and Lepidoptera have appeared, illustrated with numerous exquisite plates representing the insects in all their states and the modes of their attack upon vegetable productions, is too important a work to be passed over in silence. Bouché's "Naturgeschichte der Schädlichen und Nützlichen Garten-insekten," and the elaborate report of Kollar, made to the Royal and Imperial Agricultural Society of Vienna, on the insects injurious to gardeners, foresters, and farmers (whereof a translation by the Misses Loudon was lately published by the publisher of this work) ought not also to be forgotten.

In France, M. F. Audouin has especially devoted his attention to the natural history of obnoxious insects, and in the series of lectures which he annually delivers at the Jardin des Plantes, he especially illustrates their natural history, although the greater portion of his researches are as yet unpublished. Of course as the vine is an important object of culture in France, the insects which attack that plant have been especially studied, and the first part of a very elaborate work by M. Audouin, with numerous plates, giving a complete illustration of one of the species of Tortricidae, which is especially destructive, has recently appeared under the auspices of government. The Baron Walekenaer has also published a treatise on the insects which attack the vine, in the Annales of the French Entomological Society. In the south of France and Italy, where the olive is greatly cultivated, numerous memoirs have from time to time been published on the insects which attack that tree, the greater number of which have been enumerated by Costa in the first part of his "Corrispondenza Zoologica," published at Naples, in 1839.

In England but few works of merit have appeared illustrating the habits of obnoxious insects. In 1829, "A Treatise on the Insects most prevalent on Fruit-trees and Garden produce," was published by Joshua Major, a landscape gardener, whose knowledge of insects appears to have been very slight; and, in 1840, a work appeared under the title of "Blight on Flowers, or figures and descriptions of the insects infesting the flower-garden," by Samuel Hereman, (London, Cradock) in 8vo, with numerous gaudily coloured plates, in which are representations of many species of insects which seem to me to have no other existence than in the fancy of the delineator.

Of a very different character are the treatises published by the late Mr. Knight in the transactions of the Horticultural Society

upon various species of insects which attack fruit trees; such as the American blight, the pear-leaf blister moth, &c.

The Entomological Society of London also, desirous of acquiring public support by giving proofs of a desire to render its labours useful, instituted prizes for memoirs on destructive insects, and if no other good had originated from the society than the publication of Mr. Le Keux's memoir on the turnip *Haltica*, and Mr. Newport's on the *Athalia Centifoliae*, it would have amply merited the support it has received.

A series of papers appeared in the early volumes of the Entomological Magazine, by an anonymous writer, on different species of obnoxious insects, and in 1837, I commenced the following series of articles in Loudon's Gardener's Magazine:—

- | | |
|--|--|
| No. 1. The Turnip Flea-beetle (<i>Haltica nemorum</i>), including descriptions of two new British species. | No. 9. The Slimy Grub of the Pear, &c. (<i>Selandria Æthiops</i>). |
| 2. <i>Otiorhynchus sulcatus</i> . | 10. Caterpillar of the Apricot-bud (<i>Ditula angustiorana</i>). |
| 3. The Turnip Saw-fly (<i>Athalia Centifoliae</i>). | 11. The Wire Worm (<i>Elater lineatus</i>). |
| 4. The Onion Fly (<i>Anthomyia Ceparum</i>). | 12. The Codling Moth (<i>Carpocapsa pomonella</i>). |
| 5. Wheat Flies (<i>Chlorops glabra</i> , &c.) | 13. The Elm destroying Beetle (<i>Scolytus destructor</i>). |
| 6. The Asparagus Beetle (<i>Crioceris Asparagi</i>). | 14. Apple insects (<i>Anthonomus Pomorum</i> and others). |
| 7. Rose Moths (<i>Argyrotoza Bergmanniana</i>). | 15. Celery and Chrysanthemum Leaf Miner (<i>Tephritis Centauriae et Artemisiae</i>). |
| 8. The Small Ermine Moth (<i>Yponomeuta padella</i>). | |

Moreover, in Loudon's Arboretum Britannicum, I have given an account of the insects which attack the principal genera of English trees.

In Scotland, Mr. J. Duncan has also published a series of articles in the Quarterly Journal of Agriculture, on obnoxious insects, of which the following is a list, together with references to the volumes in which they are described:—

COLEOPTERA.

<i>Cataphagus lineatus</i> . . . Vol. viii. p. 101	<i>Hylobius Abictis</i> . . . Vol. xi. p. 396
„ <i>obscurus</i> . . . do. . p. 348	<i>Scolytus destructor</i> . . . do. . p. 399
<i>Haltica nemorum</i> . . . do. . p. 353	<i>Hylurgus piniperda</i> . . . do. . p. 404
<i>Calandra granaria</i> . . . Vol. ix. p. 3	<i>Tomicus</i> do. . p. 406
<i>Anthonomus Pomorum</i> . . do. . p. 6	<i>Hylesinus</i> do. . p. 407
<i>Phyllobius Mali</i> . . . do. . p. 11	<i>Ptinus</i> do. . p. 408
<i>Balaninus Nucum</i> . . . do. . p. 11	<i>Anobium</i> do. . p. 408
<i>Otiorhynchus sulcatus</i> . . do. . p. 13	<i>Melolontha vulgaris</i> . . . do. . p. 566
<i>Apion apicans</i> do. . p. 15	<i>Amphimalla solstitialis</i> . . . do. . p. 572
„ <i>assimile</i> do. . p. 18	<i>Sinodendron cylindricum</i> . . . do. . p. 573
„ <i>flavipes</i> do. . p. 18	<i>Prionus-Clytus Callidium</i> . . . do. . p. 575
<i>Orcheses Fagi</i> do. . p. 395	<i>Crioceris Asparagi</i> do. . p. 576
<i>Ceutorhynchus contractus</i> . . do. . p. 395	<i>Phaedon Vitellinae</i> do. . p. 578
<i>Cryptorhynchus Lapathi</i> . . do. . p. 396	<i>Bruchus granarius</i> do. . p. 579

DIPTERA.

All the species of Oestridæ*	Vol. x.	p.	Anthomyia lardaria	Vol. xi. p. 63
Tabanidæ, &c.	do.	p.	," Ceparum	do. p. 362
Forest-flies (Hippobosca) .	Vol. xi.	p. 50	," Brassice	do. p. 366
Sheep Spider-fly	do.	p. 54	Psila Rosæ	do. p. 367
Bird Spider-fly	do.	p. 57	Tipula Oleracea	do. p. 368
Blow-flies	do.	p. 60	Cecidomyia Tritici	do. p. 372
Musca carnaria	do.	p. 61	Chlorops Pumilionis	Vol. xii. p. 120
," Caesar	do.	p. 62	Tephritis Onopordinis	do. p. 124
," vomitoria	do.	p. 63	Piophila Casei	do. p. 125

HYMENOPTERA.

Lophyrus Pini	Vol. xii.	p. 129 Lophyrus rufus	Vol. xii. p. 134
Athalia Centifoliae			Vol. vii. p. 558.

Still more recently Mr. Curtis has commenced the publication of a similar series in Dr. Lindley's weekly newspaper, the Gardener's Chronicle. The articles which have hitherto appeared are the following:—Scæva Ribesii in No. 4; Scale insects in No. 9; The Red Spider (*Acarus telarius*) in No. 11; The Snake Millepedes (*Julus*) in No. 13; *Thrips physapus* in No. 15; Pear-tree Blister Moth (*Tinea Clerckella*) in No. 17; Black and Clay coloured Vine Weevils (*Pachygaster sulcatus et picipes*) in No. 19; The Rocket Tinea (*Cerostoma porrectella*) in No. 21; and the Lettuce fly (*Anthomyia Lactucae*) in No. 23.

THE HETEROPTEROUS GENUS PHYLLOMORPIA (illustrated in plate 2) offers an instance of the want of uniformity in the principles which regulate the modern generic nomenclature of insects, and which it is to be regretted are not more universally recognised amongst naturalists in general. The genus was proposed, with the name which I have adopted, in Guérin's Magasin de Zoologie, and as the two terminal syllables are formed from the *feminine* Greek word *μορφὴ*, the feminine Latin termination was given to the word Phyllophorpha. Dr. Burmeister, however, adopting the principle that the generic names in each family should follow the sex of the primitive, or typical genus, altered the name to Phyllophorus, to accord with the sex of the name of the typical genus, Coreus. Still more recently M. Rambur, (in his work on the Entomology of Andalusia,) on the principle that no name which had been used specifically should afterwards be given to the genus in which that species so named was introduced (a new specific name being in such case required for the species in question), has altered the name

* The papers include insects hurtful to animals as well as vegetables.

Phyllomorpha to Craspedium, from the neuter Greek *κράσπεδον*, thus restoring the specific name Phyllomorphus to P. Latreillii. Without, however, entering into the question of the propriety of giving the name in the neuter, because the Greek derivative is also neuter, M. Rambur's name cannot be adopted, being already used by M. Macquart for a fine genus of Diptera, allied to Asilus *. (Diptères Exot. tom. 1, part. 2, p. 32.) Without also desiring to uphold the nomenclature of genera taken from the names of species, a custom which has been carried to too great an extent, it appears to me that, as in this case, where the name given to a species expresses a generic character (and no name could be devised for these insects more expressive than Phyllomorpha) and not a specific one, and where there can be no possibility of confusion of idea as to the insect intended by the new specific name proposed for the insect (as by giving the name of Latreillii to Latreille's species), we may adopt the principle employed by Laporte in naming this genus.

S. S. Saunders, Esq., has captured one of the species of the 2nd section of this genus, under stones on a mountain near Yanina, in Albania, and the Rev. F. W. Hope has obtained specimens of Ph. algirica, two of which (δ and φ) are very pale grey, slightly marked with dark brown, without any tinge of red, whilst another is somewhat larger and of a duller colour, with dark red markings. I do not, however, perceive any other absolute specific distinctions between them.

GENERA INSECTORUM ICONIBUS ILLUSTRAVIT ET DESCRIPTIS HERMANNUS
BURMEISTER. Nos. 1 to 7, large 8vo, Berlin.

THIS work mostly amply answers to its title. It is in fact a more complete illustration of the genera which are given in it, than has been given in any previous work—the various organs and parts of the body being elaborately detailed. The early numbers were entirely devoted to the Homopterous insects, but in the recent ones the selection has been more miscellaneous. The genera of Homoptera represented are the following:—Lystra (L. auricoma, Burm. figured), a remarkable species from Mexico, with the white floccose matter at the extremity of the body produced into a great number

* In his plate 8, M. Macquart had named this genus Blepharis, which he changed in his text to Craspedia. The typical species is Asilus coriarinus of Weidemann. The second species, Crasp. Andouinii, is identical with the insect which I described and figured in Jardine's Nat. Library, Entomol., vol. 1, p. 329, pl. 35, fig. I, under the name of Asilus (Blepharotes) abdominalis. When I described the species I had only seen males of this and females of A. coriarinus, and considered that these might prove to be the sexes of one species; I am now, however, acquainted with the sexes of both.

of long filaments, some of which, in a specimen which I possess, are at least four inches long), *Acocephalus*, *Bythoscopus*, *Eurymela*, *Selenocephalus Cælidia*, *Eupelix*, *Jassus*, *Ulopa*, *Cephalelus* (*C. infumatus*, *Perch.*, *Dorydium paradoxum*, *Burm.* Handb. der Ent. 2. 106), *Dorydium* (a new genus analogous to *Cephalelus*, but most nearly allied to *Eupelix*, to which Burmeister now applies this generic name, which had become a synonym of *Cephalelus*) : the species, *D. lanceolata*, is from Sicily (and is remarkable for the very long head, pointed into a snout like a *Fulgora*) ; *Ledra* (I possess a second undescribed species from the East Indies), *Xerophlæa*, *Gypona*, and *Typhlocyba* (*Eupterix*, *Curtis.*)

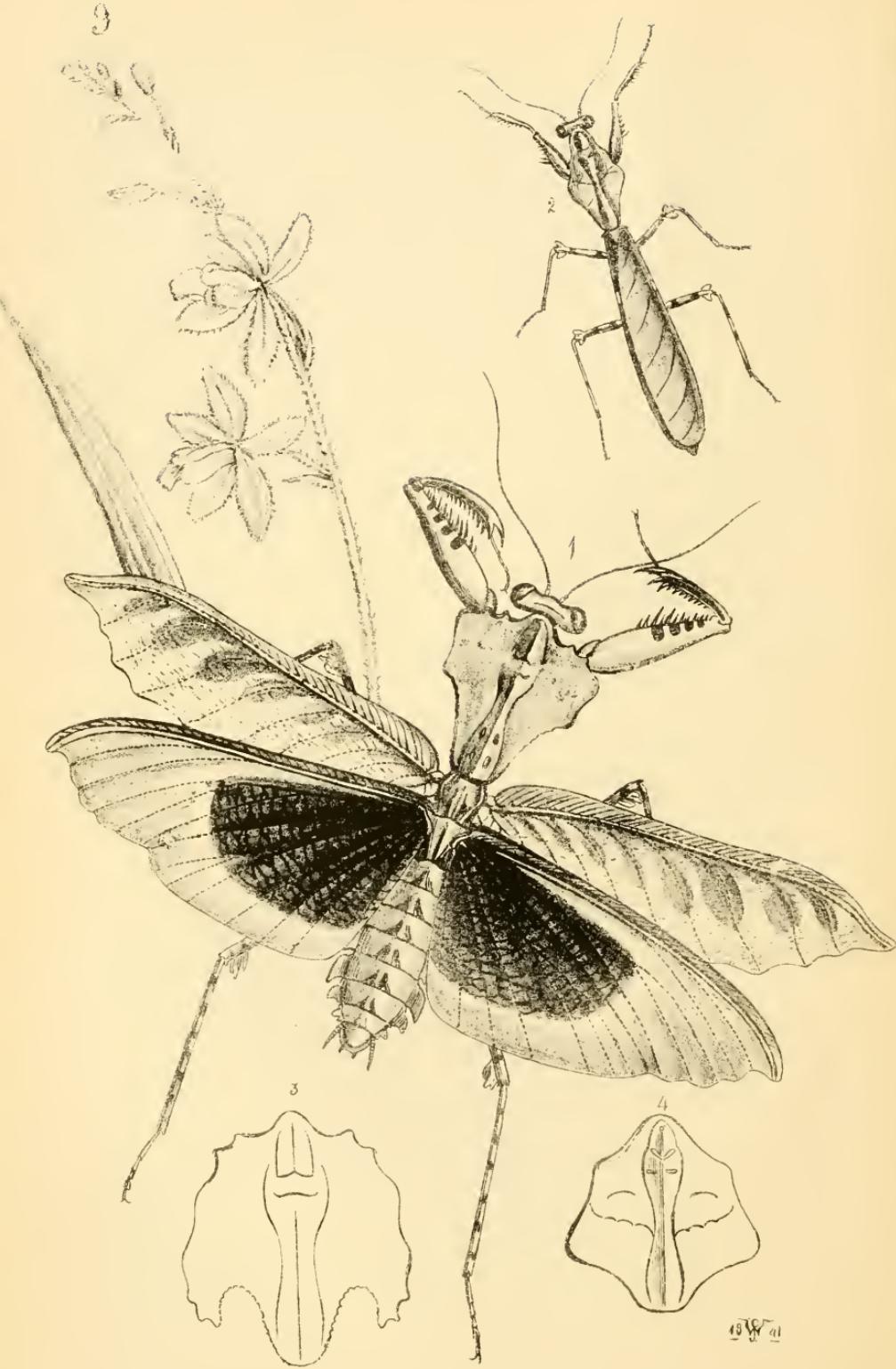
In the order Coleoptera, the Lamellicorn beetles are chiefly illustrated. An entire synopsis is given of a group of the Macleayan *Dynastidæ* (consisting of the genera *Chalcosoma*, *Megasoma* K (*Megalosoma*, *Burm.*) ; *Xylotrupes*, *Hope*, *Golofa*, *Hope*, and *Augosoma*, *Burm.*, (*Centaurus*, *Jephtha* and *Ganymedes*), *Dynastes*, M'L., also belongs to this group. The following isolated genera are also represented :—*Eudinopus*, a new genus of *Scarabæidæ*, M'L., founded upon a large South American species (of which I had prepared a figure for this work, which the author gives as new, but which was described by Schreibers in the Linnaean Transactions, under the name of *Scarabæus Dytiscoides*.)

Platygenia barbata, ♂ and ♀ ; and *Hypselegenia*, *Burm.*, (composed of two African *Cetoniidæ*, *Dipl. concava*, and *albo-punctata*, G. P., which M'Leay unites with *Ischnostoma* of Gory and Perchéron, from which, however, they are stated by Burmeister to differ in almost every character).

Acropis, *Burm.*, is another Coleopterous genus from South America, founded upon a small xylophagous beetle, in which the eyes are placed upon lateral prolongations of the head as in *Diopsis*.

Opsomala Serv., is the only Orthopterous genus figured. The genera *Thrips*, *Phlaeothrips* *Hal.*, and *Heliothrips*, and the Pediculidœus genera *Phthirus* and *Pediculus*, are also elaborately illustrated.

The work is entirely written in Latin, which renders it still more valuable, as well as indispensable to all who desire to possess beautiful figures united with correct structural details of rare and interesting genera. The two forthcoming numbers will be chiefly devoted to the Lamellicorn beetles, including a figure of the male of Mr. Cuming's new *Eucheirus* (*E. quadrilineatus*, *Waterh.*) The genera *Fulgora* and *Pyrops* will also be illustrated in them.



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PLATE IX.

DESCRIPTION OF A NEW GENUS OF MANTIDEOUS ORTHIOPTERA.



It is amongst the Orthoptera that we find some of the most striking and ugly-formed insects; this is especially the case with many of the soothsayer or praying mantides; such as *M. strumaria*, *Linn.*, *M. cancellata*, *Fabr.*, etc.; in which we find the prothorax developed on each side into a very broad thin membrane of variable form, resembling a leaf. These species, except in respect to this prothoracic membrane, agree in general character with the genuine species of the restricted genus *Mantis*; and consequently we find that Professor Burmeister has rejected the generic name of *Chæradodis*, which *M. Serville* had proposed for them, using it only as a sectional or subgeneric name, and giving the subgeneric names of *Rhomibodera* and *Craurus* to other allied analogous species. Other species in the same family are distinguished by having a small membranous appendage at the extremity of the four posterior thighs; but in these the head is either cornuted or tubercled, as in *Empusa*, *Blepharis*, *Vates*, *Burm.*, etc.

The species figured in the accompanying plate are intermediate between these two groups, agreeing with *Vates*, &c., in the foliolets at the extremity of the hind thighs, and with *Chæradodis*, &c., in the crown of the head not being cornuted, and in the dilated membrane of the prothorax. I accordingly form them into the genus

DEROPLATYS.

Caput vertice transverso inermi plano. Oculi rotundati. Antennæ gracillimæ. Prothorax elongatus, membrana maxima formæ variæ utrinque instructus. Abdomen breve segmentis apicalibus latis et ad latera lobatis. Pedes quatuor postici et graciles longi, femoribus ad apicem postice membrana parva instructis. Alæ et tegmina formæ variæ. Insecta Asiatica.

SPECIES I. *Deroplatys desiccata*, Westw. (in Jardine's Naturalist's Library, Insects, Introd. pl. 9.)

Fusca, prothorace (tab. nostr. 9, fig. 3) membrana maxima tenuissima (posticè utrinque valde incisa) instructo; tegminibus brevibus latis, apice obtusis subtus versus apicem oculo magno albo, pupilla nigra; alis nigris apice et costa fuscis. Long. corp. 3 unc. Expans. alar. 3½ unc.

Habitat in Malacca. In Mus. D. F. W. Hope.

Obs. Larva thoracem ejusdem formæ possidet.

SPECIES II.—*Deroplatys lobata* (Chœradodis I. Guérin. Mag. d. Zool. Ins. pl. 234, et Voy. de l'Astrolabe, p. 69)—Tab. nostr. 9, fig. 4, prothorax.

Habitat ignota.

SPECIES III.—*Deroplatys angustata*, W. pl. 9, fig. 2.

Elongata, fusca tegminibus obscurioribus macula parva pallida subcostali; prothorace rhombiformi, angulis rotundatis, marginibus lateralibus subsinuatis, femoribus tibiisque posticis nigro annulatis, pedibus anticis externe fuscis, coxis interne albidis apice nigris, femoribus albidis macula media nigra.

Long. corp. unc. 2.

Habitat in insula Java, D. Horsfield. In Mus. Soc. Merc. Ind. Orient. Londini.

SPECIES IV.—*Deroplatys arida*, Westw. plate 9, fig. 1.

Fusco-ferruginea, prothoracis membrana posticè angustata (folium querulus nigra, Linn. Loudon. Arboret. Britann. p. 1891, exactè referenti) tegminibus alisque elongatis ad apicem attenuato-angulatis, his plaga magna baseos nigra nitida, illis subtus maculis sex nigris colore albo separatis: femoribus anticis extus fuscis macula parva fulva ad marginem superiorem versus apicem, intus ferrugineis margine infero flavo, nigro maculato; tibias anticis extus fuscus, intus nigris.

Long. corp. $2\frac{1}{2}$ unc. Expans. tegmin. 5 unc. Long. prothor. lin. $10\frac{1}{2}$ (mens. angl.) Lat. proth. lin. 10.

Habitat in Aurca Chersoneso vel in insula Jabadii (Sumatra). In Mus. D. D. Fortnum et Newman.

The plant of which a small portion is represented is *Spathoglottis pubescens*, Lindl., one of the Indian Orchidaceæ, figured by Wallich in his *Plantæ Asiaticæ Rariores*, vol. 3, pl. 203.

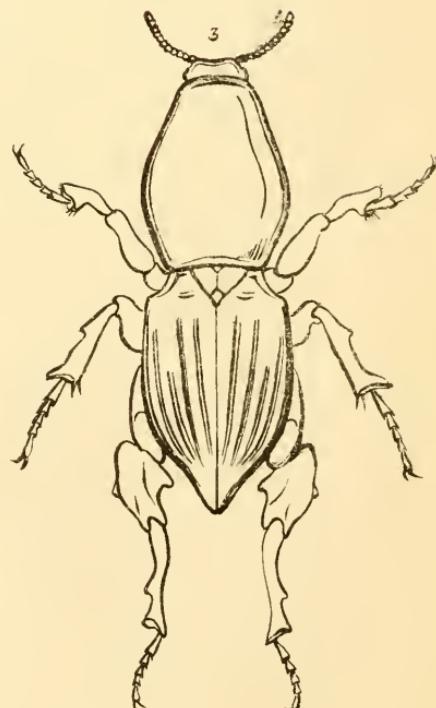
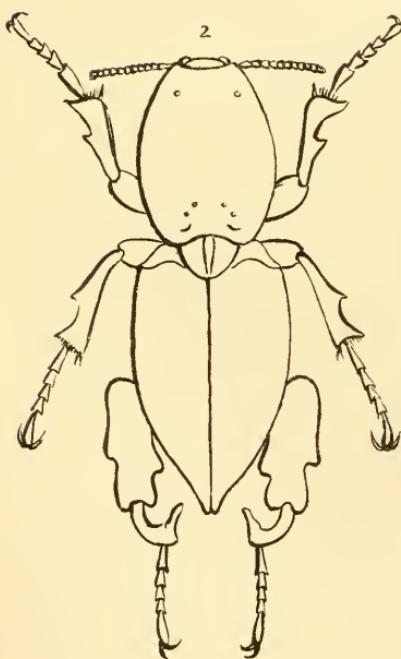
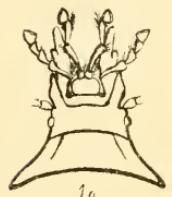
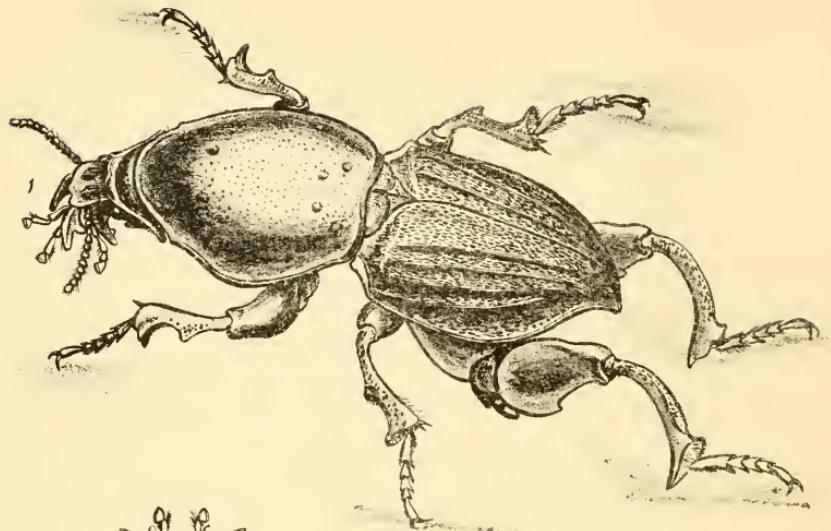


PLATE X.

THE COLEOPTEROUS GENUS HYPOCEPHALUS ILLUSTRATED.

THE genus Hypocephalus was first proposed by M. Desmarest, in Guerin's "Magasin de Zoologie" for 1832 (vol. 1, pl. 24), being founded upon a most anomalous beetle of large size from the province of the mines in the interior of Brazil, whose natural relations have perplexed all subsequent entomologists. The insect is described in detail, and outline figures are given of the dorsal and lateral aspect of the insect, with a front and side view of the head and figures of the palpi detached. My figure 2 is copied from Desmarest's figure of his insect seen from above.

Five years afterwards, Gistl, a German entomologist, unacquainted with Desmarest's figure, published another description and figure of evidently the same insect, in the first number of his "Faunus," under the name of *Mesoclastus paradoxus*, forming it into a new and distinct family of the Pentamerous Coleoptera, named *Xenomorphae*. The upper and under sides of the insect and the front of the head are represented; my figure 3 being copied from his first figure.

For the insect represented in my figure 1, I have to return my best thanks to A. Melly, Esq. who has thus enabled me to dissect this singular insect, and give a correct description of the parts of its mouth. Notwithstanding the differences observable in the three figures, I consider that they are all representations of the same insect; perhaps a variation in the sex of M. Desmarest's insect may account for the great difference between his and the other two figures.

The insect exhibits, as M. Desmarest well observes, a certain analogy with the mole cricket in the large size of the prothorax, thick hind legs and short antennæ. The large size of the hind feet, and especially of the posterior coxae, have rendered necessary an extra-development of the mesosternum, which is pushed so far backwards that the abdomen is reduced to a very small size. The head is of a curious form, its lateral posterior angles being extended backwards, forming somewhat acute and prominent points; on each side beneath the antennæ the head is produced into a conical

deflexed horn, having a tubercle near its tip on the inside ; these two horns are mistaken by Gistl for the maxillæ ; an elevated ridge runs across the middle of the head on the upper side ; the eyes are oval, and placed obliquely behind the base of the antennæ, the anterior part or clypeus (mistaken by Gistl for the labrum) having two deep impressions. The true labrum (mistaken by Gistl for the labium, and incorrectly described by Desmarest as triangular) is small, oblong, emarginate in front, and setose. The mandibles are large, horny, straight, prominent, and of an elongate conical form, with a large tubercle near the base on the outside. The maxillæ (overlooked by Desmarest) are small, and but slightly produced, the base horny, the apical lobe small and hairy, the lower lobe very minute, the maxillary palpi about as long as the mandibles, 4-jointed, the basal joint longest, the 4th larger than the 3rd, and securiform. The mentum (overlooked by Dr. Gistl, and described by Desmarest as the 'levre') is of a transversely oval form, flat and horny, originating above a line drawn between the two deflexed horns of the head. The labium (or ligula) is very minute and setose, not appearing beyond the two short scapes of the labial palpi, which are as long as those of the maxillæ, and 3-jointed (the 2nd joint being equal in length to the 2nd and 3rd joints of the maxillary palpi united). The 3rd joint is equal and similar to the last joint of the maxillary palpi. The antennæ are short, and constructed exactly as in *Spondylus*, the second joint shortest, and the last rather flat and obtuse. The elytra are partially soldered together. The two anterior tibiæ have two unequal-sized spurs at the tip, the middle tibiæ are also two-spurred, but the spurs are of equal size ; the hind tibiæ are not spurred. The prosternum is channelled, and produced between the anterior coxæ, terminating in an obtuse point. The tarsi are 5-jointed, the four basal joints gradually decreasing in size, their terminal angles produced but not bilobed ; these joints on the under side are furnished with two narrow rows of short hairs. Between the unguis is a very short plantula, which is most prominent in the fore legs, but is not terminated by bristles. The basal joint of the hind tarsi is much shorter than in the middle feet. The general colour of the insect is very dark chesnut, the thorax, head, and feet being very shining, and covered with fine punctures, and the elytra are rather redder chesnut, and very rugose ; the prothorax is marked behind with several slight circular impressions, arranged in a semicircle ; and there are two others near its anterior angles.

The following are the dimensions of my specimen (which is, I believe, the only one existing in any of the Metropolitan cabinets *).

	LINES (ENGLISH.) †
Length of the Mandibles	3
— — Head	$5\frac{1}{2}$
— — Prothorax	13
— — Elytra (and Scutellum)	15
	$36\frac{1}{2}$
Length of the Antennæ	4
Breadth of the Prothorax (across the middle)	$10\frac{1}{2}$
— — Elytra	10

M. Desmarest's specimen is only $2\frac{1}{3}$ inches or $55\frac{1}{2}$ millemetres long, whilst that described by Gistl is still smaller, being $2\frac{1}{2}$ inches long.

From the large size of the hind legs, we might at first consider the insect to be capable of leaping, but its whole form contradicts such a notion, and leads us to conjecture that it is a slow and sluggish creature; indeed Dr. Erichson states that he had been informed by the late Prince of Neuwied, that he had taken the insect creeping on the ground. Mr. Melly, on the contrary, informs me that three specimens he had received were reported to have been found in the carcase of a dead horse. From the formidable appearance of the mouth-organs, we might also at first consider the insect to be highly rapacious; but when we examine them in detail, we find a formation evidently unfitted for carnivorous habits; indeed the mandibles are so formed that if their inner edges are brought together they meet in a nearly straight line, or rather the *tips are slightly bent outwards*, so as to lead to the idea that the creature cannot by any possibility bite. Again, the maxillæ and labium are very minute, whilst the two deflexed horns at the sides of the mouth appear quite in the way, were the insect a rapacious one.

My friend, Professor Burmeister, having examined my specimen of the insect and the accompanying figures, has favoured me with the following observations upon its natural relations.

LONDON, 14TH JUNE, 1841.

"According to your desire I give you the following remarks upon the natural affinity of the curious animal Hypocephalus, which

* A specimen (which is, I believe, the only one in Paris) has recently been purchased for the Museum d'Hist. Nat., at the price of 700 francs.

† I employ the English length measure, i.e. 12 lines to the inch. My specimen is, therefore, 3 inches and $\frac{1}{2}$ a line long. It is shorter in my figure by 2 lines, but allowance must be made for the curve of the body.

‡ An inch is equal to 25 French millemetres.

I yesterday suggested to you in your own library, and which I now have more fully detailed. Having now examined the genera most nearly allied to Hypocephalus in Mr. Hope's collection, I am quite convinced that Hypocephalus is a Longicorn, and belongs to the sub-family of the Prionidæ, in the vicinity of Dorysthenes [Cyrto-gnathus *Fald.* *Prion.* *rostratus* and *Pr.* *paradoxus*]—Spondylus, Trietenotoma and Amallopodes, *Dup.* (*Acanthinodera Cumingii*, *Hope*) ; from all which genera Hypocephalus borrows some of the characters.

" Commencing with the antennæ, I find the greatest resemblance between those organs of Hypocephalus and Spondylus, owing to their shortness and moniliform figure, which we observe not only in Spondylus, but also in a new curious prionideous insect from Cordofan, communicated to me by Mr. Kollar, under the name of *Prionus Spondyloides*, and which I have also seen to-day in Mr. Hope's collection*. The whole structure of the head is still more nearly alike in Hypocephalus and Dorysthenes ; and I find no other difference except the curious mode of articulation of the head with the prothorax in the former genus. The mandibles moreover in Hypocephalus are shorter and broader than in Dorysthenes, although the large prominent teeth behind the mandibles (which are by no means articulated as might be conceived from M. Desmarest's figure) are more developed in Hypocephalus than in Dorysthenes. The other parts of the mouth in both genera are entirely similar; and you perceive from the very minute mando (or inner lobe of the maxillæ) that Hypocephalus must be prionideous, because the form of that part is the first family character of the Prionidæ.

" As to the prothorax, there is also a great resemblance between Hypocephalus and Dorysthenes ; and the greatest difference is merely its increased length, whilst in all other Prionidæ the prothorax is broader than long. With this character the shortness of the elytra is in opposition, these organs being as much abridged as the prothorax is elongated. This relation, I confess, is very abnormal, but not exclusively peculiar among the Longicorns, as proved by the genus *Gnoma*. Respecting the sculpture of the surface, it is the same as in most Prionidæ, as well as the colour and texture, which has in all parts the appearance of a coria-

* I believe this is identical with *Coptocephalus brasiliensis*, figured in Griffith's "Animal Kingdom"—*Metopocerus maculicollis*, Serville. J. O. W.

ceous tegument so well exhibited in most species of Prionidæ. I assert that an entomologist who knows nothing of the whole animal except an elytrum, must be convinced by the sculpture that it is part of a prionideous insect. I regret that we have not examined the wings, because these organs, according to my observations, afford the best family characters in the majority of the Coleoptera, and I recommend you to examine them*.

"The legs present stronger grounds of disputation; and I concede that the incrassated femora and incurved tibiæ are different from the type of the family; but this single character will not suffice to remove Hypocephalus from Prionus, because we find in other genera singular forms of legs as in Psalidognathus, Amallopodes and Trictenotoma. From this last genus, which in my opinion is also prionideous, Hypocephalus derives its tarsi, except those of the posterior legs, which are only four-jointed in Trictenotoma. The tarsi of Amallopodes are still more like those of Hypocephalus, except that the penultimate joint is much smaller, thus scarcely receding from the type of the family, as is the case in Trictenotoma and Hypocephalus.

"In the last place the observation that Hypocephalus lives in rotten wood, upon the ground in forests, accords with my opinion of its natural affinities."

Since the arrival of Professor Burmeister in Paris, he has informed me that M. Guérin Meneville had likewise already entertained the same opinion relative to its relation with the Prionidæ, and had prepared a series of figures illustrating its various organs in detail. Notwithstanding the various anomalies exhibited by the genus noticed by Burmeister (to which we may add the want of emargination in the eyes), I must confess that the relation pointed out in the preceding communication appears to me to be the correct one †. It may further be mentioned that the peculiar toothing of the anterior tibiæ occurs in the Australian Pri-

* The insect is totally destitute of wings.—J. O. W.

† Desmarest thinks it nearest to Neerophorus amongst the Clavicorn Pentamera (such also Mr. Melly informs me is the opinion of Dr. Klug), whilst Gistl considers it as forming the passage between the Lamellicorns and Melasomatous Heteromera. In my "Introduction" I suggested that the nearest relations appeared to be such genera as Passandra, Categenus, Rhysodes, and Calodromus, which appear to me to connect the Cucujidæ with the Brenthidæ. In these genera the formation of the tarsi is more or less anomalous, so that we are not on that account to reject this relation. In Passandra, &c., the sides of the head beneath are developed into two flat plates (analogous to the deflexed horns of Hypocephalus). There is also an apparent approximation to the general form of this genus exhibited by various male Brenthidæ, which have thick denticulated feet and short moniliform antennæ, but the structure of the mouth and of the tarsi is very different.

onus pilosicollis (Hope in Trans. Ent. Soc. vol. 1, pl. 2, fig. 1.), and in Cantharocnemis Spondyloides, Dupont, an uncharacterised genus from Senegal. Another curious character, to which perhaps but little weight ought to be given, is the great length of the basal, and the shortness and triangular form of the terminal joint of the palpi. I have, however, found securiform maxillary and labial palpi in a curious Prionus, obtained by Mr. Raddon from raw turpentine (*Hoplopteryx denticulatus*, Westw. ined.). The minuteness of the labium or ligula is also to be noticed, since in almost all other Longicornis it is visible beyond the base of the labial palpi.

Having elsewhere suggested that Spondylis is more nearly allied (from its larva) to the Lepturidæ than to the Prionidæ, and Hypocephalus, being more allied to Spondylis and Cantharocnemis than to the other genera mentioned by Burmeister, it becomes interesting to speculate on the degree of relation which Sagra (so nearly allied to Leptura) bears to Hypocephalus.

DESCRIPTION OF PLATE X.

Fig. 1. My specimen of *Hypocephalus armatus*.

- 1a. Under side of the head.
- 1b. One of the maxillæ.
- 1c. The labrum.
2. Copy of Desmarest's figure of *Hypocephalus armatus*.
3. Copy of Gistl's figure of *Mesoclastus paradoxus*.





PLATE XI.

DESCRIPTIONS OF TWO NEW SPECIES OF PAPILIO FROM
NORTHERN INDIA.

In the fine collection of Assamee insects, collected by Mr. Griffith, already alluded to in p. 17, and which has supplied materials for two very interesting memoirs published by the Rev. F. W. Hope, in the Transactions of the Linnaean Society, are several new species of Papilio, amongst which that represented in the two lower figures in plate 2 is especially worthy of notice on account of the very peculiar character of the markings of the under surface of the wings. It may thus be characterized :—

PAPILIO GYAS, *W.* Plate II, fig. 1 & 1.

P. alis anticis subhamatis posticis caudatis; supra fuscis margine obscuriori luteo submaculatis, macula parva cœrulea ad angulum ani; subtus brunneis medio pallidis lunulisque subargenteis notatis.

Expanse. alar. unc. 4 $\frac{3}{4}$. Habitat Assam. D. Griffith. In Mus. D. Solly.

The wings above are of a dull brown colour, the anterior having a dark brown triangular spot about the middle, extending across the discoidal cell, at the extremity of which is a second similar spot ; the outer margin is darker, with six luteous submarginal patches ; between the apex of the wing and the extremity of the discoidal cell are three indistinct oval patches of a similar colour. The hind wings are similarly coloured, but the margin is darker brown and wider, and the luteous spots assume the appearance of indistinct lunules ; at the anal angle is a small patch of blue scales. The body above is clothed with greenish hairs ; on the under side the colours are much brighter and more varied. The base is occupied by a large space of rich dark red-brown, or maroon, of which there is also a patch at the extremity of the discoidal cell. This is succeeded by a bar of whitish fleshy-coloured tint which passes gradually to brown and purple ; near the apex of the fore wings is a large patch of pale opaline colour, from which extends a bar of fulvous brown, terminating above in white angles preceded by purplish and obscure brown arches, the margin is brown, within which is an obscure bar of luteous. The extremity of the discoidal cell in the hind wings is occupied by a dark brown patch preceded by a white opaline arch edged with black ; a bar of the former

colour extends also to the anal angle, and adjoining the tail are several luteous spots preceded by opaline-white lunules; the space between them and the discoidal cell being rich dark brown. The whole under side has a glossy appearance. The body beneath is brown, the abdomen yellowish. The legs are red brown. The specimen represented is a male.

The species is most nearly allied to *P. Peranthus*. I have been very careful in giving the precise shape of the wings, both in this and the following species.

PAPILIO CLOANTHUS, *W.* Plate 11, fig. 2.

P. alis elongatis, anticis apice acutis, posticis caudatis; nigris, fascia media communis subnuda argenteo-virescenti, versus apicem antecarum in maculas 4 divisa, posticis maculis submarginatis concoloribus.

Expans. alar. unc. $3\frac{1}{2}$. Habitat in partibus septentrionalibus Indiae orientalis.

The wings above are almost black, the centre marked with a very broad fascia, common to each, of a whitish-green tint, but almost transparent. The extremity of this bar is broken in the apical half of the fore wings into four patches of unequal size, the first divided transversely and the second longitudinally by the veins. The hind wings are moreover ornamented with four unequal-sized patches of similar colour, and the incisions between the tail and anal angle are edged with white.

The under side is paler brown, with similar silvery green semi-transparent spots. In addition to which the base of all the wings is also slightly green, and the fore wings have a pale line near to the outer margin; near the base of the hind wings are also three small and slender red lunules edged with black. At the extremity of the discoidal cell are also several black spots edged with dull pinkish-red, a similar spot is at the anal angle, and another at the side of the first green patch. The body beneath is pale greyish-green. The abdomen whitish with a black bar on each side.

I have seen this species in the cabinets of F. J. Parry and W. W. Saunders, Esqrs., the British Museum, as well as in several other collections.

This insect is most nearly allied to *P. Sarpedon* and the neighbouring species, but is at once distinguished by being tailed, as well as by its acute fore wings, and the semi-transparency of its delicate silvery-green markings.

“ Amidst the loud applauses of the shore,
Gyas outstripp'd the rest, and sprang before ;
Cloanthus, better mann'd, pursued him fast.”

DRYDEN'S VIRGIL.



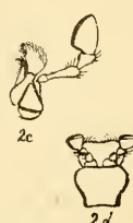
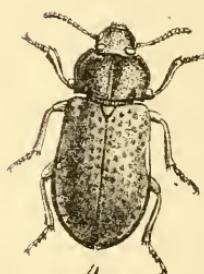
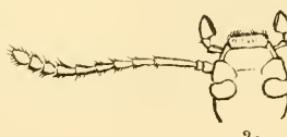
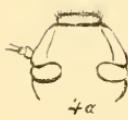
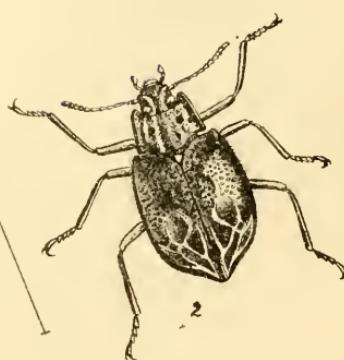
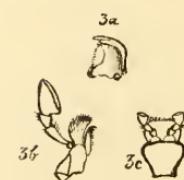
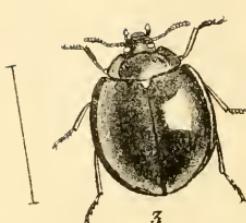
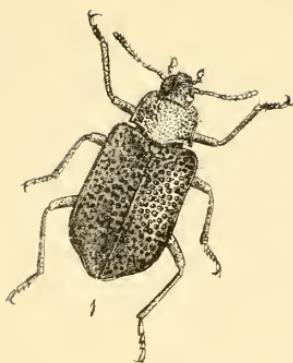


PLATE XII.

DESCRIPTIONS OF SOME NEW GENERA OF AUSTRALIAN HETEROMEROUS BEETLES IN THE COLLECTION OF THE REV. F. W. HOPE.

—
CYPHALEUS, *Hope*.

Corpus oblongo-ovatum, elytris convexis rugosis lateribus parallelis. Caput mediocre, clypeo ante oculos utrinque prominente, basin antennarum tamen vix obtegente. Antennae longitudine capitis cum dimidio thoracis, articulis apicalibus parum crassioribus et brevioribus. Mandibulæ subtrigonæ, externe rotundatae, apice bifidae, intus membrana in cavitate recepta, instructæ. Maxillæ lobo interno in hamum corneum acutum producto, lobo externo magno inermi setoso. Palpi max. articulo ultimo magno securiformi. Mentum subquadratum, antice latius angulis antice rotundatis: labium subquadratum angulis etiam rotundatis. Palpi lab. breves, in scapos parvos insidentes, articulo 3tio subsecuriformi. Prothorax postice latior, angulis acutis. Elytra magna, prothorace multo latiora, convexa, valde punctato-rugosa. Pedes longi simplices.

SPECIES I. *Cyphaleus formosus*, *Hope*. Niger, nigro-setosus, supra punctatus, elytrorum dimidio basali viridi, purpureo cincto, apice violaceo-nigrante, punctis elytrorum majoribus, et saepè confluentibus.

Long. corp. lin. $11\frac{1}{2}$.

Obs.—The splendid purple oval edging to the green base of the elytra is a very peculiar character in this insect.

SPECIES II. *Cyphaleus iopterus*, *Hope*. Niger, nigro-setosus, supra punctatus, punctis elytrorum majoribus distinctis, apicem versus oblitteratis; elytris nitide violaceis.

Long. corp. lin. 10.

Obs.—The smaller size, more regular, and slighter punctation of the elytra, which are smooth behind, and their uniform violet-purple colour, are the chief differences between the two preceding insects.

SPECIES III. *Cyphaleus rugosus*. Totus ater, elytris rugoso-punctatis.

Helops ? *rugosus*, G. R. Gray, in Griffith, An. K. Ins. pl. 80, f. 5.

Helops aterimus, G. R. Gray in ditto, pl. 74, fig. 5 (details), and Part 31, p. 22.

Long. corp. lin. 11.

CHARTOPTERYX, *Hope*.

Corpus ovatum convexum, antice attenuatum. Antennæ capite cum thorace longiores, graciles, articulis 4 apicalibus brevibus et vix crassioribus. Mandibulæ crassæ, apice acutæ, curvatæ, intus apicem bifidae, spatio marginis interni membrana repleto. Maxillæ parvæ, lobo interno apice hamo parvo acuto corneo inflexo armato. Palpi max. articulo ultimo securiformi, mentum subcordato-truncatum, labium integrum ciliatum. Palpi lab. breves, articulo ultimo sub-securiformi. Prothorax sub-planus postice latior, lateribus rectis marginatis, Elytra basi vix pronoto latiora, gradatim dilatata convexa, postice areolata, apice acuto. Pedes longi graciles.

Obs.—The generic name is proposed in allusion to the map-like markings of the hind part of the elytra.

SPECIES I. *Chartopteryx Childrenii*, Hope. Æneo-niger nitidus, capite thoraceque tenuissime punctatis villoso-lineatis, elytris magis cencis punctatis, parte postica in areas lœves chalybeas formæ variz lincis punctatissimis et villosis divisa.

Long. corp. lin. 8.

HEMICYCLUS, *Hope*.

Corpus hemisphericum, marginatum, glabrum; Cassidas varias simulans. Antennæ capite cum thorace vix longiores, articulis 5 terminalibus brevioribus et parum dilatatis. Mandibulæ, maxillæ, palpi et instrumenta labialia ut in genere præcedente. Pronotum lunatum postice multo latior, lateribus fere rectis, angulis parum rotundatis. Elytra maxima fere rotundata, marginata, gibbosa, glaberrima. Pedes longitudine mediocres, graciles, simplices, tarsis angustis, articulis subtus productis.

Obs.—This genus, although so different in form, is more nearly allied to the preceding than to *Helæus*, or the hemispheric metallic Diaperidæ.

SPECIES I. *Hemicyclus grandis*, Hope. Æneo-niger, nitidissimus, capitis parte postica sub lente punctata; elytris metallicis, dorso purpurascente, lateribus magis virescenti-nitidis; pedibus antennisque nigris.

Long. corp. lin. $7\frac{1}{2}$.

SPECIES II. *Hemicyclus metallicus*, Hope. Niger, nitidissimus, elytrorum dorso purpureo-nitido, tarsis quatuor anticis subdilatatis. An mas præcedentis?

Long. corp. lin. $5\frac{1}{2}$.

LEPISPILUS, *Hope*.

Corpus oblongo-ovatum, squamoso-punctatum. Antennæ prothorace longiores, articulis quaque ultimis crassioribus brevioribus. Mandibulæ crassæ, apice in dentem obtusum terminato, intus membrana ciliata instructæ. Maxillæ lobo interno haud unco corneo instructæ. Palpi max. articulo ultimo vix securiformi. Mentum transversum lateribus rotundatis ciliatis. Labium integrum; palpi lab. articulo ultimo securiformi. Prothorax transversus, lateribus rotundatis, angulis posticis acutis, dorso longitudinaliter canaliculatus. Elytra elongato-ovata, punctis majoribus sed parum impressis et villosis. Pedes mediocres, simplices, tibiis parum curvatis, unguibus longis.

SPECIES I. *Lepispilus sulcicollis*, Hope. Niger, elytris magis brunno-purpureis, albo-villosis maculaque majori in medio marginis lateralis ejusdem coloris; capite thoraceque punctatis, hoc impressionibus duabus versus angulos posticos, lineaque impressa media longitudinali.

Long. corp. lin. 7.

Obs.—This insect is probably identical with the *Helops à corselet sillonné* of Boisduval, in the *Voyage de l'Astrolable* Col. pl. 7, fig. 5, but the figures in that work are so execrable, that it is impossible to determine the species with precision.

Obs.—The four genera above described belong to the great family Helopidæ, and are here published with the view of affording materials towards a revision of that group.

The plant figured in the plate is Australian *Epacris nivalis*.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

(No. III.)



ZOOLOGICAL WORKS PUBLISHED UNDER GOVERNMENT PATRONAGE.

In no one particular do we find the great distinction between England and the Continental nations more strikingly illustrated than in the publication of works of science, and particularly upon Natural History. In England all our finest works have been produced either at the cost of individuals, whose purse-strings have been opened with a liberal hand by their zeal for the science—witness Mr. Lambert's magnificent work on the genus *Pinus*, the Lepidoptera of Georgia of Abbot and Smith, the Exotic Insects of Drury, the Malacostraca Podopthalma of Dr. Leach—or by the spirited exertions of publishers, as in the case of the Translation of the Animal Kingdom by Griffith, the splendid works on Ornithology by Mr. Gould, or the works on British Entomology by Messrs. Curtis and Stephens. With very few exceptions government has afforded no assistance to the publication of such works. On the Continent, however, the case is entirely reversed, the finest works having been produced under the auspices of the respective governments of the countries in which they have been published.

That the direction unquestionably given to the public mind in such countries by the course of public education, must have a material effect in producing such a result, is unquestionable; nor can we expect that the case will be altered here until physical science in general, including Natural History as a necessary branch, is fostered by the State for her own sake, independent of the shop-keeping spirit of the country, and is insisted upon as a branch of public education as material as the Classics, Mathematics, &c. *

* Since the publication of the last number of this work I have had the pleasure of visiting Oxford, in company with Professor Burmeister; but how can I explain the mingled feelings I experienced at being compelled to answer his question, "Who is the Professor of Zoology here?" by informing him that there was no such Professorship in this, the most magnificent University in the world—in more forcible language than was employed by Mr. MacLay upon this very subject twenty years ago?

"Unfortunately in those classic scenes which derive no small portion of their fame from a Ray and a Lister, the existence of Zoology as a science is in these days scarcely suspected. Well may the foreigner who beholds our learned establishments so splendidly endowed, note, among the most remarkable circumstances attending them, that in none whatever should there be a Zoological chair. It is not for me to enter into the causes of this, else it were desirable to know why plants should have been deemed worthy of attention, while animals have

It may indeed be urged that the taste for such pursuits in the minds of persons in authority may have in some degree contributed to such a result, but it appears to me that it is quite independent of such consideration. How, in fact, were it not so, can we account for the non-publication of such works in this country, when it is well known that the Royal Family are and have long been interested in these pursuits, the Princess Charlotte, for instance, having possessed a cabinet of exotic insects, and her present Majesty as well as her Consort being understood to have a strong predilection for Natural History.

It will be sufficient to prove the correctness of these observations, to mention a few of the works published under the direction of Continental States, which throw into deep shade all that the government of this country has ever aided in producing.

The great work on Egypt, undertaken by the direction of Napoleon, would alone be a “monumentum aere perennius.” Its magnificent plates (of which those of the Annulose animals are perhaps the most elaborate, and which cost the eye-sight of the inimitable Savigny) are on a par with all the undertakings of the gigantie-minded Emperor. More recently, under the auspices of the present King and his government, we have the *Expédition scientifique de Morée*, the *Voyage de la Coquille*, those of the *Astrolabe*, of D’Orbigny, and others, each of which surpasses any of the government Natural History works of this country.

In Prussia may be mentioned the splendid *Symbolæ Physicæ* of Ehrenberg and Hemprich, the insects of which were edited by

been utterly neglected. I can only acknowledge with regret that such has been the case. If it be said that lectures on natural affinities are included in some course of comparative anatomy, I am truly glad to hear it; but if it be urged that the knowledge of comparative anatomy implies that of the animal kingdom, I deny it totally, since comparative anatomy is only the instrument of Zoology; and while no man can be versed in natural affinities without some acquaintance with comparative anatomy, examples may easily be specified of comparative anatomists who know nothing of natural history. *A Professorship of Natural History is necessarily charged with duties that give ample employment in Paris to thirteen professors with their numerous assistants.* [Since this was written another professorship has been established for the investigation of the Annulose animals in particular.] I have ventured to give this humiliating picture of the state of Zoological instruction in Great Britain, because there are persons who affect surprise that in that science which relates to the animated works of God, France should be the predecessor over a nation comparatively more religious.”—*Hœre Entomologica*, p. 457.

Entertaining as I do the opinion that other and far higher considerations are involved in the study of Zoology than the elucidation of natural affinities, I cannot discover the slightest shadow of reason why Zoology should be neglected where Botany, Geology, and Comparative Anatomy are introduced. The very notion of such an arrangement is ridiculous, even in the truly English *cui bono* view of the question.

If the establishment of such a professorship rests with the Universities, and does not depend upon private endowment, it behoves the Zoologists of the country to bring the subject in a proper manner before the *Senatus Academicus*.

Dr. Klug; and in Russia, the Oryctographie du Gouvernement de Moscou, the Entomology of the Trans-Caucasian Regions, and of the Embassy to North China.

It is not, however, in these great states alone that we find this fostering care of science, for the national works undertaken by the Dutch are not behind the majority of those mentioned above. The Fauna Japonica of Siebold, assisted by Temminck, Schlegel and De Haan, "jussu et auspiciis superiorum qui sumnum in India Batava imperium tenent," would do honour to any country. And we have now the commencement of a similar work on the Natural History of the Dutch Settlements in India, in large folio; the third part of which is devoted to a complete illustration of the Indian species of the modern genus *Papilio*, occupying nine plates, with descriptions by De Haan. The title of the work is as follows :

Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche bezittingen door de leden der Natuurkundige Commissie in Oost-Indie en andere Schrijvens.— Leiden, 1840.

In addition to illustrations of numerous previously-described species, of which various beautiful varieties are represented, one plate is devoted to an elaborate series of anatomical details of the genera composing the modern family Papilionidae, in which we find the characters afforded by the variations in the male organs of generation, and the veining of the wings, to be extensively employed. There is also a considerable number of new species figured, one of which is closely allied to the splendid *Priamus*, which it even exceeds in beauty.

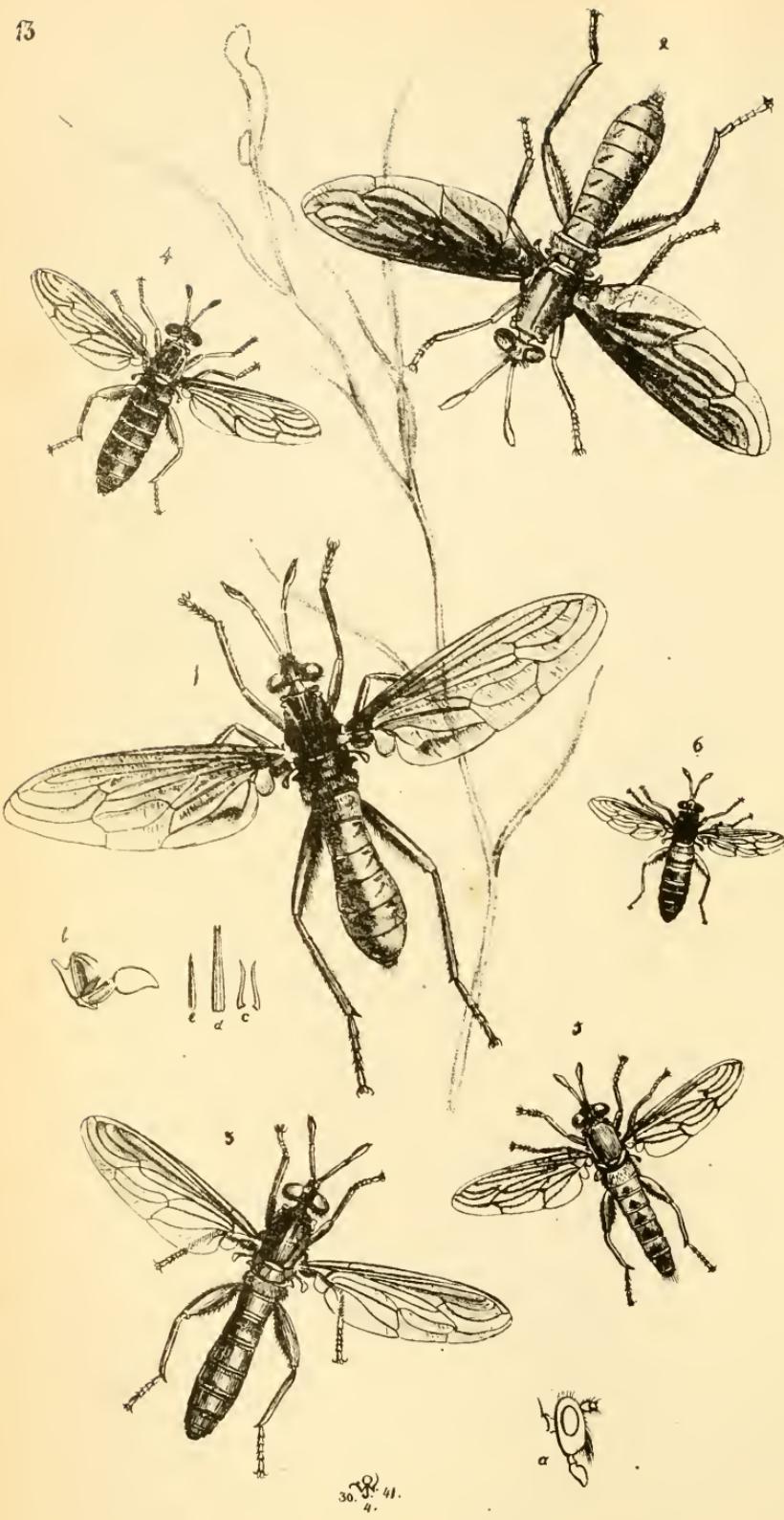
Having illustrated in the present number of this work two new additional species of *Papilio* from the same quarter of the globe, I thought it a fit opportunity to notice this new work, which adds fresh fame to the name of its talented author, whilst the circumstances under which it has appeared naturally led to the foregoing remarks.

THE ENTOMOLOGIST, conducted by EDWARD NEWMAN, F.L.S., &c., Nos. 1 to 8, 8vo.
January—June, 1841. London, Van Voorst.

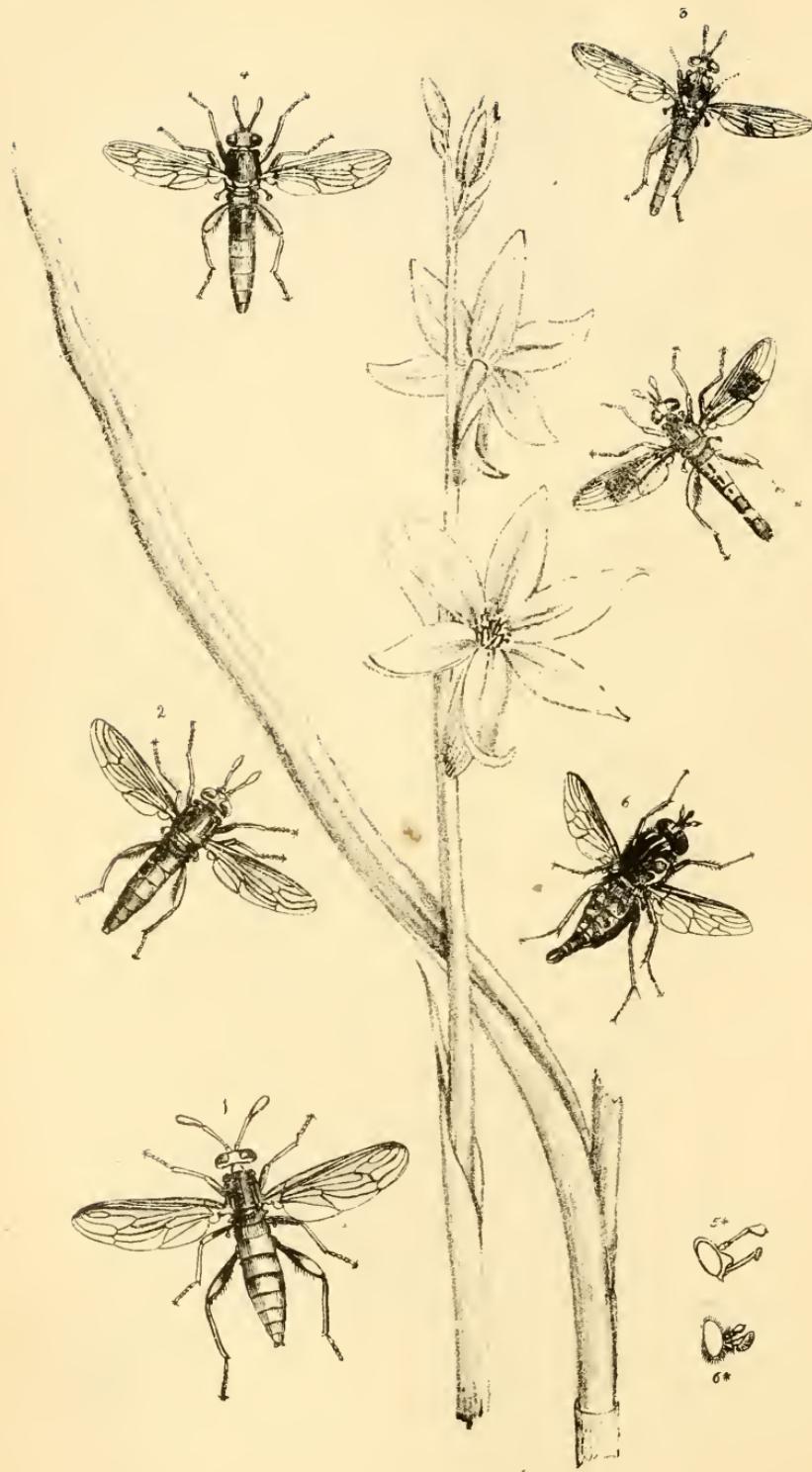
This work may be considered as a continuation of the Entomological Magazine. It consists for the most part of a series of papers by the editor, in which a great number of new genera and species of Longicorn Coleoptera, various American Hispæ, and Cryptocephali, and a number of Australian Cleridæ and Brachinidæ are too concisely described. A paper with descriptions of some very interesting

Bombycidæ, by Mr. Doubleday, with an outline plate engraved by W. Raddon, Esq., from original drawings by Abbot, and a memoir on the Aulacidæ, and some allied Hymenoptera by Mr. Shuckard, are also introduced. Abstracts are also given of the Volume of Insects in the Cabinet Cyclopædia; the transactions of the Entomological Society, the Annals of Natural History, the Canadian Naturalist, and of the first number of this work. A number of short communications of minor importance are also introduced, as well as a few woodcuts; and in each of the two last numbers is given an outline plate of various genera of Chalcididæ, described in the Entomological Magazine.

INVESTIGATION OF THE MYRIAPODA.—This long-neglected but highly curious group of Annulose animals has recently received much attention by Dr. Brandt of Petersburgh, and M. Gervais of Paris. In our own country, Mr. G. Newport has also undertaken their investigation, and it is with great pleasure that I mention that a paper by him upon the development and growth of the large English *Iulus* has been selected by the Royal Society for the Bakerian lecture of the present year; and that an elaborate memoir by him on the entire group, with copious illustrations, may shortly be expected.







PLATES XIII. AND XIV.

SYNOPSIS OF THE DIPTEROUS FAMILY MIDASIDÆ, WITH DESCRIPTIONS
OF NUMEROUS NEW SPECIES.

THIS family, having for its type the genus *Midas**, comprises some of the most gigantic species of Dipterous insects, remarkable for the great elongation of the antennæ, the dark or coloured wings in many of the species, and occasionally the metallic appearance of the body; in all which respects we find a singular analogy to the gigantic Sphegidæ belonging to the tribe of fossorial Hymenoptera, which inhabit the same regions as are frequented by the Midasidæ.

The antennæ, which in some species are nearly as long as the thorax, appear in reality to be formed of only four joints, the third being occasionally bi- or tri-annulate, and the fourth sometimes biannulate; so that, as in *M. lusitanicus* (Meig. vol. 6, t. 66, f. 2), the antennæ appear seven-jointed. If the minute, and, indeed, often obsolete, style at the extremity of the antennæ be taken into consideration, we have a five-jointed antenna analogous to that of *Dasyptogon*, &c.

Much confusion exists in the works of Dipterologists as to the structure of the mouth, and Macquart acknowledges his inability to determine its structure, by observing which, he had hoped to have determined the real situation of this anomalous group. I have been more fortunate, and having extracted the different parts, have represented them in pl. 13, fig. *a—e*. The proboscis is terminated by two large lips, and the haustellum consists of a labrum, long, slender, channelled beneath, and notched at the tip (*d*), inclosing beneath a short acute seta or lingua (*e*); a little in advance of the base of the labrum arises a pair of slender curved setæ, which Fabricius evidently regarded as palpi, but which I consider as the analogues of the maxillæ of the Asilidæ, and as destitute of palpi. Latreille indeed adds, "Palpi brevissimi?" (Gen. Cr. 4. 294); but I have seen nothing of them. If we regard them as palpi, we have a mouth analogous to that of the Muscidae, whilst it is evident from the remainder of the characters of the group that the Midasidæ really belong to the Tanystomatous division of the order.

* I have adopted the orthography of the generic name *Midas*, given by Wiedemann (in his monograph in the *Nova Acta*, vol. xv. pt. 2), in correction of the Fabrician name *Mydas*, the term being evidently proposed in allusion to the long-eared King *Midas*.

We find an almost identical arrangement of the veins of the wings exhibited by this group and by *Nemestrina* amongst the *Anthracidae* *.

Olivier, evidently from personal observation of the species which he found in Egypt, thus describes their habits, which resemble those of *Asilus* and *Dasypogon*. "Ils vivent de rapine et font une guerre continue aux autres insectes, qu'ils attrapent en volant, et dont ils retirent tous les sucs au moyen de leur trompe. On les voit attaquer les Hyménoptères les plus fortes et les mieux armés, et les emporter entre leurs longues pattes, sans que l'aiguillon de ceux-ci puisse les atteindre. Leurs larves nous sont inconnues."

To this account I am able to add, from information given to me by Mr. MacLeay, that the larvae of *M. tricolor* (which he observed in Cuba) are parasitic upon the larvae of the giant *Prionidae*.

Wiedemann described all the species known to him under the genus *Midas*; but Latreille separated from them a sub-genus, having the proboscis long and porrected, named *Cephalocera*; and Macquart added a third, *Rhopalia*, differing only in the alteration in the veining of the wings and the thickened mass at the extremity of the antennæ. If, however, this be admitted, it will become necessary to form another for my *M. auripennis*, which would, I consider, be unnatural. Six years ago I described another genus from Australia, which I refer to this family, on account of the similarity in the veining of its wings, although it is perhaps doubtful whether it is not more nearly related to the *Nemestrinidae*.

GENUS MIDAS, *Wied.* (*Mydas, Fabr.*)

SPECIES I.—*M. heros*, Perty. (Del. Anim. Art. Braz. t. 36, f. 11.) Ater, antennis ferrugineis, abdominis segmento 1mo sulphureo-hirto, alis antice testaceis costa et venis fusco-nigris. Long. lin. 26. Expans. alar. lin. 42. Brasilia.

SPECIES II.—*M. giganteus*, Thunberg. (Sw. Trans. 1818, p. 246, Wied. Mon. Mid. tab. 52, fig. 1, ♂ ♀.) Ater, thorace vittis dilutioribus; abdomen ♂ chalybeo, ♀ vix cærulescente; alis in ♂ cothurnatis vel fuscanis, in ♀ nigris; margine interno apiceque fuscano-flavidi. Long. corp. lin. 15—18 ♂, 20 ♀. Brasilia.

Obs. 1.—*M. cærulescens*, Oliv. Enc. Méth. 8, p. 81, is regarded by Wiedemann as identical with the male of this species. Olivier, however, says, "L'abdomen est d'un bleu très-brillant," which will scarcely agree with it. The Rev. F. W. Hope possesses a variety of the male with the abdomen black, and the front margin of the wings pale brown, scarcely darker than the hind margin.

SPECIES III.—*M. dives*, Westw. n. sp. Pl. 13, fig. 1. Niger, thorace vittis cinerascentibus, abdominis segmento 1mo aureo piloso, 2do aureo-sericati, reliquis late purpureo-cærulei; antennis, articulis 2us basalibus exceptis, aliquis fulvis, harum basi obscuriori margineque postico translucente, pedibus longis ♀. Long. corp. lin. 18. Exp. alar. unc. 3¹/₆. In Mus. D. Hope.

* Latreille refers to *Paugonia*, but evidently in mistake for *Nemestrina* (R. A. 5. 480).

SPECIES IV.—*M. rubidapex*, Wied. (Mon. Mid. pl. 52, f. 2.) Niger antennis apice rubris alis rubido-flavis extrema basi nigris. Long. lin. 17—19. Mexico.

SPECIES V.—*M. mystaceus*, Wied. (Mon. Mid. pl. 52, f. 3.) Ater antennis rubidis, epistomate utrinque albo-pilosus ♂. Long. lin. 16. Surinam.

SPECIES VI.—*M. annulicornis*, Westw. n. sp. Pl. 13, fig. 2. Niger barba epistomatis nigra, antennis (nisi articulis 2bus basalibus) fulvo-rubris, annulo nigro ad apicem articuli 3tii; thorace vix cinereo vittato, abdominis segmento 2do nigro-viridescenti, 3bus ultimis nigro-caerulecentibus. Alis fusco-nigricantibus, basi venis obscurioribus, margine postico pallidius infumato ♀. Long. corp. lin. 16. Exp. alar. 2 unc. 8 lin.

Habitat in Brasilia. Mus. D. Miers.

SPECIES VII.—*M. Bonariensis*, Serville, Guér. Icon. R. An. Ins. pl. 97, f. 5. (Buenos Ayres.)

The description of this species has not yet been published.

SPECIES VIII.—*M. nitidulus*, Oliv. (Enc. Méth. 8, p. 83. Wied. Mon. Mid. pl. 52, f. 4.) Thorace nigro albido-vittato; abdomen subcupo, utrinque viridi-aureis maculis, alis translucidis fusco nonnihil ad costam tinctis. Long. lin. 16.

(Syn. *M. nitida*. Lichtenst. Mus. Holthuys. p. 213).

SPECIES IX.—*M. crassipes*, Westw. n. sp. Pl. 13, f. 3. Totus niger, thorace abdomineque nitidis, antennis brevioribus, pedibus brevibus femoribus posticis incrassatis dentatis, alis subpellucidis, vena 3tia longitudinali apiceque fusco tinctis. ♀. Long. corp. lin. 16. Exp. alar. 2½ unc.

Habitat in America septentr. ? Mus. Hope, e Mus. Children.

SPECIES X.—*M. tricolor*, Wied. (Mon. Mid. pl. 53, f. 5.) Thorace femoribusque posticis rubidis; epistomate aurato: abdomine chalybæo. Long. corp. lin. 13 ♀.

Habitat in insula Cuba.

SPECIES XI.—*M. tibialis*, Wied. (Mon. Mid. pl. 53, fig. 6.) Niger tibiis tarsisque flavis alis fuscans. Long. lin. 13. ♂. Ex Baltimore.

SPECIES XII.—*M. politus*, Wied. (Mon. Mid. pl. 53, f. 7.) Thorace nigro glabro, abdomine cupreo; alis nigris, pedibus ferruginosis. Long. lin. 13. ♀.

Habitat—?

SPECIES XIII.—*M. auripennis*, Westw. (in Lond. and Edinb. Phil. Mag. April, 1835), Pl. 14, fig. 1. Niger, capite, antemnis, collo, angulis anticis thoracis, abdomine (segmento basali marginibusque 3tii segmenti supra et segmentis tribus intermediis subtus) pedibusque (nisi femoribus ad basin) late fulvis; alis auricoloribus macula versus apicem costæ nigra marginaque interno pellucido; mesosterni lateribus unispinosus. Long. corp. lin. 11. Expans. alar. lin. 19.

Habitat in Nova Hollandia. Mus. Hope et nostr.

Obs.—The veins of the wings in this species differ from those of all the others, the anterior branch of the fourth longitudinal vein dividing and forming a small closed oval cell (appendiculated at its extremity, but wanting the small oblique appendiculated vein at its base above) near the apex of the wing, whilst the long closed cell near the middle of the hind margin is not pedunculated at the extremity most distant from the body, as in almost every other species.

SPECIES XIV.—*M. clavatus*. Niger, abdominis segmento 2do aurantiaco; alis nigris. Long. lin. 10—12.

Habit in Amer. Boreali.

Syn. *Musca clavata*, Drury. Ill. vol. 1, pl. 44, f. 1. App. vol. 2 (1773).

Nemotelus asilooides, De Geer. Mem. v. 6, t. 29, f. 6.

Bibio filata, Fabr. Mantissa, Ins. ii. p. 328. l. (1787.)

Mydas f., Fabr. Syst. Antl. Midas f. Wied. Mon. Mid. pl. 53, f. 8.

Bibio illucens, Fabricius. Syst. Ent. 756. 1.

SPECIES XV.—*M. atratus*, Macq. (Dipt. Exot. t. 1, pars 2, p. 11.) Niger, abdomine depresso ♀, segmento ultimo supra macula rufescens, alis fuscis venis obscurius marginatis. Long. corp. 11 lin. ♂ ♀.

Habitat—? Au var. praecedentis?

SPECIES XVI.—*M. brevicornis*, Wied. (Mon. Mid. pl. 53, f. 9.) Niger, politus abdominis segmentis 3, 4, flavido-diaphanis. Long. lin. 11. ♀.
Habitat in Brasilia.

Obs. 1.—Cellula media marginis postiei ramum nullum ad marginem posticum currentem emittit.

Obs. 2.—*M. iopterus*, Wied. Auss. Zw. Ins. 1. 241. 4. Var. differt segmentis 3, 4 abdominis utrinque macula parva subquadrata flavida notatis et alis ubique fuseis chalybæo resplendentibus.

SPECIES XVII.—*M. leucops*, Wied. (Mon. Mid. pl. 53, f. 10.) Thorace nigro, vittis epistomateque albopilosis, abdomine chalybæo, alis sinuato-fuscano-flavis. Long. lin. 11 ♂.
Habitat in Brasilia.

SPECIES XVIII.—*M. gracilis*, Macq. (Hist. Nat. Ins. Dipt. 1, p. 274, pl. 7, fig. 1.) Niger, barba et frontis lateribus albidis aut flavidis, thorace lineis 4 albis, intermediis duabus antice paullo dilatatis, vitta nigra dorsali velutina, lateralibus duabus lævibus brunneis, metathorace maculis duabus albis, abdomen violaceo metallico segmento 1mo nigro albopilosu reliquis fulvo tenuiter marginatis, pedibus nigris femoribus tibiisque posticis obscure testaceis, alis brunnescensibus. ♂ ♀. Long. corp. lin. 10.

Habitat in America meridionalis.

SPECIES XIX.—*M. ruficornis*, Wied. (Mon. Mid. pl. 53, fig. 11.) Niger thorace antice melleo-fuscano, antennis ferrugineis alis fuscis. Long. lin. 9. Ex Tranquebar.

SPECIES XX.—*M. interruptus*, Wied. (Mon. Mid. pl. 53, f. 12. ♂ ♀.) Niger, abdomine fasciis tribus flavis; 1ma utrinque interrupta. Long. lin. 9—10. ♂ ♀.

Habitat in Mexico.

SPECIES XXI.—*M. senilis*, Westw. n. sp. Totus niger griseo-setosus, barba epistomatis grisea alis fuscanis costa magis fulvescenti venis posticis fusco-marginatis, cellula media versus marginem posticum venam brevem ad marginem currentem hand emitteuti. Long. corp. lin. 6. Expans. alar. lin. 16.

Habitat in Mexico. Tacubaya nostr. D. Coffin. Mus. West.

SPECIES XXII.—*M. viduatus*, Westw. (in Lond. and Edinb. Phil. Mag., April 1835), Pl. 14, fig. 2. Niger, facie et thoracis lateribus maculaque triangulares ad basin segmentorum 3 et 4 abdominis sericie argentea obsitis, alis pallidis in medio fuscantibus, venis fuco marginatis. Long. corp. lin. 10. Exp. alar. lin. 16.

Habitat in Nova Hollandia. Mus. nostr.

Obs.—In this, and the two other Australian species of this genus described below, the fifth longitudinal vein extends to the costa a little before the extremity of the wing, instead of joining the extremity of the second longitudinal vein; moreover the long closed middle cell near the hind margin of the wing is not appendiculated (or petiolated) at its extremity most remote from the body, but extends to the next cell, which runs to the tip of the wing.

SPECIES XXIII.—*M. fulvifrons*, Illiger. (Wied. Mon. Mid. pl. 53, fig. 13.) Niger, abdominis medio flavo, epistomate fulvo-hirto, antennis nigris, clava rubiginosa, alis saturate flavidis, pedibus nigris, tibiis subrubido-fuscis. Long. lin. 9½.
Habitat in Georgia Americana.

Obs.—In the collection of drawings of Georgian insects, made by Abbot in the library of the British Museum *, are two figures; one of which I consider to represent this insect. It is numbered 65, and represents the first segment of the abdomen as black; the 2nd, 3rd, and 4th, fulvous with a pale hind margin; the 5th with a fulvous margin alone; the remaining segments black.

* Vol. 13, Diptera, Catalogue mark 7956, Plutarch 126 E.

SPECIES XXIV.—*M. pachygaster*, Westw. n. sp. (pl. 13, fig. 4.) Rubiginosus, antennarum articulo 3to fulvo, 4to nigricanti, oculis nigris intus sericie albicanti marginatis; thoracis dorso nigro vittato, abdomine thorace latiori, segmento 1mo et ultimo fulvescentibus, 1mo basi obscurō, intermediis nigris margine tenui postico flavo, pedibus rubiginosis; alis fuscantibus ad costam melleo tinctis venis obscurius marginatis. ♀ Long. corp. lin. 9½. Expans. alar. lin. 20.

Habitat in Georgia Americana. In Mus. D. Hope.

SPECIES XXV.—*M. basalis*, Westw. n. sp. Niger, facie fulva, antennis nigris, articulis duobus basalibus fulvis, thoracis dorso obscure ferruginoso vitta media nigra, abdomine crasso segmentis 2—7 flavo marginatis, pedibus fulvis, coxis femoribusque 4 anticus basi nigris, alis flavido-fuscans, venis fulvis. ♀. Long. corp. lin. 11. Expans. alar. lin. 20.

Habitat in Mexico. Tacubaya. D. Coffin. Mus. nostr.

Obs.—The middle cell near the hind margin of the wing does not emit the short transverse vein running to the margin.

SPECIES XXVI.—*M. maculiventris*, Westw. (in Lond. and Edinb. Phil. Mag. June 1835, Pl. 13, fig. 5). Obscurè niger; abdomine testaceo fuscanti; segmentis apice pallidis et (nisi segmenti duobus basalibus) macula triangulare nigra in medio notatis, his maculis versus apicem abdominis magnitudine crescentibus, segmento anali fusco; abdomine toto subtus concolori; alis flavido-fuscantibus, venis in parte postica obscurius marginatis; epistomate nigro hirsuto, pedibus piceo-nigris.

Long. corp. lin. 11. Expans. alar. lin. 19. Habitat in Georgia Americana. Mus. Hope et nostr.

Obs.—Abbot's drawings of Diptera, No. 66, represents a probable variety of this species, in which the second segment of the abdomen has the sides and hind margin (except in the centre, where the band is interrupted) fulvous-coloured; the third segment has also a subapical fascia interrupted in the middle of the same colour.

SPECIES XXVII.—*M. incisus*, Macquart (Dipt. Exot. Nouv. v. I, pt. ii. p. II, pl. 1, fig. 1). Niger, abdomine incisuris flavis, segmento basali omnino nigro, alis fuscis, cellulis 4 posticis. Long. corp. lin. 9.

Habitat Carolina.

SPECIES XXVIII.—*M. parvulus*, Westw. n. sp. (Pl. 13, fig. 6). Obscure fulvus, antennis nigricantibus, basi subluteis, oculis nigris intus sericie alba marginatis, thorace vittis 4 nigricantibus, 2bus lateralibus antice, intermediis 2 postice, abbreviatis; abdomine flavo, nitido punctato, segmentis 2do et sequentibus nigro fasciatis, fasciis in segmentis posticis multo latioribus, pedibus fulvis, alis fuscans costa magis lutescenti. Long. corp. lin. 6½. Expans. alar. lin. 11.

Habitat in America Septentr. D. Doubleday. Mus. Newman.

SPECIES XXIX.—*M. apicalis*, Wied. (Mon. Mid. pl. 53, fig. 14.) Niger, abdomine chalybeo, medio nigro, anteculis apice rubris, alis sinuato nigris, margine interno flavido ♂. Long. corp. lin. 9.

Habitat in Brasilia.

SPECIES XXX.—*M. virgatus*, Wied. (Mon. Mid. pl. 54, fig. 19.) Niger, thorace vittis albo micantibus, alis infumatis. Long. lin. 7½.

Habitat in Brasilia.

SPECIES XXXI.—*M. stenogaster*, Westw. n. sp. (Pl. 14, fig. 3). Niger, albido setosus, facie barba densa albida obsita, thorace maculis duabus parvis in margine antico albo squamosis, alterisque duabus versus basin alarum, abdomine valde elongato, segmento antico albo-pilosus, 2do nigro, 3to obscure rufo, lateribus nigris albo maculatis; cæteris sanguineis, singulo ad basin utrinque macula parva alba; pedibus piceo sanguineis; alis subhyalinis. Long. corp. lin. 9. Expans. alar. lin. 13.

Habitat Swan River, Australasia. Mus. Hope.

Obs.—The veins of the wings of this species agree with those of *M. viduatus*.

SPECIES XXXII.—*M. bicolor*, Westw. n. sp. (Pl. 14, fig. 2). Niger, albo-pilosus, facie barba densa albida, abdomine segmentis 5 posticis, pedibusque sanguineo-rufis, tarsis paullo obscurioribus, alis hyalinis, venis flavido-fuscanti marginatis. Long. corp. lin. 9½. Expans. alar. lin. 16.

Habitat in Australasia Occidentali. Mus. Hope.

Obs.—The veins of the wings are arranged in the same manner as in the last species.

SPECIES XXXIII.—*M. lusitanicus*, Wied. (in Meig. Syst. Beschr. 2, 130, and 6, pl. 66, fig. 1, 2; and in Mon. Mid. pl. 54, fig. 18 ♂ ♀.) Niger, thorace albo-vittato, abdomine albo annulato, in ♂ nigro, in ♀ luteo; alis flavidis, pedibus nigris. Long. lin. 8, 9.
Habitat in Lusitania.

SPECIES XXXIV.—*M. cinctus*, Macq. (Hist. Nat. Dipt. 2, p. 655, pl. 24, fig. 19). Obscure niger, facie et fronde albido-pilosus. Antennis nigris, thorace vittis 4 griseo—villosis, lateribus subtus fulvis, parapteris fulvis, lateribus testaceis, sterno nigricanti, scutello minuto testaceo, abdomine cylindrico, segmentis fulvo-marginatis, lateribus fulvis, singuli disco fascia nigra angusta abbreviata, pedibus fulvis, femoribus posticis subclavatis, apice brunneis, subtus duplii serie spinarum brevium armatis, tibiis etiam breviter spinosis. Long. corp. lin. 8½.

Habitat Algeria, Oran.

SPECIES XXXV.—*M. rufipes*, Westw. n. sp. Fusco-niger, segmento basali abdominis nigro, ceteris fulvis, apice subfuscus, alis fuscis; pedibus fusco-rufis, antennis vix capite longioribus. Magnitudo Rhagionis scolopacii.

Habitat Sicilia?

SPECIES XXXVI.—*M. notospilus*, Wied. (Mon. Mid. pl. 54, fig. 20; Walk. in Linn. Traus. 17, 339.) Niger, thorace maculis 6 albis, abdominis fasciis pedibusque flavis. Long. lin. 7 ♀.

Habitat Monte-Video, Brasilia.

SPECIES XXXVII.—*M. vittatus*, Wied. (Mon. Mid. pl. 54, fig. 23.) Canus, thorace vittis nigellis, abdomine brunneo, albo-fasciato, antennis nigris, pedibus brunneis, femoribus posticis laud spinosis, alis limpidissimis. Long. corp. lin. 6½ ♂.
Habitat in Nubia.

Obs. The veining of the wings in this species is similar to that of *M. brevicornis*; the long closed central cell which runs parallel with the hind margin of the wing, not emitting the small transverse vein from near its apex to the hind margin. The small closed discoidal cell near the extremity of the wing, is also represented (Wied. fig. 23 d) as destitute of the short oblique spur which exists in all the other species, and which is in fact figured in fig. 23, and 23 a.

SPECIES XXXVIII.—*M. lineatus*, Olivier (Enc. Méth. tom. 8, p. 33). Niger, thorace cinereo 4-lineato, pedibus abdomine nigricantibus, hujus segmentis albis, antennis nigris, femoribus posticis leviter spinosis vix incrassatis; alis pellucidis; venis nigris obscurius nonnihil marginatis.

Habitat in Ægypto, Sakhara; Olivier.

Obs.—I do not think Olivier's description accords sufficiently with that of *M. vittatus* to induce us to regard them as descriptive of the same insect. If however identical, we must employ the name of *lineatus* for the species, instead of Wiedemann's name *vittatus*.

SPECIES XXXIX.—*M. Olivierii*, Macq. (Dipt. Exot. Nouv. t. 1, part 2, p. 12, Rhopalia O.) Niger, pedibus rufis, facie capiteque subtus albo-pilosus, antennis nigris, sericie subgrisea iudutis, clava maxima, thoracis lateribus supra origiuem alarum testaceis. Alis subfuscis. Long. corp. lin. 4½.

Habitat in Ægypto. In Mus. Reg. Paris. Olivier. An idem cum præcedente?

Obs.—The hind tibiae in this species terminate in two very minute spurs, scarcely visible. The wings agree with those of *M. vittatus*, in wanting the short appendiculated vein in the second submarginal cell, and in the absence of the short transverse vein in the middle of the hind margin.

GENUS CEPHALOCERA, *Latr. Macq.*

This genus differs from the preceding not only in the length and slenderness of the protracted proboscis, but also in being generally destitute of the short transverse vein at the middle of the hind margin of the wing; the hind tibiæ also possess two minute slender spurs.

SPECIES I. (XL.)—*C. rufithorax* (Wied. Mon. Mid. pl. 54, fig. 15, Mid. ruf.) Nigra, thorace rufo-hirto, abdominis incisuris flavidis. Long. lin. 8 ♂.

Habitat Cap. Bon. Spei.

SPECIES II. (XL.I.)—*C. Westermannii* (Wied. Mon. Mid. pl. 54, fig. 16, Mid. West.) Nigra, thorace abdominalisque basi flavidovillosa; reliquo abdomine nigro hirto. Long. lin. 7½—9½ ♂ ♀.

Habitat Cap. Bon. Sp.

SPECIES III. (XLII.)—*C. fasciatus* (Wied. Mon. Mid. pl. 54, fig. 17 ♂ ♀, Mid. f.) Nigra, thoracis hirsutie, pedibus antennarumque apice ferruginosis, alis flavis. Long. lin. 7, 8, ♂ ♀.

Habitat Cap. Bon. Sp. Mus. Hope, nostr.

Of two specimens now before me, both from the Cape, one has the antennæ black, the tip of the club alone ferruginous, and the other has the third and fourth joints ferruginous, the tip of the club being black; in the second of these specimens the vittæ of the thorax are scarcely discernible.

SPECIES IV. (XLIII.)—*C. longirostris* (Wied. Mon. Mid. pl. 54, fig. 21, ♂ ♀, Mid. long.) Nigra, thorace flavido vittato; abdomine fasciis albis ♂, flavis ♀; antennis nigris, clava medio rufo-flava, alis costa fascia longitudinali submediana nigris, femoribus posticis basi flavis, apice obscuris. Long. lin. 6½.

Habitat Promont. Bon. Spei.

Var. ♀ alis omnino brunneis, cellula 2da submarginali subaperta venaque brevis transversa in medio marginis postici adest. (Macquart l. c.)

SPECIES V. (XLIV.)—*C. fascipennis*, Macq. (Dipt. Exot. [Nouv. l. 2, p. 13]). Nigra, abdome maculis albis ♂, pedibus rufis, alis fascia fuscana, cellula postica Ima clausa. Long. lin. 5½ ♂.

Habitat Cap. Bon. Spei.

SPECIES VI. (XLV.)—*C. nigra*, Macq. (Op. cit. p. 14.) Nigra, pedibus aliquo fuscis, cellula postica Ima clausa, barba alba, antennis articulo 3tio medio ferrugineo. Long. lin. 5 ♀. Habitat Cap. Bon. Spei.

SPECIES VII. (XLVI.)—*C. callosa* (Wied. Mon. Mid. pl. 54, fig. 22 ♂ ♀. Mid. call.) Nigra, abdomine pedibusque fuscano-flavis, abdomine ♀ nigro, alis brunneis. Long. lin. 4—5.

Habitat Prom. Bon. Spei.

SPECIES VIII. (XLVII.)—*C. maculipennis*, Westw. n. sp. (pl. 14, fig. 5.) Capite cum oculis et proboscide nigro, antennis fulvis, articulo 4to valde clavato, apice in tuberculo contracto, thorace ferrugineo, vitta late media (supra et subtus) segmentis 1mo, 5, 6 et 7mo abdominalis nigris, tribus intermediis rufis, singulo macula parva dorsali, pedibus testaceo—rufis, spinis femorum posticorum nigris, alis hyalinis, letissime iridescentibus, costa fulva, macula magna media, vitta que ad basin ducta, apice que marginis antici nigris. Long. corp. lin. 9. Expans. alar. lin. 13½.

Habitat in Australasia Occidentali. D. Gould. Mus. Hope.

Obs.—The veins of the wings accord with the typical species of *Midas*, except that the penultimate longitudinal vein extends to the costa of the wing as in *M. bicolor* and several other species from New Holland. The nasus is extremely prominent (fig. 5*) and the hind tibiæ terminate in a horny acute point within which are two very slender spurs.

GENUS APIOCERA, *Westw.*

(Lond. and Edinb. Phil. Mag. June, 1835.)

The head is transverse, the antennæ (see plate 14, fig. 6*) shorter than the head; the first joint thick, the second minute, both clothed with long rigid setæ; the third, rather small, pear-shaped; the fourth, minute and stylate; the proboscis is exserted, as long as the head, terminated by two large lips, and furnished with two broad spatulated palpi. The thorax is oblong, the scutellum produced, the abdomen conical, smallest in the male, but terminated in that sex by a thick exserted appendage. The legs are moderately long and slender, the hind thighs small, the hind tibiae bicaudate, and the tarsi bipulvillate. The wing-veins are arranged nearly as in *Midas*; the fourth longitudinal vein is however straight, and is considerably elongated before it becomes furcate, the upper branch of this furcation not emitting the short spur-like appendiculated vein found in most of the preceding insects, but wanting in those from Egypt. The discoidal cell beyond the middle of the wing is dilated at its apex, and emits a vein which runs to the hind margin, so that in conjunction with the minute transverse vein emitted by the adjacent cell, as in most species of *Midas*, (but which cell is greatly reduced in size,) there are four cells along the hind margin of the wing. The sides of the thorax, scutellum, and legs are armed with long black bristles.

SPECIES I. (XLVIII.)—*Apiocera mærens*, Westw. n. sp. (Pl. 14, fig. 6). Obscure nigra, facie corporeque subtus pilis cinereo-albis valde obsitis, thorace vitta angusta media aliquique tribus utrinque in medio disci abbreviatis cinereo-albis, abdominis segmentis 2, 3, et 4 lateribus et maculis duabus triangularibus ad marginem posticum magnitudine decrescentibus, 5toque maculis duabus basilibus, cinereo-albis, alis hyalinis, venis nigris ♀. Long. corp. lin. 10. Expans. alar. lin. 14.

Habitat in Nova Hollandia. Mus. Newman.

SPECIES II. (XLIX.)—*Apiocera asilica*, Westw. (Lond. and Edinb. Phil. Mag. June 1835.)

Nigra, vertice et thoracis lateribus piccis, palpis albidis, alarum venis nigris ♀. Long. corp. lin. 10 $\frac{1}{2}$. Expans. alar. lin. 17.

Habitat in Nova Hollandia. Mus. nostr.

SPECIES III. (L.)—*Apiocera fuscicollis*, Westw. (Op. cit.) Obscure fusca, thorace cinereo subvittato, palpis albidis, alarum venis internis pallidis, corpore subtus albido viloso. Expans. alar. lin. 17.

Habitat in Nova Hollandia? Mus. Hope.

Obs.—I am by no means satisfied of the specific diversity of these three insects; my specimen of *A. asilica* being in a very mutilated state.

Obs.—*Mydas bilineata*, *Fabr.*, Ent. Syst. 4, p. 253, a native of New Zealand, described from the Banksian Cabinet, and now in the collection of the Linnaean Society, is a large species of *Thereva*.

The orchidaceous plant figured in Plate 14, is the Australian *Thelymitra Ixiodes*, *Swartz*; all the insects on this plate being natives of New Holland.

15.

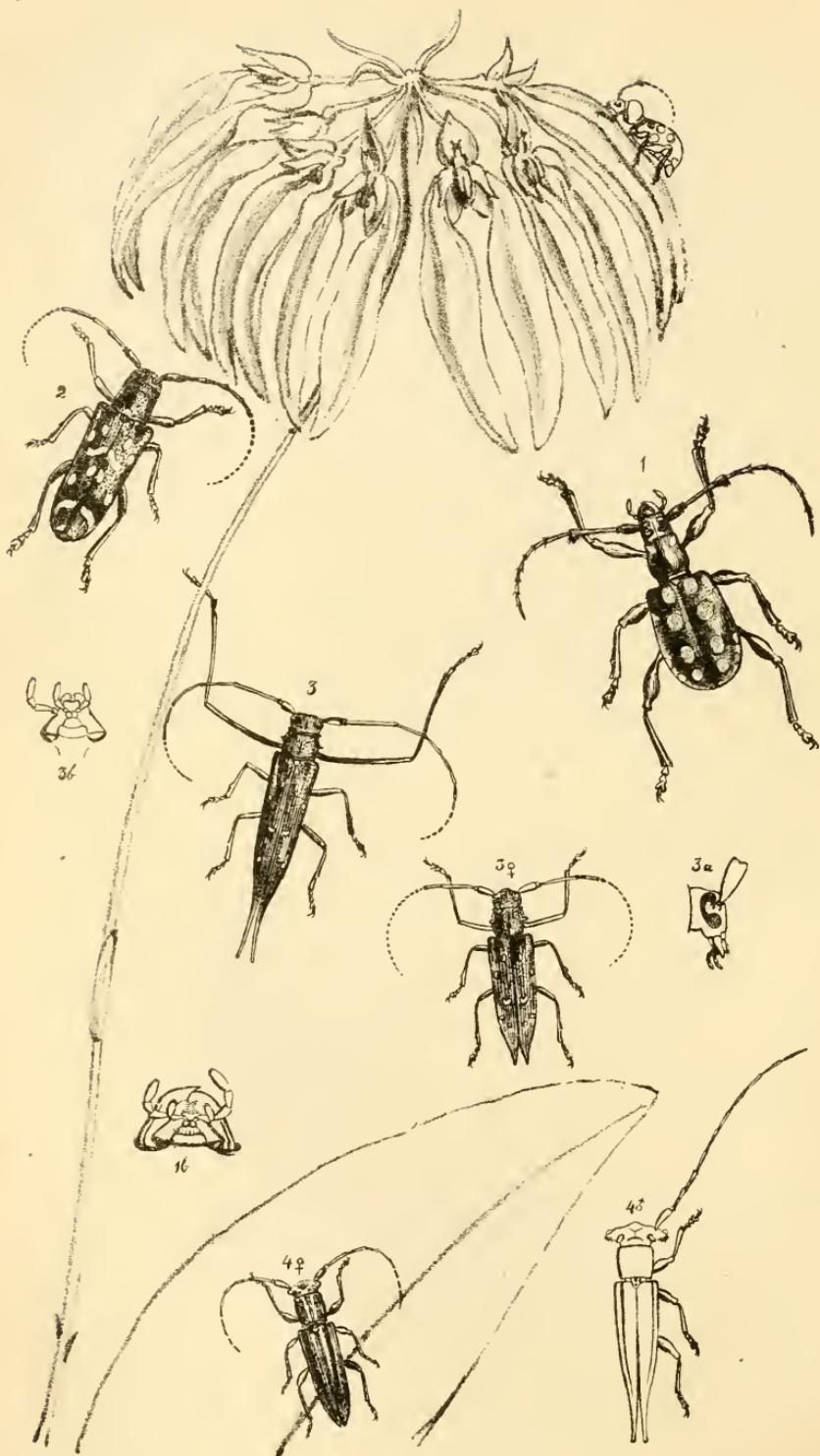


PLATE XV.

DESCRIPTIONS OF SOME NEW LONGICORN BEETLES FROM THE INDIAN
ARCHIPELAGO.

In the magnificent collection of insects made in the Philippine Islands by H. Cuming, Esq., (a complete series of which, including all the unique species, has been secured for the British Museum), were contained single specimens of each of the insects represented in the three upper figures of the accompanying plate, and which, from their great singularity, beauty, and rarity, will be deemed valuable subjects for illustration in this work.

The first species has been described by Mr. G. R. Waterhouse in a paper read before the Entomological Society, under the name of *Doliops Curculionoides*, from the extraordinary resemblance which it bears to a certain species of the Curculionideous genus *Pachyrhynchus*, also found by Mr. Cuming in the same country. The following are the characters of the genus given by Mr. Waterhouse:—

DOLIOPS, Waterh.

Caput quam thorax angustius, paulo productum et postice cylindracum, oculi reniformes, palpi mediocres, articulis terminalibus oblongo-ovatis, et subtruncatis. Antennæ 11-articulatae, breves et graciles, articulo 3to perlongo et ad apicem dilatato. Thorax subglobosus postice constrictus. Elytra perbrevia, valde convexa humeris prominulis. Pedes paulo grandes, femoribus in medio sensim clavatis, tibiis latis compressis, tarsis brevibus latis.

Doliops Curculionoides. Obscure viridi-æneus, indistincte cœrulecenti relucens, palpis nigris, antennis articulis 3to et sequentibus griseis ad apicem nigris, capite linea alba longitudinali notato, elytris 14 guttis flavescenti—albis adspersis, maculis codem colore corpus subtus ornantibus, tarsis cinereis, articulo terminali nigro. Long corp. lin. 5½.

Pl. I a. natural size ; I. magnified ; 1 b. mouth magnified, and seen from beneath.

Although apparently allied to *Dorcadion* in the short ovate form of the body; the form of the head, and structure of the antennæ, legs, and particularly of the prothorax, give this genus a nearer relation to certain *Saperdæ*, and especially the genera *Colobothea* and *Mesosa*.

COLOBOTHEA, Dejean.

Colobothea leucospilota, Westw. pl. 15, fig. 2. Læte cœrulea aureo ænoque tincta, rudo punctata, thorace macula alba in medio marginis postici, elytris guttis 10, fascia abbreviata angulata ante medium alteraque postica curvata ad suturam interrupta, albo-squamosus antennis pedibusque cyaneis ; corpore subtus nigro-æneo, sterno marginibusque segmentorum abdominalium squamis albis variis. Long corp. lin. 10½.

UROCALYMMMA, Westw.

Corpus gracile depresso punctatum. Caput antice perpendiculariter deflexum (fig 3 a). Antennæ gracillimæ. Prothorax subquadratus antice et postice marginatus, lateribus dente parvo in medio armatis. Elytra elongata depressa, subparallela apicem versus attenuata et in ♂ in caudas duas longas producta, apicibus in ♀ hiantibus et acuminatis. Pedes longi tenuis præsertim antici maris, qui longissimi sunt, tibiisque anticus ante apicem in hoc sexu intus, 4 que posticis extus tenuissime penicillatis. Palpi graciles breves (fig. 3 b Maxilla et labium).

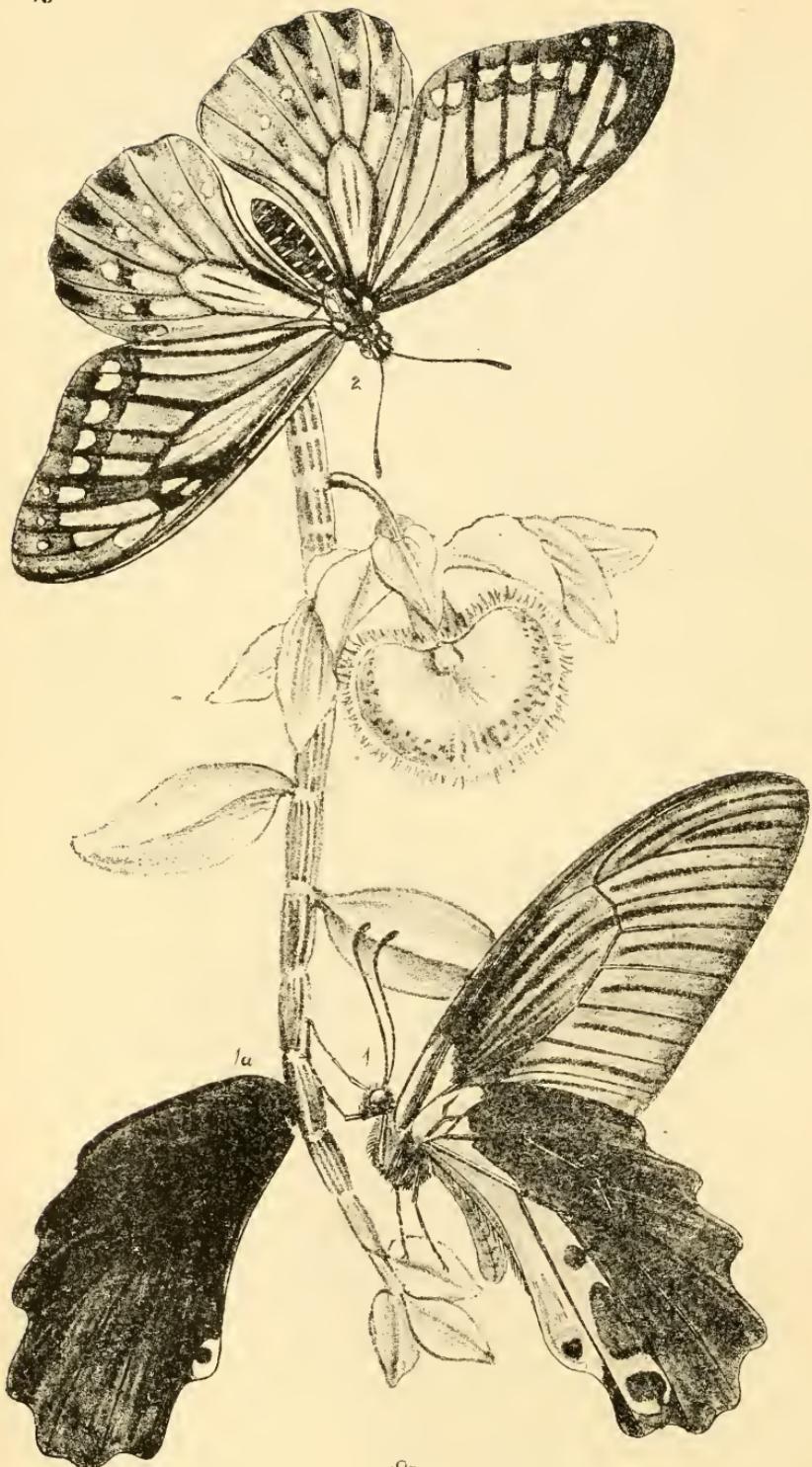
The singular insects composing this genus exhibit several characters belonging to very different groups of Longicorn beetles. The elongated fore legs are analogous to those of *Acrocinus longimanus*, although in their delicate structure they more nearly resemble those of *Gerania Boscii*; in the last-named insect, however, all the legs are elongated.

In having the tips of the elytra produced into two long tails in the supposed male, these insects are analogous to *Cercoptera Banoni*, *Spin.* (in *Guér. Mag. Zool. Ins.* 1839, pl. 12); and to the male of *Enicodes Fichtelii*, *Schreib.* (in *Linn. Trans.*, and *Griff. Anim. King. Ins.* pl. 65, f. 1, and pl. 73, f. 2*); but in both these insects the thorax has not the sides armed with a spine, whence I consider that *Urocalymma* has a nearer relation to *Tmesisternus*.

Urocalymma longimana, Westw. (Pl. 15, f. 3, male; f. ♀, female). Fusco-nigricans, luteo sericans, punctata, elytris punctato-striatis, basi irregulariter punctatis, guttis 10 minutis albido-sericantibus adspersis ornatis (2bus posticis in ♂ obliteratis.) Long. corp. ♂ lin. 14, ♀ lin. 10.

The remarkable orchidaceous plant represented in the plate is the *Cirrhoptalon Thouarsii* (Bot. Reg. vol. xxiv. p. 11), a native of Java, Manilla, the Society Islands, &c.

* Hitherto the male of *Enicodes Fichtelii* (plate 15, fig. 4 ♂) has alone been figured and described. The Rev. F. W. Hope, however, possesses the other sex, which he obtained from the Haworthian collection, in which it was ticketed "Ind. or." although New Holland is the recorded country of the rare species in question. The female is accordingly now figured for the first time, plate 15, fig. 4 ♀. It agrees with the male in its colours, but the sides of the head are much less produced, and the elytra are not elongated into a pair of tails, although they terminate acutely.



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PLATE XVI.

ILLUSTRATIONS OF TWO HITHERTO UNFIGURED SPECIES OF PAPILIO.



Papilio Rhetenor, Westw. n. sp. (Pl. 16, fig. 1 and 1 a). Alis supra nigro-cyaneo nitidis, posticis oculo incompleto ad angulum ani albo supra rufa; subtus anticis griseis nigro striatis, basi sanguineis; posticis aterrimis margine omni anali late sanguineo nigro maculato angulo ani albo irrorato. Expans. alar. unc. $5\frac{1}{4}$.

THIS fine species is a native of Assam, where it was collected by Mr. Griffith, and now forms part of Mr. Solly's collection, alluded to in the last number of this work. On the upper side the wings are of a black colour, tinged with very dark blue, especially towards the outer angle of the hind wings, being there increased by a number of minute, slender, elongated, blue scales. At the anal angle is an incomplete eye, formed of a black spot, partially surrounded on the inside with a whitish crescent, the upper part of which is tinged with sanguineous. The fore wings beneath are of a grey colour, darker towards the base and along the outer edge, with the veins and intermediate longitudinal fasciae black, the base being blood red; which colour extends broadly along the whole of the anal margin of the hind wings (except in the anal fold), marked with a black spot at the anal angle, which is much irrorated with white. The sanguineous colour in the next area of the wing is marked with three black spots, the middle one being the largest. The head and neck above are spotted with dirty white, and the antennae and legs are black. The abdomen is wanting in the unique specimen now before me.

This species is most nearly allied to the Chinese *P. Protenor*, but differs in the anal eye, in the extent of the sanguineous colour along the whole anal margin of the hind wings, and in wanting the spots along the hind margin of the same wings.

Papilio Agestor, Plate 16, fig. 2. (Gray in Zool. Misc. p. 32, Boisduv. Hist. Nat. Lep. 1. p. 376.) "Alis griseis venis margineque exteriore nigris griseo punctatis; posticis corticinis disco punctato griseis." Expans. alar. $3\frac{1}{4}$, 4 unc.

This curious species is described by Mr. G. R. Gray as a native of Sumatra, but the specimen now figured was obtained from India by W. W. Saunders, Esq., F.L.S., President of the Entomological

Society. The upper wings are of a dirty greyish white colour, caused by the pale ground being entirely and thickly irrorated with minute black scales, the costa, veins, and a broad apical margin (dilated at the tip) black, the latter spotted with dirty white ; the discoidal cell is marked near the tip with an oblique black bar, which extends to the black margin.

The hind wings are very slightly sinuated, the base being of a paler greyish white, gradually running into a fulvous red. Between the discoidal cell and the hind margin is a row of white spots, varying in size, the four next the outer angle being preceded and followed by patches of black atoms, forming marginal, triangular patches of dark colour. The underside of the wings is paler coloured than the upper, the tips of the fore wings being fulvous brown, and the hind wings having a submarginal row of white crescents, and wanting the patches of black scales. The head, neck, thorax, breast, and abdomen, both above and below, are much spotted with white.

The orchidaceous plant represented in the plate is the Indian *Dendrobium pulchellum* of Roxburgh, a native of woods in the district of Sylhet.

HABITS OF THE NORTH AMERICAN SPECIES OF PAPILIO.

Mr. EDWARD DOUBLEDAY, whose notices of the Natural History of North America (observed during an excursion undertaken solely from a zeal for the subject as exhibited in wild nature) possess the greater interest, has favoured me with a series of notes of the habits of the species of Papilio which he met with, from which the following passages are extracted :—

OF THE PAPILIONES IN BOISDUVAL'S ICONES.

I have seen all, save three, alive ; and of these three there are two, the grounds for admitting which into that work I am unacquainted with. These two are *Polydamas* and *Villersii*, both *probably* found in the extreme south of E. Florida, where *Catagramma Clymene* occurs. The other, *P. Simon*, being from a drawing by Abbot, I doubt not, does occur in the U. S. By the by, this is not the same

as Drury's *Protesilaus*, a Jamaica insect, of which I have a specimen, perfectly agreeing with Drury's figure.

The first species I will mention is *Pap. Ajax*, undoubtedly, I think, the *P. Marcellus* of Cramer. This is, *I believe*, found chiefly in the lower country of the southern States, east of the Alleghanies; its range, I believe, is from Virginia to Florida inclusive. In Florida it was not very rare from April to June, but like most of the *swallowtails* was often imperfect, the tails being torn off. I rarely saw it alight on flowers, never that I recollect on the ground. Now and then it would alight on the flowers of *Annona grandiflora*, on which and *An. (Poreelia) pygmæa*, I have no doubt the larvæ feed there. Abbot gives it on *An. (Uvaria) triloba*, a shrub not growing in the part of Florida I collected in. Its flight low, rapid (not sailing with its wings expanded as *P. Thoas* and others). It flies in and around the low scattered brushwood, by the sides of clearings, old deserted cotton fields, and similar situations, often returning to the same spots; in fact so regular did the round seem to be taken, that I often have waited behind a bush for a few minutes for the return of an individual I had seen pass, and rarely failed by this means to capture it. It is a shy insect, and darts out of its course at the least motion. I think the remark in Boisduval of its alighting on fruit-trees must belong to some other species, probably the error has arisen from some confusion in Leconte or Abbot's notes.

P. Marcellus. Boisd.—I first saw this lovely butterfly in the streets of Wheeling (Virginia), on the 10th of September, 1837. It was very numerous there. I afterwards took it in Portsmouth (Ohio), about 160 miles lower down the Ohio river. I think it did not occur to me in the perfect state at Cincinnati, where I found the larva on *Uvaria triloba*. Cincinnati is the westernmost point north of the Ohio that I observed it. Foster took it in the easternmost part of Ohio, and I observed it south of the Ohio, along the slopes of the Alleghanies, in Kentucky, and Tennessee, in July, 1838, in tolerable numbers. Its flight is rather more graceful than that of *P. Ajax*. It sometimes alights in the muddy places by the roadsides where little streamlets cross, especially during the heat of the day. This and *P. Ajax*, when perfect and fresh from the pupa, are of a lovely pale green, which, however, soon fades to the dirty white of Boisduval's figures. My specimens are fast fading, but still retain a good deal of the green.

P. Asterias is the most widely-diffused species of the genus, as far as I know, in North America, being found very far north, in Canada, in Newfoundland, and as far south as the middle of Mexico. It seems little affected by climate, for though varying much in size, you will find all sizes both in the north and south. It is in all respects a variable insect. You know the difference in the sexes, each sex differs much in different individuals, in colour especially, in the amount of blue and yellow on the hinder wings. The anterior wings in some indeed are all but falcate, in others almost rounded. It is a common species everywhere, appearing in the south early in spring, nay in the winter months. These are hyberuated or hybernating specimens, for they evidently have long been out of the pupa, being all worn. I think Boisduval is probably wrong in its being three-brooded. Two broods, the latter hybernating, and appearing the first warm days of spring, I think, is the true state of the case. It flies in gardens, fields, highways, &c., frequently alighting in the mud in hot weather. When settled down in the mud-holes of an Ohio road, or beside the streamlets of the Alleghany roads, it is very easy to take. (Flight, like our *Machaon*.) It is fond of flowers, especially of some of the thistles (as *Cnicus porridulus*), and of *Cephalanthus occidentalis*. Its larva I have seen in gardens on *Umbelliferæ*.

(*To be continued.*)

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW WORKS, &c.

(No. IV.)

INFORMATION RESPECTING THE HABITS OF EXOTIC INSECTS.—It so rarely occurs that the entomologist is able to obtain any satisfactory remarks on the habits of exotic insects from travellers competent from their knowledge of entomology, combined with enlarged views on the general laws of nature, that I presume no apology is needed in offering to the student, from time to time, extracts from the works of authors whose acquirements stamp a sterling value upon their observations. The writings of Burchell, Darwin, Gosse, and Doubleday, especially merit attentive perusal on this account. The journal and remarks during the years 1832—1836, made by Charles Darwin, Esq., M.A., Sec. Geol. Soc., published as the 3rd Volume of the “Narrative of the Surveying Voyages of His Majesty’s Ships Adventure and Beagle,” afford numerous passages relative to insects from which the following is extracted.

“At Port San Julian, in Patagonia, although we could nowhere find, during our whole visit, a single drop of fresh water, yet some must exist, for by odd chance I found on the surface of the sea-water, near the head of the bay, a *Colymbetes*, not quite dead, which, in all probability, had lived in some not far distant pool. Three other kinds of insects—a *Cincindela*-like *hybrida*, *Cymindis* and a *Harpalus*, which all live on muddy flats, occasionally overflowed by the sea—and one other beetle, found dead on the plain, complete the list of Coleoptera. A good-sized fly (*Tabanus*) was extremely numerous, and tormented us by its painful bite. We have here the puzzle that so frequently occurs in the case of mosquitoes—On the blood of what animals do these insects commonly feed? The guanaco is nearly the only warm-blooded quadruped, and they are present in numbers quite inconsiderable compared to the multitude of flies,” p. 200.

It is a curious circumstance in the economy of nature that the gnat and mosquito are also found in the greatest profusion in damp situations, where they can find but few opportunities of indulging their blood-thirsty propensities (see Introd. to Modern. Class. of Ins. vol. ii. p. 511). The comparatively rare occurrence

also of the Chigoe or Jigger in the human foot, although during the dry season it multiplies incredibly in sandy and dusty places, evidently proves that the ordinary development of the majority of the individuals is elsewhere than in the foot, and consequently that its burrowing into the flesh is but an occasional habit.

LAND INSECTS OBSERVED ON THE OCEAN.—“ Several times, when the ship has been some miles off the mouth of the Plata, and at other times, when off the shores of Northern Patagonia, we have been surrounded by insects. One evening, when we were about ten miles from the Bay of San Blas, vast numbers of butterflies, in bands or flocks of countless myriads, extended as far as the eye could range. Even by the aid of a glass it was not possible to see a space free from butterflies. The seamen cried out, ‘ It was snowing with butterflies ! ’ and such in fact was the appearance. More than one species were present, but the main part belonged to a kind very similar to, but not identical with, the common English *Colias edusa**. Some moths and hymenoptera accompanied the butterflies ; and a fine *Calosoma* flew on board. Other instances are known of this beetle having been caught far out at sea ; and this is the more remarkable, as the greater number of the *Carabidae* seldom or never take wing. The day had been fine and calm, and the one previous to it equally so, with light and variable airs. Hence we cannot suppose that the insects were blown off the land, but we must conclude that they voluntarily took flight. The great bands of the *Colias* seem at first to afford an instance like those on record of the migrations of *Vanessa Cardui*† ; but the presence of other insects makes the case distinct, and not so easily intelligible. Before sunset, a strong breeze sprung up from the north, and this must have been the cause of tens of thousands of the butterflies and other insects having perished.” (Darwin’s Journal, p. 185.)

SPECIES ET ICONOGRAPHIE GÉNÉRIQUE DES ANIMAUX ARTICULÉS.—Under this title M. Guérin Meneville announces the publication of a new work, to appear in parts, at the beginning of 1842, consisting of a series of illustrated monographs of insects, which will doubtless maintain the scientific reputation of their author.

* “ I am indebted to Mr. Waterhouse for naming these and other insects.”

† Lyell’s Geology, vol. iii. p. 63.

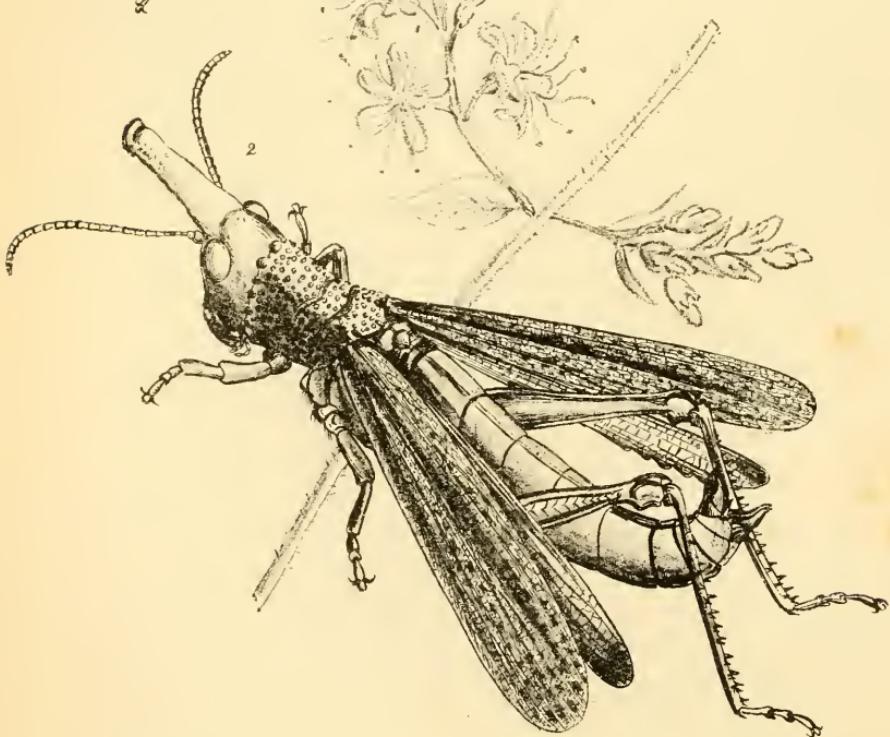
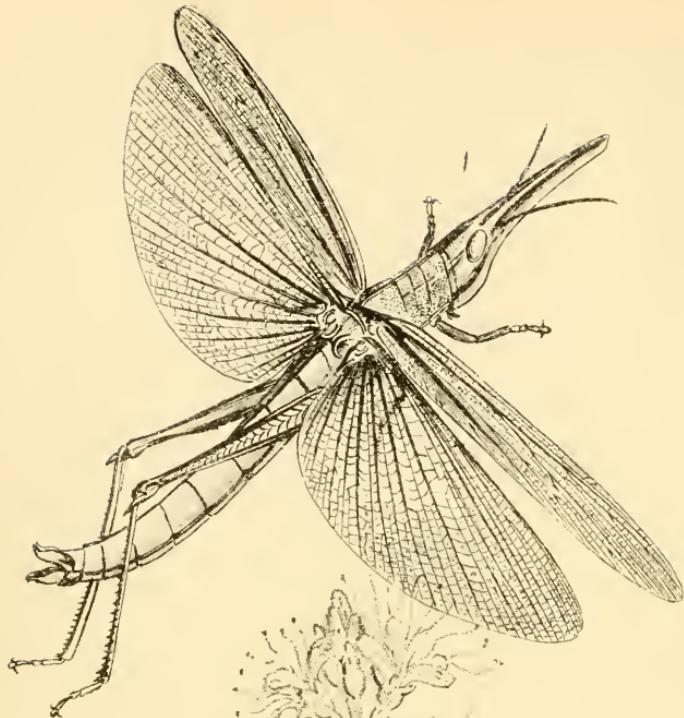


PLATE XVII.

ILLUSTRATIONS OF TWO ROSTRATED LOCUSTIDÆ.

THE insects represented in the opposite plate exhibit a singular departure from the ordinary form of the Locusts, in the front of the head being produced into a long rostrum somewhat like that of the typical Fulgoræ. Amongst the grasshoppers with long antennæ there is a genus, Copiophora, in which the head is elevated into an erect and pointed horn, and in Mesops and Proscopia, two genera of Locusts, we find an approximation to these two insects.

Notwithstanding the great elongation of the head in front of the eyes, I refer the unique insect represented in the upper figure to the genus *Opsomala* of Serville rather than to his genus *Mesops*, because the antennæ are inserted near the eyes, whereas in the latter genus (which has much more the habit of *Truxalis*) the eyes are "placés assez loin des antennes," and because the same organs are not ensiform, thus assigning the insect to Serville's second division of *Opsomala* with the "antennes composées d'articles peu aplatis et point élargis."

OPSONALA GLADIATOR, *Westw.* (Pl. 17, fig. 1).

Lutco-fusca, virescente parum tincta, capite antice in rostrum (prothorace duplo longius) pro-
ducto, antennis rostro brevioribus gracilibus, alis hyalinis vix incoloratis, abdomine
longissimo, pedibus 4 anticis brevissimis.

Long. corp. (rostro incl.) unc. $3\frac{1}{2}$; long. capit. unc. 1, ante oculos unc. $\frac{3}{4}$. Expans. tegm.
unc. $3\frac{3}{4}$.

Habitat Sierram Leonam. In Mus. D. Hope.

This is a giant in the genus *Opsomala*, being nearly twice as long as the largest described species. It is entirely of a luteous brown colour, slightly varied with darker brown, with a paler oblong patch on each side of the upper surface of the prothorax. The head is produced into a rostrum nearly three-fourths of an inch long, its upper surface being nearly continuous with the disk of the head, and gradually narrowed from the eyes to the tip; the upper surface flat along the middle, but with the sides towards the eyes deflexed; the under surface of the rostrum forms a very sharp edge, and is slightly curved, the tip being obliquely truncate. The eyes are oval and slightly elevated; the antennæ are placed at the base of the lateral channel which extends from the base to the apex at the sides of the rostrum; they are slender, filiform, and not so long as the rostrum. The prothorax is slightly rugose, with the dorsal carina scarcely elevated, and with three transverse very slight impressed lines across the middle of the back. The tegmina are narrow, not so long as the abdomen, with the apex almost rounded; they are of a pale luteous-brown colour, with the veins varied with darker brown; the wings are almost colourless; the middle of many of the cells is, however, rather clouded with a tinge of pale brown. The abdomen is very compressed and shining, with the anal appendages whitish. The four fore legs are very short, and the hind pair are scarcely longer than the abdomen; the femora terminating on the outside in an elongated spine. The prosternum is armed with a short spine, and the meso- and metasternum are broad.

The insect represented in the lower figure constitutes a new genus, which, notwithstanding the great size of the frontal prominence, I arrange in Serville's section Conophori, and to which may be applied the generic name of

BACTROPHORA, W.

Corpus elongatum subcylindricum ; caput magnum, oculis magnis prominentibus, fronte in baculum (capite fere duplo longiore) cylindricum, infra carinatum producto. Antennæ prothoracis longitudine, 24-articulatae, parum compresse, articulis 3to et proximis brevissimis et tenuioribus ; inter et prope oculos ad basin rostri insertæ. Facies infra valde tumida ; labrum maximum bilobum. Prothorax tuberculatus, absque carina dorsali, canalibus duobus transversis impressus. Pedes 4 antici breves. Prosternum dente brevi obtuso armatum.

BACTROPHORA DOMINANS, W. (Pl. 17, fig. 2.)

Tota luteo-fulva, antennis (articulis 2us basalibus exceptis) nigris, tegminibus fusco-nebulosis alis apice fuscis.

Long. corp. rostro inclusu unc. $3\frac{1}{2}$. Long. rostri ante oculos $\frac{6}{10}$ unc. Expans. tegm. unc. 4.

Habitat—? In Mus. Soc. Zool. Lond.

The produced front of the head forms a snout somewhat like that of some species of *Fulgora*, ascending a little from the impressed arched channel between the eyes ; the under side is rather rugose, and along the centre runs a carina which terminates in the acute arched, rather dilated apex : this carina at its base is fureate, each branch extending to the base of one of the antennæ ; the pronotum is covered with small tubercles, which even extend along the anterior margin, two being of larger size in the middle. The tegmina are opaque and very closely reticulated ; they are of the same colour as the rest of the body, but are clouded with many small patches of brown ; the wings are pale fulvous at the base, with the apex dark brown.

I regret that the locality of this extraordinary and unique insect is unknown.

The plant figured is part of a twig of *Combretum comosum*, a splendid species found at Sierra Leone.

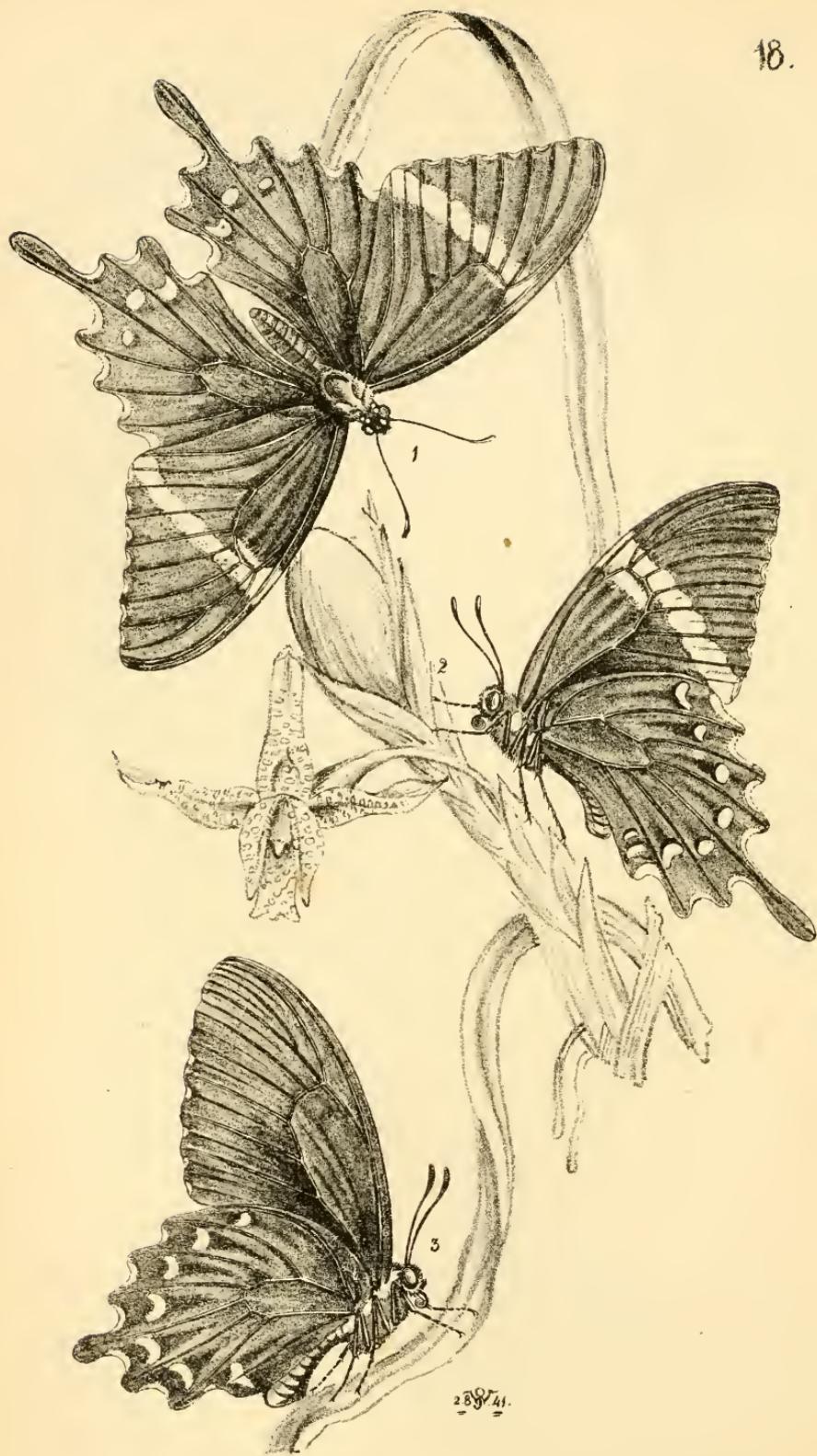


PLATE XVIII.

ILLUSTRATIONS OF TWO SPECIES OF PAPILIO.

THE two upper figures in this plate represent a butterfly described by Fabricius fifty years ago under the name of

PAPILIO PELAUS,

(Fabr. Ent. Syst. vol. iii. part 1, p. 5), but of which no figure has hitherto been published; indeed the insect appears to be of the greatest scarcity, since Godart and Boisduval are acquainted with it only from the Fabrician description; whilst from Fabricius having referred it to the Papilio torquatus of Cramer (Ins. 15, t. 177, fig. AB), with a mark of doubt, its rank as a species has been questioned*. I am indebted to E. Doubleday, Esq. for an opportunity of figuring a specimen which accords with the Fabrician description, except in having one white detached lunule near the anal angle above, and two beneath. There cannot, however, I think, be a doubt that it is the true Pelaus, and that it is abundantly distinct from P. torquatus. Mr. Doubleday is unfortunately unacquainted with the locality of his specimen. Fabricius says, "Habitat in India," but the habit of the species, as Boisduval suggests, is rather that of a New World—most probably South American or West Indian—species.

The lower figure represents a new species, allied to P. Thymbraeus, and especially to P. Perrhebus; for an opportunity of figuring which I am also indebted to Edward Doubleday, Esq., in whose collection it is unique. Being a native of Mexico, I propose to give it the name of

PAPILIO MONTEZUMA, W.

P. alis latis cyaneo-nigris, anticis punctis minutis marginalibus albis, posticis obtuse dentatis lunulis marginalibus albis, lunulisque sex submarginalibus maculaque ad angulum ani sanguineis.

This species measures about four inches in the expansion of the wings, which are comparatively of great breadth; the fore pair having the apical margin slightly rounded and divided into slight scallops; the hind pair are obtusely dentate, the middle tooth being

* P. Pelaus *Herbst*, (P. Peleides *Esp.*, *Boisduval*,) is distinct, if indeed it really exist in nature.

produced into a very short tail. On the upper side the disk of the wings is of a fine raven blue-black; the apical margin of the fore wings marked with small whitish spots between the longitudinal veins; the hind wings have whitish marginal scallops, and a row of six crimson-pink submarginal lunules, and an irregularly squarish spot of the same colour within the anal angle.

The under side (represented in fig. 3) is similar to the upper, except that the disk is not so intensely raven black, and the red lunules of the hind wings are rather smaller. The body is black, with the palpi and sides of the head, thorax, and abdomen crimson pink.

The orchidaceous plant represented in the plate is the *Maxillaria tenuifolia* of Lindley (Bot. Reg. v. 25, pl. 8), a native of Mexico, recently introduced into this country.

MR. DOUBLEDAY'S NOTES ON THE HABITS OF THE NORTH AMERICAN SPECIES OF PAPILIO.

(Continued from page 62.)

P. Calchas is quite a southern species. I do not know its northern limit precisely, but am not aware of its occurring farther north than N. Carolina; Cramer I think says Virginia; but his localities are not to be depended on, any more than Boisduval, who mistakes states as large as England for towns. I only saw it in E. Florida, where I found the larva on the Red Bay, *Laurus Carolinensis*. The perfect insect I saw first early in February, when I captured a worn specimen on the flowers of *Gelsemium sempervirens*. This had of course hyberuated. I found it in profusion at St. John's Bluff, chiefly in an open spot near the river, and in old cotton fields, where it frequented the flowers of *Cnicus horridulus*, and was then very easy to take. Sometimes it sails up and down the pathways in the woods, its flight then is easy and almost majestic.

P. Phileenor. See Harris for its northern limit. I know of its occurrence in different localities from N. York to E. Florida. It there (E. F.) frequented the flowers of *Annona grandiflora*. It is fond of alighting in the mud, like *Turnus* &c. My western specimens are infinitely finer both in size and colour than any I have seen from the Atlantic states, be they northern or southern. Flight not very powerful, generally low.

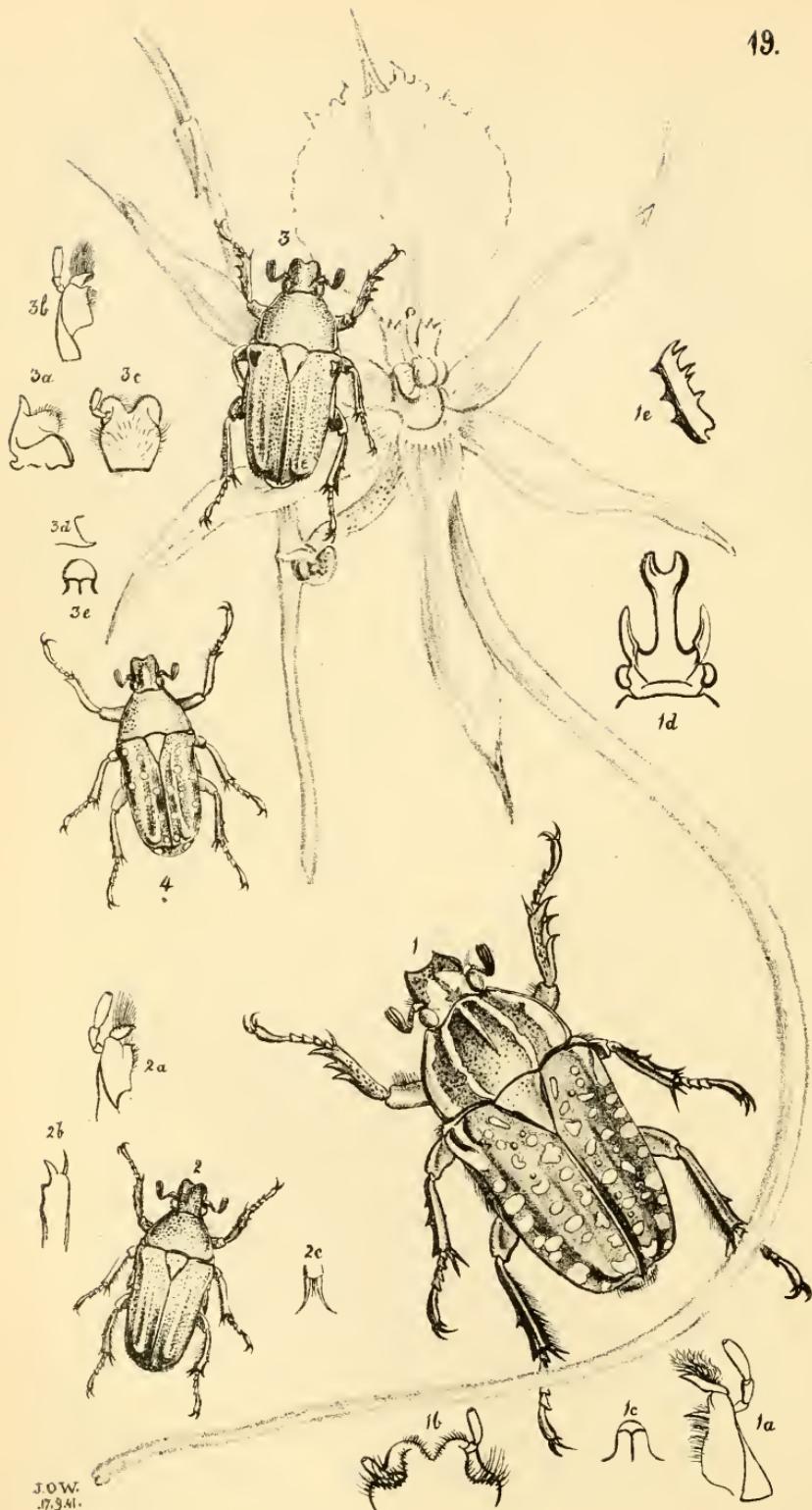


PLATE XIX.

DESCRIPTIONS OF SOME CETONIIDÆ FROM TROPICAL AFRICA.

MECYNORHINA POLYPIEMUS.—FIG. I.

THIS insect (of which the female is here figured) is of such extreme rarity that hitherto no other examples have been recorded than the male, which was described by Fabricius from the Banksian Cabinet, bequeathed to the Linnaean Society by Sir J. Banks (but which was stolen from thence between the years 1826 and 1836); and the male, which Mr. Gory now possesses in his cabinet *. The account given of the habitat of the latter specimen, by Messrs. Gory and Perchéron, in their (*Monographie des Cétoines*), is very vague, and it is due to the scientific world that a precise statement should be made by the former of these gentlemen as to the manner in which his specimen came into his possession, especially as it is known that several French Entomologists were allowed to inspect the Banksian collection during the period above-mentioned.

The male differs from the female in having the head singularly cornuted (fig. 1 *d*), and in having the anterior tibiae internally dilated at the base and armed with several teeth, the outside being also 3-dentate (fig. 1 *e*), the middle tibiæ having one small middle tooth; and the hind tibiæ destitute of teeth. The female, on the other hand, has the head rather emarginate in the front and not cornuted; the fore tibiae are only 3-dentate on the outside, the middle tibiæ bi-dentate, and the hind tibiæ 1-dentate in the middle. I have been extremely careful in the delineation of the pale spots and markings, for the purpose of showing that *in this respect the species is variable*, and consequently if M. Gory's or any other specimen shall be found to correspond with Olivier's figure drawn from the Banksian specimen, in the position of the spots and markings, it will be impossible to arrive at any other conclusion than that such specimen is the identical one stolen from the Banksian Cabinet.

I am indebted to J. Turner, Esq., of Manchester, for an opportunity of making known, for the first time, the female of this

* Dr. Burmister informs me (14th of November, 1841,) that M. Dupont possesses a male.

beautiful insect, which is a native of the Gold Coast, Africa. Fig. 1 *a* represents its maxilla, both lobes of which are furnished with a strong tooth; fig. 1 *b*, the extremity of the deeply-cleft mentum and the labial palpi; and 1 *e*, the mesosternum.

The Rev. F. W. Hope first proposed the genus *Mecynorrhina* in his "Coleopterist's Manual," part 1, p. 60, 1837. He, however, added *Goliathus micans*, *Daphnis*, and *Grallii*, to *Polyphemus*; but in the Supplement to that work, p. 119, he restricted it to the last-named insect, stating that a second species is in the possession of Mr. Joseph Hooker, of Glasgow, which he considered as undescribed; but which, I am able to state, is the male of *Goliathus torquatus* *. Mr. MacLeay has, however, separated *Polyphemus* and *Torquatus* into distinct subsections (as shown in his arrangement of the *Goliathi* †, abstracted at page 6 of this work,) in consequence of the difference in the armature of the head of the males. The male of *G. torquatus*, however, *has two short horns in front of the eyes*, although the extremity of the middle horn is not forked. The two species, however, precisely agree in the armature of the tibiæ in both sexes, and, which is of more importance, in the structure of the maxillæ and mentum, as well as in the velvety clothing of the upper surface. These two insects, therefore, constitute a group of precisely equal rank with *Dicronorrhina* ‡, Hope (*Atlas, Lap. Hist. Nat. An. Art. Col. v. 2*, p. 162);—*Eudicella*, White (Gol. *Grallii*, *Daphnis*, *Smithii*, *Morgani*, &c., in which the males have the mando toothless, although in the females it is armed with a strong tooth, and the fore tibiæ toothed only on the outside in the males); and *Cœlorrhina*, Burmeister MSS. (Gol. 4. *maculatus*, Olivier); the last-named group being distinguished by the male having the anterior tibiæ entirely destitute of teeth, and the clypeus concave in front with a short central recurved horn dilated at the tip, like a

* Schouherr evidently changed the name of this species to avoid confusion with *Cetonia torquata* of Fabricius, a different species. In the male of *M. torquata* (as appears from Mr. Joseph Hooker's drawings, and Dr. Burmeister's manuscripts) the mando is unarmed; in the female, however, in Mr. Hope's collection I find it furnished with a strong tooth. *Mecynorrhina* thus differs from *Eudicella*, chiefly in the armature of the fore tibiæ of the males.

† The various facts stated in the first article of this work and in the present paper, together with the circumstances that *Goliathus Höpfneri* is most nearly allied to *Ischnostoma* (according to the manuscripts and figures of Dr. Burmeister), and that the *Coryphe* (*Narycius*) *olivaceus* of MacLeay and the *Goliathus* (*Dicronocephalus*) *opalus* of MacLeay, are sexes of the same species, (Dr. Burmeister having shown me M. Dupont's original specimens) will render necessary an entire revision of the *Goliathideous* *Cetoniidæ*, whilst the removal of *Cryptodus* to the *Dynastidæ*, *Macroma* to the *Cremastocheilidæ*, and *Philistina* (or *Mycteristes*) to the *Goliathides*, will render equally necessary a revision of the classification of the entire family of *Cetoniidæ*.

‡ A more important character of this group than has hitherto been noticed has been suggested to me by Professor Burmeister, namely, the want of a tooth to the lower lobe of the maxilla. This I find to be the case in both sexes.

reversed triangle ; and the female having the head broad and nearly quadrate, the fore tibiæ externally 3-dentate, the four posterior with one tooth in the middle, and both lobes of the maxilla armed with a strong tooth *.

The three other insects figured in this plate will be deemed highly interesting additions to this family, not only because they are not included in the work of Gory and Perchéron, or Mr. MacLeay's Memoir on the African Cetoniidæ, but from their structural characters. The two upper ones were regarded by Dr. Burmeister, whilst in this country, as congenerous with *Cœlorrhina* 4-maculata. They, however, certainly belong to a different group, which appears to me to be intermediate between *Coryphe* of MacLeay (*Gnathocera*, G. and P., but not of Kirby), and the more aberrant *Schizorhinæ* †, and for which may be proposed the sub-generic name of

TMESORRHINA, W.

Caput maris haud cornutum, clypeo in utroque sexu emarginato. Maxillæ lobo interno apice obtuso vel in dentem brevissimum et obtusum producto; lobo apicali brevi obtuso supra dense ciliato. Mentum apice valde incisum. Prothorax subtrigonus postice latissimus margine postico in medio emarginato. Elytra basi latiora, interdum ad apicem suturæ spinosa. Mesosternum breve, porrectum latum rotundatum. Pedes antici maris longitudine variant, tibiis externe (nisi in apice) haud vel vix dentatis. Tibiæ intermediae maris in medio inermes, posticæ vero in medio dente minuto instructæ. Pedes foeminae breviores latiores, tibiis anticis extus 3-dentatis, intermediis in medio vix dentatis; posticis in medio 1-dentatis, unguis appendiculo brevi bisetoso instructi. Color metallicus nitidissimus.

In respect to the unarmed head of the males, these insects may be considered as the African representatives of *Coryphe* lœta of Java, and *C. nigritarsis* of India ; the maxillæ, anterior tibiæ, and clypeus are, however, not similar ; the latter character would indeed induce us to refer these insects to *Schizorhina*, but we find an emarginate clypeus in the females of *Coryphe* *umbonata* and *C. flavomaculata*, whilst the metallic colouring is more especially the character of *Coryphe*.

SPECIES I.—*Tmesorrhina amabilis*, W. (Pl. 19, fig. 2.) *Smaragdina*, nitida, nigro-punctulata, antennis nigro-piceis, femoribus tibiisque roseo-opalinis, tarsis nigris, prothoracis lateribus (nisi versus angulos posticos) marginatis — ♂.

SYN.—*Gnathocera amabilis*, Bainbridge (in Proc. Ent. Soc. p. 5, March 2, 1840).
Long. corporis, lin. 10. Habitat Sierram Leonam, D. Strachan. In Musæo D. Hope.

* I am indebted to the Rev. F. W. Hope for permission to dissect a great number of his rare and unique Cetoniidæ, including a female of *Cœl. 4-maculata*.

† Such as *S. cyanea*, Oliv., which is a native of Sierra Leone, although Mr. MacLeay says that no *Schizorhinæ* occur in Africa (Cet. So. Afr. p. 28). It has the apical lobe of the maxillæ terminating in an acute spine, the inner lobe unarmed, the male fore tibiæ narrow and terminated externally by two spines ; and the female fore tibiæ broad and tridentate. Mr. MacLeay gives this as the type of his section of *Schizorhina* which he named *Iusulares* (I presume after *Sch. insularis*), which is, however, very unlike *Sch. cyanea*, in many respects.

The fore legs in the unique male of this species in Mr. Hope's collection are shorter than in *Tm. simillima*, with the tibiæ slightly indicating the existence of two teeth in addition to the apical one, which is separated from the next by a deep incision. The middle tibiæ are straight, but the hind ones are slightly bent at the middle, with a minute tooth on the outer edge. The maxillæ have the inner lobe terminated by a short black horny point. The elytra are not spinous at the extremity of the suture. Fig. 2 *a*, maxilla; 2 *b*, extremity of the anterior tibiæ; 2 *c*, unguis.

SPECIES II.—*Tmesorrhina concolor*, W. (Pl. 19, fig. 3.) *Aureo-smaragdina, punctulata, antennis tarsisque 4 anticis nigris, posticis duobus aureo-viridibus, elytris luncis duabus longitudinalibus lœvibus, humerisque macula triangulari nigra notatis, segmentis ventralibus medio opalinis ♀.*

SYN.—*Cælorrhina concolor*, Burm. Hope (in Proc. Ent. Soc., July, 1841).

Long. corp. lin. 12=1 unc. Habitat Sierram Leonam.

In Mus. Britann. et Hope.

We are acquainted only with the female of this species, which may at once be known from the preceding by its splendid golden green colour, larger size, and by the prothorax having the sides entirely margined almost to the hinder angles. The colour of the feet is also different. Fig. 3 *a*, represents the mandible; 3 *b*, the maxilla, the mando of which terminates in a very minute point, and the galea is thick, horny, and obtuse; 3 *c*, the mentum and labial palpus; 3 *d*, the mesosternum seen sideways; 3 *e*, ditto, seen from beneath.

SPECIES III.—*Tmesorrhina simillima*, W. pl. 19, fig. 4. *Læte viridis, nigro punctulata clypeo antennis pedibusque fulvis viridi-nomihil tinctis, elytris guttis 18 minutis albis notatis, prothorace ante scutellum rnbro-marginato ♂. Long. corp. lin. 12.*

Habitat Sierram Leonam. In Mus. Britann. (sub nomine *Cælorrh.* s. Burm.)

The unique male of this species in the British Museum is of a narrower form, and the legs are longer than in *Tm. amabilis*. The anterior tibiæ are slender, with the outer margin not dentate, but terminating in an apical spine, being rather narrowed beyond the middle, and their inner margin is hairy. The middle tibiæ are unarmed on the outside, but slightly hairy on the inner margin at the apex; and the hind tibiæ are straight, with a minute central tooth on the outside. The suture of the elytra terminates in two short spines; the mando of the maxilla is unarmed.

The extraordinary plant represented in the plate is the *Angræcum caudatum* of Lindley, one of the Orchidaceæ, at once distinguished by the singular elongation of its spur, which Dr. L. informs me sometimes reaches a foot in length. It is a native of western tropical Africa.



PLATE XX.

MONOGRAPH OF THE HYMENOPTEROUS GROUP, DORYLIDES.
—•—

THE group Dorylides, composed of the four genera *Dorylus*, *Rhogmus*, *Labidus*, and *Ænictus*, presents to us a series of insects, now of considerable extent, of which we still remain in entire ignorance of the females, as well as of the natural habits of the group; our knowledge being at present confined to the characters of the male sex, and to the facts that the males are often captured flying by night, and are so rare that out of a dozen species of *Labidus* collected in Brazil, by W. Burchell, Esq., single individuals were only found of nearly every species. Mr. Shuckard, in his Monograph upon this family, has suggested that my genus *Typhlopone* is composed of the females of *Labidus*, and has consequently removed *Typhlopone* from the family of the ants, in which, as I have endeavoured to prove in a memoir subsequently published in the Annals of Natural History, he appears to me to have violated nature, *Typhlopone* possessing a far greater majority of the characters of the Formicidae than of any other family. Latreille considered the Dorylides as aberrant Mutillidae, deeming them to be solitary insects; whilst St.-Fargeau and Haliday place them in the family of the social ants; Shuckard however considers them as an oscillant family between the Mutillidae and Formicidae, on account of their possessing—firstly, only a single recurrent vein to the fore wings; secondly, a single calcar to all the tibiae (characters of the Formicidae); thirdly, a labrum closely shutting the mouth (a character of both families); fourthly, the curtailed structure of the palpi (which is stated to “separate them peculiarly from both tribes”); and fifthly, the enormous size of the male genital organ, in which Mr. Shuckard states they exclusively resemble several of the solitary Heterogyna. The curtailed structure of the palpi and the large size of the male genital organ are, however, characters of some of the Formicidae, as particularised in my observations on *Typhlopone*, and thus in every one of these characters the Dorylides are seen to resemble the Formicidae, with which they also agree in

the distinct basal segment of the abdomen *. Considering, therefore, the Dorylides as a section of the Formicidae, and having shown that Typhlopone also belongs to the same family, it may be urged that there are good grounds for considering with Mr. Shuckard that Typhlopone is composed of female Labidi. I do not think that this is the case, for the reasons which I have given in my observations on that genus above referred to, but I am far from willing to assert that such may not ultimately prove to be the case.

LABIDUS, Jur.

Of this genus, composed, as it was supposed to be until last year, of only a single species, Mr. Shuckard gave an excellent Monograph, including descriptions of ten species (exclusive of *L. mediatus*). By the kindness of W. Burchell and J. Miers, Esqrs., I am, however, enabled to double the number of species; several of my new species possessing curious characters not hitherto noticed. I may likewise add, that, with the exception of Perty's wretched figure of the species he named *Labidus Latreillii*, no illustration has yet been published of the genus, nor do we find in the latest works the internal organs of the mouth correctly described. These I have figured under the letters A and B, and they will be found to resemble the corresponding parts in *Typhlopone*, as figured by me in my "Introduction to the Modern Classification of Insects," vol. ii. p. 226, fig. 86, 19, 20.

SECTION A.—Peduncle subtriangular, with the sides elevated.

SPECIES I.—*Labidus Fargeavii*, Shk. (Mou. Dor. p. 11.) Rufo-fusco-hirtus; capite, antennis, thorace femoribusque nigris, cætera rufo-fuscus, abdomen supra rufo-sericeo, pedunculo supra canaliculato, venis alarum fulvo-rufis. Long. Corp. environ 14 lig.=17 lin. angl. mens. fere.

SYN.—*Labidus Latreillii*, Saint-Farg. H. N. Hym. 1. 229. nec Jurine.

Inhabits the province of St. Catherine, Brazil, on the sea-coast.

SPECIES II.—*Labidus Burchellii*, W. (Plate 20, fig. 1.) Piceo-niger, pubescens et pilosus, abdomine fulvo-brunneo, pedunculi lateribus valde elevatis mandibulis subrectis, tibiis tarsisque posticis gracilibus. Long. Corp. lin. 9½. Expans. alar. lin. 18½.

Taken at Santos, Brazil, by W. Burchell, Esq., on the 30th October, 1826, at 9 o'clock p.m.

This very distinct species has the head and thorax of a dirty brown colour and pubescent, and the abdomen fulvous-brown and not shining, the body beneath and at the sides clothed with long slender reddish hairs. The head is large, and the ocelli minute. The mandibles are long, nearly straight, the tips only being bent round, (Fig. 1 a). The thorax is clothed with a dirty luteous pubescence, it is scarcely broader than the head, and not gibbous in front; the abdominal peduncle is subtriangular, the sides very much elevated, the hind angles acute and produced; the extremity of the abdomen is deflexed; the antennæ and legs are long and slender; the femora blackish; the tibiae pitchy, but on the upper side reddish; the tarsi testaceous, the posterior tibiae and tarsi slender, the tarsi having a minute tubercle at the base; within (fig. 1 b; 1 c, unguis); the wings are very slightly stained with brown, and almost hyaline, the veins brown; the marginal cell is angulated behind, and the cubital vein is not thickened behind the second submarginal cell.

* Other characters which these insects possess in common with the Formicidæ are detailed by St.-Fargeau and Haliday.

SPECIES III.—*Labidus Jurinii*, Shk. (Mon. Dor. p. 11.) “Rufo-testaceus, pubescens; capite (mandibulis antennisque exceptis) nigro; pedunculo abdominis subtrigono, supra valde concavo; pedibus longissimis,” tibiis posticis articuloque basali tarsorum posticorum compressis; alis subfulvis. Long. Corp. lin. 10½. Expans. alar. lin. 20.

Supposed by Mr. Shuckard to be an inhabitant of Demerara. Mr. Miers has brought it from Brazil.

SPECIES IV.—*Labidus Latreillii*, Jurine, (Latr. Shk.). Rufo-testaceus pubescens, pedunculo abdominis subtrigono, supra in medio plano, ad latera elevato; alis late fulvis venis fuscis. Long. Corp. lig. 8 9½ mens. angl.

Inhabits Cayenne.

SPECIES V.—*Labidus Servillei*, W. (Plate 20, fig. 2.) Testaceo-fulvus breviter pilosus, capite nigro, pedunculo subtrigono, lateribus valde elevatis, tibiis basique tarsorum posticorum latissimis compressis, alis infuscatis, venis fulvo-fuscis. Long. Corp. lin. 8½. Expans. alar. lin. 14.

Taken at Para, in Brazil, by W. Burchell, Esq., on the 1st February, 1830, at 11 o'clock p.m.

The head small and black, the ocelli large, and placed in a triangle; the space between each of the hind ones and the eyes equal to the space between these two ocelli; facial carinae strong, terminating beneath the front ocelli; mandibles large, curved, a large space being left between them and the clypeus; antennæ long, slender, and fulvous; basal joint thicker than the terminal part. Thorax not very convex in front; peduncle of the abdomen much narrower than the next joint, subtriangular, truncated in front, with the fore angles rounded; hind angles prominent and acute; sides very much elevated, shining; remainder of abdomen pubescent, deflexed at the extremity; anal plate not deeply notched, the two angles acute; legs long, fulvous; hind tibiae flat, attenuated along the basal half; basal joint of tarsi dilated and emarginate within near the base to receive the spur of the tibia; wings dusky, the veins dark fulvous brown; fore wings shorter, and more truncate at the tip than usual.

SECTION B.—Peduncle with the sides parallel and not elevated.

†.—Peduncle shorter than broad.

‡.—Legs moderately long.

SPECIES VI.—*Labidus Hartigii*, W. (Plate 20, fig. 3.) Rufo-brunneus, abdomine fasciculato, pilosissimo, pilis longis fulvis, pedunculo angusto. Long. corp. lin. 8. Expans. alar. lin. 19.

Inhabits Brazil, Rio Janeiro, J. Miers, Esq.; also taken at Sapé, in Brazil, by W. Burchell, Esq., on the 14th of October, 1828, at 10 o'clock p.m.

Entirely of a brown-red colour and not shining, except at the junction of the abdominal segments; front of the body with very short hairs; metathorax and abdomen clothed at the sides above with very long fulvous hairs, and forming a thick brush at the extremity of the body. The antennæ are moderately long and slender, the basal joint rather thicker; mandibles long and much curved; facial carina but little elevated, but with a deep fossula between them, extending to the front ocellus. Thorax very gibbous in front, metathorax narrower than the mesothorax, its hind angles rounded off. Peduncle narrow, with the hind angles acute. Extremity of abdomen deflexed; fore legs short, hind legs rather long, with the tibiae and tarsi simple; wings stained light honey-colour, with the stigma and veins fulvous, the submarginal cell lanceolate, not acuminate from the apex of the second submarginal cell, nearly as large as the first two submarginal cells united; the first of these is somewhat larger than the second, and is divided from it by a curved vein, the second receives the recurrent vein rather before the middle of its length, beyond which the cubital vein is not thickened.

SPECIES VII.—*Labidus Esenbeckii*, W. (Plate 20, fig. 4.) Rufo-brunneus, abdomine lineis duabus dorsibus pilorum rufo-brunneorum, pedunculo thoracis latitudine. Long. corp. lin. 7½. Expans. alar. lin. 19.

Taken at Rio Vendinha, in Brazil, by W. Burchell, Esq., on the 10th of September, 1828, in the evening.

Entirely of a brown-red, not shining; mandibles very long and curved; facial carinae scarcely extending above the base of the antennæ; the front of the thorax very gibbous, metathorax as broad behind as the front of the thorax, acutely truncate; peduncle as broad as the metathorax, its hind angles acute; the other abdominal segments with two rows of red-brown hairs, few in number on the anterior segments, but forming two thick pencils at the extremity, which

is deflexed; hind legs longer than in the preceding, tibiae and tarsi simple; wings almost hyaline, very slightly stained with fulvous, which is the colour of the veins; stigma darker, marginal cell large, acutely angled behind, the second transverso-cubital vein being very short; the recurrent vein is inserted near the base of the second submarginal cell, the cubital nervure beyond it not being dilated.

†† Legs very short.

SPECIES VIII.—*Labidus Illigeri*, Shk. (Mon. Dor. App. p. 43.) Fuscus, subpubescens; vertice, prothorace, extremitate mesothoracis, scutello, metathorace et pedunculi disco nigris; abdomine rufo-testaceo subnitido. Long. corp. lin. 7. Expans. alar. lin. 15½. Inhabits Brazil. In Mus. Shk.

SPECIES IX.—*Labidus Halidaii*, Shk. (Mon. Dor. p. 13.) Rufo-testaceus, pubescens, capite (clypeo, mandibulis antennisque exceptis) nigro, stigmae alarum brunneo et abdominis pedunculo transverso-quadrato, supra in medio convexo. Long. corp. lin. 7. Expans. alar. lin. 14½.

Syn.—*Lab. Latreillii*, Hal. Linn. Trans. 17, p. 328.
Inhabits Brazil, St. Paul. In Mus. D. D. Curris et King.

SPECIES X.—*Labidus Fonscolombii*, W. Totus brunneo-testaceus, pubescens, abdomine subnitido, stigmae alarum rufo-testaceo, pedibus brevissimis. Long. corp. lin. 7. Expans. alar. lin. 16½.

Inhabits Brazil. D. Miers.

Entirely of a brownish-red, finely pubescent; the abdomen brighter coloured and rather shining. Head small; mandibles short and slightly curved, very hairy; face with a central channel extending to the front ocelli; ocelli placed in a curved line. Thorax very gibbous in front and at the scutellum. Abdomen with the peduncle nearly as broad as the following segment, its posterior angles rounded off, its upper surface entire and slightly convex, the ventral portion slightly angulated; abdomen with the intermediate segments slightly constricted at the base: anal plate with a very deep notch, the lateral processes very acute. Wings very slightly tinged with cinereous, more fulvous towards the costa. Sigma fulvous brown; marginal cell evidently acuminate beyond the apex of the second submarginal cell, the first transverso-cubital vein curved, and the second cubital cell receiving the recurrent vein nearer the base than the middle of its length, beyond which the cubital vein is strongly thickened. The legs are exceedingly short.

Obs.—Most of the characters given above will distinguish this species from *L. Halidaii*, whilst the colour of the head, thorax, and peduncle, the shorter scape to the antennæ, and the more villose and more robust thorax, distinguish it from *L. Illigeri*, and its considerably larger size from *L. Swainsonii*.

SPECIES XI.—*Labidus Swainsonii*, Shk. (Mon. Dor. p. 14.) Rufo-testaceus, pubescens, capite (mandibulis antennisque exceptis) castaneo; pedunculo abdominis transverso-quadrato, supra subconvexo, pedibus brevibus.

Long. corp. lin. 6½. Expans. alar. lin. 13.

Habitat in Brasilia. (Mus. D. Shuckard.) Para in Brasilia, D. Burchell (capt. 17 Decemb. 1829, ad 11 hor. P.M.) Etiam in Mexico. Mus. Westwood.

SPECIES XII.—*Labidus Hopei*, Shk. (Mon. Dor. p. 15.) Rufo-testaceus, pubescens; capite (mandibulis antennisque exceptis) atro; thorace fusco, scutello in medio sulcato, et pedunculo abdominis transverso-quadrato, supra subconvexo. Long. corp. lin. 6. Expans. alar. lin. 12.

Habitat in Brasilia. In Mus. Hope. Shuckard et nostr. Comm. D. Melly.

SPECIES XIII.—*Labidus Gravenhorstii*, W. Testaceo-fulvus, capite (antennis mandibulisque exceptis) atro, thoraci dorso fusco, abdomine longo cylindrico. Long. corp. lin. 7. Expans. alar. lin. 12½.

Taken at Rio Vendinha in Brazil on the 10th of September, 1828, in the evening, by W. Burchell, Esq.

The head is rather small and black, the ocelli large and wide apart, the clypeus castaneous, the mandibles rather short and curved, the antennæ slender; the thorax brown, above pubescent, beneath more testaceous, not very gibbous in front; scutellum entire, not sulcated; peduncle as broad as the abdomen, and shortly transverse-quadrato, flat above, with the posterior angles produced backwards and acute; the sides obliquely truncate towards the hind angles, beneath scarcely angulated; the remainder of the abdomen almost cylindrical, the legs short and testaceous, red, the hind tibiae and tarsi simple, tibial spur straight and not

dilated at the base; wings slightly dusky, with a fulvous tint towards the base, apex, and costa; wings and stigma fulvous; marginal cell conical at the tip, second submarginal cell larger than the first, and separated from it by a nearly straight vein, the recurrent vein received in the middle of the second submarginal cell, beyond which the cubital vein is slightly thickened: abdomen with the last joint compressed above at the tip; anal plate deeply emarginate, the lateral processes acute.

Obs.—This species approaches nearest to *L. Hopei*, but is distinguished from it by many of the characters given above.

Obs.—Mr. Burchell also captured a specimen at Guardamôr, in Brazil, on the 8th of September, 1823, at midnight, which differs from the above in having the wings rather more dusky, with the stigma darker and brown at the base, the vein separating the first and second submarginal cells, straight, and the anal plate not exposed.

SPECIES XIV.—*Labidus Spinolæ*, W. Fuscus, cylindricus, capite atro, abdomine fulvo-fusco, pedunculo transverso, lateribus subrotundatis, alis infumatis, venis stigmataque subfuscis. Long. corp. lin. 6½. Expans. alar. lin. 11½.

Taken at Meia Poute, in Brazil, on the 16th of October, 1827, by W. Burchell, Esq. Very similar to *L. Gravenhorstii*, from which it differs in its darker-coloured wings and stigma; the two basal submarginal cells are not so long, the vein separating them being less oblique, the legs darker coloured, the peduncle broader and not so square, the sides being rather rounded, the central surface scarcely angulated.

Mr. Burchell also captured another specimen at Caisara, in Brazil, on the 23d of October, 1827, which although greatly mutilated appears to belong to this species.

SPECIES XV.—*Labidus Guerinii*, Shk. (Mon. Dor. App. p. 44). Fuscus, subpubescens: capite atro, scapo antennarum incrassato, clypeo tuberculis binis acutis, recurvâ, instructo; mesothorace antice valde convexo, abdomine pedibusque magis rufescentibus. Long. corp. lin. 5¾. Expans. alar. lin. 12.

Habitat in Brasilia. In Mus. D. Shuckard.

SPECIES XVI.—*Labidus D'Orbignii*, W. (Shk. Mon. Dor. p. 15.) Niger, brunneo-holose-riceus, pedunculo abdominis semicirculato, supra subconvexo, nervis alarum brunneo-testaceis, ocellis parvis, cellula marginali brevi postice acute angulata. Long. corp. lin. 6½. Expans. alar. lin. 12.

Habitat in America Meridionali, D. D'Orbigny. In Mus. nostr., e Mus. Reg. Paris. communic.

SPECIES XVII.—*Labidus Walkerii*, W. Castaneo-fusca, marginibus segmentorum abdominis lucidioribus, alis infumatis, venis fuscis, pedunculo transverso-quadrato, subtus haud angulato. Long. corp. lin. 5. Expans. alar. lin. 9½.

Taken at Meia Ponte, in Brazil, on the 16th of October, 1827, by W. Burchell, Esq. Body long, cylindrical, and of a dark brown colour, with the head darker and the margins of the abdominal segments brighter coloured, pubescent; jaws rather short and curved, facial carinae extended along the outside of the front ocellus; ocelli large, lateral ones placed close to the eyes. Thorax gibbous before and behind. Peduncle transverse-quadrato, the sides slightly elevated, posterior angles not acute, ventral surface not angulated. Legs short and very slender; wings dusky, with brown veins and a dark brown stigma; marginal cell lanceolate, two first submarginal cells larger, separated by a curved vein, the vein separating the second and third submarginal cells straight and much longer than in *L. D'Orbignii*, the cubital vein closing the second submarginal cell behind not thickened; the legs are very short and of a brick brown colour.

Most like *L. D'Orbignii*, but smaller and of a browner colour; the marginal cell differently shaped; the legs not black, the wings darker coloured, with the second submarginal cell of equal breadth throughout.

SPECIES XVIII.—*Labidus Klugii*, Shk. (Mon. Dor. p. 16). Rufo-castaneus, pubescens, vertice, thoracis dorso, et stigmate alarum badiis; clypeo tuberculis binis, acutis, instructo, et pedunculo transverso-quadrato, subconvexo. Long. corp. lin. 4½. Expans. alar. lin. 8½.

Habitat in insula St. Vincentii, D. L. Guilding. In Mus. D. Shuckard.

SPECIES XIX.—*Labidus Ericksonii*, W. Longus, cylindricus, rufo-testaceos, capite badio: clypeo integro; pedunculo subtransverso, angulis acutis; stigmate magno nigricanti. Long. corp. lin. 5. Expans. alar. lin. 9.

Habitat in Brasilia, D. Miers.

Entirely of a fulvous red colour (except the head, which is dark chesnut) and shining, being but slightly pubescent; the jaws of moderate size, the clypeus entire, the ocelli very large, the facial carinae very strong, and extending on each side of the front ocellus, forming a strong angle beneath it; the antennae are long and slender, the basal joint longer than in *L. Klugii*; the thorax is not very gibbous in front, the peduncle is narrower than the thorax or abdomen, and of a squarer form than in any of the preceding, with the angles acute; the abdomen is very long and cylindric, not thickened towards the tip as in *L. Klugii*. The wings are broad and almost colourless, with thin brown veins; the stigma large and blackish; the marginal cell is slightly attenuated towards the tip; the first and second submarginal cells are large, separated by a slightly curved vein; the recurrent vein is received at the middle of the second submarginal cell, beyond which the cubital vein is thickened; the anal plate is deeply and widely emarginate; the lateral processes very acute.

† † *Peduncle as long as broad.*

SPECIES XX.—*Labidus Romandi*, Shk. (Mon. Dor. p. 17). Rufo-testaceus; vertice badio, stigmate alarum brunneo-fusco, et pedunculo abdominis quadrato-convexo; mandibulis brevibus, tenuibus; abdominis segmentis posticis, subcompressis. Long. corp. lin. $4\frac{1}{2}$. Expans. alar. lin. $7\frac{3}{4}$.

Inhabits Brazil (Mus. D. Shuckard). Also taken at Canga, in Brazil, on the 4th of November, 1838, during the night, by W. Burchell, Esq. Mr. Burchell possesses a specimen 4 lines long, and with the wings expanding only 7 lines, which I refer to this species, although the anal plate is not exposed, and the wing-veins exhibit the following distinctions, which are, I apprehend, to be regarded as irregularities:—The right fore-wing has four submarginal cells, a small supplemental one (forming a third) being interposed between the ordinary second and terminal cells. This little cell is very narrow in front, but broader behind. The left fore-wing has also four submarginal cells, but here the small supplemental cell is interposed between the ordinary first and second; it is of a triangular form, and does not extend upwards to the marginal cell, the second transverse-cubital vein being in fact furcate at a little distance from the marginal cell.

UNKNOWN SPECIES.

SPECIES XXI.—*Labidus Pertii*, Shk. (Mon. Dor. p. 18).

Syn.—*Lab. Latreillii*, Perty, Del. An. Art. Br. p. 138, t. 27, f. 11.

Obs.—*Dorylus mediatus*, Fabr. Syst. Prez., p. 428. (*Labidus?* *mediatus*, Shk. Mon. Dor. p. 18.) preserved in the Royal Museum of Copenhagen, has been examined by Dr. Erichson, who informs me that it is a male *Mutilla*, having the third joint of the antennæ (instead of the base of the second, as described by Fabricius) ferruginous.

ÆNICTUS, Shk.

This genus differs from *Labidus* in the venation of the wings, and geographical situation; and from *Dorylus* in the small size of the body, the long curved mandibles, and the slender cylindrical thighs; whilst it is at once separated from *Rhogmus* by possessing only one recurrent vein.

Mr. Shuckard founded the genus in his Monograph on the Dorylidæ upon two specimens of a single species brought from Poonah, in Bombay, by Col. Sykes. I have, however, long had a note of a second species in the Cabinet of the Linnaean Society, and now possess, by the kindness of W. W. Saunders, Esq., President of the Entomological Society, F.L.S., &c., a specimen of the species described by Mr. Shuckard, taken in Northern India, by Lieut. Campbell.

SPECIES I.—*Aenictus ambiguus*, Shk. (Mon. Dor. p. 24). Rufo-testaceus, pubescens, capite (antenais mandibulisque exceptis) et thorace nigro, mandibulis longissimis; facie carina media subtus furcata, alarum venis stigmatisque fuscis, pedunculo profunde canaliculato. Long. corp. ferre lin. 4. Expans. alar. lin. $7\frac{1}{2}$. (Pl. 20, fig. C., head.)
Habitat India Orientali, Poonah. In Mus. Sykes, Saunders, et Westw.

SPECIES II.—*Aenictus certus*, W. Rufo-fulvescens, pubescens, capite brunneo-nigro, mandibulis sub-brevibus, stigmatis alarum fusco, venis fulvo-fuscis, pedunculo antice angustiori, disco subplano. Long. corp. (abdom. incurv.) lin. $3\frac{1}{2}$. Expans. alar. lin. $7\frac{1}{2}$.
Habitat? In Mus. Soc. Linn. Lond.

Head pitchy or brunnaceous black, the face redder brown; the antennae fulvous, with long slender hairs; mandibles short, falcate, and fulvous. The thorax is fulvous, finely setose. The abdominal peduncle is somewhat triangular; the sides rather rounded, and the posterior angles not acute; the sides are slightly elevated, and the disk is nearly flat and not channelled in the middle; the second, third, and fourth segments of the abdomen are of nearly equal size, the fifth is much longer than either of these segments, the sixth is much shorter, and the seventh is about as long as the sixth. The male organs are concealed. The wings are throughout more stained with a light fulvous tint than in *AEn. ambiguus*. The stigma is fulvous, and the veins are fulvous-brown. There is considerable difference in the position of these veins in the two known species. The cubital vein arises very near the postcostal in *AEn. certus*, but at a distance from it in *AEn. ambiguus*, in consequence of which the first cubital cell is smaller than the second discoidal cell in the former, whereas they are of equal size in the latter; this is further increased by the vein which separates the first and second discoidal cells being deflexed at its extremity in *AEn. certus*, whereas it is straight in *AEn. ambiguus*, terminating at a greater distance from the extremity of the anal vein; moreover the transverse veins which close the extremity of the cubital and discoidal cells are much more angulated in *AEn. ambiguus* than they are in *AEn. certus*.

DORYLUS, *Fabr.*

The species of this genus are confined to Africa and Asia. They are distinguished by possessing very short feet, with compressed femora, two submarginal cells, and only one recurrent vein in the fore wings.

A.—Peduncle cup-shaped, nearly as large as the following segment.

SPECIES I.—*Dorylus nigricans*, Illiger (Fabr. Shk. Mon. Dor. p. 28). Nigricans, brunneoholosericeus, capite magno, abdominis petiolo acetabuliformi, segmento 2do paulo minori, oculis minutis. Long. corp. lin. 13. Expans. alar. lin. $21\frac{1}{2}$.
Inhabits Sierra Leone.

B.—Peduncle cup-shaped, much smaller than the second segment.

SPECIES II.—*Dorylus helvolus*, Linnaeus, &c. (Shk. Mon. Dor. p. 29). Helvolus pilosus; capite rufo, facie opalina convexa, petiolo acetabuliformi, 2do segmento multo minori. Long. corp. lin. $12\frac{1}{2}$. Expans. alar. lin. $21\frac{1}{2}$.
Inhabits the Cape of Good Hope.

SPECIES III.—*Dorylus affinis*, Shk. (Mon. Dor. p. 30). Helvolus pilosus; capite rufo-castaneo; facie plana, petiolo acetabuliformi, 2do segmento multo minori. Long. corp. lin. $10\frac{1}{2}$. Expans. alar. lin. 19.

Inhabits the vicinity of the river Gambia. Differs from the preceding in its smaller size, in the cubital nervure being slightly undulated (instead of straight), as far as the separation of the two submarginal cells and the recurrent nervure, inserted at *fully one-half* of the length of the first of the latter.

C.—Peduncle quadrate, mandibles slender and much acuminated.

SPECIES IV.—*Dorylus glaberrimus*, Shk. (Mon. Dor. p. 31). Rufo-brunneus, glaber, subrobustus, venis alarum nigris, vertice valde prominente, facie in medio sulcata, mandibulis attenuatis, labro tuberculis binis obtusis instructo et pedunculo abdouinis transverso-quadrato. Long. corp. lin. $14\frac{1}{2}$. Expans. alar. lin. $23\frac{1}{2}$.

Inhabits the vicinity of the river Gambia.

SPECIES V.—*Dorylus juvenculus*, Shk. (Mon. Dor. p. 32). Rufo-fuscus, glaber, subattenuatus; capite (antennis mandibulisque castaneis exceptis), et venis alarum nigris, vertice valde prominente, facie in medio sulcata, labro tuberculis binis instructo et pedunculo abdominis quadrato-convexo. Long. corp. lin. 15 $\frac{1}{2}$. Expans. alar. lin. 24.

Inhabits Barbary.

SPECIES VI.—*Dorylus labiatus*, Shk. (Mon. Dor. p. 33). Pallide brunneus, seu rufo-testaceus glaber, facie pilosa, subtuberculata, prominula, in medio profunde sulcata, mandibulis attenuatis, labro tuberculis binis magnis instructo et pedunculo abdominis quadrato vel potius subgloboso. Long. corp. lin. 14 $\frac{1}{4}$. Expans. alar. lin. 23.

Inhabits Poonah and Assam.

D.—Peduncle quadrate, mandibles broad and nearly triangular.

SPECIES VII.—*Dorylus orientalis*, Westwood. (Proc. Z. Soc. 1835, p. 72, Shk. Mon. Dor. p. 34). Helvolus pilosus, abdomine glabro, capite rufo, facie in medio sulcata, mandibulis subtrigonis, vena cubitali valde sinnosa, plenris sericeis et pedunculo abdominis quadrato gibboso; venis binis internis alarum posticarum venis duabus transversis convexis. Long. corp. lin. 12 $\frac{1}{4}$. Expans. alar. lin. 19.

Inhabits Bengal.

SPECIES VIII.—*Dorylus longicornis*, Shk. (Mon. Dor. p. 35). Helvolus subpubescens, capite nigro convexo, facie in medio sulcata, mandibulis subtrigonis, plenris obscuris, vena cubitali subrecta, petiolo abdominis quadrato gibboso. Long. corp. lin. 11 $\frac{1}{2}$. Expans. alar. lin. 18.

Inhabits Bengal.

SPECIES IX.—*Dorylus attenuatus*, Shk. (Mon. Dor. p. 36). Helvolus vel testaceus subpubescens, capite nigro vel rufo, facie in medio sulcata, mandibulis subtrigonis, venis alarum brunneis vel testaceis, pedunculo quadrato gibboso. Long. corp. lin. 10 $\frac{1}{4}$. Expans. alar. lin. 15.

Supposed to inhabit the vicinity of the river Gambia.

SPECIES X.—*Dorylus atriceps*, Shk. (Mon. Dor. pl. 37.) Sordide helvolus, glaber, capite (antennis mandibulisque badiis exceptis) atro, facie valde prominente in medio subsulcata, pedunculo abdominis quadrato-gibboso. Long. corp. lin. 9 $\frac{1}{2}$. Expans. alar. lin. 15 $\frac{1}{2}$.

From the vicinity of the river Gambia. The mandibles are very broad, with a large obtuse triangular projection at the base within, leaving no space between them when closed, their inner edge acute.

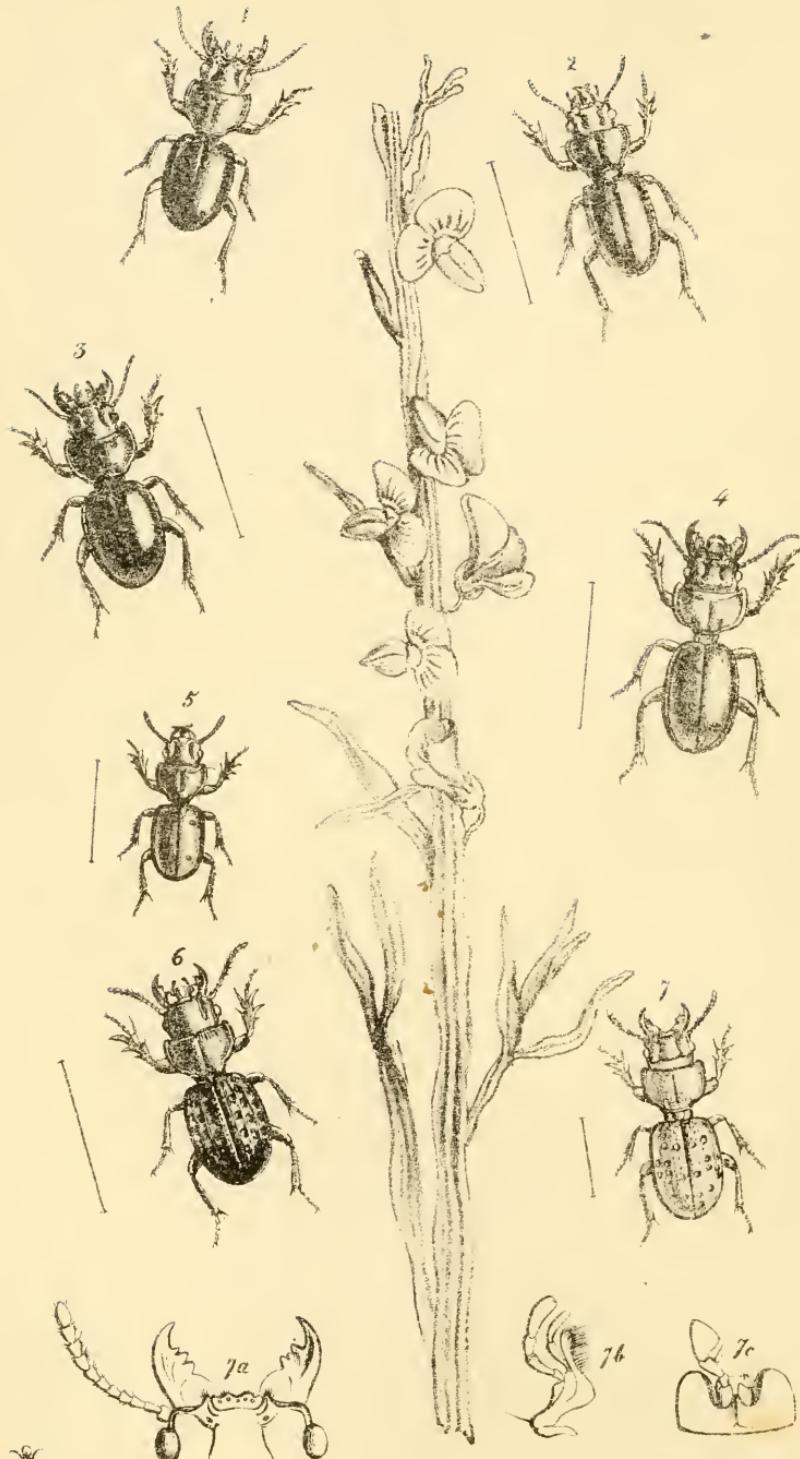
RHOGMUS, Shk.

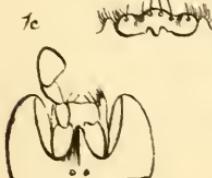
This group has been proposed as a genus by Mr. Shuckard, for the reception of a species which differs from the other Doryli, by possessing two recurrent veins in the fore wings, which have only two submarginal cells; the mandibles are triangular, the feet very short with the thighs broad and compressed, and the abdomen very long and clavate. From the irregularities which so frequently occur in the position of the veins of the wings of the other Doryli, I consider that the first of these characters, which Mr. Shuckard considers as of primary importance and employs in his synoptic table, of too trivial a nature to warrant the generic separation of Rhogmus from Dorylus, whilst its other characters appear to me but specific distinctions.

SPECIES I.—*Rhogmus fimbriatus*, Shk. (Mon. Dor. p. 39.) Helvolus pilosus; abdomine glabro, segmento ultimo supra et dnobus ultimis subtus fimbriatis; capite (clypeo antennis mandibulisque castaneis exceptis) nigro, venis alarum brunneis et pedunculo abdominis transverso-quadrato, convexo. Long. corp. lin. 17 $\frac{1}{2}$. Expans. alar. lin. 22.

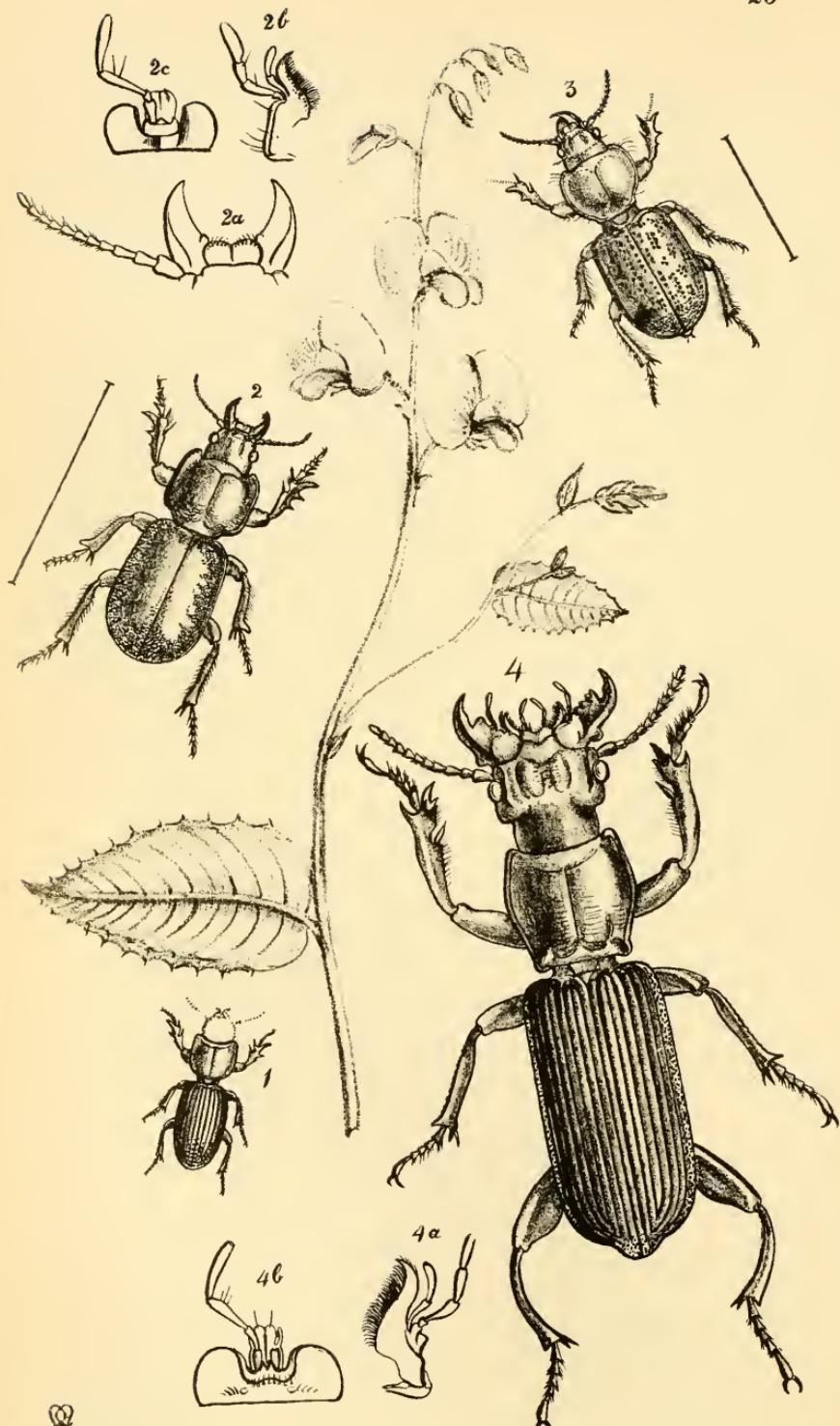
Inhabits the Gold coast and the vicinity of the river Gambia.

The splendid Orchidaceous plant figured is the *Cattleya Aclandiae* of Lindley, Bot. Reg. v. 26, pl. 48, a recently discovered species inhabiting Brazil.





24-1-42



PLATES XXI, XXII, AND XXIII.

ON THE SCARITIDEOUS BEETLES OF NEW HOLLAND.



THE insects represented in these three plates are referable to the section of the Carabidae, which Latreille denominated Bipartiti or Fossores, and Dejean Scaritides, and which was characterised by having the elytra not truncate at the tips (as in the Brachinides); the antennae often bowed, the thorax generally almost semicircular, and separated from the abdomen by a narrowed peduncle and the legs generally rather short, with the fore tarsi not dilated in the males, and the fore tibiae palmated.

In the second edition of the "Règne Animal" we find the genus *Carenum*, of Bonelli (composed of a single species, *Sc. cyaneus*, Fab., from New Holland), placed in conjunction with *Enceladus* and *Siagona*, on account of the large triangular form of the last joint of its labial palpi. To these succeed the majority of the genera having palmated fore feet and a long second joint of the antennae, the section being terminated by a second subdivision, composed of the genera *Morio*, *Ozaena*, *Ditomus*, and *Apotomus*, in which the fore tibiae are not palmated, and the second joint of the antennae comparatively short.

It is impossible, on studying this arrangement, not to arrive at the conclusion that it is entirely artificial: thus, the Australian *Carenum* (which is the more immediate object of our observations) has no further character in common with *Enceladus* and *Siagona*, than in having the dilated terminal joint of the labial palpi; whereas in its general structure, palmated tibiae, and elongated second joint to the antennae, it unquestionably belongs to the group typified by *Scarites* proper. We find, however, in the structuro of the mouth, another character, which occurring in an organ of peculiar importance in the classification of the Coleoptera, adds far greater weight to the relation of *Carenum* with the last-named genus and its immediate relations*. Latreille himself had observed this

* Boisduval (*Voy. de l'Astrolabe*, p. 23), states that *Carenum* "a une grande analogie avec les *Scarites*, les *Encelades*, les *Pasimaches*, les *Ozena*, les *Clivina* et les *Morio*." He does not, however, describe in what the analogy with which such discrepant genera consists.

character, namely, the want of a terminal hook to the maxillæ in *Carenum* and *Pasimachus*, which latter, he observes, "se rapproche du dernier (*Carenum*) relativement aux machoires, qui sont droites et sans crochet terminal" (Règne An. iv., p. 382); but he describes *Acanthoscelis*, *Searites*, *Oxygnathus*, and the remainder of his first subdivision as having the "machoires arquées et crochues au bout." This is however erroneous, although no subsequent writer on the predaceous beetles has corrected it. I have before me Latreille's own dissections of several of these genera, in all which the maxilla are obtuse at the tip; and in all the true Scaritides (composing his first subdivision, except *Siagona* and *Enceladus*) which I have dissected, I have found the same character *; except in *Clivina*, which is thus proved (contrary to the arrangements of most Continental authors) to differ from *Dyschirius* in this important respect.

Until very recently, only one true Scaritideous insect (or rather two species confounded together) had been described by entomologists from New Holland—namely, the *Searites cyaneus* of Fabricius, *Carenum cyaneum* Bonelli. Within the last few years, however, descriptions of three other species have been published—namely, *Arnidius marginatus* Leach (described by M. Boisduval); *Eutoma tinetilatus*, described by Mr. Newman; and *Carenum perplexum*, by Mr. A. White. Fifteen species are described in the present paper belonging to the first subdivision of Latreille, in addition to three other species which approximate closely to them.

The chief cause of this want of descriptions of Australian Scaritidae is evidently the great rarity of the insects themselves in that portion of the globe. Dejean, the late possessor of the most extensive collection of Coleoptera formed up to that period, did not possess a single species belonging to this section from Australasia, and of the species now figured in the accompanying plates, the majority are represented from unique specimens; of these also the majority are from the new settlements in the south-western and north-western portions of New Holland; so that we are, I think, fully justified, from the large collections of Coleoptera which have been sent to this country from the older settlements on the south-eastern part of Australia without any Scaritideous insect amongst them, in believing that these insects are either not indigenous to the latter district, or are of extreme rarity.

* Considering the pre-eminently predaceous habits of the true Scaritides, it seems remarkable that the tooth of the under jaws should not be developed.

The species now figured exhibit several peculiarities of importance as contrasted with the other Scaritideous insects. The singular and occasionally brilliant metallic tints of some of the species have hitherto been almost unknown in this section; the dilated form and large size of the three species represented at the bottom of plate 22, and the singular characters of the three insects figured in plate 23, fig. 2, 3, and 4, are also especially worthy of notice.

I now proceed to the description of the Australian species of this section.

CARENUM, Bonelli.

(Syn.—*Arnidius*, Leach, *Bdv.* *Eutoma*, Newm.)

This genus was founded by Bonelli (*Observ. Entomol.* 2nd part, p. 47, and *Turin Trans.* 1813, p. 479), upon a species which he examined in the collection of the Jardin des Plantes, at Paris, and which he considered as identical with the *Scarites cyaneus* of Fabricius, from which, however, it is quite distinct. The chief character of the genus, as detailed by Bonelli, consists in the enlarged and triangular form of the terminal joint of the labial palpi, whilst the maxillary palpi are nearly cylindrical. The antennæ are short, with the first joint apparently* not longer than the second [which is about as long as the third]; the anterior tibiae are externally dentated; the elytra oblong or oval, soldered together without wings beneath them; the mandibles are also strongly toothed on the inside, the mentum toothed in the centre of its deep emargination. The labrum is transverse but differs in form in different species, being sometimes horizontal, as in *Scarites*, but sometimes deflexed in front, as in pl. 22, fig. 3 a. The antennæ are variable in length, as well as in the relative thickness of the terminal joints; the fore feet also differ in the number of the digitations, and there is also considerable difference in the form and sculpture of the elytra. As however all these insects agree in their more essential characters, I have reduced the genera *Arnidius* and *Eutoma* to synonyms, because almost every species presents characters of variation as important as those possessed by the types of the two last-mentioned groups.

SPECIES I.—*Carenum Bonellii*, W. Nigrum, pronoto et elytris viridi latè marginatis, borum carina marginali violacea; disco lœvi, punctis duobus versus basin alterisque duobus subapicalibus, pronoto in medio fossula longitudinali et transversè striato, basi utrinque obliquè impresso; tibiis anticis externè bidentatis. Long. corp. (sec. fig. Brullei) lin. 10, lat. lin. 3. Mus. Jard. des Plantes.

* I say *apparently*, because in most of the species the anterior lateral angles of the head are produced over the base of the basal joint of the antennæ, causing it to appear shorter than it really is.

SYN.—*Carenum cyaneum*, Bonelli, op. cit. (exclus. syn. Fabr.) *Brulle*, Hist. Nat. Ins. t. 5, p. 63, pl. 2, fig. 6 (figured from the original specimen described by Bonelli). *Boisduval*, Voyage de l'Astrolabe, texte p. 25.

SPECIES II.—*Carenum marginatum*, W. (Plate 21, fig. 1.) Nigrum, nitidum, lœve; pronoto elytrisque marginatis, margine viridi; palpis piceis, elytris ovalibus punctis duobus sub-apicalibus, tibiis anticis externè dentibus duobus magnis alterisque duobus minutis mediis. Long. corp. lin. 10 (=lin. 12, mens. gall.), lat. elytr. lin. 4. Mus. Brit. Hope. Dupont.

SYN.—*Arnidius marginatus*, Leach's MSS. in Mus. Brit. *Boisduval* Voy. de l'Astrol. part. 2, p. 23. *Laporte*, Hist. Nat. Ins. Col. vol. 1, p. 66.

This is closely allied to the preceding species, from which it is distinguished by its longer and broader form, and by having only one pair of deep punctures on the elytra, near the tip. The head has two deep longitudinal impressions between the eyes, each forked in front with a small puncture near the middle of the fork; the hind part of these impressions is directed outwards. The labrum has three sinuses along its front edge, the middle one being the widest, but not so deep as the two lateral ones. The right mandible has three teeth in the middle, the left one two; the labial palpi have the middle joint furnished with many short bristles. The antennæ are rather long and slender, the basal joint largest, the second slightly shorter than the third. The pronotum is very much rounded at the sides, the hind edge scarcely produced, and with a very slight dorsal impression; the elytra are smooth, not very shining, with slight traces (under a lens) of rows of punctures, and each is marked near the tip with a deep puncture. The slender margin of the pronotum and elytra is bright green, and within it, in the elytra, are a series of punctures; the humeral angles are rounded off, with a slightly-elevated angle. The anterior tibiae have two large, and two or three very minute spines on the outside.

SPECIES III.—*Carenum perplexum*. (Pl. 21, fig. 2.) C. nigro-cyanum, elytris subviridescentibus, basi subquadratibus, dorso impunctatis; tibiis anticis extus bispinosis. Long. corp. lin. 8. Lat. elytr. lin. 2½. Mus. Brit. (Inhabits King George's Sound.)

SYN.—*C. perplexum*, White, in App. to Grey's Voy. 2, p. 456.

This species differs from C. Bonellii, marginatum and Fabricii (eyaneum F.), in having no deep punctures on the disc of the elytra. The head is broad, with the anterior angles very prominent. The eyes very globose, between which are two deeply-impressed striae (posteriorly converging), and suddenly bent into an angle, the front part running towards the outer base of the mandibles, with a deep setigerous puncture on each side. The pronotum is much narrowed behind, and the elytra long, ovate, and sub-depressed, nearly trinaciate at the base, the humeral angle forming a kind of tooth; within the dilated margin of the elytra are a series of punctures. The fore tibiae are externally armed with two strong teeth. The head is black, the pronotum blue-black, and the elytra tinged with greenish blue. The antennæ are as long as the pronotum and half of the head, and the labial palpi have the last joint small and triangular.

SPECIES IV.—*Carenum politum*, Hope, MSS. (Pl. 21, fig. 3.) C. nigrum nitidum; pronoto lato, dorso longitudinaliter canaliculato basique bi-impresso lateribus rotundatis et cum elytris marginatis, margine lœte cœruleo; horum disco impunctato. Long. corp. lin. 7½. Lat. elytr. lin. 3. Mus. Hope, and Entomol. Club. (Inhabits Van Diemen's Land.)

This species differs from the last (with which it agrees in the impunctate disc of the elytra) in the broad and rounded outline of the pronotum and elytra, as well as in its colours, being shiny black, except the reflexed margins of the pronotum and elytra, which are of a bright blue. The head has two deep channels on the crown (posteriorly diverging), and forked in front; the right mandible has three, and the left one two obtuse teeth in the middle. The antennæ are slender but compressed. The pronotum is broad, with the sides margined and rounded, the posterior angles being slightly emarginate, as well as the middle of the hind margin. The disc has a deeply-impressed longitudinal line, and near the hinder angles is an oblique impression. In one specimen there are also two round impressions near the front margin which are sometimes wanting. The elytra are broadly ovate with the anterior angles rounded off, very shining, the disc impunctate, but with a series of impressions within the lateral margins. The fore tibiae have two large teeth on the outside, beneath which are two minute ones.

SPECIES V.—*Carenum smaragdulum*, Hope, MSS. (Pl. 21, fig. 4.) C. pronoto transverso elytrisque nitidissimè cœruleo viridis, his versus apicem bipunctatis, tibiis anticis extus tridentatis. Long. corp. lin. 8½. Lat. pronoti lin. 3. Mus. Hope. (Inhabits the Swan River.)

This very handsome species has the head flatter than any of the preceding, and black, except towards the neck, which is slightly tinged with green, which colour is splendidly exhibited by

the pronotum and elytra, the margins of which are more elevated with a bright golden green hue. The head has two deeply-impressed lines on the crown forked in front; the right mandible has two teeth in the middle, the lower one being very large, and composed of three united together; the left mandible has two teeth within, between which is a very small one. The antennæ are as long as the pronotum and half of the head, slender and not compressed, with the second joint a little shorter than the third. The pronotum is very broad and short, with the sides straighter than in any of the preceding species, and more strongly margined, the hind margin almost forming a regular curve. The elytra are ovate, with the humeral angles rounded, but with a small elevated obtuse tooth-like angle; within the lateral margin is a series of punctures. The legs are black, the anterior tibiae with three teeth on the outside.

SPECIES VI.—*Carenum (cyaneum) Fabricii* (Pl. 21, fig. 5). C. nigro-cyanum glaberrimum, elytris subpurpurascensibus, et versus basin et apicem bipunctatis, tibiis anticis extus tridentatis. Long. corp. lin. $5\frac{1}{2}$. lat. clytr. lin. 2. Mus. Soc. Linn. Lond. (olim. Banks.)

SYN.—*Scarites cyaneus*, Fabr. Ent. Syst. I, p. 95. Syst. El. I, p. 125. Oliv. Ent. 3, No. 36, p. 11, pl. 2, fig. 17. Laporte, Hist. Nat. Ins. Col. I, p. 66. (*Carenum c.*) Boisduval, Voy. de l'Astrol. p. 23, excl. syn. Bonelli et Brullei.
“Caput magnum, exsertum, cyanum, fronte lineis duabus impressis,” postice divergentibus. “Mandibulae exsertae, nigrae, dentatae; antennæ nigrae; thorax canaliculatus, cyanens, postice rotundatus,” marginatus, angulis posticis parum emarginatus. “Elytra thorace addito capite breviora, connata,” purpurascenti—“cyanæ, glaberrima, basi retusa,” disco versus basin et apicem bipunctata, marginata; intra marginem lateralem parum virescentia, sericea punctorum impressa. “Pedes nigri tibiis anticis” extus tri-“dentatis.”

The above additions to the original Fabrician description (which is inclosed in inverted commas) are supplied, together with the accompanying figure, from the original unique specimen still in the possession of the Linnean Society. The species described by Bonelli, and supposed by him to be identical with the present species, being quite distinct, I have applied to it the name of C. Bonelli; and in order to avoid any further confusion between the two species which have received the same specific name, I have also designated the present species with the name of its original describer.

SPECIES VII.—*Carenum Spencii* (Pl. 21, fig. 6, C.) Nigrum, subopacum, tibiis anticis extus tridentatis, elytris excavationibus numerosis rotundatis, triplice serie in singulo elyro ordinatis, spatiis intermediis elevatis. Long. corp. lin. 9. Mus. Melly. cum hoc nomine inscriptum. Inhabits New Holland.

SYN.—*Carenum Spencii*, Westw. in Taylor's Annals of Nat. Hist. Oct. 1841, p. 123.

The head in this very distinct species has two impressed lines on the crown, the pronotum has the posterior angles rather strongly emarginate, the disc with a deep impressed line, and near the fore margin is a row of fine longitudinal strigæ. The elytra have an indistinct row of punctures on each side of the suture, succeeded by three rows of large deeply excavated round but irregular impressions, the space between the rows being elevated; the sides are margined, and within the margin is a row of deep small punctures. The fore tibiae are very strongly palmate, having three teeth on the outside.

SPECIES VIII.—*Carenum gemmatum*, Hope, MSS. (Plate 21, fig. 7, 7 a, 7 b, and 7 c.) C. viride, elytris cupreo-tinctis, punctis magnis distantibus triplice serie in singulo elyro ordinatis, tibiis anticis dentibus duobus magnis alteroque minuto externis. Long. corp. lin. $4\frac{1}{2}$; lat. elytr. lin. $1\frac{1}{2}$. Mus. Hope. Inhabits Port Essington.

This beautiful little insect is most nearly allied to C. Spencii, but is, however, quite distinct. The head is black in front but green behind; it has two deep impressed lines diverging behind, united with a slightly-waved impressed line which runs across the head behind the eyes; behind the labrum the two lines are strongly angulated with a small puncture near the angle; the labrum is horizontal, with the middle emargination rather deep (7 a, front of head; 7 b, maxilla; 7 c, labium). The right mandible has three nearly equal teeth in the middle; the left one has also three, but the middle one is very small. The antennæ are very short, with the terminal joints broad and compressed; the second and third joints are very nearly equal in length. The thorax has the lateral margins not much rounded, and the hind margin nearly forms a regular curve; the disc has a central impressed line, and there is an oblique impression near the posterior angles; the elytra are more oblong than in the preceding species; the suture is deeply impressed, and each elytron has three rows of deep round impressions placed at unequal distances apart; the two rows next the suture having four, and the one next the sides only two impressions: the fore tibiae have two large and one very minute teeth on the outside.

SPECIES IX.—*Carenum sumptuosum*, Hope MS. (Plate 22, fig. 1, and 1 a, 1 b, and 1 c.)
C. angustius nigrum, igneo colore varium, elytris levibus punctis duobus versus basin alterisque duobus subapicalibus, tibiis antice externe bidentatis. Long. corp. lin. 10; lat. elytr. lin. 3. Mus. Hope. (Inhabits Port Essington, on the north coast of New Holland.)

This is the most splendid Scaritideous insect hitherto discovered. It is of a much narrower form than any of the preceding species. The head is broad, the middle and fore margin of the upper side blue-black, with a fiery copper-coloured patch on each side changing to green; the narrow hind part of the head is also fiery copper-coloured. The crown of the head has two deeply-impressed simple lines much diverging behind, where each unites with another impressed line margining the eyes. The labrum (fig. 1 a) has the middle lobe prominent. The right mandible has four teeth, the first and second distant, with a minute tubercle between them, and the third tooth is small. The left mandible has three teeth, the middle one being small. The pronotum is about as broad as long, with the hind angles and the middle of the hind margin somewhat emarginate; the disc is blue-black, with an impressed line, but each side, and behind, is coloured with igneous copper, margined with golden-green, which colours extend inwards from the front angles to a point. The elytra are elongate subcylindric, with the suture deeply impressed, the anterior angles rounded off, the disc smooth, with two deep punctures near the base and apex; they are of a similar igneous copper-colour, margined with green, having a large blue-black central patch; within the lateral margins of the elytra are a series of small elevated punctures. The legs are short, with the fore tibia externally bidentate. The head beneath, and two patches on each of the abdominal segments, are coppery and golden-green.

SPECIES X.—*Carenum megacephalum*, Hope, MSS. (Plate 22, fig. 3, and 3 a). *C. cylindricum nigrum nitidum, capite maximo, pronoto viridi, elytris levibus cupro-viridibus, tibiis anticis dente unico apicali externo.* Long. corp. lin. 8, lat. elytr. lin. 1 $\frac{3}{4}$. Mus. Hope. (Inhabits Port Essington.)

This species is remarkable for the large size of its nearly square head, of a shining black colour, with a deeply-impressed short line on each side, running from the anterior angle towards the crown, and with a circular impression on each side between the eyes; behind which the head is suddenly contracted into a neck; the mandibles have three or four not very strong and irregular teeth; the labrum is deflexed in front (fig. 3 a), its free margin being produced in the centre and slightly notched; the outer maxillary palpi are scarcely longer than the inner ones, rather thick, with the last joint very short and triangular; the mentum and labial palpus is like that of *C. gemmatum*. The antennæ are rather long, with the terminal joints slightly compressed, the terminal joint being longer than any of the preceding. The pronotum is considerably longer than broad, the sides parallel in front, but narrowed off behind; it is cylindrical, and of a bright green colour, with a slight dorsal impressed line. The elytra are narrowed in front, gradually but slightly increasing in breadth nearly to the tips. They are of a splendid coppery green, with the suture much depressed, the sides margined, the disc smooth; close to the base are a few punctures, forming a small oblique line. The legs are short and black, the fore tibiae having only a long single apical spine on the outside, a slight bulging out of the edge of the limb indicating the situation of the second ordinary spine.

SPECIES XI.—*Carenum tintillatum*. (Plate 22, fig. 2.) *C. cylindricum nigrum, elytris lateribus caeruleis, punctisque duobus subapicalibus, tibiis anticis extus bidentatis.* Long. corp. lin. 8, lat. elytr. lin. 2. Mus. Entomol. Club.

SYN.—*Eutoma tintillatus*, Newman. Ent. Mag. 5, 171.

This is the most regularly cylindrical species of the genus. It is of a shining black colour, with the margins of the elytra brilliant blue. The head has two deep channels on the crown posteriorly diverging, and anteriorly furcate, with a minute puncture in the fork. The anterior angles of the head are obliquely truncate, and behind the eyes the head is gradually narrowed into a neck; the antennæ are considerably longer than the head, being about equal to it and the mandibles in length; the terminal joints are compressed and gradually dilated, the terminal joint being the largest and oval. The clypeus terminates in two small central and two large lateral teeth, the labrum being deflexed and not visible from above. Each mandible has three obtuse teeth in the middle. The maxillary palpi have the terminal joint but slightly securiform; the terminal lobe of the maxilla is not furnished with an apical curved tooth. The labial palpi have the terminal joint securiform. The pronotum is smooth, with the front margin straight; the sides are also parallel for about two-thirds of the length of the pronotum; they then become gradually narrowed and rounded off, the lateral and hind

margins being margined, with two or three setigerous punctures wide apart within the margin. The disc of the pronotum is marked by a slender impressed line. The meso-thoracic peduncle is slender and narrowed behind; the elytra are as broad as the widest part of the head; they are smooth and shiny, with the suture slightly impressed, the anterior and posterior angles being equally and gradually rounded off; each elytron is marked with a deep puncture near the tip, and is margined with a beautiful blue tinge; the margin itself is raised, and within it is a series of small setigerous punctures. The legs are short, and the anterior tibiae have two very strong teeth on the outside.

SCARITES, *Fabricius.*

SPECIES I. (XII.)—*Scarites Bacchus*, Hope, MSS. (Plate 22, fig. 4). Sc. niger nitidus latissimus, capite puncto circulari medio foveisque duabus lateralibus impressis, elytris circularibus tibisque intermediis dente acuto subapicali externe armatis. Long. corp. (e labro ad anum) lin. 19, lat. clytr. lin. 9. Mus. Hope. (Inhabits Swan River.)

This fine species entirely recedes from the ordinary form of the genus in its broad outline and circular elytra. It is black and shining. The head is broad, and produced into an angle outside the eyes. It has a round impression on the crown, with an oval fovea on each side extending nearly to the base of the mandibles, terminating in a point on the crown. There are also two smaller impressions in the front of the clypeus; the right mandible is 3-dentate, the inner tooth almost obliterated; the left mandible is 4-dentate, the inner tooth large; the pronotum is broad, and margined with a rather deep central longitudinal sulcus, terminating in a cordate impression, and with an oblique impression at each hinder angle. The elytra are circular subconvex, with the suture impressed; each is marked with six almost obsolete simple striae; within the raised lateral margins is a numerous series of small punctures, and at a small distance from the sides, another row of six punctures placed wide apart; and there are three other punctures forming an oblique line towards the extremity of the suture. The anterior tibiae are externally 3-dentate, and the middle tibiae are furnished on the outside near the tip with a strong sharp slightly-curved spur, above which the limb is finely serrated on the outside.

SPECIES II. (XIII.)—*Scarites Lenaus*, Westw. (Plate 22, fig. 5). Sc. niger nitidus latus, capite inter oculos foveis duabus ovalibus impressis et strigosis, pronoto utrinque versus angulos anticos puncto impresso, elytris obovatis, tibiisque intermediis dente magno curvato oblique truncato subapicali armatis. Long. e labro ad anum lin. $14\frac{1}{2}$. Lat. clytr. lin. $5\frac{1}{2}$. Mus. Soc. Linn. Lond. (Inhabits New Holland.)

This species is much smaller and narrower than the preceding; the head is angulated outside the eyes, between which are two oval impressed foveæ, which, as well as the front of the head, are strongly crenulated. The right mandible has two compound teeth, the front one formed of two projections, and the hind one of three, of which the middle one is very small. The left mandible has three teeth, the middle one small, and has a small projection in front of the large anterior tooth. The pronotum has a longitudinal sulcus transversely crenulated, and has a small impression on each side towards the anterior angles, and an oblique fovea at each of the hinder ones. The elytra are obovate, each having seven slightly punctated striae; there is also a numerous series of punctures within the lateral margin, at a short distance from which is another row of six punctures at unequal distances apart, and with three other punctures forming a nearly straight line towards the extremity of the suture on each side. The anterior tibiae are tridentate, and the middle tibiae are armed near the tip on the outside with a thick curved spur obliquely truncate at the tip.

SPECIES III. (XIV.)—*Scarites Silenus*, Hope, MSS. (Pl. 22, fig. 6.) S. niger nitidus latus, capite inter oculos foveis duabus profundis puncto utrinque pone oculos; pronoto vix foveato, elytris obovalibus sublævibus, tibiisque intermediis dente acuto subapicali externe armatis. Long. corp. (mand. excl.) lin. $13\frac{1}{2}$ — $15\frac{3}{4}$; lat. clytr. lin. $5\frac{3}{4}$ — $6\frac{1}{2}$. Mus. Hope. (Inhabits Swan River.)

This species is closely allied to the last, but differs from it in the strong but acute tooth on the outside of the middle tibiae, and in the want of crenulations on the forehead, pronotum, the punctures of the elytra, &c. It is black and shining, the head not angulated beyond the outline of the eyes. The crown of the head in front has two deep oblique oval impressions extending nearly to the base of the mandibles, and two punctures close to the fore margin of the clypeus, and one on each side near the hind angles of the eyes. The pronotum has a central sulcus terminating at a short distance in front of the hind margin, and the hind angles are scarcely foveated. The elytra are broad and obovate, with the rudiments of three or four very slight striae on each, which are lost at a distance from the apex of the elytra. Close to

the lateral margin is a row of numerous minute punctures, and within these another row formed of six punctures placed at irregular distances, with two other punctures on the disc of each, near the extremity. The anterior tibiæ are externally 3-dentate, and the middle tibiæ armed on the outside with a long acute and slightly-curved spur.

SPECIES IV. (XV.)—*Scarites sculptilis*, Westw. (Pl. 23, fig. 1.) C. niger subnitidus, pronoto subquadrate, angulis posticis rotundatis, elytris oblongo-ovalibus, singulo striis 5 profundi simplicibus, apicibus inter strias punctatis, Long. corp. (capite omissa) lin. $7\frac{1}{2}$, lat. elytr. fere lin. 3. Mus. Soc. Linn. Lond. (Inhabits Van Diemen's Land.)

This species is elongated and black. The head is wanting in the only specimen I have seen. The pronotum is subquadrate, with the hind angles rounded off, and with a longitudinal central sulcus; the elytra are oblong-subovate, each with five deep simple striae, of which the second and fifth and the third and fourth are united together at the tips, where they are dilated and where the spaces between the striae are marked with deep impressed round punctures; there is also a fine raised submarginal line, outside of which is a row of minute punctures.

If the Carenuma with their splendid colours and dilated palpi, and the broad forms of the Scarites above described, have not sufficiently indicated an Entomological Fauna quite distinct from that of any other portion of the globe, the two insects next to be described will, at least, abundantly prove this. It is true that in Oxystomus, Oxygnathus, &c., genera belonging to the typical group of Scaritidæ, we find the mandibles not furnished with teeth; but in all other respects these insects do not differ from the others. The two insects in question, however, not only possess unarmed mandibles, but the structure of the upper lip, maxillæ and labium are those of Feronideous insects. It is true that the antennæ are very short, with the second joint as long as the third; the anterior tibiæ externally palmate, the intermediate tibiæ externally angulated at the tip, and the abdomen partially pedunculated; in all which respects they agree with the absolute characters of the true Scaritidæ. It is also true that we find a porrected labrum and maxillæ with the tips acute in Siagona and its allies, but they have a depressed body, short dentate mandibles, and securiform labial palpi, long antennæ, with a short second joint, and simple anterior tibiæ, &c. Ditonus and its allies, which constitute another aberrant section in the family, have also very acutely-lobed maxillæ, unarmed mandibles, a convex body, and subpedunculated abdomen; but these have also long antennæ with the second joint short, very minute bilobed labrum, and simple fore feet, whilst the remaining aberrant section of the family typified by Morio (to which figure 4, in plate 23, also belongs), in its flattened form, unpalmated feet, dentate mandibles, strongly bilobed labrum, short second joint to the antennæ, narrowed neck, &c., offers still stronger distinctions from the two insects in question, which appear to me to constitute a distinct section, as well as genus, in the family, which may be thus characterised.

GNATHOXYS.

Caput pronoto multo angustius, pone oculos sensim paullo latius, ante oculos parum attenuatum; labrum (fig. 2 a) porrectum angustum, angulis anticis rotundatis, in medio plus minusve emarginatum. Mandibulæ capite paullo breviores subcurvatae margine interno acuto, edentato, apicque acuto. Maxillæ (fig. 2 b), elongatae lobo apicali acuto curvato, intus setoso, palpi maxillares breves, articulo ultimo præcedenti parum crassiori. Mentum (fig. 2 c), dente medio nullo armatum, palpi labiales maxillaribus longitudine æquales, articulo ultimo vix præcedenti crassiori; antennæ (fig. 2), capite vix longiores, gracillimæ, articulis 2do. et 3to., subæqualibus et sequentibus longioribus. Pronotum convexum, postice parum lobatum. Elytra e pronoto pedunculo brevi subremota, convexa, apice haud truncata. Pedes breves, sat robusti; tibiis anticis extus dentatis, intus emarginatis et calcaratis, tibiis intermediis ad apicem in spinam externe productis.

SPECIES I.—*Gnathoxys granularis*, Hope, MSS. (Pl. 23, fig. 2 and 2 a, 2 b and 2 c.)
Niger subnitidus, æneo parvo tinctus, pronoto subquadrate, clytrorum lateribus et apice granulatis, disco haud striato-punctato. Long. corp. mand. exclus. lin. 13. Lat. elytr. liu. 5. Mus. Hope. (Inhabits Port Essington.)

The general colour is black, tinged, especially at the sides of the elytra, with brassy. The labrum is formed of two lobes rounded in front (fig. 2 a). The clypeus has an arched impression in front, succeeded by a transverse line, from which run two straight longitudinal impressions, which do not extend to the middle of the crown of the head. The antennæ are very slender. The pronotum has the sides nearly straight and parallel; the anterior angles somewhat advanced in front and narrowed off, as well as the hind angles, which are rounded off; the hind margin forms a lobe, and is separated by a transverse impression; it has a slight impressed middle line, its sides are margined and crenulated; the elytra are rather dilated behind, with the base, sides, and apex thickly covered with minute raised granules, which also reach a short distance along the suture, the disc not being marked with striae, or punctures. The fore legs are externally 3-dentate, the 3rd tooth being near the base, and the middle one nearly in the centre of the limb; the two basal joints of the fore tarsi have the outer angles produced into an acute point, the two following joints have the fore angles equally acute. The middle tibiae have the apical external angles produced into an obtuse spine, above which the outer edge of the limb is serrulated. The middle and hind tarsi are alike, and not dilated.

SPECIES II.—*Gnathoxys irregularis*, Hope, MSS. (Pl. 23, fig. 3.) Niger subnitidus, pronoto rotundato, angulis anticis haud porrectis, elytris irregulariter punctato-striatis apiceque granulatis. Long. corp. lin. 8½ (excl. mand.). Lat. clytr. lin. 3½. Mus. Hope. (Inhabits Port Essington.)

This species is black with a slight cyaneous tint. The labrum is but slightly emarginate in the centre in front, with the sides rounded; the antennæ are very short and more moniliform than in the preceding; the clypeus has a rather deep, short central sulcus, terminating in a transverse line, behind which are two longitudinal impressions not reaching to the middle of the crown of the head. There is also a transverse slightly-impressed line running across the head behind the eyes. The pronotum has the sides rounded, the anterior angles not porrected, and the hind margin not so much produced as in the preceding; there is a slight impressed line down the centre of the pronotum. The elytra are short, with the sides parallel, the humeral angles rounded off; on each side of the suture is a row of impressed punctures placed irregularly; then follow three double, but interrupted, rows of irregular punctures, the margin itself being more closely punctured, and the apex granulated. The anterior tibiae are not so strongly dentate as in the preceding, and the apical tooth of the middle tibiae is not so large.

The remaining figure in Plate 23 (fig. 4, and 4 a, and 4 b) represents a gigantic Australian species which has been already figured and described by Schreibers, in the "Transactions of the Linnaean Society," vol. vi. pl. 19, figs. 15–19 (details), and pl. 21, fig. 10, under the name of *SCARITES SCHROETERI*; and by Laporte, in his "Etudes Entomologiques" and "Histoire Naturelle des Insectes

Coléoptères," vol. i. p. 69, pl. 5, fig. 1, under the name of *Hyperion Schroteri*. As, however, that generic name had been long previously used by Macleay for another Carabideous genus in the "Annulosa Javanica," and as Latreille had also previously employed the name of *Heterosecelis* (which was given to it by Dupont and Boisduval) for a genus of Cimicidæ, I proposed to name it in my "Modern Classification of Insects" (vol. i. p. 88),

CAMPYLOCNEMIS SCHROETERI, W.,

in allusion to the singular character of the hind tibiæ being curved. The figures which have been given of this insect are so rude and the trophi so indistinctly represented, that I have thought it would add to the interest of this paper to refigure it with details from a fine specimen, now, I believe, in the collection of Mr. Norris. Its form is very interesting, being most nearly related to *Morio* of all the hitherto described Scaritideous genera; from this genus, however, it differs in the smaller-sized mentum, and in the much more strongly toothed mandibles. We, however, find in *Morio* traces of the structure of the apex of the anterior tibiae represented in figure 4. *Catadromus*, which also occurs in New Holland, seems also more nearly allied to it than *Stomis* and *Poecilus*, between which it was arranged by Laporte in his "Etudes Entomologiques."

The Australian plants represented in Plates 21, 22, and 23, are *Bossiaea rufa*, *Dipodium punctatum* (one of the Orchidaceæ) and *Chorizema cordatum*; the last species having been recently imported from Swan River.

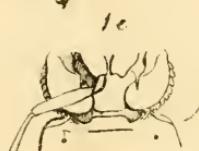
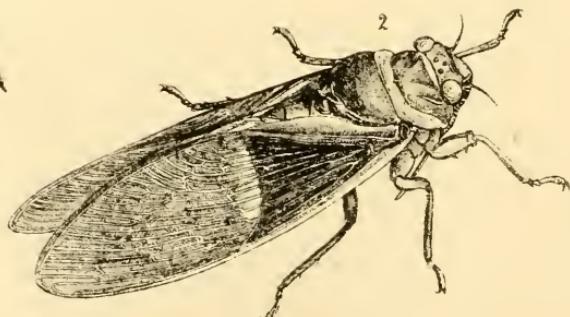
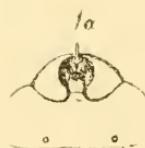
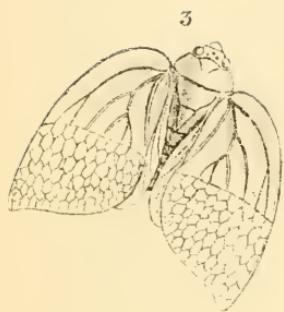


PLATE X IV.

ILLUSTRATIONS OF SOME GENERA BELONGING TO THE FAMILY
CICADIDÆ.

IN the later works of Latreille the species of the genus *Cicada*, as restricted by Olivier to the well-known musical species (or the *Tettigonia* of Fabricius), were proposed to be divided into two genera, viz., *Cicada*, in which the musical apparatus of the males is concealed by plates; and *Tibicen*, in which the first segment of the abdomen exhibits on the upper side two slits exposing this apparatus, composed of *C. haematodes*, Oliv., and some other species. All these insects are at once distinguished from the remainder of the Linnæan Cicadæ by having three ocelli on the crown of the head, and antennæ composed of at least six joints.

Dr. Burmeister, in the volume of his valuable "Handbuch der Entomologie" treating upon the Linnæan Hemiptera, has not adopted the arrangement of Latreille, but unites all the Cicadæ into one genus distributed into various divisions and subdivisions; to one of the latter of which, composed entirely of American species, he has applied the name of *Tibicen*, with the character "Fusse zweigliedrig," whilst *C. haematodes* (the true type of Latreille's proposed genus), and other species having the tarsi 3-jointed, he has arranged in other divisions. Dr. Burmeister has also described a new and most interesting insect, under the name of

HEMIDICTION FRONDOSA (Plate 24, fig. 3),

constituting the passage between the typical *Fulgoræ* and the true Cicadæ, agreeing with the former in having the hind part of the fore wings very much reticulated, and with the latter in having the basal portion like parchment, and with very few veins. The species is a native of Brazil, the unique specimen in the Royal Museum of Berlin having been collected by Langsdorf, in the neighbourhood of Rio. The accompanying figure is from a slight sketch made by myself, at Berlin, in 1835, from the specimen in question. It is not so precise in its details as I could have wished, but is correct in its general character. With the exception of this and the species described below, we find the veins of the fore wings in all the Cicadæ thus distributed:—A simple vein is emitted from the place of the stigma, beyond which another much shorter, also simple, vein is perceived. The mediastinal vein is united with the costa. The postcostal vein is

fureate at a short distance from the base of the wing, each furcation also becoming furcate beyond the middle of the wing; the median vein is single, but emits a branch, which runs to the extremity of the anal vein; a few short transverse or oblique veins connect several of these longitudinal veins together, forming but a very small number of cells.

There is, however, a fine species which inhabits Nepaul (where it was discovered by the late Major-General Hardwicke), and other parts of India, which although agreeing with the typical Cicadæ in general form and structure, has the fore wings very much reticulated, the postcostal and median veins being multifurcate, not only in the apical part, but also in the more eoriaceous basal portion, the furcations being frequently united by short transverse veins. In the formation of the musical apparatus of the male and its opercula, this species does not differ from *C. fasciata*; but on account of the difference which it exhibits in the structure of its wings from the true Cicadæ, I have regarded it as a distinct sub-genus, under the name of—

POLYNEURA DUCALIS, Westw. (Plate 24, fig. 2.)

C. (P.) nigra, pronoti marginibus antico et postico (latori) flavidis; alis anticis brunneis flavo-venosis, posticis fulvis; pedibus nigris femoribus (nisi apice) rufis. Long. corp. unc. 1½. Expans. alar. ant. unc. 4¼.
Mus. Brit. Hope. Westw. (Inhabits the East Indies.)

A figure of this insect, with the wings expanded, has been published in Jardine's Naturalist's Library (Introduction to Entomology, pl. 18, fig. 1).

The two insects above described agree in having the basal portion of the fore wings separated from the apical and more membranaceous part. The remaining insect, figured in plate 24, differs from them both in having homogeneous fore wings, although in the slight veining of the basal part of these wings, and the somewhat hexagonally areolated apical part, it agrees with *Hemidictya*.

I am indebted to J. Curtis, Esq., F.L.S., for a knowledge of this interesting Australian novelty, by whom it has been proposed to be named—

CYSTOSOMA SAUNDERSII. (Plate 24, fig. 1, and details.)

Caput parvum, antennæ mutilatæ. Promuscis ad basin femorum intermediorum extensa. Pro- et meso thoraci dorsum fere ut in *Cicada maculata* formatum. Epimers metathoracica mediocria, medium segmenti basalis abdominis infra haud tegentia (fig. 1 *e*). Tympana musicalia lateralia (fig. 1 *d*), omnino detecta valde convexa, transverse striata. Abdomen mariis maximum valde inflatum, organa genitalia maris parva exserta (fig. 1 *a*, segmenta apicalia abdominis infra visa; 1 *b*, genitalia subtus; 1 *c*, eadem e latere visa). Pedes breves. Alæ antice homogeneæ, subopacæ ultra medium valde subhexagonaliter areolatae. ♀ incognita.

C. Saundersii. Pallide lutea costa alarum anticarum albida. Long. corp. fere unc. 2. Expans. alar. unc. 3¾. Mus. Curtis. (Inhabits New Holland.)
The plant is the *Lobelia hypocrateiformis R. Br.*, a native of the South Coast of New Holland. *Lob. ramosa Benth.* (figured in my second plate under the name of *L. gracilis*) is a native of Swan River, whence it was introduced in 1837.

ENTOMOLOGICAL INTELLIGENCE, &c.

(No. V.)

DEATH OF PROFESSOR AUDOUIN.—It is with the most unfeigned regret that I record the decease of my friend Jean Victor Audouin, M. D., Member of the Institute of France (Academie des Sciences) and of the Legion of Honour; Professor at the Museum of the Jardin des Plantes: Member of the Société Royale d'Agriculture; of the Philomatic and Entomological Societies of Paris; of the Academy of Sciences of Stockholm; of the Imperial Society of Naturalists of Moscow; of the Royal Academy of Turin; of the Lyceum of New York; of the Society of Natural Sciences of Geneva; of the Academy of Philadelphia; of the Natural History Societies of Hartford, Mauritius, and Hall; of the Academy of Georgofili, of Florence; of the Agricultural Society of Turin; and of numerous provincial French Societies for the promotion of Natural Sciences; of the Geological Society of London, and Honorary Member of the Entomological Society of London.

This distinguished naturalist departed this life on the 9th of November, 1841, in the prime of life, aged 44 years, having been born on the 27th of April, 1797, at Paris.

Destined by his family for the profession of the law, his zeal for the cultivation of natural history induced him to turn his attention to the more congenial study of medicine, which however served only as a more ample base for the anatomical investigations of the Annulose Animals which he undertook, and which were at once duly appreciated by Cuvier, Geoffroy Saint-Hilaire, and Latreille, and which naturally led to still more elaborate researches.

His first memoir on the anatomy of the parasitic Larva of Conops appeared in 1818, he being then 21 years old. The memoirs which he published between this time and 1826 manifested a more profound generalised knowledge of the structure of the whole annulose sub-kingdom than is to be met with in the works of any previous writer, not even excepting Savigny (*Mémoires sur les Animaux Invertébrés*), Latreille (*Mémoires* published in the *Annales* and *Mémoires du Muséum*), Cuvier, and Saint-Hilaire.

In 1826 he commenced the publication of a series of anatomical Memoirs on various portions of the structure of the Crustacea, Annelida, &c., in conjunction with his friend Milne Edwards, which has been continued until his decease.

He became attached, in 1826, to the Jardin des Plantes, as assistant to Lamarck and Latreille; and on the death of the latter, in 1833, he was elected Professor of Entomology, in his stead. It was in this capacity that he annually delivered a series of lectures, in which, in later years, he especially illustrated the natural history of the insects most injurious to vegetable productions; and in prosecuting his researches upon these and other subjects, which he investigated with the most minute precision, he amassed together manuscript observations filling not fewer than fourteen thick quarto volumes, accompanied by a vast number of original drawings, and a collection of illustrations of the natural history of the insects he studied, their modes of attack upon plants, transformations, &c., arranged with the utmost care, every specimen being authenticated by references to his manuscripts.

The value of these collections and manuscripts cannot be appreciated except by those who have studied them. For myself, who have long enjoyed the friendship of this distinguished Entomologist, and by whom I was allowed uncontrolled liberty of examining these precious collections*, I hesitate not to say that were his manuscripts published, naturalists would not hesitate to place Audouin in the same rank as Réaumur: as it is, justice cannot be accorded to his merits, although the numerous Memoirs which he from time to time published sufficiently indicate the correctness of this statement, which might otherwise be deemed the remark of a person too favourably impressed with the talents of a now lost friend. These memoirs exhibit in the highest degree the spirit of observation, surprising sagacity, indefatigable patience, and a fixed determination to acquire a complete knowledge of the subjects of his investigation. The concise list which I have added, of these memoirs, at the end of this article, will sufficiently show the peculiar genius of M. Audouin.

By those who enjoyed a personal acquaintance with Audouin, will his loss be most severely felt. In their memories will long survive his deep-searching remarks and precision of observation. In our rambles together on the banks of the Rhine and Seine, his conversation struck me as resembling a mine of practical intelligence; and his tact in seizing upon the peculiarities of the objects which presented themselves to our notice was most extraordinary.

The non-publication of his manuscripts offers, in fact, a complete clue to Audouin's character; namely—a constant and too ardent desire to obtain fresh stores of knowledge, rather than a determination to occupy any of the present time in preparing for publication facts, the knowledge of which he had already acquired.

M. Milne Edwards excellently expresses this characteristic in the observation which he made in his discourse at the tomb of Audouin:—"Cette surexcitation de l'intelligence succédant à une surexcitation du cœur" (occasioned by circumstances unconnected with Entomology) "devait avoir des suites funestes." Most sad indeed has been the suite. Surrounded by an attached family† and a circle of devoted friends, and at a time when his researches were about to be given to the world, he died of apoplexy, induced by indisposition, contracted during a journey to the South of France, undertaken in his official capacity to investigate the natural history of the insects which infest the olive plantations,—a martyr to his favourite science.

Funeral orations were delivered at his tomb by M. Serres, President of the Academy of Sciences; M. Chevreul, Director of the Museum of Natural History; M. Edwards, Member of the Institute and President of the Philomatic Society; and by M. Blanchard, Assistant Entomologist at the Jardin des Plantes. I understand from M. Gervais that his collections have been transferred to the Jardin des Plantes, and that his library (exceedingly rich in detached entomological articles, and most liberally opened to the entomologists of Paris) will most probably be sold by auction.

The vacant professorship at the Jardin des Plantes has been conferred on M. Milne Edwards.

* A number of statements derived from these manuscripts and collections add considerable interest to my Modern Classification of Insects, in which I have published notices of them.

† He married a daughter of the elder and sister of the younger Brongniart.

A CONCISE LIST OF THE CHIEF ENTOMOLOGICAL WORKS
OF J. V. AUDOUIN

(EXCLUSIVE OF THOSE UPON THE ANNELIDA).

1818. Anatomy of the Larva of Conops (with Lachat). (In Mem. Soc. N. H. Paris, t. i., and Journ. de Phys. t. lxxxviii.)
1820. On the Natural Relations which exist between the masticating and locomotive organs of Crustacea, Hexapod Insects, and Arachnida. (Abstracted in Cuvier's Analysis of the Academy of Sciences, 1820.)
1820. On the Thorax of Articulated Animals, particularly Insects. (Partly published in Ann. Sci. Nat. t. i.)
1821. On Achlysia [now proved to be the immature state of Hydrachna]. (In Mem. Soc. d'H. N. tom. i.)
1821. On the Natural Relations between the Trilobites and Articulated Animals. (In Ann. Gen. Sc. Phys. t. viii.)
1821. On the Copulative Organs of male Bombi. (In ditto.)
1824. Letter on the Generation of Insects. (In Ann. Sc. Nat. tom. ii.)
1824. Anatomy of Drilus flavescens. (In ditto.)
1824. Note on a new species of Achlysia. (In ditto.)
1825. Description of the Plates of Annulosa in the great work upon Egypt.
1826. On Nicothoe, parasitic on the Lobster (with M. Edwards). (In Ann. Sc. Nat. tom. ix.)
1826. On a small Isopodous parasite upon Callianassa. (In ditto.)
1826. Researches upon the natural history of the Cantharides (in ditto), augmented and subsequently published as his medical Thesis.
1827. Researches upon the Circulation of the Crustacea (with M. Edwards); two Memoirs. (In Ann. Sc. Nat. tom. xi.)
1827. Researches upon the Nervous System of Crustacea (with M. Edwards). (In ditto, tom. xiv.)
1828. On Respiration of Crustacea (with M. Edwards). (In ditto, tom. xv.)
1829. On Anatomy of Crustacea (with M. Edwards). (In ditto, tom. xxi.)
1830. Resumé d'Entomologie, 2 v., 32mo (with M. Edwards).
1830. Note on Nervous System of Crustacea (with M. Edwards). (Ann. Sc. Nat. tom. xx.)
1832. Description of Cicindela 4-maculata, in Guérin's Mag. Zool.
1832. Memoir on various Acaridæ (In Ann. Sc. Nat. t. xxv.)
1833. On the Nest of Mygale fodiens. (In Ann. Soc. Ent. Fr. 2.)
1833. On a Coleopterous Insect which passes a great portion of its life under water (*Æpus fulvescens*). (In Nouv. Ann. du Mus. t. iii.)
1833. On the Metamorphoses of Dosithea and its parasitic Ichneumon. (In Ann. Soc. Ent. Fr. tom. iii.)
1833. On the Habits of Sitaris humeralis. (In ditto, tom. iv.)
1825. Description of Meloe collegialis. (Guérin, Mag. Zool.)
1835. Analysis of two Calculi found in the biliary canals of Insects. (In Ann. Sc. Nat. 2 Ser. t. v.)

1836. Researches upon Muscardine. (In Ann. Sc. Nat. 2 Ser. t. v.)
1837. New Experiments on Muscardine. (In ditto.)
1837. Observations on *Cyzicus*, n. g. Entomostraca [Estheria, Rüpp]. (Ann. Soc. Ent. Fr. t. vi.)
1837. On the Nest of a Brazilian Mygale. (Ann. Sc. Nat., Apl. 1837.)
1837. On the Ravages of the Pyralis of the Vine. (Ditto, tom. viii.)
1837. On Scolytus, in Loudon's Arboretum, p. 1387, &c.
1839. Exposition of various Observations upon Insects injurious to Agriculture. (Ann. Sc. Nat. 2 Ser. t. ix.)
1839. Entomological Instructions for a Traveller in Abyssinia. (Comptes rendus, t. ix. p. 570.)
1839. On the Habits of Odynerus. (In Ann. Sc. Nat. 2 Ser. tom. xi.)
1840. Observations on various Insects which attack Timber. (In Ann. Sc. Nat. 2 Ser. tom. xiv.)
1840. On a specimen of *Bombyx Cecropia*, reared at Paris. (In Comptes rendus, tom. ii. p. 96.)
1840. On the Phosphorescence of some Articulata. (In ditto, p. 757.)
1840. History of Insects injurious to the Vine, especially the Pyralis, 1 vol. 4to. Part 1. Part 2 is in the press, and the completion of the work "sera proptemps achevé," according to M. M. Edwards.
1840. Description of new Cicindelidae in the collection of the Jardin des Plantes (with M. Brullé). (Archives du Muséum, tom. i.)
1841. Description of new Crustacea in the same collection (Serolis, &c.), (with M. Edwards). (In ditto, tom. ii.)

M. Audouin also contributed a great number of verbal notices, especially relative to destructive insects, to the Entomological Society of France, of which abstracts are published in the Bulletin of Proceedings of that Society. He also published a great number of Entomological articles in the Encyclopédie Méthodique, the Dictionnaire Classique d'Histoire Naturelle; and his name appears also as a contributor to the Dictionnaire Universel d'Hist. Nat. He likewise wrote the article Arachnida in the 'Cyclopaedia of Anatomy and Physiology', and edited the Annuloise portion of the beautiful edition of the Règne Animal, now publishing by Crochard. He also contributed many notes on the structure of insects to M. Brullé, for those volumes of the Histoire Naturelle des Insectes which have appeared.



9.31.42.

PLATE XXV.

ON THE OPAQUE-WINGED SPECIES OF CICADA.

HAVING in the description of the preceding plate shortly noticed the generic distribution of the family Cicadidæ, I shall here confine myself to those species of Cicada which have the fore wings opaque and coloured, with the base more coriaceous. These species form the second section of the genus as proposed by Dr. Germar, in his Memoir in the second volume of Silbermann's "Revue Entomologique."* Dr. Burmeister comprises them in his sub-section *b*, of his first division of the genus.

The beautiful species of this group hitherto described are the following: all being natives of Asia, or the islands of the Indian Archipelago.

SPECIES I.—*C. speciosa*, Illig. (Wied. Arch. 1, p. 145; pl. 2. Fabricius. Westw. in Donov. Ins. Ind. 2d Edit. Lap. and Blanch. Hist. nat. ans. art.)

SYN. *C. Indica*, Donov. Ins. Ind. 1st Edit.

SPECIES II.—*C. fasciata*, Fabr. Stoll. Cig. tab. 4, fig. 16.

SPECIES III.—*C. maculata*, Drury, vol. 2, App. pl. 37, fig. 1. Fabricius, &c.

SPECIES IV.—*C. thalassina*, Perchéron, Gen. d. Ins. Hémipt. pl. 2. Guér. Voy. Coq. p. 183.

NOTE.—The figure above referred to gives but a faint idea of the beauty of this species, which is in the collection of the Linnaean Society of London.

SPECIES V.—*C. pulchella*, Westw. in Royle's Himalaya, pl. 10, fig. 2. [Nigra, capite thoraceque sulphureo-maculatis; alarum dimidio basali sulphureo (in aliis anticis fascia nigricanti obliqua in medio diviso) apicibus flavescentibus. Expans. alar. unc. $3\frac{3}{4}$. Himalaya.]

SPECIES VI.—*C. sanguinea*, De Geer. Stoll. Cig. fig. 62. Donov. Ins. China, pl. 16, fig. 1. 1st Edit. Westw. in ditto, 2nd Edit. Guérin, Voy. de la Favorite, (Mag. Zool. Ins. pl. 237, fig. 1).

SYN. *C. philæmata*, Fabricius, Germar, Burm.

SPECIES VII.—*C. sanguinolenta*, Fabr, &c. (Fronte rufo, linea longitudinali nigra alisque posticis fuscis.)

SPECIES VIII.—*C. incarnata*, Germar. Guérin.

SYN. *Cig. sanguinol.* Brullé, Hist. Nat. Ins. t. x., pl. 5, fig. 2.

SPECIES IX.—*C. Germarii*, Guér. Mén. Voy. Favorite (Mag. Zool. Ins. pl. 237, fig. 2).

SPECIES X.—*C. phænicura*, Germar, in Silb. Rev. Ent. 2, p. 76. Guér. l. c.

* Dr. Germar had previously published an excellent Monograph of the genus, with descriptions of 106 species, in Thon's Entomologisches Archiv, vol. 2. M. Guérin Méneville has also described numerous species in the text of the Voyage de la Coquille, and Voyage de Belanger.

SPECIES XI.—*C. testacea*, Fabr. Stoll. Cig. pl. 8, fig. 31, Guér. l. c.

SPECIES XII.—*C. trabeata*, Germar, in Thon's Arch. 2, fasc 2. Guér. l. c.

SPECIES XIII.—*C. splendidula*, Fabr., Germ., Guér., Donovan. Ins. China, pl. 16, fig. 4, (ex individuo Druriano delineata).

SPECIES XIV.—*C. crocea*, Guér. Voy. Favorite (Mag. Zool. Ins. pl. 237, fig. 3, and Voy. Coq. p. 182).

I am enabled to figure, in addition to the above, the two beautiful nondescript species represented in the accompanying plate.

SPECIES XV.—*C. Mearesiana*, W. (Pl. 25, fig. 1.) Nigra, pronoti margine postico flavo; mesothorace postice utrinque puncto oblongo ferrugineo; metathorace fulvo marginato; alis anticus nigro-fuscis venis nigris; posticis late testaceis; area anali margineque tenui apicali fuscis, venis nigris. Long. corp. unc. $1\frac{1}{4}$. Expans. alar. unc. $5\frac{1}{2}$.

A unique specimen of this fine species (which should be placed between *C. speciosa* and *fasciata*) is in the collection of F. Parry, Esq. It is a native of the Himalayas, whence it was sent by —— Meares, Esq., with whose name it is inscribed.

SPECIES XVI.—*C. dires*, W. (Pl. 25, fig. 2.) Nigra, alis anticus nigris venis rubris, fascia media transversa albida, posticis testaceis, dimidio apicali nigro. Long. corp. lin. 12. Expans. alar. unc. 3.

A unique specimen of this beautiful insect was sent from Sylhet, by the brother of the Rev. Mr. Stainforth, who allowed me to figure it for this work. It is now in the collection of the Rev. F. W. Hope.

A translation of Anaereon's ode to the Cicada, will form a pleasant supplement to the preceding technicalities.

Happy creature! what below
Can more happy live than thou?
Seated on thy leafy throne,
(Summer weaves thy verdant crown,)
Sipping o'er the pearly lawn
The fragrant nectar of the dawn :
Mirthful tales thou lov'st to sing,
“ Every inch ” an insect king :
Thine the treasures of the field,
All thy own the seasons yield ;
Nature plants for thee the year,
Songster to the shepherds dear :
Innocent, of placid fame,
Who of men can boast the same ?

Thine the lavished voice of praise,
Harbinger of fruitful days ;
Darling of the tuneful nine,
Phœbus is thy sire divine ;
Phœbus to thy notes has given
Music from the spheres of heaven :
Happy most, as first of earth ;
All thy hours are peace and mirth ;
Cares nor pains to thee belong,
Thou alone art ever young ;
Thine the pure immortal vein,
Blood nor flesh thy life sustain ;
Rich in spirits—health thy feast ;
Thou’rt a demigod at least.

The beautiful plant represented in the plate is the *Dendrobium Pierardi* (Lindl. Bot. Reg. t. 21, pl. 175), of Roxburgh, a native of Chittagong, and various parts of the Delta of the Ganges, which has flowered beautifully in the Botanic Gardens at Kew this spring ; the flowers being, however, paler-coloured than represented in the figure.

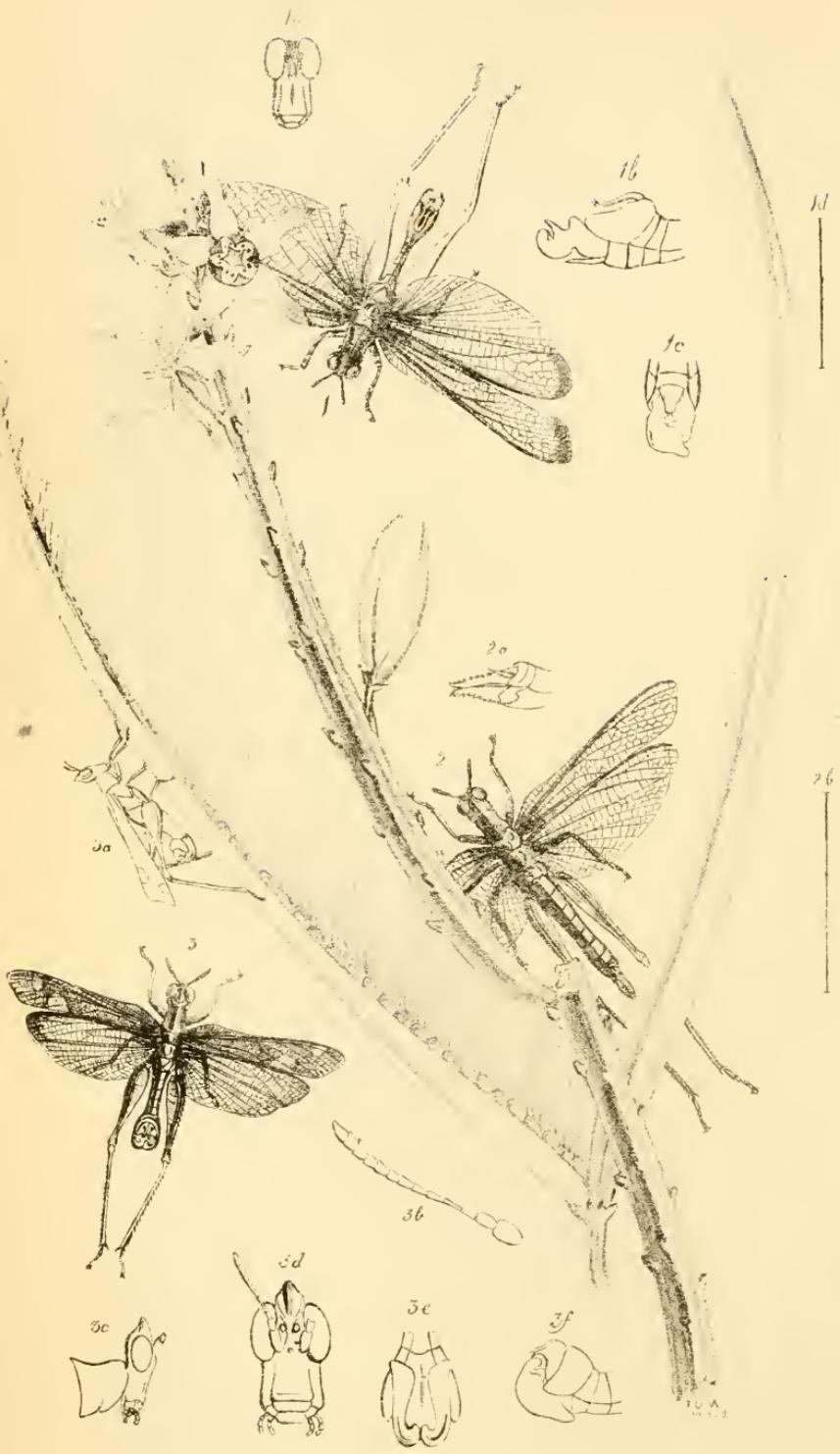


PLATE XXVI.

MONOGRAPH OF THE GENUS MASTAX, BELONGING TO THE FAMILY OF
THE TRUE LOCUSTS.

THE insects of the genus *Mastax*, of Perty, illustrate a peculiarity in Entomo-geography, which does not appear to me to have been sufficiently noticed, namely, the occurrence of species belonging to aberrant and anomalous genera, in very distant localities, often indeed in different quarters, of the globe. The Mole-crickets offer a striking instance of this peculiarity. The genus is very anomalous in many of its characters, yet we find species in each of the five continents (including New Holland). The two species of *Mastax* hitherto described (from unique individuals), are natives of the New World, whilst the three additional ones represented in the accompanying plate, are natives of the Islands of the Indian Archipelago.

The genus (in addition to the great rarity of the species) is especially interesting on account of various structural peculiarities. The fore wings are in some species quite hyaline and almost colourless, which gives the insects an appearance quite unlike the rest of the family. The head is very much elevated above the level of the prothorax. The antennæ are composed of very few joints; the three ocelli are placed between the eyes; the palpi are very short; the three sternums are simple, the hind-legs long, the tarsi 3-jointed, with a moderate sized pulvillus between the unguis. The anal appendages in *M. mutilata* are described by Serville as "courts et droits," but in the males of *M. apicalis* and *M. guttata* they are dilated and contorted in a singular manner quite unlike any of the rest of the family.

As to the natural relations of the genus, Burmeister (who however had not seen it in nature) places it between *Gomphocerus* and *Ommexecha*, whilst Serville (who had two species before him) introduces it (with several other curious genera) between *Gomphocerus* and *Tetrix*. It appears to me, however, much more closely allied to *Proscopia* of Klug, with which it agrees in the elevated head and short few-jointed antennæ.

SPECIES I.—*Mastax virescens*, Perty (Del. An. Art. Bras. t. 24, f. 3. Serville H. n. Ins. Orth. p. 751. Burm. Handb. d. Eut. 2, p. 653). Virescens, seu fuscus, facie et pedibus testaceis, elytris et alis diaphanis. Long. fere 10 lin. (teste Serv.) Brazil.

SPECIES II.—*Mastax mutilata*, Serv. Ins. Orth. p. 751. Lævis glaber, brunneus, facie antice ochracea, prothoracis lateribus fulvis, tegminibus fere, aliquo omnino, obsoletis, abdominis segmentis 6 et 7 fulvis, ♂. Long. lin. 5 (teste Serv.). Colombia.

SPECIES III.—*Mastax apicalis*, Westw. (Plate 26, fig. 1). Luteus, capite supra, thoracis et abdominis dorso nigricantibus, hoc fascia pone medium apiceque extremo luteis, pedibus luteis nigro-maculatis, tegminibus et alis hyalinis ad apicem tenuiter fusco coloratis ♂.

(Plate 26, fig. 1 a, head seen in front; 1 b, extremity of abdomen seen from the side; 1 c, the same seen from below; 1 d, natural length.)

Long. corp. unc. $\frac{3}{4}$. Expans. tegmin. unc. $1\frac{3}{4}$. Sumatra; Sir S. Raffles. Mus. Zool. Soc. London.

SPECIES IV.—*Mastax vitrea*, Westw. (Plate 26, fig. 2). Fuscus, facie fulvescente, abdomine in medio pallidiori, pedibus fuscis, femoribus posticis pallidius fasciat; tegminibus et alis hyalinis parum infumatis. ♀

Plate 26, fig. 2 a, apex of abdomen seen sideways; 2 b, natural length.

Long. corp. unc. 1. Expans. tegmin. unc. $1\frac{3}{4}$. Java, Mus. Hope.

SPECIES V.—*Mastax guttata*, Westw. (Plate 26, fig. 3.) Nigricans, subtus paullo pallidior facie genisque luteis, vertice angulato, abdomine ♂ ad apicem valde inflato; femoribus posticis fulvo oblique bifasciat, tegminibus fuscis nitidis, guttis duabus versus apicem hyalinis, postica majori et ad marginem posticum extensa; alis hyalinis margine postico fusco. ♂

Plate 26, fig. 3 a, natural size; 3 b, antenna; 3 c, head and prothorax seen sideways; 3 d, head seen in front; 3 e, apex of abdomen seen from beneath; 3 f, ditto seen laterally.

Long. corp. lin. 7. Expans. tegm. lin. $14\frac{1}{2}$. Sumatra, Sir S. Raffles, Mus. Zool. Soc. Lond.; and Philippine Islands, H. Cuming, Esq. Mus. Brit.

The curious plant figured is the *Stapelia adscendens* of Roxburgh: Plants of Coromandel, vol. i. pl. 30.



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PLATE XXVII.

DESCRIPTION OF A NEW INDIAN SPECIES OF PAPILIO.



THE Papilio Paris of Linnaeus may be considered as the type of a small group of Asiatic species of Papilio, distinguished by having the upper surface of the wings thickly irrorated with golden green atoms, the hind wings being marked by a large patch of shining blue or green near the outer angle. The species of this little section form portion of Boisduval's "Groupe IV." which also includes *P. Ulysses*, *P. Peranthus*, and *P. Palinurus* and its allies. *P. Paris*, *Arjuna*, and *Polyctor*, belong to the little group first mentioned, as well as several other species of equal rank which I have seen in the collections of the East India House, British Museum, &c. These species appear to be respectively confined to distinct districts, and in the opinion of some authors may be deemed geographical sub-species—a name involving considerations of great difficulty.

The species represented in the accompanying plate is certainly the most splendid of all these butterflies. It is indeed absolutely impossible to give a correct idea, by colouring, of the beauty of its hues, and especially of the varying lustre of the blue patch on the hind wings; some of the blood-red lunules have a beautiful purplish tinge, produced by blue atoms scattered over them, whilst others are powdered with the golden-green spangles: in fact, the only correct idea of the species can be obtained by calling to mind the showers of coloured fire on a Vauxhall night.

PAPILIO ARCTURUS, W., Pl. 27.

P. alis nigris, viridi-atomosis; posticis obtuse dentatis et late caudatis; anticis striga interrupta macularum ex atomis viridibus formatâ, ex angulo postico ad partem dimidiam alarum ductâ et cum margine subparallelâ; posticis supra, plaga magnitudine mediocri, versus angulum externum late cæruleâ strigâque ejusdem coloris ex ejus apicem ad marginem alarum extensâ, lunulis tribus sanguineis, maculaque ocellari (medio nigro) et linea transversa sanguineis ad angulum aualem, illa cum striga curvata viridi-atomosa coronata: alis subtus nigrantibus basi albido atomosis, anticis striga lata subapicali ciuerea, venis lineisque intermedialis nigris; posticis lunulis 5 rubro-fulvis (cæruleo pulverosis) maculisque diabusi magnis rubro-fulvis (medio nigris et lunula supera cærulea ornatis) ad angulum analeum.

Expans. alar. antic. unc. 5.

Inhabits the Himalayan mountains, Sylhet, and the adjacent parts of India.

Mus. Parry, Hope, Brit. &c.

The plant represented in the plate is *Vanda teres* (Lindl. Bot. Reg. vol. 21, pl. 1809), one of the most beautiful Orchidaceous plants hitherto found in India, having been originally discovered in Sylhet by Dr. Wallieh, and subsequently found in the Burmese Empire, by Mr. W. Griffith.

PAPILIO.

Ah sim Papilio natus in flosculo,
Rosæ ubi liliaque et violæ patent ;
Floribus advolans, avolans, osculo
Gemmulas tangens, quæ suavè olent !
Regna et opes ego neutquam postulo,
Nolo ego ad pedes qui se volent —
Ah sim Papilio natus in flosculo,
Osculans gemmas quæ suavè olent !

Magicam si possem virgam furari,
Alas has pulchras aptem mî, eheu !
Æstivis actis diebus in aëre,
Rosâ cubant Philomelæ cantu.
Opes quid afferunt ? Curas, somnium rarè ;
Regna nil præter ærumnas, eheu !
Ah sim Papilio, die volans aëre,
Rosâ cubans Philomelæ cantu.

Quemque horum vagulum dicis horrore
Frigora Autumni ferire suo ;
Æstas quando abiit, mallem ego mori,
Omni quod dulce est cadente pulchro.
Brumæ qui cupiunt captent labore
Gaudia, et moras breves trahunto —
Ah sim Papilio ; vivam in errore
Concidamque omni cadente pulchro.

The preceding singular and beautiful specimen of rhyming Latin verse, from the pen of a highly distinguished scholar and dignitary of the Church of England (understood to be Archdeacon Wrangham), appeared in the Athenæum of July 16th, 1828, at the time when the pretty song “I’d be a Butterfly” was so much in fashion.

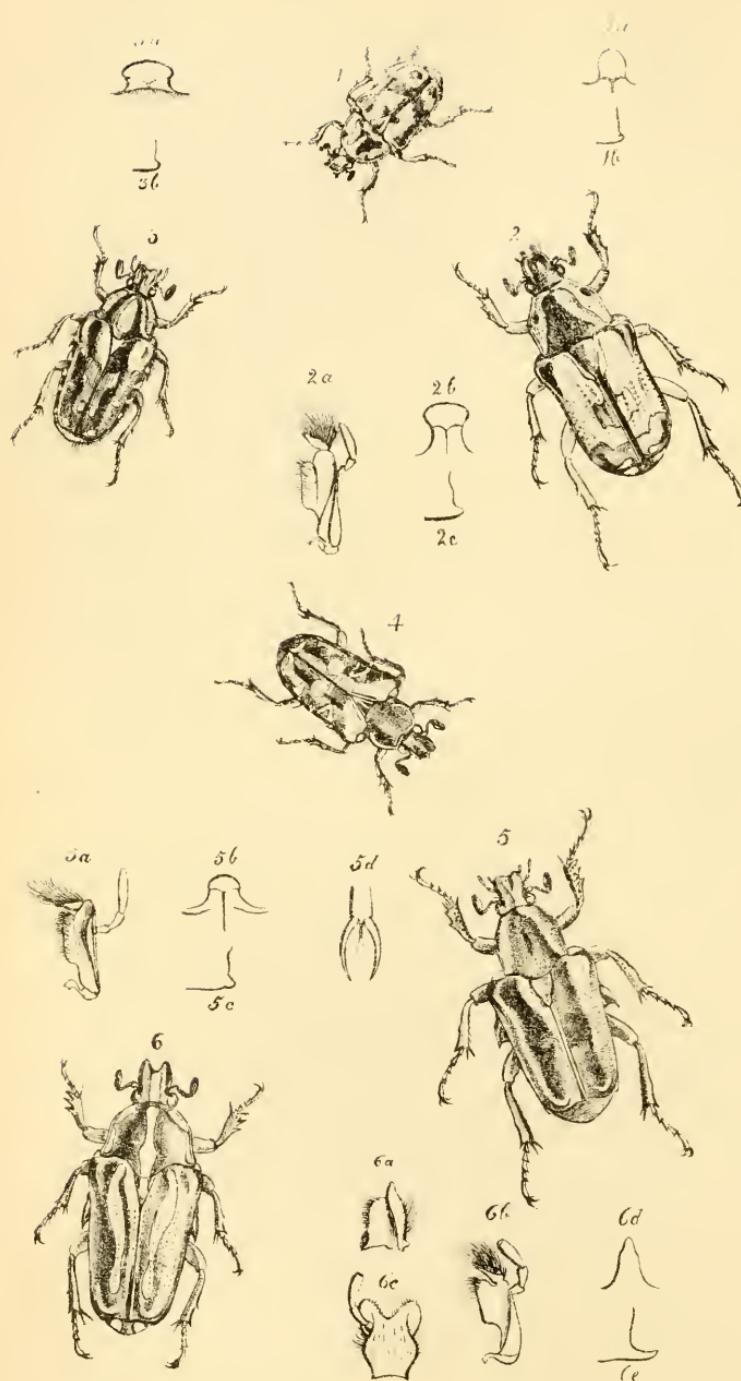


PLATE XXVIII.

DESCRIPTIONS OF SOME NEW SPECIES OF CETONIIDÆ, FROM
AUSTRALIA, ASIA, AND THE ASIATIC ISLANDS.

GENUS SCHIZORHINA, Kirby (Linn. Trans. vol. 14, p. 570).

This genus is arranged by Mr. MacLeay as the head of the group which he names Cetoninus, and is regarded as approximating to Lomaptera, especially by means of Sch. Brownii, K, which presents vestiges of the lobate thorax of that genus. The following are Mr. MacLeay's divisions of the genus.

A. Elytra broader at the base.

1. *Brunoniae*, M'L. Mesosternum produced, narrow, flat; elytra spinose at the apex. Type, *S. Brownii*, K.
2. *Phillipsiae*, M'L. Mesosternum broad, flat, lanciform; elytra with subsinuated sides and spinose at apex. Type *S. Phillipsii*, Schreibers.

B. Elytra not broader at the base.

3. *Integrae*, M'L. Mesosternum short, flat; clypeus rather entire; elytra with sinuated sides, and no spines at apex. Type, *S. frontalis*, Don.
4. *Gymnopleure*, M'L. Mesosternum produced, flat; clypeus emarginate; elytra with sinuated sides, and no spines at the apex. Type, *S. punctata*, Don.
5. *Insulare*, M'L. Mesosternum produced, narrow, cylindrical; clypeus emarginate; elytra spinous at apex, and with parallel sides. Type, *S. cyanea*, Oliv.

The last section receives its name Insulare, because the species "are in general natives of Madagascar, or of the islands adjacent to New Holland." The typical species is, however, a native of tropical Western Africa*. The species of which this last section is composed in their peculiar colours, and various other particulars, "show us how we may pass to" the genus *Coryphe*, M'L.; *Gnathocera*, G. and P.

Schizorhina obliquata, W. (Plate 28, fig. 1.)—Supra late aurantia, pronoto maculis duabus lateralibus alterisque duabus magnis obliquis irregularibus, in medio connexis, nigris; clytris sutura, humeris, maculis duabus parvis ad basin suturæ, fascia obliqua pone medium singuli maculaque sub-apicali nigris vel pieco-nigris, podice flavo, medio castaneo, punctis 4 nigris; corpore subtus antennis pedibusque rufo-brunneis, mesosterno abdominaline in medio flavo.

Obs. Mesosternum (fig. 1 *a*, 1 *b*,) vix porrectum, fere rotundatum ♀. Long. corp. lin. 7. Inhabits New Holland. In the collection of the Rev. F. W. Hope.

Note. This species is most nearly related to Sch. punctata, but differs from it in the form of the prothorax, of which the hinder angles are rounded off, the more exposed epimera, the less sinuated clytra, differently-formed mesosternum, &c.

Schizorhina Bestii, Parry, MSS. (Plate 28, fig. 2.)—Nigra, capite punctis 3 minutis fulvis, medio bilobo, prothorace marginibus lateralibus et antico flavis, maculis duabus nigris, clytris viridianis sutura marginaque tenui, macula triangulari humerali, macula quadrata discoidali, fasciaque lata subapicali nigris; pygidio nigro maculis duabus flavis, abdomine infra guttis fulvis mediis duplice serie ordinatis punctisque lateralibus flavis. ♀.

Obs. Mesosternum paullo porrectum latum (fig. 2 *b*, 2 *c*,) fig. 2 *a*, maxilla.

Long. corp. liu. 12. Inhabits Norfolk Island. Captain Best, Mus. D. Parry. Allied to Sch. frontalis.

* See p. 71, note †, as to the true locality of the species.

GENUS MACRONOTA, Wiedemann.

This genus is at once distinguished by the posteriorly lobed prothorax, which does not however conceal the scutellum, which is the case both in Lomaptera and Gymnetis. The suture of the elytra and the centre of the prothorax are also generally deeply impressed, and the clypeus is commonly deeply emarginate. There is considerable diversity in the different species still retained in the genus; thus the males in *M. smaragdina* have curved anterior tibiae externally destitute of teeth, and in this species the mesosternum is very much porrected and curved upwards at the tip. In *M. 3-sulcata*, De. H., closely allied to *M. Diardi*, the mesosternum is very thick and not much porrected. *M. aegregia* has the mesosternum still less porrected, and the fore tibiae of the males straight and externally 3-dentate. *M. callearata*, Klug, (G. Doryscelis, Dej.) has also the fore tibiae in both sexes 3-dentate.

Macronota Mearesii, Parry, MSS. (Plate 28, fig. 3)—Nigro-anea, nitida, elytris nigris, capite parum emarginato, vertice utrinque macula sericea, prothorace in medio valde sulcato, lateribus plaque magna mediana punctata scutelloque sericeis; elytris maculis 10, (duabus in medio elytrorum versus suturam majoribus et striatis) sericis, sericie albido-virescenti, corpore subitus maculis lateralibus albido-virescentibus, antennarum capitulo fuso, podice fulvo-hirto. ♀

Obs. Mesosternum parum porrectum latissimum (figs. 3 a, 3 b). Long. corp. lin. 9 $\frac{1}{2}$. Received by F. Parry, Esq. in a collection formed by —— Meares, Esq., near Darjeeling, an invalid station in the Himalayan mountains, near the Nepaul frontier, about 50 miles from Dhawalagiri, the highest mountain in the world. It is very closely allied to the *Macronota* dives, G. and P. Mon. Cet. p. 314, pl. 61, fig. 6, which is from the coast of Malabar and which seems to be identical with the *Cloidera penicillata*, Hope's Synops. Nep. Col. (Zool. Misc. p. 25.).

Macronota Rafflesiana, W. (Plate 28, fig. 4.)—Nigra opaca, capite parum emarginato, prothorace elytis multo angustiori subhexagono haud sulcato, linea tenui albida cum margine antico et lateribus parallela angulos posticos haud attingente; elytris basi latis postice attenuatis, ad suturam vix sulcatis; nigris basi maculaque media in singulo rufis, linea tenui albida ad marginem scutelli, duabus transversis mediis alterisque duabus subapicalibus punctisque nonnullis (magnitudine variis) lateralibus albidis; segmentis abdominis (supra visis) albido marginatis, corpore subitus albido nigroque vario. ♀ Long. corp. lin. 8 $\frac{1}{2}$; lat. humer. lin. 4 $\frac{1}{2}$. Inhabits Sumatra; Sir S. Raffles. In Mus. Soc. Zool. London. Nearly allied to *M. Malabariensis*, Gory and Perch, Mon. Cet. p. 320, pl. 63, fig. 3, which is described as a native of Ceylon.

Macronota tristis, Horsfield, MSS. (Plate 28, fig. 5.)—Nigro-virescens nitidissima, clypeo parum emarginato, antice sulcato punctato, palpis longis, (5 a, maxilla) prothorace angusto, lateribus deflexis et punctatis, margine antico in medio valde elevato, dorso vix sulcato; elytris ad basin prothorace fere duplo latioribus, sutura valde sulcata humeris elevatis, lateribus rugoso punctulatis, singulo in medio spatio circulari parum impresso oblique striolato, podice striolato, pedibus longioribus, coxis posticis valde prominentibus; corpore subitus concolor lateribus striato-punctulatis; mesosterno brevi rotundato; (figs. 5 b, 5 c); unguibus onychiis distinctis (fig. 5, d).

Long. corp. fere lin. 15. ♀. Inhabits Java. In the collection of the East India House, formed by Dr. Horsfield, to whom I am indebted for an opportunity of describing this fine and singular species.

Macronota vittigera, Hope (Proc. Ent. Soc. July 1841). (Plate 28, fig. 6.)—Nigra nitida, clypeo valde emarginato, linea aurantia media e margine antico per prothoracem et scutellum ducta, prothorace vix sulcato, postice fere elytrorum latitudine, aurantio marginato; elytris versus suturam profunde impressis nigris lineato-punctatis, singulo vitta aurantia parum curvata, e basi fere ad apicem extensa, corpore subitus nigro nitido lateribus aurantio maculatis, podice maculis duabus magnis aurantiis; pedibus brevibus, dentibus tibiarum anticarum brevibus, mesosterno longo porrecto apice acuto (figs. 6 d, 6 e,—6 a mandible, 6 b maxilla, 6 c mentum).

Long. corp. lin. 13 $\frac{1}{2}$. ♀. Inhabits the Mysore district of India. In the collection of the Rev. F. W. Hope.

This species makes a very near approach to the genus Lomaptera in several respects, especially the deeply emarginate clypeus, porrect mesosternum, &c.

ENTOMOLOGICAL INTELLIGENCE, &c.

(No. VII.)

HARMONIES OF NATURE EXISTING BETWEEN PLANTS AND INSECTS.—In reference to the circumstances stated in a preceding number, from which it has been inferred that silk is a modification of caoutchouc, it is mentioned in the "Botanist" (vol. ii. No. 69) that "a species of Scorzoneræ, which belongs to the natural order of plants Cichoraceæ, has been found a good substitute for the mulberry leaf in France. We have also been informed that a caterpillar which forms a very large cocoon and spins a tough but coarse kind of silk, feeds on the leaves of the South American caoutchouc tree, *Siphonia elastica*. Led away by the apparent simplicity of an artificial arrangement of plants, botanists neglected the strong proofs furnished by the instinctive propensities of the whole animal kingdom, that plants which agree in structure generally possess similar propensities. It was long known that certain animals fed on particular plants, and both during the last century and the present this fact has been adduced as an evidence of the paternal care of the Creator in providing food for all his creatures, so that each should have its allotted portion; but it is available also to show the correctness of botanical analogies. In this way has Decandolle applied it in his "Essai sur les propriétés médicinales des plantes," from which a few examples may be quoted. The *Cynips Rosæ* and *Cynips Salicis*, the *Cionus Serophulariae* and *Hypera Rumicis*, feed upon *several*, sometimes *all* the species of the genera of plants, from which they derive their specific names; but upon no species belonging to any other tribe of plants; and indeed the fact of the *Cionus Serophulariae* feeding on species of *Verbascum* may be allowed to decide the point of the genus *Verbascum* belonging to the *Serophulariaceæ*, and not to the *Solanaceæ*, as some think it does. The *Meloe vesicatoria* (Spanish blistering-fly) gives the preference to the ash, then to the lilac, or privet, and last to the olive, all members of the tribe *Oleaceæ*. The insect is never found on any plant of the *Jasminaceæ*, though it is not uncommon on willows, from which it is remarkable that manna may be obtained, as well as from the *Ornus Europaea*, or flowering ash. The *Pontia Brassieæ*, or cabbage butterfly, feeds only on cruciferous plants, with the solitary exception of the *Tropaeolum majus*, or Indian

eress, the similarity existing between which and some cruciferous plants has procured for it the name of the Nasturtium; while the *Tinea flavella* of Reaumur, the natural food of which is the *Astragalus glycyphylloides*, in the absence of that, whatever variety may be presented to it, will feed only on some other leguminous plant."

Shortly previous to the publication of these observations I had made some remarks in Mr. Loudon's *Arboretum Britannicum*, under the genus *Quercus* (p. 1815) nearly to the same effect. In making out the lists of the species of insects which attack our chief forest trees, I had noticed that although many are exclusively confined either to the oak, beech, birch, or hazel, yet many species feed indiscriminately upon any of these trees; some species of a genus would also be found to inhabit one of these kind of trees, and other species one or more of the other kinds; "thus clearly proving not only the very natural character of the order Amentaceæ, but also the equally natural distribution of the insects themselves into genera consisting of species, all of which are either generally amentaceous in their food, or are confined to the oak or the birch alone." I am happy to find these observations confirmed and explained, believing as I do that the views here suggested are capable of a far wider extension than has yet been given to them.

INSECTS OBSERVED AT SEA (see *ante*, p. 64).—"On another occasion, when seventeen miles off Cape Corrientes, I had a net overboard to catch pelagic animals. Upon drawing it up, to my surprise, I found a considerable number of beetles in it, and although in the open sea, they did not appear much injured by the salt water. I lost some of the specimens, but those which I preserved belonged to the genera *Colymbetes*, *Hydroporus*, *Hydrobius* (two species), *Notaphus*, *Synuchus*, *Adimonia*, and *Scarabaeus*. At first, I thought that these insects had been blown from the shore; but on reflecting that out of the eight species, four were aquatic, and two others partly so in their habits, it appeared to me most probable that they were floated into the sea by a small stream which drains a lake near Cape Corrientes. On any supposition, it is an interesting circumstance to find insects, quite alive, swimming in the open ocean, seventeen miles from the nearest point of land. There are several accounts of insects having been blown off the Patagonian shore. Captain Cook observed it, as did more lately Captain King, in the Adventure. The cause probably is due to the want of shelter, both of trees and hills, so that an insect on the wing, with an off-shore

breeze, would be very apt to be blown out to sea. The most remarkable instance I ever knew of an insect being caught far from the land, was that of a large grasshopper (*Acrydium*), which flew on board, when the Beagle was to windward of the Cape de Verd Islands, and when the nearest point of land, not directly opposed to the trade wind, was Cape Blanco, on the west of Africa, 370 miles distant.*"—(Darwin's Journal, pp. 185, 186.)

PAPILIO PELAUS (Plate 16, fig. 1, 2).—Figures of this species, doubtless derived from Drury's specimen described by Fabricius, are contained in Jones's Series of Drawings (vol. 1, pl. 32), so often referred to by that author. They agree with my figures except that the upper surface of the wings is darker (blacker) in Jones's drawings—the evident result of his figure having been made from a recent specimen and mine from an old one. The minute anterior whitish, transverse striga near the extremity of the abdomen in the anal area of the hind wings, is also not represented in Jones's drawing. It is not improbable that Mr. Doubleday's specimen, from which my figures were drawn, may be the original insect described by Fabricius, from Drury's specimen, which was, I believe, purchased at the sale of his collection by the late Mr. Haworth.

CETONIA IRIS, Fabricius, Ent. Syst. 2, 144. Oliv. 1, 6, tab. 8, f. 77.—Deceived by the locality of Surinam given by Fabricius to this species (the typical specimen of which is still contained in the Banksian Collection at the Linnean Society), and knowing that no Gnathocerae of Gory and Perchéron (*Coryphe*, MacL.), nor indeed any insect closely allied thereto, inhabit the New World, I did not think of comparing the *Gnathocera amabilis*, Bainb. (*Tmesorrhina a.* Westw. *ante*, p. 71), with the Banksian insect. My friend Burmeister having however suggested to me, by letter, the possibility that the two supposed species were identical, I have compared them together, and find that Mr. Hope's specimen differs only from the Banksian one in such characters as are sexual, the latter being a female with tridentate anterior tibiae. The name *Iris*, Fab., must, therefore, be substituted for that of *amabilis*, Bainbr. Dr. Schaum has united *Iris* with *Schizorhina cyanea*, G. and P.; Sch. Swartzii,

* The flies which frequently accompany a ship for some days on its passage from harbour to harbour, wandering from the vessel, are soon lost, and all disappear.

Schaum (*C. punctata*, Schonh nec Donov.), and Sch. Thoreyi Schaum (n. sp.), into a small group distinguished by their tropical African habitat, and the elongated form of their bodies; the tibiae of the males being bidentate, and those of the females tridentate. There is, however, considerable difference between the form of the clypeus, mesosternum, and fore tibiae of the males of *Iris* and *cyanæa*; the apex of the suture of the elytra in the latter species is also bispinose, whilst it is rounded off in the former.

Tmesorrhina simillima (pl. 19, fig. 4, p. 72).—In addition to the structural differences noticed in the description and figure above referred to, it should be added that the mesosternum instead of terminating in a short rounded process (as in *Tm. Iris* and *concolor*, pl. 19, fig. 3 e), is long, acute, and slightly bent upwards at the tip. It must be left for a more detailed revision of the entire group to determine whether this character (which has just been stated to differ also in *Sch. cyanæa*) will render it necessary to remove *Tm. simillima* from the other two species.

ANALECTA ENTOMOLOGICA, *Dissertatio inauguralis*, auctore Dr. Herm. Rud. Schaum,
cum tab. ænea. Halis, Sax. 1841, pp. 49.

In a former page I have dwelt upon and lamented the wide distinction which exists between our own and Continental nations in regard to the patronage offered by their respective governments to works of natural history. The little work at the head of this article offers another equally striking proof of the advantages enjoyed by Continental naturalists far exceeding those which English students possess. Natural history being one of the branches of education taught in all the German burgher schools, gymnasiums, and universities—there being a professor of zoology in each of the latter—it follows that whenever a student manifests a decided predilection for any particular branch of the subject, his professor encourages him in it, and under his good directions the tyro launches forth his “*dissertatio inauguralis*,”—in a style as far superior to the feeble efforts of English debutants as can well be conceived. The inaugural dissertation of Goldfuss on the Coleoptera of the Cape of Good Hope, that of Burmeister “*De insectorum systemate naturali*,” that by Erichson on the Dyticidæ, that of Schmidt on the Pselaphidæ, that of Runde on the Brachelytra, and Dr. Schaum’s dissertation, amply confirm the truth of these remarks; all of them being works of talent, which will cause them to be always cited, and which, it is needless to suggest, have

evidently been prepared under the presiding direction of the professor of the university where these authors studied.

The little work which has given rise to these observations consists of four excellent treatises. The first is a monograph of the genus *Scydmænus*, in which we find due justice done to the writings of Kunze, Stephens, Erichson, Sturm, &c., and numerous new species added—forty-six species are described, including a number from North America, West India, East India, Madagascar, Brazil, Columbia, and also including two species of the little group which Waterhouse has named *Eutheia*.

The second paper contains some observations on the characters of the *Cremastochilides*—amongst which we find it stated that the mesosternum is never porrected in this group, but that when there is a sternal process it consists of the porrected metasternum.

The third treatise contains a great number of critical remarks on the nomenclature of the *Cetoniidae*.

The fourth comprises descriptions of ten new species of *Cetoniidae*—namely, *Dieranorhina* [Eudicella, White] *Nireus*, from Guinea; *Gnathocera trivittata*, from Caffraria; *Schizorhina Thoreyi*, from Guinea; *Cetonia spectabilis*, from Java; *Cetonia Stähelini*, from Abyssinia; *Cetonia iridescens*, from Guatemala; *Cetonia vulnerata*, from Java; *Cetonia thoracica*, from Arabia; *Ischnostoma Raeuperi*, from Caffraria; and *Gymnetis atropurpurea*, from Brazil.

SPECIES ET ICONOGRAPHIE GÉNÉRIQUE DES ANIMAUX ARTICULÉS. Par
M. F. E. Guérin Méneville.

By a letter recently received from M. Guérin Méneville, I learn that the commencement of this useful work has been delayed in consequence of the great exertions which have been required for the completion of the text of the "Iconographie du Règne Animal," and the "Traité élémentaire d'Histoire Naturelle." It is now many months since M. Guérin kindly sent me a considerable portion of the text of the Insect portion of the Iconographie, and if the whole is executed on the same plan as the sheets before me, the text will be as full of new matter as the plates of that excellent work.

The genera intended to be described in the early numbers of the "Species et Iconographic Générique," are *Rhipicera*, *Cebrio*, *Sandalus*, *Atopa*, *Cladon*, *Ptilodactyla*, *Epicyrtus*, *Eurypalpus* [not in Dejean's catalogue], *Cyphon*, *Eubria*, *Scyrtes*, *Nycteus*, *Atela*, *Phengodes*, *Amydetes*, *Rabdota*, *Nyctocharis*, *Dadophora*, *Selas*,

Auge, Actenista, Nematophora, Lychnuris, and Spenthala. The genera Lyeus, Lygistopterus, Charactus, Dyclopterus, Eurycerus, and Omalisus, will be described by the Marquis de Brême.

SALE OF M. AUDOUIN'S LIBRARY.—I have just received the catalogue of the library of M. V. Audouin, which will be sold by auction, at Paris, on 10th to the 25th of May. The catalogue itself forms a volume of 176 pages, and forms a most valuable addition to entomological bibliography. The works are arranged systematically instead of alphabetically, and certainly constitute a far more complete entomological library than has ever before been offered for sale. This may be easily conceived when it is mentioned that there are not fewer than seventy-four separate treatises on the honey-bee, and more than one hundred and fifty on the silkworm and silk culture. In addition to the works strictly on entomology and general comparative anatomy and physiology, there are numerous works on the other classes of animals. Copies of the catalogue may be seen at the Linnaean, Zoological, and Entomological Societies.

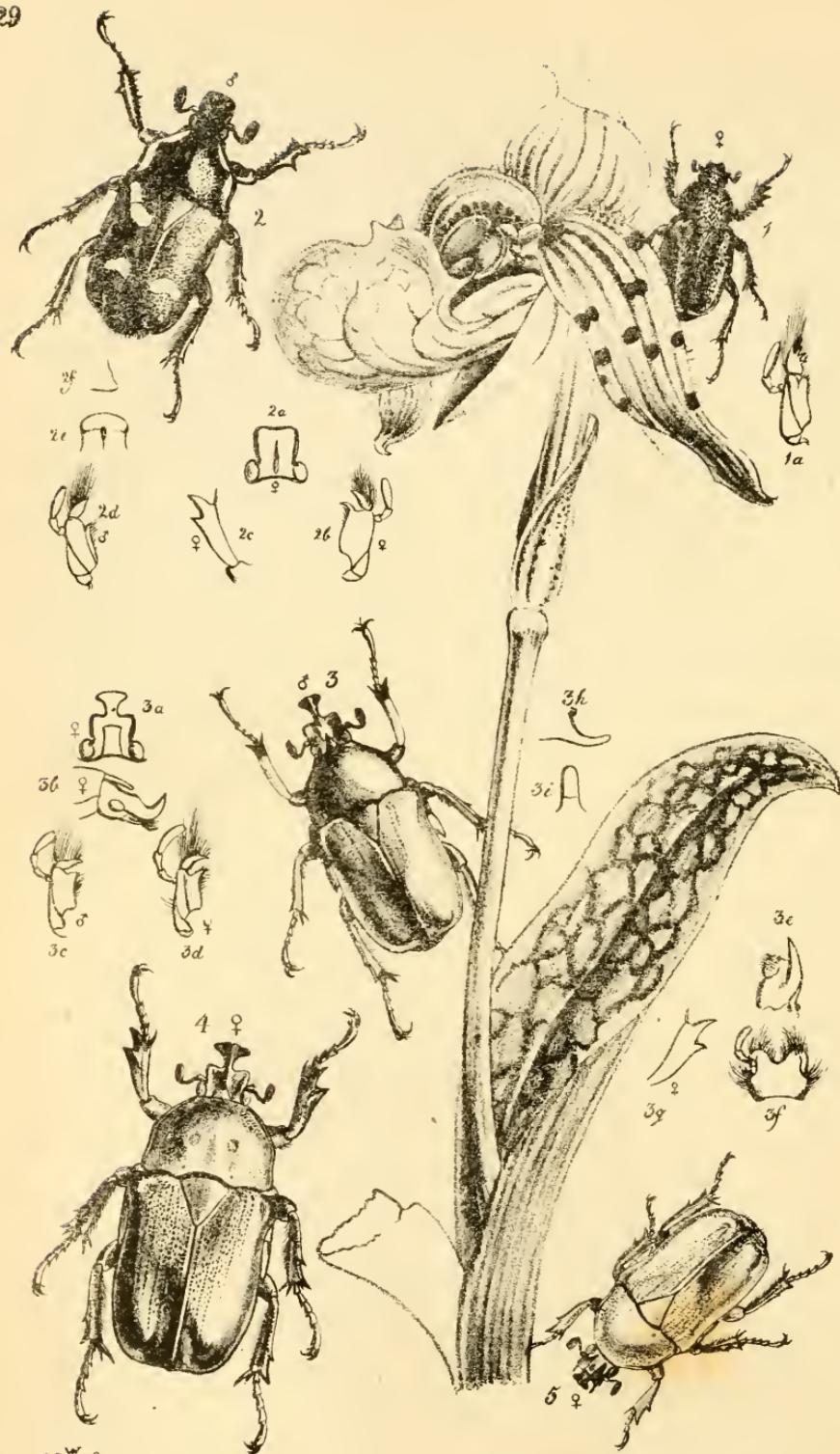
INSECTS OF CENTRAL INDIA.—I have been favoured by Lieutenant Colonel Hearsey, a gentleman who for more than thirty years has been stationed in the very centre of India (Saugor), with a sight of his very extensive and valuable collection of insects formed in that part of our Eastern territories. The collection is especially rich in Sphingidae and nocturnal Lepidoptera—vast numbers of which were reared from the caterpillar state. The species of the modern genus Papilio are but few in number and well known. P. Hector (extremely rare), Panmon, Polytes: respecting the specific identity of the two last-mentioned insects, Colonel H. partially confirms the statement of Boisduval, having observed one chasing the other *con amore*. I was surprised not to find a single species of Lueanus, nor Fulgora, in the collection; which, however, includes a new species of Paussus, and of Diopsis, a very minute species of Apotomus, specimens of both sexes of the interesting Hymenopterous genus Trirogma, a number of very English-looking Harpalidæ, various Bolboceri and Athyrei, as well as most of the species described and figured by Mr. Saunders, in the Transactions of the Entomological Society (vol. iii. part 1, plate 5); Colonel Hearsey having communicated them to Mr. Prinsep, from whom Mr. Saunders received them.

HYPOCEPHALUS ARMATUS (Plate 10).—In my observations on this curious genus (p. 39), it was mentioned that M. Guérin Méneville entertained the same opinion as Professor Burmeister relative to the natural relations of this anomalous genus. The views of M. Guérin have appeared in the “*Revue Zoologique*,” 1841, p. 217; and it is curious to perceive that many of the points of relation suggested by him are identical with those noticed in my article on the genus; he likewise mentions a new genus, *Anoploderma*, from the Andes of Peru, (described by him in the *Rev. Zool.* 1840, p. 276,) which, like *Hypocephalus*, possesses short and robust tibiae, dilated at the tips and armed with spines and teeth, and adds, that the person from whom M. Mare received his specimens of *Hypocephalus* found two individuals in the earth, or decayed wood, at the foot of a deep slit in the trunk of a tree.

Since the publication of my memoir on this genus, I have received communications from several entomologists, some of whom, whose opinions will be read with respect, differ from the views above detailed: thus the Marquis Maximilian Spinola, in a letter dated Genoa, 11th February, 1842, writes to me, “Your drawing of the *Hypocephalus* has changed my previous opinions on that anomalous genus. I cannot, however, resolve on admitting it among the *Prioniti*; and I have stated my doubts on the subject in my memoir on the *Prioniti*, which I have transmitted to the Academy of Sciences of Turin, and which will be inserted in the third volume of the Transactions of that Academy. I think all the inconvenience arises from laying it down as a necessity that every insect must be placed in a determinate family; but if the family has no circumscribed characters, we should call it a ‘*Familioides*,’ and not a Family, and if it has any, the insect deprived of those characters, must stay at the door, but *out of* the family. If no other door is opened, it will remain without a family—and no matter for that, since Nature would have it so. Let it remain alone, until Nature, and not the love of system, grant it good company.” Mr. Newman also, in a letter to me, has adopted the opinion which I expressed in my “*Modern Classification of Insects*,” v. i., p. 150; observing, that “*Hypocephalus* is not a Longicorn, unless the term extends to the Cucujites, to which it properly belongs; this group intervenes between *Cerambyx* and *Lucanus*.” [Thus taking up the relation of the Cucujidæ pointed out by me in the *Zoological Journal*.] *Spondylus* appears to me to be related to *Callidium*, *Prionus* and *Leptura*

unnaturally separated from *Hypocephalus*.] Mr. Newman has subsequently published a proposed distribution of the Coleoptera into four, or rather seven, stirpes; one, Coleoptera Macrocerata, composed of four divisions; Cerambycites, an entire group; Curculionites, Criocerites, and Cucujites, each of the last three being stated to be composed of two sub-groups; making seven in all. The Cucujites being composed of Trogosita, Passandra, Cucujus, Palæstes, Brontes, Parandra, *Hypocephalus*, Rhysodes and Cupes, and leading to Trictenotoma, Lucanus, and Passalus, among the Coleoptera Schismatocera (Lamellicornes, Latr.). Entomologist, p. 244.

COLOBOTHEA LEUCOSPILOTA (Plate 15, fig. 2).—Mr. Newman (who has been long engaged upon the investigation of the Longicorn beetles, and who has undertaken the description of the species of that group, brought from the Philippine Islands by Mr. H. Cuming, and now in the collection of the British Museum), has suggested to me that the name of this species cannot be maintained, there being already an insect of the genus with the same name, [See Lap. Hist. Nat. Col. 2, p. 459, *C. leucospila*.] I, therefore, propose to alter the name of the Philippine species to *C. albo-notata*.





PLATES XXIX AND XXX.

ON THE GOLIATHIDEOUS CETONIIDÆ OF ASIA.

PART I.

On reviewing the characters of the primary groups into which the great family Cetoniidæ is divisible, we soon find that the extraordinary horns with which the heads of the male Goliathi are armed ought to receive only a secondary consideration in determining the limits of groups; other characters being found of greater importance. Hence it is that, after removing the *Trichiides* (which have the sides of the elytra straight), the *Cremastocheilides* (including Macroma, as Dr. Burmeister * satisfactorily shows, and distinguished by the curved horny blade of the mandibles, and the naked or nearly naked upper lobe of the maxillæ), and the *Gymnetides* (which have the pronotum produced backwards, and more or less covering the scutellum, we find the remaining groups much more closely approximating together. The *Ischnostomides* and some of the *Cetoniides* are distinguished however by the membranous lobe of the maxillæ, whilst the remainder of the *Cetoniides* do not exhibit any striking external sexual distinctions.

The species which still remain to be noticed are distinguished, therefore, from all the preceding by the following characters :

The sexes are distinguished by the variation in the form of the clypeus, or of the feet, the upper lobe of the maxillæ is corneous, the horny part of the mandibles forms a straight blade, the scutellum is not covered by a produced lobe of the hind part of the pronotum, and the sides of the elytra are deeply sinuated near the base. The insects thus characterised constitute the groups which have been called *Goliathus*, *Gnathocera*, *G.* and *P.* (*Coryphe*, *M'L.*), and *Schizorhina*, together with several others, which are more properly referable to them. These groups appear to me to constitute two sections.

1st. The GOLIATHIDEOUS CETONIIDÆ, in which the clypeus is not emarginate in both sexes, and is often cornuted.

2nd. The SCHIZORHINOUS CETONIIDÆ, in which the clypeus is always deeply emarginate in both sexes, and is never cornuted.

* Zeitschrift für die Entomologie, vol. 3, p. 275. (1841.)

It is impossible on referring to the former of these two sections, not to be convinced that the gigantic *Goliathus* of Africa are its types. They exhibit in the highest degree the male cornutous character of the section, but they are distinguished by two characters which are not found in the majority of the group—namely, the pronotum widest across the middle, and the upper lobe of the maxilla dentate: they are, however, found in several eastern forms, with which our review will naturally commence.

NARYCIUS, *Dupont.*

(Géom. Mag. de Zoologie—Insectes, pl. 125.)

As originally described by M. Dupont, this genus comprised two species *N. opalus* and *N. olivaceus*, both from Madras: but, as already alluded to in pp. 5 and 70 (note †), they are but the sexes of a single species, for which the name of *N. opalus* should be retained as being that of the male.

By the kindness of M. Dupont, during my recent visit to Paris. (May and June, 1842,) I have been enabled to study this most interesting species in detail. The male*, of which an outline, copied from Guérin's "Magasin," was given in my plate 1, fig. 5, is distinguished by two long and very robust horns in front of the head. The mandibles (Plate 33, fig. 1 a) have the horny blade sharp and angularly dilated in the middle on the outside: the maxillæ (fig. 1 b and 1 b †) have the upper lobe short, and much curved, with the apex 3-dentate, and the outside strongly hairy: the inner lobe is produced at the tip into an acute point, and the palpi are short: the mentum (fig. 1 c) is short and broad, much narrowed in front and deeply emarginate with the labial palpi very short. The pronotum is broadest across the middle. The mesosternum (fig. 1 d, 1 e) is conical, acute, and porrected; the anterior tibiae (fig. 1 f) are rather broad, with one strong tooth on the outside below the acute apex; the unguis (fig. 1 g) are furnished with a very short bisetose plantula, and the abdomen is channeled beneath.

The female† (Plate 33, fig. 1, copied from Guérin's figure) is more robust than the male, with the head produced into two short horns—a most singular character; the maxillæ are formed as in the male; the fore tibiae (fig. 1 h) are externally furnished with three obtuse teeth; the middle and posterior tibiae are much more strongly toothed than in the male; the abdomen is not channeled

* *Cetonioides (Goliathus, Diversicornis) opalus*, MacLeay.

† *Cetonioides (Corypae, Narycius, 3.) olivaceus*, Mac Leay.

beneath, and the mesosternum is protracted, rounded, and some but rather broader at the base than in the male.

The differences between this genus and the true *Goliathini* consist in the sides, and not the centre, of the elytrae being corrugated, the armature of the fore tibiae in the males, the different form of the mentum, maxilla, and pronotum, and the corrugated head of the female.

It is to the genus *Narcissus*, but forming a subgenus distinct from the type, that I refer a new and beautiful unique insect which has been communicated to me by that assiduous lepidopterologist G. H. K. Thwaites, Esq., of Bristol, whilst this sheet is passing through the press (14th June, 1842), on which account the figures in Illustration of it will not appear until the following number is published.

NASCITS, genus CYTHONOCERUS, T. & J.

תְּהִלָּה שֶׁבֶת בְּנֵי יִשְׂרָאֵל וְבְנֵי יִצְחָק

In the more important of these characters the insect approaches the typical *Narycius*, differing chiefly in the form of the horns of the head and fore legs; whilst in the sub-elongated fore legs, and especially in the form of the horn of the head, it bears a nearer resemblance to *Dieronocephalus*: from which, however, the structure of the maxille, mesosternum, and anterior tibiae, and its beautiful emerald colour, remove it.

NARVICS (CYPHENOCEPHALUS) SWABARDIUS (Tsch.)

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MYSTERIES, RITES, LAYS, PHILISTINA, &c.

Having figured and described the male of the only known species

of this genus, *M. rhinophyllus* (plate 1, fig. 3, and details), it will here be necessary only to notice the peculiarities of the female (Plate 29, fig. 1), which I had not seen when the first plate of this work was published. The only specimen which I have seen is contained in Dr. Horsfield's Javanese Collection at the East India House, and I have to return my thanks to that gentleman for an opportunity of examining and figuring it. Unfortunately the lower parts of the mouth have been removed by some previous observer, so that I cannot describe the mentum and labial palpi. The head is rather quadrate in front, with the angles slightly produced, the space between them being somewhat emarginate. The maxillæ (fig. 1 *a*) resemble those of the male, and have the upper lobe armed with four short teeth; the inner lobe is unarmed and rounded; the pronotum is unarmed in front and not elevated; the fore legs are much shorter than in the males, and externally 3-dentate, and the four hind tibiae are strongly spurred beyond the middle. The general colour is much more obscure than in the male, scarcely shining, and clothed with luteous setose scales. The female was first described by M. Buquet (Ann. Soc. Ent. France, 1836, p. 203), from whom I have received a splendidly coloured male.

MYCTERISTES. (SUB-G. PHÆDIMUS.) *Waterhouse.*

Both the sexes of the only known species, *M. (P.) Cumingii*, having been fully described and figured, with their details in the first plate of this work, it will be only necessary to notice, that in the elongation of the fore legs of the male of this and the preceding species, and in the uncorrected mesosternum, they lead to

DICRONOCEPHALUS*, *Hope.*

Like *Naryceius*, the sides and not the centre of the clypeus are here cornuted, and like *Myteristes* proper, the fore legs of the males are greatly elongated with the tibiae tridentate; the pronotum is broadest across the middle, but the terminal lobe of the maxillæ is unarmed—affording the first approach to the following groups. The male only of the unique species composing this group is known, and is represented with its details in the first plate of this work (figure 4, 4 *a*—4 *e*).

* This name was spelt *Dieranocephalus* in the Synopsis of General Hardwicke's Nepalese Coleoptera; but in the Coleopterist's Manual (p. 116) it is correctly written *Dicronocephalus*, —a name given in allusion to the two sickle-like horns of the head, (*δίς* et *κράνιον*.)

In all the following groups we find the pronotum widest behind, or, at least, with the hind part not narrower than the middle, accompanied by the simple structure of the outer lobe of the maxillæ.

JUMNOS, *Saunders.*

This genus was proposed in the Transactions of the Entomological Society of London, (vol. ii., p. 176, pl. 16, fig. 1,) for the reception of a splendid male insect from the East Indies, *Jumnos Ruckeri*, characterised by the following peculiarities: The head square in front, and not cornuted, with the lateral margins tuberculated; the pronotum broad and very gibbous in front, the lateral margins beyond the middle nearly parallel; mesosternum porrected and oval; the fore legs very long and externally bidentate, and with the internal margin deflexed and denticulated; the fore tarsi long, with a brush of hairs on the underside of the terminal joint at the tip.

The female of a second species was described by the Rev. F. W. Hope, in Professor Royle's work on the Botany, &c., of the Himalayas, under the name of *Cetonia Roylii*, (Insects, pl. 1, fig. 1.). I am indebted to A. Melly, Esq., for the male of this species, which proves to be very closely allied to *J. Ruckeri*, as will be seen on comparing my plate 29, fig. 2, with Mr. Saunders's figure. The head of the female, (fig. 2 *a*.) like that of the male, is unarmed, with the clypeus nearly truncate in front; the maxilla of the male (fig. 2 *d*), has the inner lobe nearly simple, but in the female it is armed with a sharp hook (fig. 2 *b*); the mesosternum (fig. 2 *e* and 2 *f*), is much less produced than in *J. Ruckeri*, and is much broader than long, with the front margin rounded. The fore legs of the male are moderately long, and both internally and externally toothed and serrated, as in *J. Ruckeri*, except that they want the brush of hairs on the underside of the last joint of the tarsi. The fore tibiae of the female (pl. 29, fig. 2 *c*), are also externally bidentate, but they are simple on the inside. The four hind tibiae are slightly spurred beyond the middle in the male, and strongly in the female, they are thickly clothed within with fulvous hairs.

RHOMBORHINA, *Hope* (Col. Man. 1, p. 120 *).

In the unarmed quadrate form of the clypeus of both sexes, and the bidentate tibiae of the females, this genus approaches *Jumnos*, but

* Mr. MacLeay (Cet. So. Africa, p. 30), has ingeniously transposed Mr. Hope's types of his two genera, giving *Hardwickii* as the type of *Rhombothina* and *Opalina* as that of *Trigonophora* (as he misterms it).

the simple tibiæ of the males of these insects at once distinguish them from the last-mentioned group. The antennæ do not materially differ in the sexes; the inner lobe of the maxillæ of the female of *Rh. opalina* (pl. 30, fig. 5 *a*), is armed with a strong horny hook, which is much less strong in the males (*Rh. hyacinthina* ♂, *e. g.*). The mentum is deeply cleft in front, its hind part being rather broader than the front (pl. 30, fig. 5 *b*). The club of the antennæ does not vary in size in the opposite sexes, and the mesosternal process is generally porrected, broad, and blunt, but it differs in shape in the different species. The fore tibiæ of the females are bidentate; the hind tibiæ in the same individuals are much more strongly spurred beyond the middle than in the males. The following are the species of this genus:—

SPECIES I.—*Rhomborhina resplendens*. Rh. “aureo-viridis nitidissima, versicolor, elytris subtilissime seriatopunctatis; basi, limbo scutellari, sutura tarsisque nigro-violaceis.” Schön.

SYN.—*Cetonia resplendens*, Swartz, in Sch. Syn. Ins. vol. i. part 3, app. p. 51, (1817).
Goliathus Heros, Latreille, Gory, and Perchéron, Mon. Cet. pl. 26, fig. 3.

Obs.—The abdomen of the male is not longitudinally impressed beneath, and the fore tibiæ have a vestige of a tooth below the apex on the outside.

SPECIES II.—*Rhomborhina Mellii*, Gory and Perchéron, Mon. Cet. pl. 26, fig. 4.

SPECIES III.—*Rhomborhina distincta*, Hope, in Trans. Ent. Soc. Lond. vol. iii., p. 63.

Obs.—This species was described from a specimen sent from Assam, which appears to me to be specifically identical with *Rh. Mellii*.

SPECIES IV.—*Rhomborhina opalina*.

SYN.—*Cetonia opalina*, Hope, in Syn. Nepal. Col. p. 24, Gory and Perchéron, Mon. Cet. pl. 26, fig. 5. (*Goliathus op.*)

Obs.—The male is narrower than the female. The scutellum is sometimes only dark-coloured at the apex; the hairs of the four posterior tibiae and abdomen are fulvous, and the mesosternum is porrected and broad in front, almost as in *Rh. hyacinthina* (pl. 30, fig. I *a*). Captain Parry has received it both from Ncpaul and the Himalayas.

SPECIES V.—*Rhomborhina apicalis*, Westw. (Plate 30, fig. 2.) Læte cupreo-fulva, elytris apice scabris et nigris, tibiis tarsisque nigris et nigro-setosis, thorace subtus nigro, abdomine que cum femoribus aeneo. Long. corp. lin. 15.

Habitat in Nepalia, D. Hardwicke; et Assam?

In Mus. Soc. Linn. Lond. et Soc. Merc. Ind. Orient.

Obs.—The clypeus is alike in both sexes—large and rounded in front. The sides of the pronotum and the disc of the elytra are finely punctured, some of the punctures on the latter forming irregular lines. The apex and sides of the abdominal segments are clothed with short black hairs. The fore tibiae of the females are not so strongly spurred as in some of the species. There is an impression on each elytra beyond the middle; the mesosternum is very broad and rounded in front (fig. 2 *a*, 2 *b*). The male has the abdomen broadly but very shallowly impressed.

SPECIES VI.—*Rhomborhina Japonica*. (Plate 30, fig. 4.) Hope, in Trans. Ent. Soc. Lond., vol. iii. p. 64. In Mus. D. Hope et Dupont.

Obs.—The short broad form of this species together with its large-sized head distinguishes it from the rest of the genus. The hairs on the hind tibiæ and abdomen are short and fulvous. The scutellum is concolorous with the pronotum and elytra, the mesosternal process is of moderate size, nearly as long as broad, rounded, and slightly dilated in front (pl. 30, fig. 4 *a* and 4 *b*, the former figure, representing the apical portion, scarcely elongate enough). The fore tibiæ of the females are very broad and strongly bidentate.

SPECIES VII.—*Rhomborhina microcephala*, Westw. (Plate 30, fig. 3.) Rh. brunneo-olivacea nitidissima, capite parvo, clypeo subquadrate, tibiis anticus ♀ angustis mediocriter bidentatis; pedibus cyaneo-nigris, nigro-setosis ♀. Long. corp. lin. 13—14. Habitat in Montibus Himalayanis, D. Meares. In Mus. D. Parry.

Obs.—This very robust species has a remarkably small head, and the fore tibiae in the female are also very narrow, and but slightly bidentate. The upper side of the body is of a dark olivaceous brown colour inclining to a deep copper in certain lights; the scutellum and suture of the elytra being concolorous, but their shoulders are marked with a dark patch: the underside is of a dark aeneous colour tinged with blue; the abdomen being blacker. The mesosternal process is narrow and not dilated in front, with the apex rounded (fig. 3 a and 3 b). The hairs of the hind feet and abdomen are short and black.

SPECIES VIII.—*Rhomborhina hyacinthina*, (plate 30, fig. 1,) Hope, in Trans. Ent. Soc. Lond. vol. iii. p. 62 *.

This very distinct species was received by Mr. Hope from Assam; Captain Parry has since received it from Sylhet; specimens are also contained in the fine collection recently received by the Entomological Society from Miss Sealy, forwarded by Mr. M'Clelland. The latter specimens are entirely jet black, except the feet, but Mr. Parry's have the front and hind parts of the body slightly tinged with green and blue above, and more particularly beneath. They do not, however, appear to me to be specifically distinct. The hairs on the hind tibiae and abdomen are short and black. The mesosternal process (fig. 1 a, 1 b,) is large and transverse, the sides being rather more angulated in the middle than in fig. 1 a. The female has the fore legs broad and acutely bidentate, and the hind tibiae acutely spurred beyond the middle, the spurs being, however, small; in the male, (as in the rest of the genus in this sex,) they are almost obliterated. The abdomen of the male is not longitudinally impressed beneath.

SPECIES IX.—*Rhomborhina clypeata*, Dupont's MSS. (Plate 33, fig. 3.) Rh. viridis punctulatus, thoracis lateribus elytrorumque disco postice magis auratis, clypeo magno, antice subtruncato, mesosterno fere circulari basi truncato, pedibus posticis fulvo-setosis. Long. corp. lin. 12½. Habitat in Japonia. Mus. Dupont et Buquet, Parisii.

This is the smallest species of the genus, and is distinguished by its comparatively large quadrate clypeus with the front angles rounded off, and its short elytra; the disc of the head and sides of the pronotum are very finely granuloso-punctate; the fore tibiae in the females (I have not seen the male) are broad and strongly bidentate; the mesosternal process is porrected and almost rounded, but scarcely broader than the porrected front of the metasternum on which it is placed, with its base truncated. The tips of the tibiae and the tarsi are black; the under side of the thoracic region is more golden than above. M. Buquet's specimen is labelled Japonica, from which species, however, it is abundantly distinct.

* Mr. Hope's memoir having been read in 1839, his name is retained in preference to the manuscript one of azuripes, Burm., which I find attached to Mr. Hope's typical specimen.

SPECIES X.—*Rhomborhina pilipes*. Melly's MSS.

I regret that, owing to Mr. Melly's absence from England, I am unable to give a description and figure of this fine species which I saw last year in his rich cabinet: Dr. Burmeister, however, made a detailed description of it, which will, I believe, be shortly published.

Obs.—In addition to the typical Rhomborhinæ above described, Mr. Hope (Col. Manual, 1, p. 120), adds Gol. Hardwickii, II., Gol. Roylii, Hope, and Cetonia cincta, Zool. Journ. at the end of the genus. The first of these three species is the type of his own genus *Trigonophorus*. G. Roylii is a Jumnos, and C. cincta is referable to the African group to which C. tenuia, depressa, &c. belong.

ANOMALOCERA, *Hope*.

As Mr. Hope's account of this curious group was recently read before the Linnæan Society, accompanied by figures of the male of the typical species and ample structural details, I shall here only mention that in its simple clypeus in both sexes, and in the formation of the fore tibiae in the opposite sexes, as well as in the structure of the trophi it agrees with *Rhomborhina*; from which it is separated by the great elongation of the club of the antennæ of the male, the deep longitudinal impression of the under side of the abdomen in the same sex, and the elongated narrowed mesosternum. The genus is also closely allied to the quadrate-clypeated *Gnathoceræ* G and P, such as *Gn. laeta*, &c. By the kindness of Captain Parry, I am enabled to complete the illustration of this genus by giving a figure of the female (Plate 30, fig. 6), the head and antennæ of the male (fig. 6 c), the mesosternal process (fig. 6 a 6 b), and the fore tibia and tarsus of the male. Captain Parry fortunately possesses a single specimen of each sex of the only known species (*A. Parrii*, Hope), which he received from the Himalayas in a collection formed by — Meares, Esq.

TRIGONOPHORUS, *Hope* (Syn. Nepal. Col. in Gray's Zool. Miscell. p. 24, 1831).

This genus was simply indicated by name, in the work above quoted, for the *Cetonia Hardwickii*;—an insect which, in the structure of the fore legs in the opposite sexes, (those of the males being longer than those of the female, with the tibiæ unarmed in the former and bidentate in the latter,) and in the want of a longitudinal impression on the under side of the abdomen of the males, agrees with the typical Rhomborhinæ. But here we find not only the clypeus but the hind part of the head cornuted, and that too, singularly enough, in both sexes; the distinction of sexes in this

respect consisting in the shape of the hinder horn of the head. Here, however, we also find a curious distinction; for this horn in the female of *Tr. Delessertii* is of the same acute shape as in the males of the two other species; the hind tibiæ of the males have the spur beyond the middle of the limb more distinct than in the *Trigonophoræ*. Another distinguishing character, separating these insects from the last-named genus, is the narrow elongated form of the mesosternal process. As there are now several species known agreeing together, I have retained the generic name. The maxillæ offer the same sexual distinction which has been already noticed in some of the preceding groups. The mentum is broad and very deeply incised in the front.

SPECIES I.—*Trigonophorus Nepalensis*. (Plate 29, fig. 3 ♂.)

SYN.—*Cetonia Nepalensis*, Hope, in op. sup. cit. ♂.

Cetonia Hardwickii, Hope, in op. sup. cit. ♀.

Gnathocera Hardwicki, Gory and Perch. Mon. Cet. Pl. 19, fig. 1 ♀.

Cetoninus (*Coryphe*, *Rhomborhina*, 1,) *Hardwickii*, MacLeay. Cet. Soc. Afr. p. 30.

This handsome insect has the posterior horn of the head acutely triangular in the males, but oblong and truncate at the tip in the females. The species is liable to considerable variation in colour on the upper surface, the female being sometimes (as figured by Gory and Perchéron) black or aeneous black, and sometimes of the same dark green colour as the male represented in my figure 3. The rich orange colour of the femora and tibiæ (except at the tips), and of the posterior coxæ, is a very distinguishing character of the species. Plate 29, fig. 3 *a*, represents the head of the female from above, and 3 *b* seen sideways; 3 *c*, the maxilla of the male, and 3 *d*, that of the female; 3 *e*, the mandible; 3 *f*, the mentum; 3 *g*, the fore tibiæ of the female; 3 *h*, the mesosternum seen sideways; and 3 *i*, the same seen from beneath. As usual in such cases, the specific name which had been applied to the male insect is here retained.

SPECIES? II.—*Trigonophorus Cantori*.

SYN.—*Rhomborhina?* *Cantori*. Hope in Trans. Ent. Soc. Lond. vol. 3, p. 63.

Having examined the typical specimen described by Mr. Hope, I am able to state that the front of the head is mutilated and covered with dirt, and that there is therefore no longer reason for doubting that the frontal horn was present, and of the same form as in the other species of the genus. In other respects (except in being broader) it agrees with the female of *Tr. Nepalensis*, from which I do not consider it to be specifically distinct. Mr. Hope has not mentioned the rich orange colour of the posterior coxæ, and which are visible beyond the sides of the elytra.

SPECIES III.—*Trigonophorus Saundersii*, Westw. (Plate 29, fig. 5). Tr. aureo-viridis, elytris tenuissime rugosulis et punctatis, cornu frontali capitis brevi trigono; postico acuto, ♂, truncato, ♀; capite et abdome subitus pedibusque brunneo-castaneis, metathorace subitus viridi. Long. corp. lin. 12. Habitat in India Orientali. In Mus. D. Saunders et Merc. Ind. Orient. Londini.

This is smaller than any of the other species, and is distinguished from Tr. Nepalensis by the much shorter horn at the front of the head; the upper surface of the head is olivaceous green and punctured, the angles in front of the eyes forming obtuse elevated tubercles, instead of being acute as in Tr. Nepalensis; the hind horn of the head is nearly flat, broad, and truncated in front in the female, but acute in the males; the sides of the pronotum are much more thickly punctured than the disc; the elytra are more strongly punctate than in Tr. Nepalensis, with the disc slightly rugose, giving it a silky appearance according to the play of light. The podex is green. The legs, as well as the underside of the head and abdomen, are of a rich maroon colour, the fore feet being formed as in the other species. The tarsi are black. The mesosternum is long, narrow, porrected, and bent rather downwards. The hairs on the hind feet and sides of the abdomen are few in number, thin and dark-coloured; the entire metasternum is green, forming a strong contrast with the rich colour of the other parts of the underside of the body.

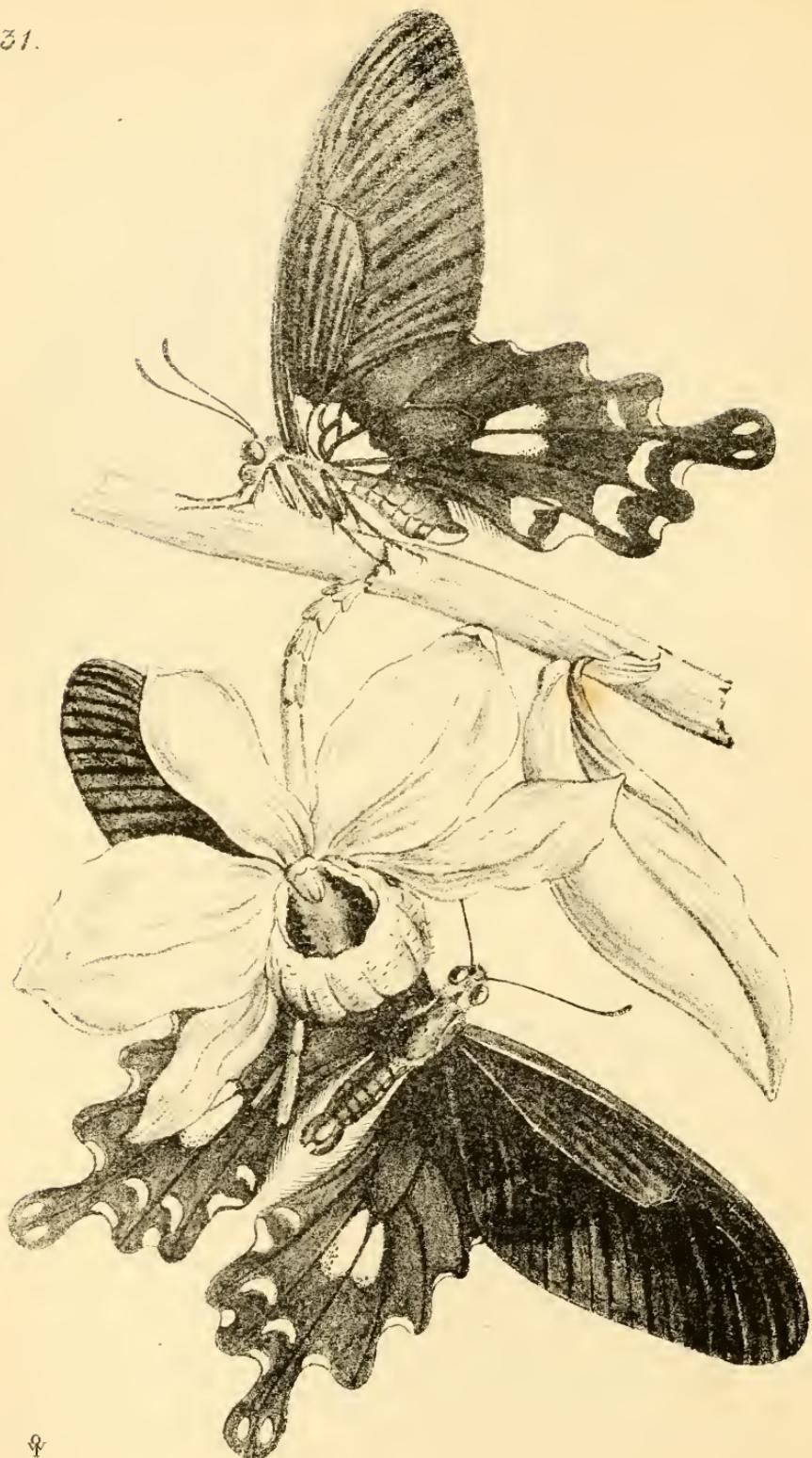
SPECIES IV.—*Trigonophorus Delessertii*. (Plate 30, fig. 4).

SYN.—*Goliathus Delessertii*, Guérin. *Révue Zoologique par la Soc. Cuvier.*, 1839, No. 8, p. 229.

This magnificent species was kindly sent to me from Paris by M. Guérin Meneville, for illustration in this work. The detailed description will be found in the *Révue Zoologique*, above referred to;—a work containing descriptions of a vast number of new species of insects, as well as notices of many works of Entomology, which are almost unknown to English Entomologists. The species was found upon the plateau of the Neilgherries near Otacamund and Kotirghery, by the zealous traveller in honour of whom it has been named. M. Guérin describes the posterior horn of the head as being “plate, dirigée en avant et en bas, aplatie;” not noticing its triangular shape, which is most singular, when it is considered that the insect is a female, and that the females of the other species of the genus have this horn truncate.

The plants figured in Plates 29 and 30 are two fine species of *Cypripedium*; that in the former Plate being *C. venustum*, (a native of Nepal) drawn from a specimen which blossomed finely in the Botanic Gardens at Kew, at the beginning of the present year; and Plate 30, representing the Indian *Cyp. insigne*.

31.



♀
10.6.42

PLATE XXXI.

ILLUSTRATION OF A NEW INDIAN SPECIES OF PAPILIO.

THE beautiful species of Papilio figured in the accompanying plate belongs to Boisduval's seventeenth group of the genus; but is distinguished from the majority by the great elongation and narrowness of the wings, and the very broad and spatulated tail; and from all, by the bright red base of all the wings on the under-side. It is most nearly related to the two species *P. Philoxenus* and *P. Minereus* of Gray (Zool. Misc. p. 32), which were described from unique specimens contained in General Hardwicke's collection now at the British Museum, namely, a male of the former and a female of the latter species. From this circumstance, united with the evident relationship between the insects, M. Boisduval was induced, in his "Histoire Naturelle des Lépidoptères," to consider these two individuals as the sexes of one species, for which he retained the name of *P. Philoxenus*. The collection of Assamese insects formed by Mr. Griffith, now in the possession of R. H. Solly, Esq., and that forwarded from Sylhet to the Rev. Mr. Stainforth, now in the possession of Mr. H. Doubleday, have enabled me to determine the specific distinction of the two species; and as there is no figure of either (except the wretched one of *Minereus* given by Donovan, Naturalist's Repos., vol. 4, pl. 140, which Boisduval has omitted to quote), I propose to illustrate them a future number of this work. The following are the characters of the new species figured in the accompanying plate, which was also contained in Mr. Stainforth's collection, above mentioned.

PAPILIO BOOTES, *Westw.*

P. alis niguis, valde elongatis, posticis spathulato-caudatis, harum disco plaga media alba, vena nigra in duas partes divisa, macula ad angulum ani, lunulisque tribus submarginalibus rufis; incisionibus pallide marginatis, caudaque bimaculata; alis subtus similibus at pallidioribus; omnibus plaga magna basali rufa; maculis lunulisque rufis majoribus, capite, collo et corpore infra rufo. Expans. alar. unc. 5.

Inhabits Sylhet in the East Indies. D. Stainforth. In Mus. H. Doubleday.

Since the publication of the last number of this work, I have been favoured with another translation of the song "I'd be a

Butterfly," which appeared in the "Times," on the 8th of August, 1828, shortly after the publication of that by Archdeacon Wrangham. The elegance of many of the lines will be an ample excuse for my introducing it into a vacant page.

PAPILIO. (*Versio altera.*)

Proles arbusti, Papilio ut forem,
Violas, et lilia, et rosas halans ;
Erraticus usque de flore ad forem,
Quæ pulchra, quæ suavia sunt, osculans !
Non opum sentirem, non regni furorem,
Ut sternat se coram me nemo, curans :
Modò proles arbusti Papilio si forem,
Quæ suavia, pulchraque sunt, osculans !

O, nôsssem caduceum Magæ subtrahere,
Has alulas pulchras induerem mî :
Æstivo sub axe vagantur in aëre,
Et rosâ cubant, ubi gemis, Atthi !
Sit vigil et cautus, qui dives, necesse est ;
Nil afferunt sceptræ, miserias nî :
Papilionem me ter satîs esse est,
Rosâ cubantem, cum gemis, Atthi !

Quid quòd autumni cùm redit tempestas,
Vanescunt errores hi mox parvuli :
Multo plus præstat, cum finiit æstas,
Morientibus omnibus pulchris, mori !
In hieme vitæ, queis ridet hic status,
Arcento, si poterunt, ictum leti :
Fiam Papilio, degamque paratus,
Morientibus omnibus pulchris, mori !

The plate also represents a single flower of the Indian *Dendrobium moschatum* of Hamilton, of which a most splendid specimen, with a great number of pendent branches covered with blossoms, formed one of the finest ornaments at the June fête at the Horticultural Society's Gardens at Chiswick, 1842.

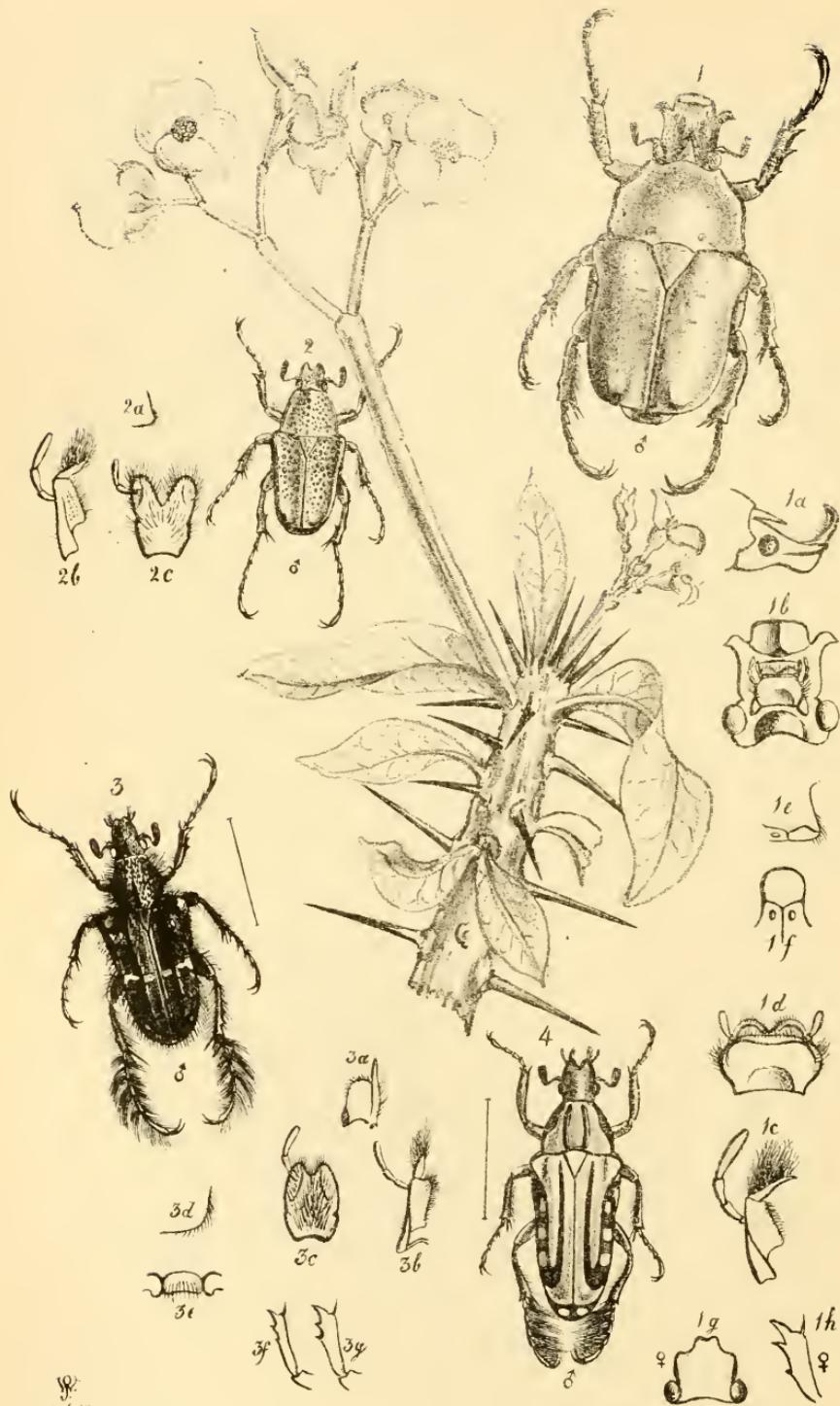


PLATE XXXII.

ILLUSTRATIONS OF SOME SPECIES OF CETONIIDÆ FROM MADAGASCAR.



THE insects of Madagascar, from the little hitherto known of them, appear to be almost as remarkable as those of New Holland. The beautiful Carabideous Euryderæ, Cicindelideous Psiloceræ, Buprestideous Polybothrides, the Lamellicorn Epilissi, and especially the Cetoniidæ, may be cited as instances of anomalous formation. These are Coleopterous examples, but of the other orders of insects, (except Lepidoptera,) from Madagascar we are almost totally ignorant.

Of the four Cetoniidæ figured in the opposite plate, two (fig. 1 and 4,) have been for some years past partially known by the insufficient descriptions of Messrs. Gory and Perchéron, published in Silbermann's *Revue Entomologique* (No. 15, 1835). No figures of them have however yet appeared. The other two species (fig. 2 and 3,) are new, having been but very recently received in Paris from Madagascar. They are both of considerable interest, especially figure 3, which is, in several respects, one of the most singular species of the family.

The insect represented in figure 1 was referred by Messrs. Gory and Perchéron to the genus *Goliath*; a second species, *G. ochreata*, was also described by them, which agrees with this in structural characters. Dr. Burmeister in his manuscripts, (of which he has kindly allowed me to avail myself,) has considered these two insects as forming a separate genus intermediate between those groups of Goliathideous Cetoniidæ which have the head of the males strongly cornuted, and those in which the head is simple in both sexes. I have much pleasure in retaining his name, and illustrating it with details taken from the unique male of the species figured, contained in the Museum of the Jardin des Plantes. The details of the female are taken from a specimen in the collection of A. Melly, Esq. In respect to the flattened horn at the hind part of the head, the group is analogous to the Trigonophori of India

and the African group* typified by *Cet. bimaculata*, De Geer. (*flavomaculata*, Auct.), and especially to the genus *Lophorrhina*, Burm. MSS. (*Cetonia 5-lineata*, F. and *pentachordia*, Klug), also from Africa, (but unknown to Mac Leay.) which, like the present genus possesses tridentate anterior tibiae in both sexes.

GENUS PLÆSIORRHINA, *Burm.*, MSS.

Plæsiorrhina reflexa, (Plate 32, fig. I.)

Syn.—*Cetonia (Goliath) reflexa*, Gory and Percheron (Deser. de quelq. nouv. Esp. de Cétoines de Madagascar, in Silb. Rev. Ent. 1835, No. 15).

The large size of the head of the male of this species, with its dorsal and lateral horns, render it a very conspicuous insect. It is but moderately shining, and but very slightly punctured, being of a black colour with a greenish tinge, except the pronotum and elytra, which are slightly tinged with blue; the dorsal horn of the head has a castaneous central line down the centre, the sides of the pronotum are castaneous as well as the two spots on the posterior margin; the base of the metacoxæ and the exposed part of the mesosternum are luteo-castaneous. The general colour of the undersurface of the body is a dark apple green. The femora and reflexed undersides of the pronotum luteo-fulvous, with a slightly greenish tinge. Fig. 1 *a* represents the head of male, seen from the side, and 1 *b* from beneath; 1 *c*, the maxilla of the male, the lower lobe destitute of any tooth; 1 *d*, the mentum, deeply channeled parallel to the tip (as in the typical *Goliathi*), concealing the base of the labial palpi; 1 *e*, the mesosternum seen laterally, and 1 *f* seen from beneath; 1 *g*, the head of the female, and 1 *h*, the fore tibiae of the same sex. The female has the four posterior tibiae also more strongly spurred, beyond the middle, than the males, and the mesosternum broader and somewhat more triangular.

The female of *Goliath ochreata*, G. and P., has the sides of the head straight, the front part forming a short triangle with the point in front; the inner lobe of the maxillæ is much broader than in *Pl. reflexa* ♂, but without any tooth; the mentum is very similar in shape and structure to that of *Tmesorrhina concolor* (pl. 19, fig. 3 *c*), being, however rather broader, and the mesosternum is considerably more porrected than in *Pl. reflexa*. It is in the collection of the Rev. F. W. Hope.

* ANISORRHINA, *Westw.*

Tibiae anticae ♂ inermes, ♀ extus 3-dentatae. Tibiae 4 posticæ ♂ simplices, ♀ latiores pone medium calcaratae. Maxillæ lobo interno spina acuta terminato, lobo externo nonnullis bifido. Mesosternum porrectum conicum. Tarsi antici ♂ crassiores quam in ♀. Clypeus formæ variabilis sc. in *A. bimaculata* De G. caput maris antice conico-elevatum et occipite spina plana obtusa armato; feminæ vero simplex inerme et antice emarginatum: in *A. umbonata* Kl. caput utriusque sexus inerme et antice fere rectum est.

GENUS SCHIZORHINA, Kirby.

Schizorhina Guerinii, Westw. (Plate 32, fig. 2.) Nigra, prothoracis lateribus elytrisque piceo-rufis, his valde variolosis, elypteo valde inciso, antennis pedibusque castaneis, tarsis longissimis, mesosterno haud produeto. ♂ Long. corp. lin. 10. Inhabits Madagascar. In Mus. D. Guérin Meneville, Parisiis.

This interesting species will not enter into either of the five groups of the genus proposed by Mr. MacLeay (*see* p. 103 *ante*). The head is black, with the deeply cleft clypeus and antennæ castaneous, it is clothed on the disc with fulvous hairs. The pronotum has the sides nearly straight, the hind part being much broader than the anterior, which has an elevated tubercle in the middle. The disc is very irregularly punctured, with a slightly raised line of punctures down the middle. The disc is black, with the sides of a pitchy red, tinged with purple. The elytra are broader at the base than the hind part of the pronotum; they are very flat on the disc, the extreme lateral margins being, in fact, slightly elevated, and they become gradually narrowed from the base, the apex of the suture not being spined. They are very strongly variolose on the disc, the punctures being largest and most irregular before the middle. They are of the same colour as the sides of the pronotum. The legs are castaneous and very long. The anterior tibiae in the male, (I have not seen the female,) are externally bidentate, the middle tibiae spurred beyond the middle, and the hind tibiae, with the apical portion on the inside, dilated. The mesosternum (fig. 2 *a*) is not advanced; the maxillæ have the inner lobe quite simple (fig. 2 *b*); and the mentum (fig. 2 *c*) is broadest and emarginate in front. The abdomen of the male is channeled down the middle beneath.

Schizorhina plumigera. (Plate 32, fig. 4.)

SYN. *Cetonia plumigera*, Gory and Perch. op. cit. No. 10.

This is another anomalous species, which, from the form of the clypeus, must be referred to *Schizorhina*, from all the previously known types of which, however, it differs, both in form and in the singular clothing of hairs on the inside of the hind tarsi. The body is deflexed at each end, the clypeus deeply bifid, the mesosternum porrected and acute, the pronotum with two, and the elytra with four, longitudinal carinae. The head is of a black colour, pitchy in front, the antennæ pitchy black, the pronotum clothed with very fine greenish-grey pile, with the sides and the two costæ shining black: the elytra are also similarly coloured with the costæ and sides black, the latter with the spots and apex white; there are also two white spots on the podex above. The body is black beneath with white transverse lines (interrupted in the

middle) on the thorax and abdomen, the legs and the hairs of the hind tarsi are black, the tips of the hind femora and hind tibiæ are pitchy red and curved. The anterior tibiæ are simple in the males. Specimens are in the Museum of the Jardin des Plantes, and of M. Dupont of Paris.

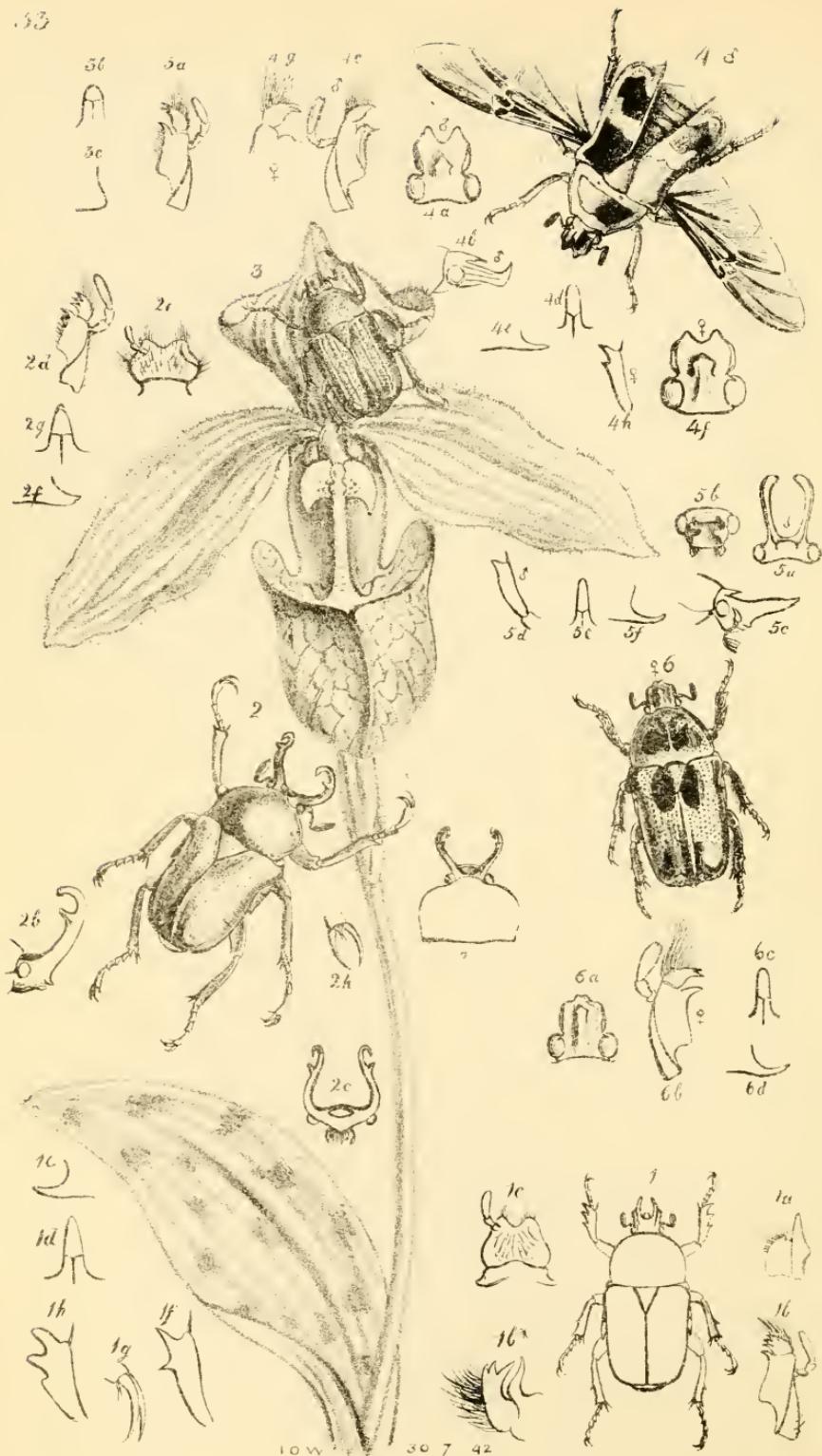
GENUS CHROMOPTILIA. *Westw.*

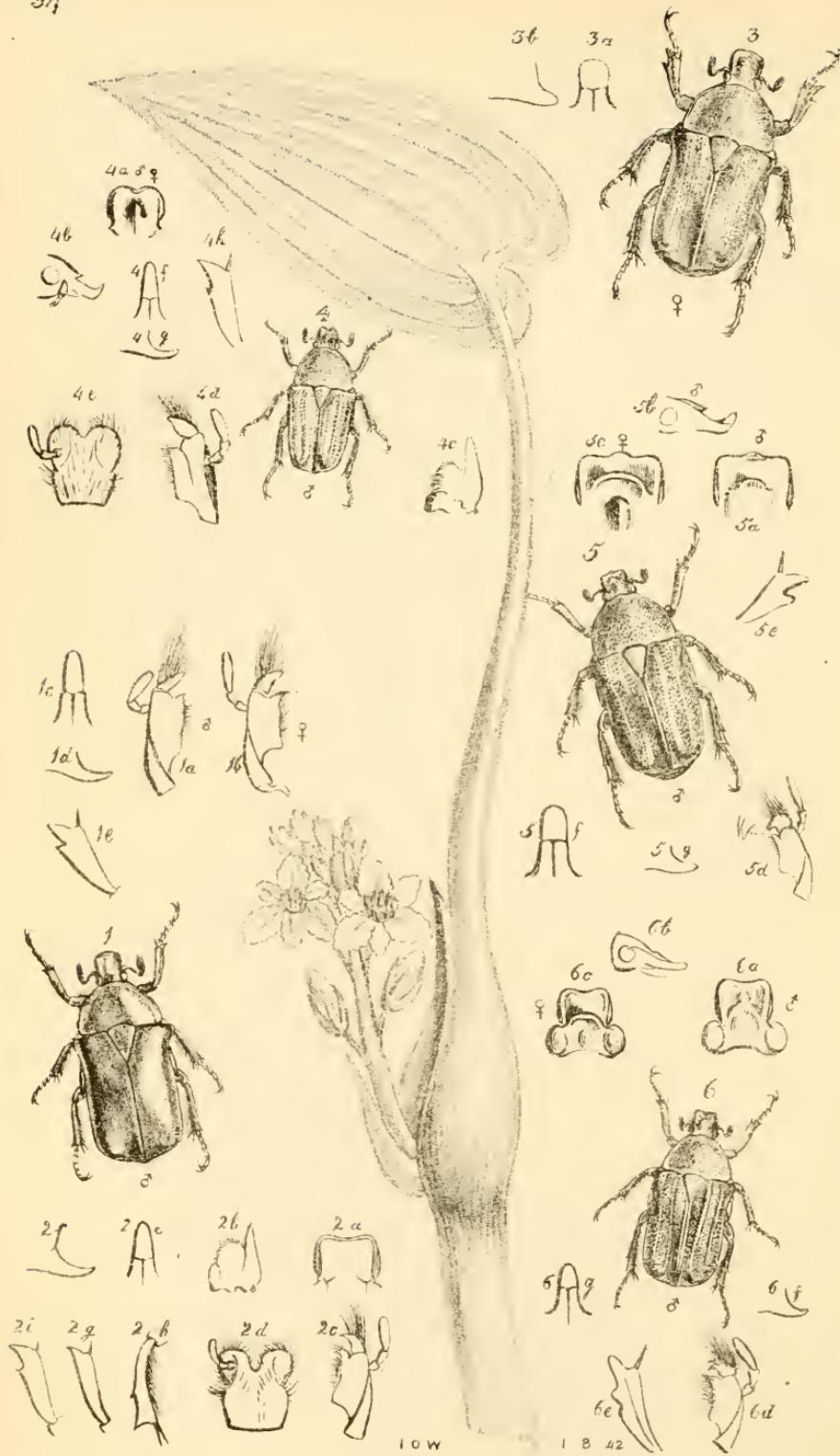
I have no hesitation in regarding the insect represented in figure 3, as the type of a group distinct from Schizorhina. The form of the prothorax is altogether unlike that of any of the known Cetoniidae; and it will be remembered that the form of this portion of the body is one of the most important characters in the group. The species has, indeed, been regarded by more than one entomologist to whom I have shown it, as one of the Trichiides; but the sinuated sides of the elytra, as well as the structure of the mouth, assert its claim to be considered as a Cetoniideous insect; indeed the structure of the clypeus, porrected maxillary lobes, and hairy hind feet, point out its relation to Schizorhina, and especially to such species as *S. plumigera*. Figure 3 *a* represents the mandible, 3 *b* the maxilla of both sexes destitute of any tooth on the inner lobe, and with the upper lobe entire, horny, acute, and very setose; and 3 *c* the mentum, oval in form and deeply notched in front. The head is alike in both sexes, and not cornuted. The clava of the antennæ of the male is slightly more elongated than in the female. The mesosternum is short, gibbose, and not at all produced (figs. 3 *d*, 3 *e*), the elytra are broadest at the base, each with a strongly elevated costa running down the centre nearly to the tip. The legs are long, the fore legs of the male being rather longer than those of the female. The anterior tibiæ are 3-dentate in both sexes, those of the female (fig. 3 *g*) being rather broader than those of the male (fig. 3 *f*); this is the only distinguishing external character which I can find, as the abdomen of the male is not longitudinally channeled: the hind tibiæ are slightly spurred beyond the middle in both sexes. The hind tarsi, in both sexes, are long, and clothed on each side with bundles of very long hair, those on the outside of the last two joints of the tarsi being bright fulvous, whilst all the others are black.

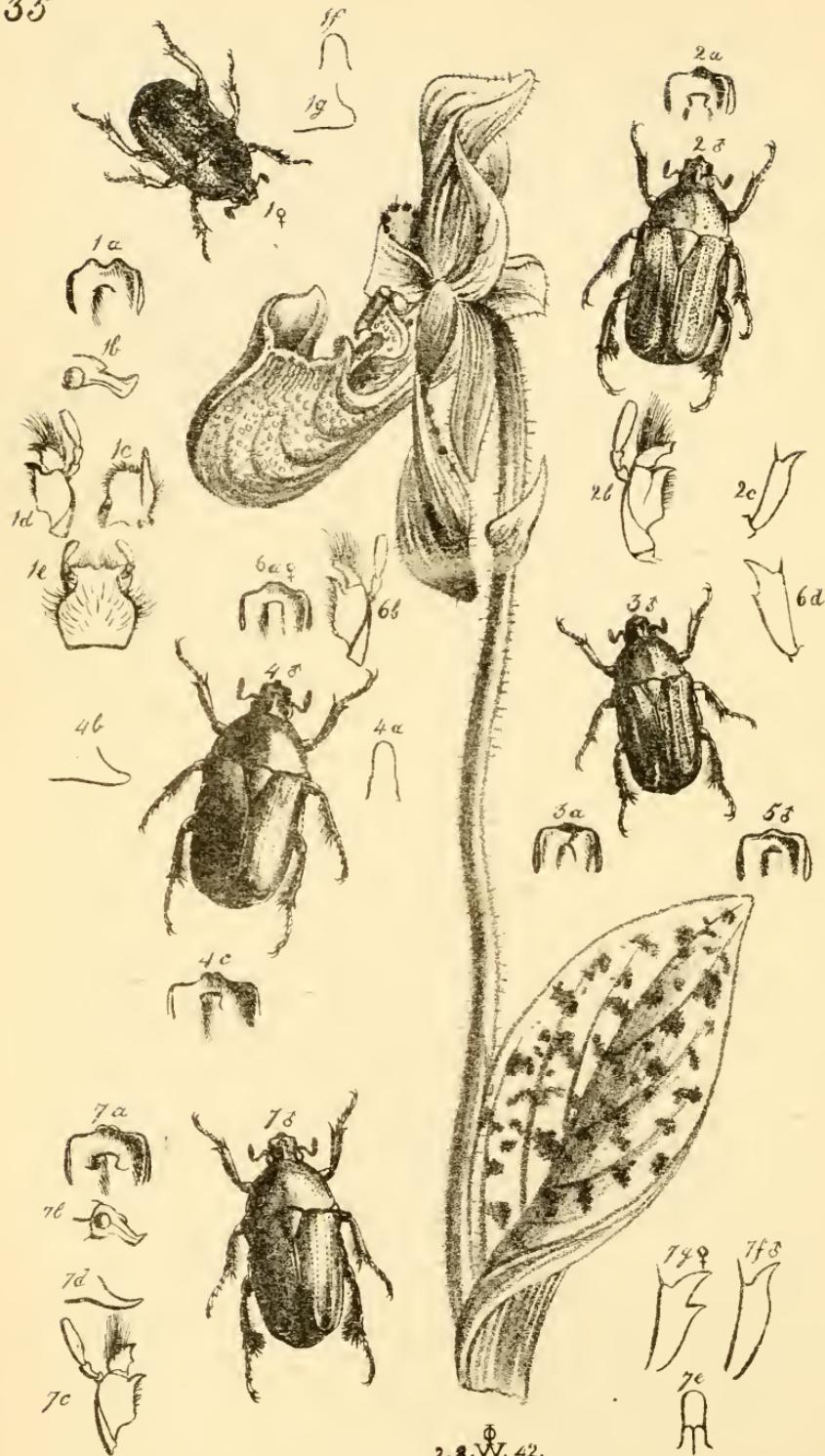
SPECIES UNICA.—*Chromoptilia diversipes*, Westw. Nigra, nitida, punctata, valde luteo-pilosa, antennis tarsisque 4 anticis piceis, vitta transversa tenui media interrupta, punctis que nonnullis elytrorum maculisque duabus pygidii albidis, tarsis posticis nigro et fulvo pilosis; corpore infra nigro, griseo valde piloso. Long. corp. lin. 6½.

Inhabits Madagascar. Mus. Westwood, &c.

The plant figured in the plate is the charming *Euphorbia splendens* of Madagascar, drawn from a specimen communicated from the Botanic Garden Kew.









PLATES XXXIII, XXXIV, XXXV, AND XXXVI.

ON THE GOLIATHIDEOUS CETONIIDÆ OF ASIA.

PART II.

THE first and second figures of plate 33, representing the female of *Narycius opalus* and the male of *N. (C.) smaragdulus*, with their details, have already been described in the former paper on the Asiatic Goliath beetles (pp. 114, 115), as has also *Rhomborhina clypeata*, described in page 119, where it was accidentally referred to plate 33, fig. 3, instead of plate 34, fig. 3. I now proceed, therefore, with the illustrations of the remaining species, all of which (with the exception of those composing the group named *Diceros*) enter into the genus *Gnathocera* of Gory and Perchéron.

A genus thus named was first described by the Rev. Dr. Kirby in the 14th volume of the Linnæan Transactions (p. 571), the description, especially of the maxillæ and genæ, is however applicable to a very different group of African Cetoniidae, typified by *Cetonia elata*, *Fabr.* Considerable confusion has, indeed, subsequently arisen in the employment of this generic name, which has been attributed to indolence, or even to a still worse principle*. The confusion, however, appears to me to have originated from a misapprehension of the note appended by Mr. Kirby to his generic description. After stating that the type of the genus was the *Cetonia vitticollis*, *Latr. MS.*, he adds, "Regio, Africa. Cognate species, *Cetonia africana, elegans*," &c.; which would naturally lead to the opinion that the last-named species were regarded as congeneric with the type. That such, however, was not his view, is evident, not only from the *Indian C. elegans* being given as one of these cognate species, but also from the appendix to the Introduction to Entomology †; wherein the *C. vitticollis* is given under *Gnathocera*,

* In this, as in numerous other respects, Mr. Mac Leay charges Messrs. Gory and Perchéron with blindly following Dejean, whereas the first part of their monograph (which contained an entire synopsis of the genera and species) appeared in 1833, in which year only was commenced the 2nd Edition of Dejean's Catalogue. It is rather amusing to compare such a charge with the observation of Count Mannerheim upon the same authors (*Observ. critiq. sur la Monog. des Cétoïdes*), "Il s'obstinent encore plus dans *leur principe de ne pas adopter les noms de Dejean*." We are involuntarily reminded by these conflicting charges of the fable of the Old Man, his Son, and his Ass.

† The evident meaning of the word *Gnathocera*, as employed by Kirby, is an allusion to

and *C. africana* under a new genus *Chlorocala*, without any description. Messrs. Gory and Perchéron, however, injudiciously adopting a principle far too general, and which has led to almost irremediable confusion in entomological nomenclature—(namely, that they were at liberty to select any given species as the one to which the old generic name might be attached when the genus became dismembered), retained the *C. africana* as the type of *Gnathocera*, and gave the insects which are the true types of *Gnathocera* under a new generic name, *Amphistoros*.

Mr. MacLeay, in the Illustrations of the Zoology of South Africa, restored the name of *Gnathocera* to the latter of these two groups, whilst for the former he took up the name *Coruphes*, originally proposed for it by Gory and Perchéron, but which he has altered to *Coryphe*. Under this name it constitutes Mr. MacLeay's second subgenus of *Cetoninus*, intervening between the two other subgenera, *Schizorhina* and *Goliathus*. Of *Schizorhina* I have not hitherto treated, except by giving Mr. MacLeay's divisions of it, and describing some new species (*ante*, p. 103), but his divisions of *Goliathus* will be found *ante*, p. 6. Mr. MacLeay observes upon *Coryphe*, that it is extremely close to *Goliathus*, from which it may be known “by the maxillæ having the terminal process shorter, and in a line with the base, and by the mentum being more truncated; but, above all, by the horny part of their mandibles being much longer than the square membranous part. The males scarcely ever have any teeth on the external side of the anterior tibiae, and when they possess such teeth, it is merely because they belong to aberrant species.”—*Illustr. Cet. So. Afr.* p. 29.

The following are Mr. MacLeay's Sections of *Coryphe* :—

B. Mentum emarginate, ♀ with anterior tibiae externally bidentate, rarely tridentate.	<table border="0"> <tr> <td rowspan="2">1. Nariciæ (of McL. but not of Dupont).</td><td rowspan="2">Maxilla having the inner process unidentate. Thorax not semicircular. ♂ Clypeus sometimes horned or bifurcate. India. Type, <i>Cetonia</i> <i>Mac Leaii</i>, K.</td></tr> </table>	1. Nariciæ (of McL. but not of Dupont).	Maxilla having the inner process unidentate. Thorax not semicircular. ♂ Clypeus sometimes horned or bifurcate. India. Type, <i>Cetonia</i> <i>Mac Leaii</i> , K.
1. Nariciæ (of McL. but not of Dupont).	Maxilla having the inner process unidentate. Thorax not semicircular. ♂ Clypeus sometimes horned or bifurcate. India. Type, <i>Cetonia</i> <i>Mac Leaii</i> , K.		
		Asiatic Insects.	<table border="0"> <tr> <td>2. Diceros, G. P.</td><td>Maxilla having the inner process unidentate. Thorax semicircular. ♂ Clypeus bifurcate. Indian Islands. Type, <i>C. bicornis</i>, Latr.</td></tr> </table>
2. Diceros, G. P.	Maxilla having the inner process unidentate. Thorax semicircular. ♂ Clypeus bifurcate. Indian Islands. Type, <i>C. bicornis</i> , Latr.		
	<table border="0"> <tr> <td>3. (Trigonophorus Hope, misnamed Rhomborhina by Mac Leay).</td><td>Maxilla having no tooth on the inner process. Thorax not semicircular. ♂ with elyptens generally horned. Asia. Type, <i>C. Hardwickii</i>.</td></tr> </table>	3. (Trigonophorus Hope, misnamed Rhomborhina by Mac Leay).	Maxilla having no tooth on the inner process. Thorax not semicircular. ♂ with elyptens generally horned. Asia. Type, <i>C. Hardwickii</i> .
3. (Trigonophorus Hope, misnamed Rhomborhina by Mac Leay).	Maxilla having no tooth on the inner process. Thorax not semicircular. ♂ with elyptens generally horned. Asia. Type, <i>C. Hardwickii</i> .		

the jaw-like horns of the head ; and hence, in the “Introduction to Entomology,” vol. iii. p. 488, he observed, “These horns have at first the aspect of a pair of open mandibles.” This is in no wise applicable to *C. africana*, &c.

A. Mentum not emarginate.	4. Schuppelliae, Mc L.	Maxilla with no tooth on the inner process. ♀ Tibiae externally tridentate. Southern Africa. Type, <i>C. suturalis</i> , Fab. *
<i>African Insects.</i>	5. Chlorocalæ, K.	Maxilla with its inner process unidentate. ♀ Anterior tibiae without teeth. Tropical Africa. Type, <i>C. Iris</i> , Fab. †.

As the first of these sections comprises the majority of the species illustrated in the plates of the present Number, it will be further necessary to add the subsections into which it is distributed by Mr. MacLeay.

1. <i>Cetonia elegans</i> , Fabr. Colour green. ♂ Clypeus with no horn.
2. <i>Cetonia Mac Leaii</i> , K. Colour green with black spots. ♂ Clypeus with a short vertical horn.
3. <i>Cetonia pretiosa</i> , Esch. Colour green with black spots. ♂ Clypeus with two lateral horns.
4. <i>Cetonia guttata</i> , Oliv. Colour green and red, with white spots. ♂ Clypeus with two lateral horns.
5. <i>Naryceius olivaceus</i> , Dup. Colour green. ♂ Clypeus with two lateral horns.

On reviewing these arrangements of Mr. Mac Leay, and after studying the numerous dissections which I have given in my illustrations of these insects, it is impossible to arrive at any other conclusion than that Mr. Mac Leay's distinctions between *Coryphe* and *Goliathus* are of no intrinsic value, and that the distribution of the sections of *Coryphe*, and of the subsections of the first of its sections [Nariciæ Mc L.] require complete remodelling.

The attempt to separate the African from the Asiatic species of *Coryphe* must also be considered as unsuccessful. A comparison of the Indian *C. elegans* with the African *C. africana* and *C. stigma*; and of the Indian insect which has been termed *Diceros Cuvera*, with the African *C. suturalis*, will at once prove the unity of the group. The character relied upon by Mr. Mac Leay is, moreover, an erroneous one, since *C. Iris*, *Fab.* (see *ante*, pl. 19, fig. 2, and p. 107), possesses a mentum more deeply emarginate than any of the Asiatic species.

Again, with respect to the sub-sections of Mr. Mac Leay's first Asiatic section of *Coryphe*, it is to be observed, that *C. Mac Leaii*, *K.* and *C. pretiosa*, are identical; that *C. guttata* is an African insect, belonging to another section, and that *N. olivaceus* is the female of *N. opalus*, assigned, properly, by Mr. Mac Leay to another situation much nearer to the genuine *Goliathi*.

* This insect has the anterior ♀ tibiae bidentate.

† This insect has the anterior ♀ tibiae tridentate.

The species to which our attention is now directed are the most aberrant of the Goliathideous Cetoniidæ. They have lost the characters of the prothorax broadest across the middle, and the pluridentate and porrected upper maxillary lobe of *Goliathus*, *Narycius*, *Cyphonocephalus*, *Mycteristes*, and *Phædimus*; and the dilated prothorax and elongated fore legs with 3-dentate tibiæ of the males of *Dieronocephalus*. With this last, however, they agree in possessing a simple upper maxillary lobe.

The remaining groups of the Asiatic Goliathideous Cetoniidæ may be thus arranged.

Mesosterni processus brevis latus.

Tibiæ antice ♂ intus serratæ, extus ♂ ♀ bidentatae	JUMNOS *.
Tibiæ antice ♂ extus incumes	RHOMEORHINA.
<i>Mesosterni processus elongatus angustus</i>	
Pedes antici ♂ elongati	
Clypeus in utroque sexu cornu obtriangulari armatus	TRIGONOPHORUS.
Clypeus in utroque sexu quadratus	ANOMALOCERA.
Pedes antici ♂ vix aut non longiores quam in ♀. Clypeus diversus	HETERORHINA.
Tibiæ antice ♂ simplices	<i>C. nigritarsis</i> , <i>Mac Leaii</i> , <i>læta</i> , &c.
Tibiæ antice ♂ sub-bidentatae	
a latiores	<i>C. elegans</i> , &c. †
b angustiores	
* Clypeus integer ♂ ♀	<i>C. bimacula</i> , &c. ‡
** Clypeus ♂ bicornutus	<i>Diceros bicornis</i> , &c. *

As the toothing of the anterior tibiæ affords one of the most satisfactory characters for the discrimination of the group of Goliathideous Cetoniidæ, and as the different sections founded thereon, especially amongst the African species, have received generic names referring to the structure of the clypeus, I propose in this place to distinguish those species with bidentate tibiæ in the females, and with tibiæ either simple, or exhibiting a slight indication of bidentation in the males, and which, moreover, have generally an elongated mesosternal process, and the fore feet not materially unequal in size in the two sexes, under the name of

HETERORHINA, §

A name selected from the very variable structure and armature of the clypeus. If, indeed, this character were allowed to prevail

* There is no African group precisely analogous to this, in the form of the clypeus; *Eudicella*, however, represents it in respect to the internal serration of the fore tibiae of the males.

† Represented in Africa by *C. africana*, *stigma*, &c.

‡ Represented in Africa by *C. suturalis*.

§ As this group is quite different in its construction from those of *Gnathocera* of Gory and *Perchéron*, or *Coryphe* of Mac Leay, I have applied a new name to it. Mr. Kirby's excellent name of *Chlorocala* would have been adopted had not the group been intended to comprise species which are neither green nor beautiful.

for the establishment of generic and sub-generic groups, nearly every species would form a different group. And yet there is no other character which will separate *Diceros* (or *Dicheros*, as Gory and Perchéron write the word) from the other *Heterorrhinae*.

In addition to the Asiatic species of this group subsequently noticed, the group comprises the African species *C. Africana*, *Drury*, *C. stigma*, *Pal. Beauv.*, and *C. suturalis**, as well as *C. smaragdina* and *chloris* of Gory and Perchéron's Monograph; which last two species appear to be also African insects, judging, at least, from the specimens in Mr. Hope's collection, ticketed by M. Gory himself.

A rigid investigation of the species of this group, has shown the relative value of the different characters employed in their classification. The form of the head varies almost in every species; the maxillæ are sometimes terminated by a simple and sometimes a bifid lobe, this difference sometimes occurring in the same individual; and when simple, it varies very considerably in form in the different species. The form of the mesosternal process is variable, but generally very much elongated and acute; in *H. Hopei* and *Bengalensis* it is, however, short and obtuse. There is considerable difference in the amount of emargination of the anterior margin of the mentum; the club of the antennæ is also slightly variable in size in the opposite sexes of some of the species. There is also considerable difference in the spur at the middle of the four posterior tibiae; indeed, in some species it is quite obsolete. The apex of the elytra is sometimes rounded, and sometimes produced into two acute spines at the suture, and the unguiculi differ very much in size. The form of the body and the colouring of the species also differ materially. All these variations will, however, be more particularly noticed under each species.

SPECIES I.—*Heterorrhina nigritarsis*. (Plate 30, fig. 7, 7 a and b, and 8 a, b, c, d.)
Cetonia n. Hope, Syn. Col. Nep. in Gray's Zool. Misc. 1. 24. *Gnathocera n.* Gory and Perchéron, pl. 20, fig. 3.

This species has all the legs as well as the clava of the antennæ considerably elongated in the male, which is the only sex I have seen, so that I am uncertain whether a corresponding elongation exists in the opposite sex. The clypeus (fig. 8 d) is produced in front into a conical, somewhat recurved plate truncated in the front. The crown of the head is slightly keeled down the centre. The fore feet are quite simple, as are also the middle tibiæ, but the hind ones are slightly spurred below the middle. The abdomen in this sex is not channeled beneath. The mesosternal process is (fig. 7 a and 7 b) rather long, pointed, and nearly straight. The mandibles (fig. 8 a) are rather small, with the horny blade rather longer than the square membranous part; the maxille (fig. 8 b) are considerably elongated, the inner lobe produced into a straight obtuse point, and the upper lobe large, and extending far beyond the front of

* I have not examined *C. Feisthamel*, *viridi-cyanæa*, and *monocrotos*.

the mentum (fig. 8 e), which is deeply emarginate. The femora are peculiarly coloured, being of a fine golden, fulvous, or opaline colour, with the inner edge of each shining green or blue.

The colour of the species varies very considerably, the upper surface varying from golden-green to blue, slightly tinged with green, with the elytra rich lilac-purple, with a dark suture. Such individuals (one of which is figured in plate 30, fig. 7, from the collection of F. Parry, Esq.), I believe, constitute the so-called species *Cetonia mutabilis*, Hope (Syn., Nep. Col. supr. cit.), but they are structurally identical with the type of the species, except that the conical front of the clypeus is not so regularly truncate.

Inhabits Nepaul and other parts of India.

SPECIES II.—*Heterorhina Hopei* (Plate 33, fig. 3, and details).

Gnathocera Hopei, Gory and Perchéron, Mon. Cét. pl. 20, f. 4.

This species has very much of the habit of the preceding, but differs from it in several important characters:—thus, the clypeus is entire and quadrate, with the lateral and front margin slightly elevated, and the crown of the head scarcely elevated in the middle. The antennæ have a club of moderate length. The fore tibiae are simple, whence I conclude the specimens examined to be males, although the abdomen is not channeled beneath. The maxillæ (fig. 3 a) are rather short, with the inner lobe terminated by an acute, curved, horny point, and the upper lobe also curved and terminated by two sharp horny points; the mentum is rather deeply notched in the middle of the front margin. The mesosternal process is very short and obtuse (fig. 3 b, 3 c). The hind tibiae are distinctly spurred below the middle, and the plantulae and pseudonychia are very distinct.

The species varies very much in colour; some specimens in the collection of Nepalese insects presented to the Linnaean Society by General Hardwicke, being of a blue or purple tinge. The one now figured, from the collection of W. W. Saunders, Esq., is of an intense fiery copper, tinged according to the play of light with golden green.

SPECIES III.—*Heterorhina dives*, Westw. (Plate 33, fig. 5 a, b, e, d, e, f.)

Gnathocera Mae Leayi, Gory and Perchéron, Mon. Cét. pl. 19, fig. 2 (nec. *Cet. Mac Leaii*, Kirby).

Coryphe pretiosa, Mac Leay Cet. So. Afr. p. 29 (nec *Cetonia pretiosa* Esch.).

The only specimen I have seen of this magnificent insect was in the museum of the Jardin des Plantes, where I found it arranged with the true *Cet. Mac Leaii*, with which it has also been confounded by Gory and Perchéron, whilst Mr. Mac Leay (from confiding in their Monographie) has mistaken it for the *C. pretiosa* of Eschscholtz. As it is from this specimen that my figures were drawn, I did not venture to extract the trophi. The head of the male has the sides produced into two long protracted, nearly straight horns, the tips being incurved (fig. 5 a, head from above, 5 b, the same from the front, 5 e, the same sideways); the front of the clypeus is deflexed and broad (5 b); the crown of the head is furnished with a very broad, short plate; the mesosternal process is long, narrowed, rather obtuse at the tip, which is slightly bent upwards (fig. 5 e and 5 f); the fore tibiae (5 d) are short and toothless, the hind ones have the rudiment of a spur below the middle; the pseudonychia are scarcely distinct, and the elytra have the tips strongly spined at the suture. As this species is well figured in the Monographie des Cétoines, I have not thought it necessary to refigure it.

SPECIES IV.—*Heterorhina Mac Leaii* (plate 33, fig. 4, and details).

Cetonia Mae Leaii, Kirby in Trans. Linn. Soc., vol. 12, p. 408, pl. 21, fig. 11 (nec. Gory and Perch.).

Cetoninus (Coryphe Naricia § 2) Mae Leaii, Mac Leay, Cet. So. Afr.

Cetonia pretiosa, Esch. Entom. p. 23, No. 9, 1822 (nec. *Coryphe pretiosa*, Mac Leay).

It is at once evident, from Eschscholtz's character “capite spina incumbenti, clypeo reflexo bidentato,” given of his *C. pretiosa*, that it is identical with Mr. Kirby's insect. This lovely species has been recently brought from the Philippine Islands, by Mr. Cuming, in considerable numbers; as it is not, however, figured in Gory and Perchéron's Monograph, I have introduced it in the present work, and proceed to point out the characters of the sexes. The male has the clypeus more strongly bifid in front than the female, and the flattened horn on the crown of the head in the former sex is much more acute than in the female, which has it obtusely rounded, or but slightly pointed (4 a, 4 b, head of male, 4 f, head of female.) The mandibles

have the horny blade more than one-third longer than the square membranous part; the maxilla of the male has the inner lobe pointed at the tip (fig. 4 c), and the upper lobe horny, entire, and not very acutely pointed at the tip; but in the female (4 g) the upper lobe is acutely bifid at the tip; the mentum is deeply cleft in the centre of the anterior margin. The mesosternal process is rather long, flat, and not very acute at the tip (fig. 4 d and 4 e); the abdomen of the male is deeply channeled down the middle beneath; the elytra of the males are terminated by two strong spines at the suture. The fore tibiae in the males are simple, but bidentate in the female (fig. 4 h); the intermediate tibiae are also simple in the male, but slightly spurred beyond the middle in the female, whilst the hind tibiae are spurred in that situation in both sexes. The pseudonychia are scarcely distinct. Some specimens have two small black spots on the pronotum in lieu of the large one, and the black spot near the base of the elytra almost divided in two by a longitudinal patch of green.

SPECIES V.—*Heterorhina decora* (Plate 33, fig. 6).

Cetonia decora, Illiger. Vers. Oliv. Ent. 2, p. 148; Schon. Syn. I, 3, pag. 133.

Cetonia 6-maculata, Fabricius Syst. El. 2, p. 149; Gory and Perchéron Mon. Cét. pl. 19, fig. 3.

Cetonia maculata, Gory and Perchéron op. cit. in text.

This is another species closely allied to the preceding in the disposition of its colours, but which differs from both materially in the structure of the clypeus. In both sexes the anterior angles of the head are rounded off, the middle being produced into a cone truncated, or rather, slightly emarginate at the tip (fig. 6 a). The crown of the head has a short flat horn, which is truncated in the male, but rather conical at the tip in the females. The maxilla in the female (fig. 6 b) has the lower lobe terminated by a curved spine, whilst the upper lobe is curved and acutely bifid at the tip; the mesosternal process is long, narrow, obtuse, and rather bent upwards at the tip (fig. 6 c and 6 d); the elytra are spined at the tips, especially in the males. The fore tibiae of the males are entire, but bidentate in the females; the lower tooth minute. The hind tibiae are slightly spurred below the middle. The tarsi in the female are short and broad. The spottings vary very considerably in size, being sometimes very small, as in a specimen in the collection of the Rev. F. W. Hope, in which those on the pronotum and near the suture are almost obsolete; and sometimes almost as large as in *H. Mac Leaii*, as in the magnificent specimen represented in the plate, collected in Java by Dr. Horsfield, and contained in the Museum of the East India House.

SPECIES VI.—*Heterorhina amana* (Plate 34, fig. 4, and details).

Coryphe amana, Hope in Trans. Ent. Soc., Vol. 3, p. 64.

This small Assamese species has the sides of the head rounded in both sexes; the middle of the front margin of the clypeus being rather deeply notched (fig. 4 a 4 b), the upper surface of the head is strongly carinated, the carina terminating in a conical point in both sexes; the mandibles have the horny blade long (fig. 4 c), the maxillæ of both sexes (fig. 4 d) have both the lobes rather oblong at the tip. The mentum is cordate-truncate, with the anterior margin deeply notched (fig. 4 e); the fore tibiae of the male are simple, but slightly bidentate in the female (fig. 4 h), the mesosternal process is elongate, narrowed, not very acute at the tip, which is rather bent upwards (fig. 4 f 4 g), the hind tibiae are not spurred beyond the middle. The male has the abdomen channeled down the middle beneath.

SPECIES VII.—*Heterorhina punctotissima*, Westw. (Plate 34, fig. 5, and details).

Coryphe jucunda, Hope in Trans. Ent. Soc., vol. 3, p. 64, nec. Germar in Allg. Liter. Zeit., Aug. 1837.

This new species is about the size of *H. decora*, it is of a remarkably rich dark-green colour and very much punctured. The middle of the anterior margin of the clypeus is slightly produced and reflexed in both sexes (fig. 5 a b ♂, fig. 5 c ♀). In the male the crown of the head is bounded in front by a broad curved horn, rising but very little above the surface of the head (5 a), in the female, however, (5 c), this is much more developed, and the crown is moreover strongly keeled between the eyes, the keel terminating in a conical point. The maxillæ have the lower lobe terminating in a point (5 d ♂), which is rather stronger in the female than in the male, and the upper lobe is acutely bifid, the lower tooth being the largest; the mentum is elongated, rather narrowed towards the base, and with the front margin deeply notched in the middle; the mesosternal process is moderately long and rounded at the tip, which is scarcely turned upwards (fig. 5 f 5 g). The fore tibiae of the males are entire but

deeply bidentate in the ♀ (fig. 5 e); the four hind tibiæ are toothed below the middle. The abdomen is not channeled beneath in the middle in the males. The pseudonychiae are long.

I have seen specimens of this species in the collections of Messrs. Hope, Solly (from Assam), Parry (from Sylhet), the Entomological Society of London (received from Mr. Mc Clelland), and the East India House.

SPECIES VIII.—*Heterorhina tibialis*, Westw., n. sp. (Pl. 34, fig. 6 and details.)

H. oblonga, viridis, rugosula, tibiis rufis; clypeo ♂ subsimplici, ♀ transverse carinato.

Long. corp. lin. 10½. Inhabits East Indies, Assam? Mus. Soc. Merc. Ind. Or. et nostr.

This new species is most nearly related to the preceding, but it is considerably smaller, narrower, and more regularly oblong. The green colour is of a much darker tint on the upper surface of the body, which is very much punctured, the punctures, however, being not so well defined as in the preceding, whence the elytra have a more rugulose appearance, except down each side of the suture and along two striæ (bordered by deeper punctures), down the disc of each elytra. The under side of the body is more shining green, with a coppery tinge, the thoracic portion being deeply punctured. The exposed part of the metacoxæ and the two posterior tibiæ are red, the tarsi black, and the femora concolorous with the body. The head of the male (fig. 6 a, 6 b) is nearly square along the front margin, which is slightly reflexed, and there is a slightly defined, curved line, running between the base of the antennæ, its middle touching a scarcely more raised, central, small tubercle—the head of the female, on the other hand, has the middle of the front margin elevated into a small, upright, conical lobe (not visible looking downward); the ridge above-mentioned is greatly elevated, and there is also a slightly raised tubercle behind. The maxillæ have the lower lobe terminated by an obtuse point, scarcely stronger in the female than in the male; but the upper lobe is strongly and acutely bifid in both sexes (fig. 6 d). The mentum is strongly notched in the middle of the front margin. The fore tibiæ of the male are simple, but in the female they are broad and obtusely bidentate (fig. 6 e); the two hind tibiæ in the male and the middle and hind ones in the female are spurred below the middle. The mesosternal process is prorected, rounded, and slightly bent upwards at the tip (fig. 6 f and 6 g). The abdomen of the male is not channeled beneath, and the club of the antennæ is of equal length in both sexes.

SPECIES IX.—*Heterorhina glaberrima*, Westw. n. sp. (Plate 34, fig. I, and details.)

H. nigra nitidissima, thorace et elytris impunctatis, castaneo, glauco, vel viridi-tincta, clypeo integro subquadrato in utroque sexu simplice, metasterno canaliculato. Long. corp. lin. 11½.

Habitat in India Orientali. In Mus. Soc. Merc. Ind. Or. et D. Parry.

This very distinct species possesses many of the characters both of Rhomborrhina and Anomalocera, but differs in habit materially from both, having also a much more elongated mesosternal process than the former, and the clava of the antennæ of the males much shorter than in the latter. The general form is more regularly oblong than in the majority of the species; the head is entire, with the front part subquadrate, being rather narrower at the base of the antennæ in the female than in the male; the lateral and front margins are reflexed, the latter being slightly curved instead of straight; the disc of the head is nearly flat and punctured. The club of the antennæ in the male is evidently longer than in the female; the lower lobe of the maxillæ of the male (fig. 1 a) is not so acutely hooked at the tip as in the female (fig. 1 b); the mentum is deeply notched in front; the fore tibiæ in the males are simple, but strongly bidentate in the females (fig. 1 e); the mesosternal process is elongated, not acutely pointed at the tip, which is bent upwards (fig. 1 c 1 d); the elytra are somewhat acuminate at the tips. The metasternum in the males is deeply channelled longitudinally, and there is an impression in the middle of the basal joint of the abdomen; the metasternal impression is less strong in the female than in the male, and the basal joint of the abdomen is not impressed. The four hind tibiæ in the males are simple, but slightly spurred beyond the middle in the female. The pronotum and elytra are exceedingly glossy and impunctate, except the front of the former and the extremity of the latter. The colour is dark, but variable from a rich chestnut colour to green or bluish purple, having in some shades a strong tinge of rich red brown, which it is impossible correctly to represent by colours. The pedex is rugose, and clothed with fulvous hairs. The underside of the body and legs also varies in colour according to the upper side.

This species serves well to show the gradual approximation of forms in a complete series of the species of a natural group; it is only because we find other species in the present genus with an entire quadrate clypeus, such as *H. leta*, Hopei, &c., that I have retained this

species in the genus now under description. In its peculiar habit it most approaches Rhomborrhina apicalis, but in that species the clava of the antennae is of precisely equal length in both sexes, whereas in *Rh. cyanipes* it is rather larger in the male than in the female.

SPECIES X.—*Heterorhina lœta* (Plate 34, fig. 2 *a*—*i*).

Cetonia lœta, Fabr. Syst. El. 2, p. 150.

Cetonia pyropus, Herbst. Col. 3, p. 258, pl. 32, f. 6. Voet. Col. ed. Panz. I, pl. 4, f. 27.

This beautiful species has the clypeus entire in both sexes, and slightly reflexed (fig. 2 *a*). The mandibles have the horny part acute, and about one third longer than the square portion (fig. 2 *b*). The maxillæ have both lobes curved and acute (fig. 2 *c*); they are alike in both sexes. The mentum has a deep but rather narrow notch in the middle of the front margin (fig. 2 *d*). The club of the antennæ of the males is not longer than that of the females; the abdomen of the males is not channeled beneath. The mesosternal process (fig. 2 *e* *f*) is elongate-conic, and rather obtuse at the tip, which is bent upwards toward the body; the fore tibiae in the males (fig. 2 *g*) are entire, but broad and bidentate in the females (fig. 2 *i*); the four hind tibiae are furnished below the middle with very slight rudiments of a spur; the two posterior in the males are curved towards the base (fig. 2 *h*). The female has the elytra broader behind than the male. The species is not only a native of Java, but Mr. Parry has received it from Sylhet, and there is a female specimen in the Museum of the Jardin des Plantes labelled *Gnathocera australis*, received from M. Gory as a native of New Holland, which I cannot distinguish specifically from the true types of the species.

SPECIES XI.—*Heterorhina Bengalensis* (Plate 35, fig. 1, and details).

Cetonia bengalensis, Hope, Syn. Nep. Col., in Zool. Misc. p. 24.

Gnathocera melanaria, Gory and Perchéron, Mon. Cét. pl. 22, fig. 5 (variety).

Gnathocera pyroscelis, Hope MSS. (variety).

All the specimens of this species which I have seen are females, and differ in no structural respect from each other, the varieties consisting in the more or less pitchy red or black elytra, and the colour of the tibiae, some having them all black, others with the four, and some with only the two hind ones fulvous red. The front of the clypeus is conical and notched in the middle, with a strong dorsal carina terminating in an obtuse point (fig. 1*a* and 1*b*); the mandibles have the horny blade rather broad in the middle, and at least one third longer than the square portion (fig. 1*c*); the maxilla have the lower lobe curved and strongly hooked, and the upper lobe is strongly curved and acutely bifid (fig. 1*d*); the mentum has the front margin nearly straight, a very minute notch only being visible in the middle of the fore margin (fig. 1*e*); the mesosternal process is very short and obtuse (fig. 1*f* and 1*g*); and the anterior tibiae broad and strongly bidentate; and the four hind ones spurred below the middle.

SPECIES XII.—*Heterorhina jucunda*.

Gnathocera jucunda, Germar in Allg. Lit. Zeit. Aug. 1837 (nec. *Cor. jucunda*, Hope in Trans. Ent. Soc. 3, p. 64).

Gnathocera smaragdina, Gory and Perchéron, Mon. Cét., pl. 20, fig. 1, nec *smaragdina*, Voet and Herbst, which = *H. africana*.

Messrs. Gory and Perchéron give China as the locality of this species. It has, however, much more the habit of an African insect, judging from the male specimen in Mr. Hope's collection. The head is nearly quadrate in front, the anterior margin of the clypeus being only slightly produced into an elevated lobe; the back of the head is strongly carinated, the carina terminating in an elevated semicircular lobe; the maxillæ have the inner lobe acute, curved, and horny, and the upper lobe obtusely and obliquely truncate, and not so long as the lower tooth; the mentum has a small, but distinct, notch in the middle of the front margin; the mesosternal process is elongate-conic, and bent upwards at the tip; the abdomen is not channeled beneath; the anterior tibiae are narrow and nearly simple, the apex on the outside being slightly oblique-truncate, so as to give the appearance of an indication of bidentation; the four posterior tibiae are simple; the tarsi are rather elongate and narrow, with the pseudonychiae obsolete. I should conceive from these characters that this specimen is a male, and that it, as well as *H. chloris*, Hope (Gory and Perch., pl. 20, fig. 5), to which it is closely related, are African insects.

SPECIES XIII.—*Heterorhina elegans* (Pl. 35, fig. 2, 3, 4, 5, and 6, with the details).

Cetonia elegans, Fabricius, Olivier (nec Gory and Percheron, pl. 20, fig. 2, from Oware, = C. stigma Pal. B.)

Cetonia cuprea, Herbst, col. iii., tab. 29, fig. 5.

Gnathocera micans, Guérin. Rév. Zool., 1840, p. 80 (variety).

Coryphe cyanoptera, Hope MSS. (variety).

This is a very variable and brilliant insect, the variations consisting not only in difference of size, colours, and markings, but also in punctation, and even in form and structure, no two specimens being exactly alike; some being very much smaller and narrower than others of the same size; thus some males are very narrow, and others short and broad. The front of the head is more or less produced in the middle of the clypeus, the produced part being reflexed and generally slightly bifid; the crown of the head is carinated, the carina terminating in both sexes in a transverse tubercle; this, however, is sometimes almost, and even entirely, obsolete. The maxillæ have the inner lobe more or less acutely toothed, and the upper lobe, as in the last species, obliquely truncate at the tip; the mentum is deeply emarginate in front; the mesosternal process is moderately elongated and obtuse (fig. 4a, 4b); the abdomen of the male is deeply channelled down the middle beneath; the anterior tibiae of the males are slightly sub-bidentate, the apex being very acute, and the females broad and acutely bidentate. The four hind tibiae differ in the size of the central spurs, which are sometimes obsolete; the hind pair also differs in the size and colour of the brush of hairs at its extremity on the inside. The pseudonychia are very minute. Individuals differ also very much in the punctation of the elytra, the punctures being sometimes nearly as strong as in the males of *H. leta*, and sometimes almost obsolete. Almost every shade of green is exhibited by different specimens, and others are of a rich golden, and some of an intense purple-blue. The colour of the exposed part of the posterior coxae varies from black and green to fulvous red; the tibiae also vary from cyanous to green and castaneous. The black spots at the shoulders and tips of the elytra are also variable.

My figure 2 represents the *Gnathocera micans* of Guérin, which I cannot but consider as a male variety of this species, differing in having the front projection of the clypeus entire at the tip (fig. 2a); the tubercle at the extremity of the carina is dilated at the tip; body rather narrow; the elytra without any humeral or apical black patches; the exposed part of the metacoxæ concolorous; the fascicle of hairs on the hind tibiae dark brown; and the punctures of the elytra distinct. Fig. 2b represents the maxilla, and 2c the fore tibiae of this individual. I am indebted to M. Guérin McNeville for sending me his typical specimen of this insect from Paris. It is from the Neilgherries.

My figure 3 represents the smallest and narrowest male which I have seen, contained in the collection of F. Parry, Esq. The front of the clypeus has the projection so slightly bifid as to appear at first sight entire. The carina is very slight, and terminates in an impression without any raised tubercle (fig. 3a); the elytra are very strongly punctured, and without any black humeral or apical spots; the exposed part of the metacoxæ red. The femora have a fulvous tint, and the tibiae are castaneous, with a green tinge; the hairs on the hind tibiae are fulvous, the hind feet having the brush scarcely distinct.

My figure 4 represents another variety of the male, of very broad form, having the upper surface of an intense cyanous purple, and the exposed part of the metacoxæ red; the legs are black, and the hairs on the hind tibiae dark brown. Fig. 4a and 4b represent the mesosternal process, and 4c the front of the head of this specimen, which is in the collection of the Rev. F. W. Hope.

My fig. 5 represents the front of the head of another specimen, in the collection of F. Parry, Esq., of a similar broad form to figure 4, but without any horn at the extremity of the carina, which is terminated by a transverse depression. This specimen is a male, of a rich green colour, with small humeral and apical black spots, and the metacoxæ concolorous. Figure 6a represents the front of the head of an ordinary female, 6b the maxilla of the same, and 6d the anterior tibiae.

A small female of this species, collected by Colonel Hearsey in Central India, of a rich golden colour tinged with green, with the exposed part of the metacoxæ black, has the disc of the elytra much more arched than ordinary, with a slightly elevated ridge extending from the inside of the apical black patch half up the elytra, parallel with the suture.

The original specimens, described by Fabricius, are preserved in the Banksian Collection at the Linnaean Society; one is green, the other golden green, both having the exposed part of the metacoxæ red, without any humeral black spot, and the apical ones dark green instead of black; both are males, with brown tufts of hair at the extremity of the posterior tibiae.

As Mr. Mac Leay describes the clypeus of *Cetonia elegans*, Fab., as having no horn in the male, it is probable that he mistook the species.

SPECIES XIV.—*Heterorhina olivacea* (plate 35, fig. 7, and details).

Gnathocera olivacea, Guérin, in Rév. Zool. 1840, p. 80.

Gnathocera Surrya, Hope MS.

This species scarcely differs from the preceding in its structural details. All the specimens, however, which I have seen, agree in their deep olivaceous colour, and in the thick tuft of hairs at the tip of the hind tibiae. The elytra are also more attenuated behind than in any individuals of *H. elegans* which I have seen. The exposed part of the metacoxæ is of a dark red-brown colour. The head is alike in both sexes (fig. 7 a, 7 b); the maxillæ have the lower lobe horny, curved, and acute, in both sexes (fig. 7 c); and the upper lobe is broad, short, and obliquely truncate, so as almost to appear bidentate. This form occurs both in males and females; but I have found the upper lobe much narrower and entire in some specimens. The abdomen of the male has only the two basal segments longitudinally channeled beneath; the mesosternal process is long and curved upwards at the tip.

SPECIES XV.—*Heterorhina bimacula*, Wied. Zool. Mag. Band. 2, st. 1, p. 85.

Coryphe Wiedemannii, Mac Leay, Cet. So. Afr. p. 30.

This species comes very close to the following, with which it is regarded as identical by Messrs. Gory and Perchéron; but, as Wiedemann expressly says of the yellow marking on each elytron, that it "ein wenig vor der Mitte steht;" and that it "am vorder-und hinter-rande ein wenig zackig ist;" and, moreover, describes the pygidium as being "ein wenig röthlich," I consider his description as inapplicable to the following. He gives Bengal as the habitat of his insect, which he says is 7 to $7\frac{3}{4}$ lines long.

SPECIES XVI.—*Heterorhina confusa*, Westw., (plate 36, fig. 2, and details.)

Gnathocera bimaculata, Gory and Perchéron, Mon. Cét., pl. 22, fig. 3 (excl. Syn. Wied.)

Gory and Perchéron give Java as the habitat of this insect, figured by them from the collection of Dejean. The only specimens I have seen were collected in Central India by Colonel Hearsey. The front of the head (fig. 2 a) is subquadrate and entire in both sexes, with an elevated margin; along its middle runs a slightly elevated space, dilated in front; both the maxillæ have the upper lobe bifid in the male; but in the female one of them is entire and rather obtusely pointed, whilst the other is obliquely truncate (fig. 2 b, 2 c); the mesosternal process is prorected and bent towards the body; the anterior tibiae of the males (fig. 2 e) are sub-bidentate at the tip, but more acutely so and broader in the female (fig. 2 f); the yellow patch on each elytron occupies the middle, terminating at about one third of the length of the elytron from the extremity; the terminal segment of the body, both above and beneath, is bright fulvous red. The abdomen of the male is channeled longitudinally on the under side.

SPECIES XVII.—*Heterorhina Cuvera* (Plate 36, fig. 1 and details).

Dicheros Cuvera, Hope, MSS., Newman, Ent. Mag. 5, 384.

This species varies from 6 to 8 lines long; it is closely allied to the preceding species, but differs in its narrower form as well as in the much greater extent of the spots on the elytra. The front of the head (fig. 1 a) is similar in its construction to that of *H. confusa*. The maxillæ (fig. 1 b) have the lower lobe curved and acute in both sexes. In a male dissected I found the upper lobe of one maxilla acute and entire, whilst in the other maxilla it was bifid (fig. 1 c), whilst in the female both maxilla have the upper lobe bifid. The mentum (fig. 1 d) is oblong, with the front margin emarginate; the mesosternal process is elongate, rather obtuse at the tip, which is bent upwards (fig. 1 e); the abdomen of the male is deeply channeled beneath; the male has the fore tibia sub-bidentate at the tip (fig. 1 g), whilst in the female they are broader and more acutely and distinctly bidentate (fig. 1 h). The hind tibiae are simple in both sexes. I have seen many specimens in which the yellow patch is discoloured, and has assumed a dark brownish red colour. It is from Bombay.

SPECIES XVIII.—*Heterorhina Childreuii* (Plate 36, fig. 3 and details). *H. nigra nitida*,

clypeo tuberculo elevato instructo; pronoto rufo-plagiato; elytrisque macula magna flava; scutelloque rufo. Long. corp. lin. 7, lat. ad basin elytr. fere lin. 3.

The only specimen I have seen of this species is in the collection of the British Museum, where it has long stood undescribed, having the name attached to it which I have adopted

above. It is an interesting species, differing in the form of its clypeus from any of the other similarly coloured species. Its general habit is similar to that of *H. confusa*, except that it is much more attenuated behind. The front of the head is slightly produced and elevated in the middle, and the centre of the disc is elevated into a small tubercle, rounded in front (fig. 3 a 3 b), with various curved impressed striae. The fore tibiae are narrow and sub-bidentate (fig. 3 d), and the mesosternal process is porrected and bent upwards at the tip (fig. 3 c). It is shining black, with the sides of the pronotum red, dilated towards the hind angles into a large patch on each side; the scutellum is red, the podex dirty red; the exposed parts of the metacoxæ and the deflexed sides of the pronotum red; the terminal ventral segment and the sides of the preceding joint are also red; the large yellow patch on each elytron terminates about one third from their extremity. It inhabits Bengal, and was received by the British Museum with the remainder of the Hardwicke bequest.

SPECIES XIX.—*Heterorhina bicornis* (Plate 36, fig. 8 a—8 h, and details).

Cétoine à deux cornes, Latr. in Règne An. pl. 17, fig. 4 ♂; plate 18, fig. 5 ♀.
Dicheros plagiatus, Klug MSS.; Gory and Percheron Mon. Cét. pl. 58, fig. 3.

It will be seen on referring to Mr. MacLeay's distribution of the sections of his group *Coryphe*, that he adopted Gory and Percheron's *Dicheros* (which he correctly alleis to *Diceros*), as one of them; observing, however "that, except a slight difference in the form of the thorax and the colour, we find little to distinguish the group from the section *Naricæ*. The organs of the mouth are the same in both." Had Mr. MacLeay been acquainted with the insects figured in the upper part of my plate 36, there can be no doubt that he would have seen the impropriety of retaining *Diceros* in the station he has assigned it. It is true that we now know several species which agree in the peculiar armature of the head of the two sexes; but this character has I think, been satisfactorily shown to be but of trivial value. Compare on the other hand, for example, the two insects represented in figures 2 and 7 of this plate, and it will be evident that the general relations of the two species are far too close to allow them to be separated in consequence of the difference in the structure of the horns of the head—a character which, if employed, would necessitate the establishment of almost as many groups as there are species in the genus.

The male has the sides of the head in front of the eyes produced into two long porrected horns directed slightly upwards (fig. 8 a, 8 b), the space between them at the base being deeply excavated into a semicircular hollow, the crown of the head not being furnished with any horn, plate, or tubercle; the female, on the other hand, has the front of the head conical, reflexed, and terminated by two small teeth, the space between which and the crown of the head is deeply excavated, a short, flattened, conical horn overhanging the excavation (fig. 8 c, 8 d). The maxilla in both sexes are alike, having both the lobes acute, curved, pointed, and entire (fig. 8 e); the mentum is rather broad, with the front margin emarginate (fig. 8 f). The prothorax is broader in proportion than in the preceding species similarly coloured, and its sides are rather more rounded; we still, however, perceive the slight angle in the middle of each side; the elytra are more attenuated behind, especially in the female; the tips are slightly, but not pointedly, produced in either sex. The fore tibiae are narrow, and very slightly sub-bidentate at the tip in the males (fig. 8 g), but in the female they are rather broader, with the tip more distinctly bidentate (fig. 8 h). The mesosternal process is elongate and bent upwards at the tip. The abdomen of the male is deeply impressed down the middle on the underside; the four hind tibiae are simple. This species is a native of Timor.

SPECIES XX.—*Heterorhina ornata* (Plate 36, figs. 6 and 7, and details).

Dicheros ornatus, Burm. MSS.; Hope in Proceed. Ent. Soc., July 1841, p. 33.

The female of this species closely agrees with that of the preceding, but it is of a narrower form; the head is similar (fig. 7 a 7 b), the middle of the crown being furnished with a short, flattened, conical horn; it has, however, been described "capite medio excavato postice tridentato;" the latter character having originated by regarding the raised and slightly angulated lateral margins of the head, in front of the eyes, at the base of the antennæ, as horns. The yellow spots on the elytra commence nearer the base than the extremity of the scutellum, and terminate at one-third of their length from the tip. The terminal segment of the body, both above and beneath, as well as the preceding ventral joint, are of a dark-red colour; the maxilla are similar to those of the male of the preceding species. The fore tibiae are bidentate (fig. 7 c), and the four hind tibiae are simple. The mesosternal process (fig. 7 e, 7 d) is porrected, and bent upwards at the tip.

Mr. Hope's unique specimen is from Mysore in the East Indies.

I refer to this species, a male insect, brought by Mr. Cuming from the Philippine Islands,

in the collections of the British Museum and Mr. Waterhouse, represented in fig. 6 with its details. The horns of the front of the head in this insect are even longer than in *H. bicornis*, the extremities being compressed; the general colouring agrees with *H. ornata* ♀, as does also the size and shape of the yellow patches on the elytra; the femora, as in that species, are blood-red at the base, with the tips black, and the prothorax beneath is blood-red. It is represented of the natural size.

SPECIES XXI.—*Heterorhina biguttata*, Westw. (Plate 36, fig. 5, and details). *H. nigra, nitida, pronoto utrinque plaga sanguinea, elytrisque maculis duabus minoribus fere rotundatis mediis fulvis. ♀ Long. Corp. lin. 8 $\frac{2}{3}$*

Habitat in Insulis Philippinensis. D. Cuming. In Mus. Britann.

The only individual I have seen of this species is a female, in the collection of the British Museum, brought from the Philippine Islands by Mr. Cuming. It closely agrees in its general character with the female of *H. ornata*, but has the elytra more attenuated behind, and the conical front of the head is rounded off, and but slightly bifid. The horn on the crown of the head is broader in front; the sanguineous patches on the pronotum are wider apart, and the yellow spots on the elytra are of a dark fulvous-yellow, and occupy only a small portion of the middle of each side of the elytra, each having its margin towards the suture almost regularly rounded. The femora and terminal segment of the abdomen are coloured as in the preceding species, but the prosternum is not red at the sides.

SPECIES XXII.—*Heterorhina decora*.

Dicheros decorus, Gory and Perchéron Monogr. Cét. Plate 58, fig. 4.

Inhabits Java. The head is described by Messieurs Gory and Perchéron as "courte, concave, rebordée, bidentée antérieurement, carénée sur le vertex." I regret that owing to the indisposition of M. Gory, I was unable to examine this species in his cabinet, during my recent visit to Paris. I am unable, therefore, to speak with precision as to its specific distinction from the following species.

SPECIES.—XXIII.—*Heterorhina Petelii* (Plate 36, fig. 4, and details).

Gnathocera Petelii, Buquet in Ann. Soc. Ent. France, 1836, p. 206.

The head of the female of this species (now first delineated from the collection of M. Buquet) is similar in its structure to that of the female of *H. bicornis*, having a short flattened horn between the eyes, extending over the deep impression of the clypeus, which is slightly elevated and but slightly emarginate in front. This sex only is described by M. Buquet, nor does he appear to be aware that it is the female, and that from analogy the male must be similar in the form of the head to *C. bicornis*. It is broader in its outline than the other species I have examined. M. Buquet describes the *dessous du corps* as red. The underside of the body is, however, black, the three apical segments of the abdomen alone being blood-red, which is also the colour of the deflexed sides of the pronotum, scutellum, and pygidium. The mesosternal process is represented in figures 4 *a* and 4 *b*; the tip being bent upwards.

The plants represented in these plates are as follows:—

Plate 33. *Cypripedium purpuratum*, Lindl. Bot. Reg. pl. 1991. A native of the Malayan Archipelago.

Plate 34. *Pontederia vaginalis*, Roxburgh's Plants of Coromandel, 2, pl. 110.

Plate 35. *Cypripedium barbatum*, Lindl. Bot. Reg. 1842, pl. 17; brought from Mount Tophir, in the Straits of Malacca, by Mr. Cuming; and

Plate 36. *Dolichos lignosus*, Linn. An Indian legume, the seed-vessels of which are a common food throughout India, eaten as our French or kidney-beans are, to which, however, according to Rumphius, they are far inferior.

Note.—The *Guathocera dorsalis* of Gory and Perchéron is the only species of the group treated upon in the previous pages hitherto described as a native of New Holland. The tribe is however confined to the tropical portions of the Old World; for the insect in question belongs to Mr. Kirby's genus *Macroma*, and instead of being the *dorsalis* of Kirby, as quoted by the French monographers, it is his *Macroma scutellata*; the *M. concolor* of the Kirby Cabinet (now in the possession of the Entomological Society) being a dark variety of the same species. The true *dorsalis* of Kirby is a large species of *Schizorhina*.

THE SUMMER'S CALL.

THIS brilliant summer weather and a vacant page tempt me to introduce some pleasant lines, by that sweet poetess, the late lamented Mrs. Hemans.

COME away ! the sunny hours
 Woo us far to founts and bowers ;
 O'er the very waters now,
 In their play,
 Flowers are shedding beauty's glow :
 Come away !
 Where the lily's tender gleam
 Quivers on the glancing stream—
 Come away !

All the air is filled with sound
 Soft and sultry and profound ;
 Murmurs through the shadowy grass
 Lightly stray ;
 Faint winds whisper as they pass—
 Come away !
 Where the bee's deep music swells
 From the trembling foxglove bells,
 Come away !

In the deep heart of the rose
 Now the crimson love-hue glows ;
 Now the glow-worm's lamp by night
 Sheds a ray
 Dreamy, starry, greenly bright—
 Come away !
 Where the fairy cup-moss lies
 With the wild-wood strawberries,
 Come away !

ENTOMOLOGICAL INTELLIGENCE, &c.
(No. IX.)

MR. DOUBLEDAY'S NOTES ON THE HABITS OF THE NORTH AMERICAN SPECIES OF *PAPILIO* CONCLUDED.

Papilio Turnus is very widely spread, and seems to vary much from the effects of climate. The extreme northern ones (as Newfoundland specimens) are paler, (sometimes, Mr. Gosse tells me, with the ground nearly white,) and have the bands less clearly defined ; the black being a good deal *suffused* (especially in the ♀) over the yellow. The southern species generally expand from $\frac{1}{2}$ to 1 inch more than the northern ones, and have the colours brighter, the black being more velvety and better defined.

I found *Turnus* common at Trenton Falls, N. Y., in June, frequenting the lilacs in the gardens, and then easily captured ; indeed I have often taken them off the flowers with my fingers. When flying its appearance is beautiful, from its sailing along with its wings expanded. Then it is hard to take. In Ohio it is common, and not rare anywhere in the southern states ; being found alike in the low country near the sea and on the loftiest of the wooded Alleghanies (say 3000 to 4000 feet elevation). It frequents in the south, *Cnicus horridulus*, *Anona grandiflora*, *Cephalanthus occidentalis*, &c. In crossing the mountains of N. Carolina and Tennessee we saw in plenty in the wet patches of the roads, by the sides of the numerous water-courses, &c. for it loves to sit in the mud, and in Ohio, where the roads are none of the best, it was equally abundant.

P. Glaucus is very rare in general, and almost confined to the southern states. I never saw it but two or three times. It sometimes, in early spring, comes to the plane-tree blossoms, but is mostly seen soaring over the high underwood. Its flight is very rapid. R. Foster took it in Ohio. I have specimens taken in Delaware (its northern limit !), and it occurred occasionally in E. Florida.

P. Troilus in its habits resembles *Philenor*. I have often seen

them in company on the flowers of *Cep. occidentalis*, *Anona grandiflora*, &c., and on the muddy roads. Its flight is more powerful than that of *Philenor*. About equally diffused throughout the Union.

P. Thoas. This certainly is not the same as the Brazilian species. I have a specimen from Mexico exactly like the N. American ones. This is Cramer's *Cresphontes*. It is a rare and quite southern species. I took but three or four in Florida. It flies rapidly in the pathways of the woods, sailing with its wings expanded. It alights on the ends of projecting branches or on a projecting dead twig, sitting with its wings expanded, drooping, as we set lepidoptera in England, or rather more so than we commonly depress them; quite as much as the line above. I never saw it close its wings over its back. I saw it often in the streets of Savannah, Geo. It seemed common there. Abbot gives the larva on the orange. I found it on the Thorn-ash, or *Stink-ash* of the Florida people; *Zanthoxylon fraxineum* ("fragrant groves of *Zanthoxylon*,"—Bartram). Boisduval's figure of the larva is, I think, pretty correct.

I used to be much amused with the groups of butterflies in the wet places in the roads. I have seen *Turnus*, *Philenor*, and *Troilus*, *Col. Philodice*, *Tereas Lisa*, *Melitaea Tharos*, *Argynnis Cybele*, *Polyommatus Competitor*, *Danaus Archippus* (rarely so), and two or three *Hesperiæ*, all clustered together on a few yards of mud. I have seen too in Illinois, in the autumn, *Colias Philodice* and *Cæsonia*, *Terias Nicippe* (?) and *Lisa*, and *Callidryas Eubule*, in groups, literally of hundreds (the first named insect generally making $\frac{1}{2}$ of the company), on a space not 6 feet square. The *Philodices* sit with their wings over the back, *in rows*, quite close together, in fact sometimes touching each other, thirty or forty in a row. These things I hardly dare tell, for people won't believe them.

I have put a (?) to the *Nicippe*. I think there are two species confounded under this name, but am not sure which is the right one.

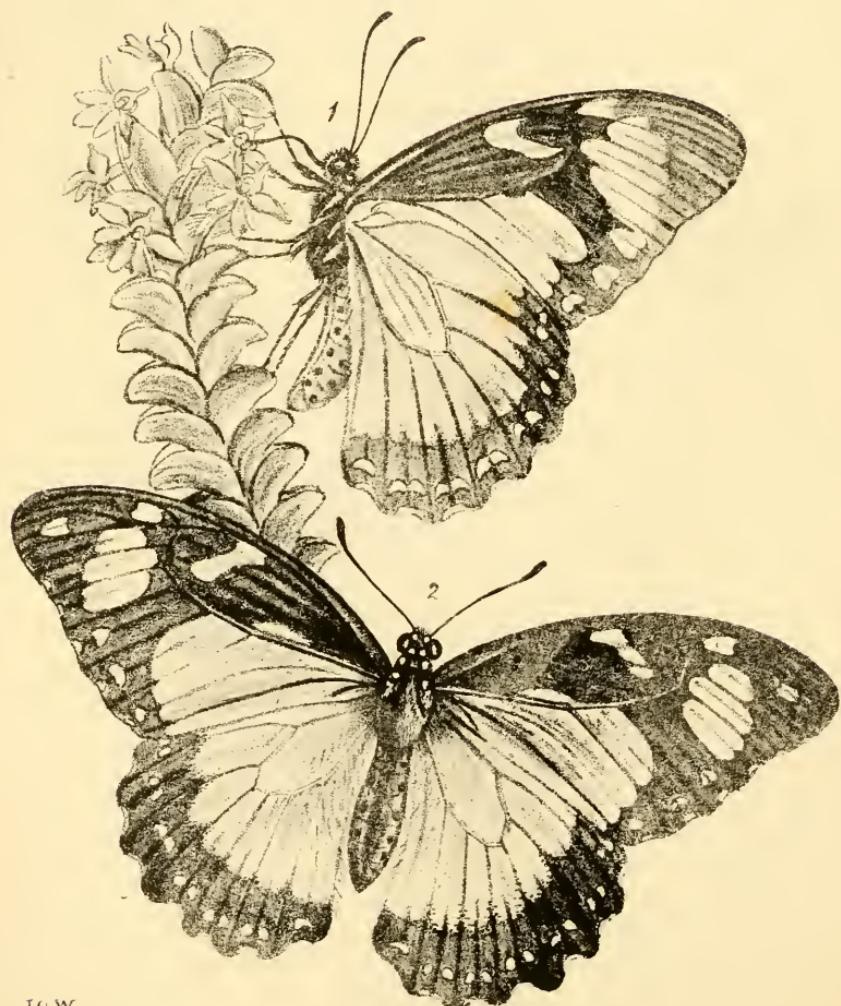
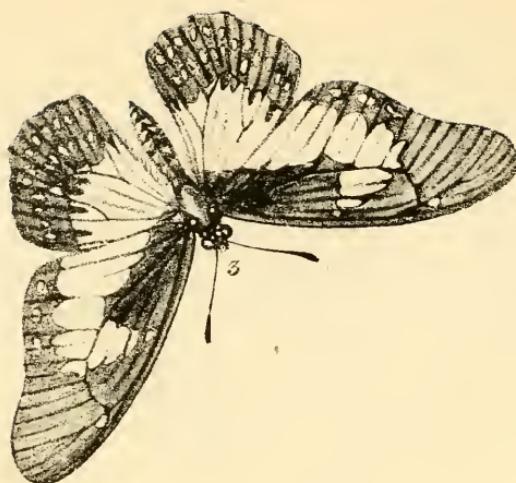


38.

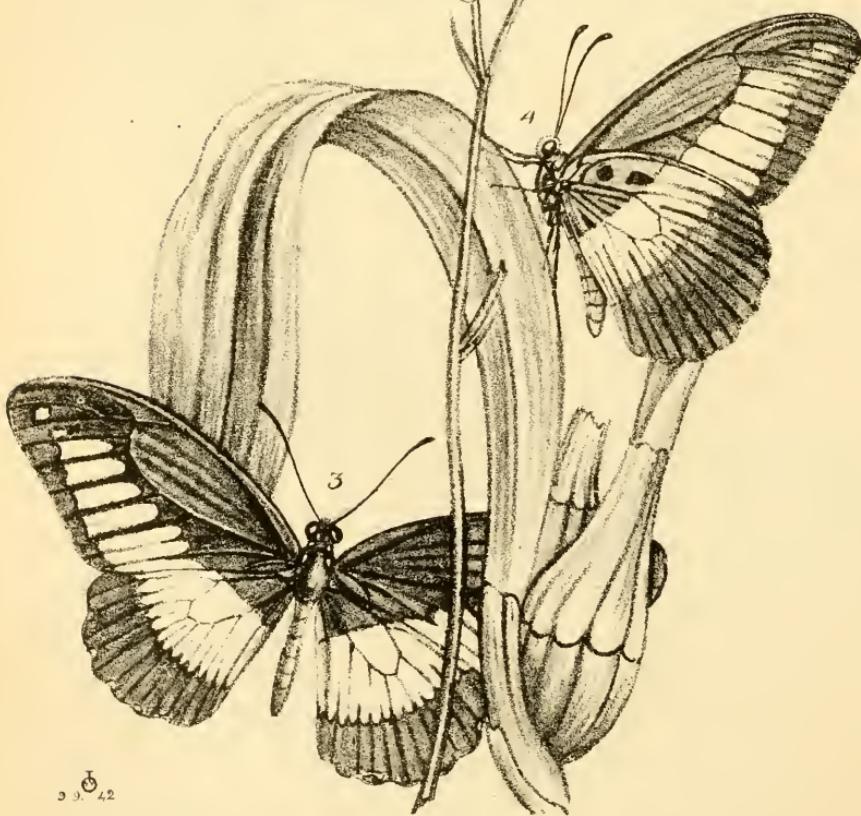
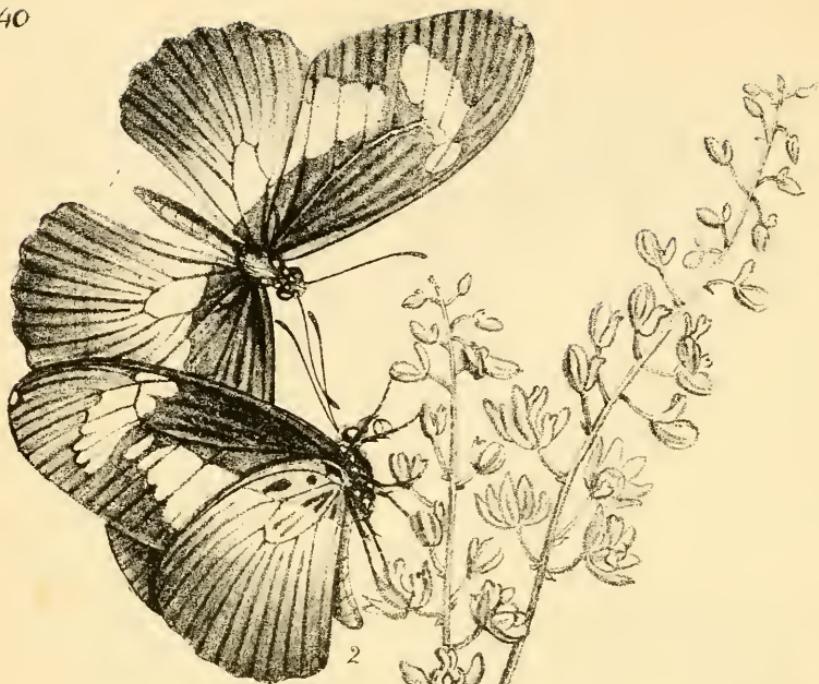


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39.







PLATES XXXVII, XXXVIII, XXXIX, AND XL.

ON THE AFRICAN SPECIES OF THE GENUS PAPILIO OF
MODERN AUTHORS.

HAVING observed great confusion in the nomenclature of many of the African species of the genus Papilio as restricted by modern authors, owing in a considerable degree to the rarity of the larger Lepidoptera from that continent, and the impossibility of determining some of the Fabrician species described from the drawings of Mr. Jones (which, as already stated, I have had an opportunity of examining), and having been also favoured by the Rev. F. W. Hope, M. Boisduval, and the respective curators of the entomological departments of the British Museum and Jardin des Plantes, with the means of describing and figuring several new and unfigured species, I have considered it would be serviceable to give a complete list of the African species of the genus, with a revision of their synonymy and other notes.

The present paper is intended, therefore, to comprise only such species as are inhabitants of the African continent; those which are peculiar to Madagascar and the other adjacent islands will form a subsequent paper. I have, for convenience, adopted the arrangement of M. Boisduval, given in the first volume of his *Spécies général des Lépidoptères*, although I do not consider the classification and groups given in that work by any means natural. Of this no greater proof can be given than is afforded by his first two species of the genus, *P. Antimachus* and *Antenor*, which are as unlike each other as can be conceived in general form, although introduced into the same group; whilst many of the species which exhibit far less striking dissimilarity are formed into separate sections: the great extent of the genus, however, (to which, in my opinion, the Ornithopteri ought to be united, since the chief character by which they have been separated by M. Boisduval—namely, the structure of the anal appendages—is, as shown by M. De Haan, too variable amongst the species restricted by him to the genus Papilio, to allow of its adoption as a generic character,) united with our ignorance of the preparatory states of so many of

the species, are in themselves obstacles sufficient to prevent our obtaining a satisfactory arrangement of the species at present.

SPECIES I.—PAPILIO ANTIMACHUS.

SYN.—*Pap. Antimachus*, Drury, Append. vol. iii. plate 1 (upper side). Jones, fig. pict. tab. 41, fig. 1—2. Donovan, Nat. Repos. vol. iii. pl. 100 and 101 (upper and under sides, copied from Jones's drawings).

M. Smeathmann, by whom this magnificent insect was collected at Sierra Leone, and sent to Drury, stated to him "that it is seen only in mid-day, when every exertion under the direct influence of a vertical sun must be painful to a European. Its flight is also remarkable for its velocity; and, to increase the difficulty of taking it, the insect frequents only the upper branches of the trees, from whence it darts and glances from one branch to another, and never descends nearer to the ground than the height of eight feet. It turns its head about instantly to the glade or path, and will not suffer any person to approach within striking distance of it, but will dart away on the least motion of the body. If the naturalist, however, exert his patience, it will at last become more familiar and careless, and is then to be caught upon some particular branch, to which it will appear more attached than to another."

From the length and narrowness of its wings, which measure nearly nine inches in expanse, (exceeding in this respect any other species in the genus), its flight must resemble that of the *Acerææ*.

It passed at the sale of Drury's collection into that of Mr. Mac-Leay, at the price of 4*l.* 4*s.*; nor have I ever heard or seen another example of this species.

SPECIES II.—PAPILIO ANTENOR.

SYN.—*Pap. Antenor*, Drury, App. vol. ii. pl. 3, fig. 1. Donovan, Ins. India, pl. 15 fig. 1.

Drury states that he was ignorant from what part of the world his specimen (which was given him by Mr. Lenian) came. Donovan, however, figured the species, or rather copied Drury's figure, in his work on the Insects of *India*, observing merely that it might be "mentioned with much propriety amongst the rarest of the Papilio tribe found in *India*," without giving any account of the source whence he obtained this information. The Rev. F. W. Hope possesses a specimen which he has informed me that he obtained in a small collection from tropical Africa (*Timbuctoo*), made by the late Mr. Ritchie.

At the sale of Drury's collection this butterfly was purchased by Mr. Latham, at the price of 2*l.* 12*s.* 6*d.*; it is also included in the

sale catalogue of Francillon's collection. The above are all the specimens yet known in collections.

SPECIES III.—PAPILIO BRUTUS.

SYN.—*Pap. Brutus*, Fabr. Ent. Syst. 3, I, p. 22.

Papilio Merope, Cramer, pl. 151, A. B., and pl. 378, f. D, E. Donovan, Nat. Repos. fig. 2, pl. 77.

Papilio sulfurea, Pal. Beauv. Ins. d'Afr. Lep. pl. 1.

The figures of Cramer in his plate 151, represent a specimen without a tail, most probably from an accidental mutilation rather than from a perfect individual, although tailless specimens are known to occur in some Eastern species which are ordinarily tailed. The figures of Palisot de Beauvois, above referred to, have been overlooked by former writers, and represent a variety in which the dark band of the hind wings is interrupted.

The species is widely distributed in Africa, ranging not only from the Coast of Guinea to Caffraria, but also occurring in Madagascar, whence M. Boisduval has received specimens varying from the ordinary type in having the spot at the tips of the fore wings smaller and rounded, with the tail black, except at the tip, which is white.

SPECIES IV.—PAPILIO DOREUS.

SYN.—*Pap. Doreus*, Fabr. Ent. Syst. 3, I, p. 68.

Pap. Phorcas, Cramer, pl. 2, fig. B, C.

A native of the Gold Coast and the Coast of Guinea : specimens are contained in my own and several of the other Metropolitan collections.

SPECIES V.—PAPILIO NIREUS.

SYN.—*Papilio Nireus*, Linn. Fab., Godart, Boisduval. Clerck, Icones, pl. 30, fig. sup.

Cramer, pl. 187, fig. A, B., and pl. 378, fig. F, G. Drury, vol. ii. pl. 4, fig. 1, 2. Swainson, Zool. Illustr. 1st Ser. pl. 124.

A native of the Coast of Guinea, Caffraria, as well as of Madagascar, according to M. Boisduval—(Linnaeus and other early writers having incorrectly given India as its locality). Cramer appears to have reversed the sexes of this species, figuring the male as the female, and *vice versa*. Mr. Smethmann informed Mr. Drury that this insect feeds upon the orange and lime trees, about which the butterfly is always seen flying.

SPECIES VI.—PAPILIO MENESTHEUS.

SYN.—*Pap. Menestheus*, Drury, App. vol. ii. pl. 9, fig. 1, 2. Cramer, pl. 142, fig. A, B.

A native of Sierra Leone, but by no means of common occurrence. Fabricius incorrectly gives India as its habitat.

SPECIES VII.—PAPILIO THERSANDER. (Pl. 38, fig. 1, 2.)

SYN.—*Pap. Thersander*, Eut. Syst. 3, 1 p. 32 (nec *Donov. Nat. Repos.* 3, t. 75).

Specimens of this species (omitted by Boisduval) are contained in the collections of the British Museum and the Bristol Institution. It is a native of Sierra Leone, and is closely allied to, but smaller than *P. Menestheus*. Fabricius derived his knowledge of it from Jones's drawings, vol. i. fig. 71; and it is from an inspection of these drawings that I have been enabled to determine the species beyond a doubt. This is the more necessary to be stated, because Donovan, in his Naturalist's Repository, vol. iii. pl. 75, figured the upper and under side of a totally different insect under the name of *P. Thersander*, and which he says were copied from Jones's figures. If not artificial, they however represent one of the Nymphalidae (*Charaxes* sp.), as is evident from the head and antennae. There are, however, no such figures in Jones's *Icones*; so that Donovan must have fallen into some strange error respecting the species. M. Boisduval also now possesses a specimen of the insect, and informed me, when in Paris, that notwithstanding Donovan's figures, he had supposed it was the true Fabrician *P. Thersander*.

SPECIES VIII.—PAPILIO DEMOLEUS.

SYN.—*Pap. Demoleus*, Linnaeus; Fabr.; Cramer, pl. 231, fig. A, B. (nec *Demoleus* Esper.)
Pal. Beauvois, Ins. d'Afr. pl. 2 b.
Papilio Demodocus, Esper.

Inhabits the Gold Coast, Coast of Guinea, Caffraria, the Cape of Good Hope, as well as Madagascar, according to M. Boisduval, who informs us that M. Dumolin has reared it at Senegal from the caterpillars which feed on the orange-tree.

SPECIES IX.—PAPILIO LATREILLIANUS.

SYN.—*Pap. Latreillianus*, Godart. Guérin, Icon. R. An. Ins. pl. 76, fig. 1. Griffith, An. Kingd. Ins. pl. 3, fig. 1, (copied from Guérin). Boisduval. (nec *Pap. Latreillii*, Donovan).

Inhabits Sierra Leone, but rare. Specimens are contained in the collections of the British and Bristol Museums.

SPECIES X.—PAPILIO TYNDERÆUS.

SYN.—*Pap. Tynderæus*, Fabr. Jones's Icon. vol. i. t. 57. Donovan, Nat. Repos. vol. iii. pl. 83. Godart, Enc. M. 9, No. 59.
Papilio Nausicous, God. Enc. Méth. 9, No. 58.

Donovan's figures of this rare species (which inhabits Sierra Leone) nearly agree with those of Jones's above referred to, except that those of the former author have the hind wings too short, and

the colours too high. It differs from the preceding species by having the hind wings dentated.

SPECIES XI.—PAPILIO LEONIDAS.

SYN.—*Pap. Leonidas*, Fabricius, &c.

Papilio similis, Cramer, pl. 9, fig. A, B.

Inhabits tropical Western Africa. In my own and several other London cabinets. This species has a striking analogy with some of the species of *Danais*.

SPECIES XII.—PAPILIO PYLADES.

SYN.—*Pap. Pylades*, Fabricius. Donovan, Nat. Repos. vol. i. pl. 13.

Inhabits tropical Western Africa. In the collections of Mr. Hope and the British Museum. Fabricius gives it as the type of his genus *Zelima* (Syst. Gloss. in Illig. Mag. vol. vi.), distinguishing it from *Papilio* by the “palpi short, biarticulate; second joint rounded at the apex; antennæ long, clavate.”—(See Children in Phil. Mag. Feb. 1830, and Horsfield, Lep. Jav.)

SPECIES XIII.—PAPILIO PODALIRIUS.

SYN.—*Papilio Podalirius*, Linn. &c.

Papilio Feisthamelii, Godart; Dup. Suppl. pl. 1, fig. 1 (variety).

M. Boisduval considers the *P. Feisthamelii* of Duponchel as a local variety of the ordinary *P. Podalirius* peculiar to the south of Europe and north of Africa, having the ground colour of the wings whiter coloured and the anal spot brighter.

SPECIES XIV.—PAPILIO AGAPENOR.

SYN.—*Pap. Agapenor*, Fabr.; Jones, Icones, I, tab. 51 (nec Boisduval).

Pap. Policenes, Cramer, pl. 37, fig. A, B. (e Surinamia at errore); Boisduval.

Pap. Polixenus, Godart, Enc. Méth. (ex Amer. Septentr. at errore).

Pap. Scipio, Pal. Beauv. Ins. d'Afr. Lep. pl. 2, fig. 1.

Fabricius (E. S. 3, part i. p. 26, No. 76) expressly describes this species as having a red stripe across the hind wings on the under side, and as a native of Africa, referring only to Jones's *Icones*, I, tab. 51. Specimens of this insect agreeing exactly with Jones's figures from Sierra Leone and Ashantee are in the collections of the British Museum and Mr. Hope. It is further distinguished by the four *straight* transverse pale bars across the discoidal cell of the fore wings.

Cramer, 1, p. 61, and pl. 37, fig. A, B, figures it under the name of *Policenes*, giving Surinam as its locality. Godart changed the name in the Encycl. Méth. 9, 52, to *Polixenus*, also giving

North America as its habitat; and Boisduval gives it under the name of *Policenes* (H. N. Lép. 1, p. 261), and as inhabiting Surinam and some of the Antilles. I can see no difference between the true African specimens and the figures and descriptions of the authors above referred to, and therefore think that they must have erred in the locality they assign to the species.

Palisot de Beauvois figures the true African *Agapenor* under the name of *Pap. Scipio* (Lép. pl. 2, fig. 1). *P. Agapenor* of Boisduval is distinct. Godart has given the true *Agapenor* (as well as *P. Polixenus*); but as his knowledge of it is stated to be derived from Fabricius alone, he evidently did not perceive the identity.

SPECIES XV.—PAPILIO ANTHEUS.

SYN.—*Pap. Antheus*, Fabr.; Cramer, pl. 234, fig. B, C.

Papilio Antharis, God. Enc. Méth.

Papilio Agapenor, Boisduval (nec Fabr.)

Fabricius (Ent. Syst. 3, 1, p. 36) expressly says of this, "Statura omnino *P. Agapenor* at ecaudatus," referring merely to "Cramer, Ins." [that is, to his pl. 234, B, C.] and to Jones's Icones, 1, pl. 56. These figures agree in all respects, except that the latter have no tails to the hind wings. The species is stated by all these authors to be from Amboyna. It, however, precisely agrees with specimens lately received from Sierra Leone and Ashantee by the British Museum and Mr. Hope, having long tails. Godart and Boisduval give the Fabrician and Cramerian insects as distinct, retaining the name of *Antheus* for the Fabrician species, which they only know from the writings of Fabricius; Godart giving Cramer's species under the name of *Antharis*, and as a native of North America; and Boisduval under the incorrect one of *Agapenor*, from which species it is at once distinguished by the want of a red stripe on the under side of the hind wings, and by the curved pale bars in the discoidal cell of the fore wings. I have no doubt that the early authors erred in their locality Amboyna, and that all these supposed species are identical and natives of Africa.

SPECIES XVI.—PAPILIO LALANDEI. (Plate 37, fig. 1, 2.)

SYN.—*Pap. Lalandei*, Godart, Enc. Méth.; Boisduval.

Godart, in the Encyclopédie Méthodique, refers to the Mémoires de la Société Linnéenne de Paris, vol. 2, pl. 1, Lep. fig. 1, 2, for figures of this butterfly; but M. Boisduval informs me that those figures were never published: I have therefore represented its

upper and under sides, in the accompanying figures, from drawings made by myself in Paris, in May last, from a specimen which M. Boisduval has received since the publication of his volume containing this genus. It is a native of Caffraria. There are several patches of dark hairs on the outside of the macular band of the fore wings towards the anal angle.

SPECIES XVII.—PAPILIO ZENOBLIA.

SYN.—*Pap. Zenobia*, Fabr. Donovan, Nat. Repos. pl. 179. Jones, fig. pict. 1, tab. 68.

A native of Sierra Leone, but very rare; specimens of it are contained in the collections of the British and Bristol Museums, and in the Banksian Cabinet, whence the species was described by Fabricius.

SPECIES XVIII.—PAPILIO MESSALINA.

SYN.—*Pap. Messalina*, Stoll (Suppl. Crauer), p. 125, pl. 26, fig. 2.

Pap. Cynorta, Boisduval, Sp. Gen. Ins. Lep. I, 370 (nec Fabricius).

The *Cynorta* of Fabricius, as proved by an inspection of Mr. Jones's *Icones*, is a distinct species from the *Messalina* of Stoll, with which Boisduval has confounded it. This is a rare species, inhabiting Sierra Leone (and Caffraria according to Stoll). It is contained in the collections of the British and Bristol Museums.

SPECIES XIX.—PAPILIO CYNORTA. (Plate 40, fig. 3, 4.)

SYN.—*Papilio Cynorta*, Fabr. Jones, Icon. pict. 1, tab. 87. (nec *P. Cynorta*, Bd. == *P. Messalina*.)

Papilio Zeryntius, Boisduval.

This species has been confounded with the preceding by Boisduval, by whom it is suggested that it may be only a local variety of that insect; an opinion in which I cannot concur. The black portion of the disc of the fore wings, as well as the dilated veins which separate the white bar, are clothed with black woolly hairs. Mr. Hope possesses a species received from M. Westermann, from Sierra Leone; and there is a specimen in the collection of the British Museum which was also confounded with the preceding species. Jones's figures give excellent representations of the upper and under sides of the species; but as no figures of it have yet been published, I have added it to my illustrations.

SPECIES XX.—PAPILIO BOISDUVALLIANUS. (Plate 40, fig. 1, 2.)

P. (n. sp.) alis supra nigris fascia lata, e margine anali ad medium anticarum dueta plaga obliqua submedia, albis; subtus albo similiter variis, basi posticarum fulvis nigro variiis, apiceque fuscis. Expans. alar. fere unc. 3½.

Habitat Sierram Leonam. In Mus. Westermann et Boisduval.

Although it is very desirable, when possible, that the specific

names in long genera should maintain a uniform character, yet I think the present is an instance in which the uniformity which has prevailed in the names of the species of the present genus, being selected from names celebrated in ancient story, may be broken. It has already been done in the name of a species dedicated to Latreille, and entomologists will, I trust, agree with me in the propriety of adopting the name of the most distinguished modern French lepidopterist as that of a species for the knowledge of which I am indebted to his liberality.

On the upper side it is of a dull blackish-brown colour, the body marked in front with several white dots, and the wings with a broad white fascia extending from the anal margin of the hind wings half-way across the fore wings; another oblique broad white bar extending across the fore wings beyond the middle, occupying the extremity of the discoidal cell. The tip of the wings is marked with a small white marginal dot; the white bar on the hind wings is gradually shaded off into the ground colour of the middle of the wing. On the under side the fore wings are dark brown; the apex, beyond the oblique bar, being luteous-coloured. The base of the hind wings fulvous clay-coloured, with black markings; and the apical half of these wings fulvous-brown, the white markings being as on the upper side. The abdomen is pale luteous at the apex; the thoracic portion of the body black with white spots.

Received by M. Boisduval from M. Westermann, and inhabits Sierra Leone.

SPECIES XXI.—PAPILIO HIPPOCOON.

SYN.—*Papilio Hippocoon*, Fabr. Ent. Syst. 3, 1, 38. Jones, Icones, fig. pict. 1, tab. 88.
Boisd. Sp. Ins. Lep. 1, 243.

Papilio Westermanni, Boisduval, op. cit. p. 372.
Papilio Niavius fem. Cram. 234, A.

Messrs. Godart and Boisduval have failed in their writings to recognise this as a Fabrician species, although Boisduval describes it, *ex visu*, from a specimen furnished by M. Westermann, adding the description of Hippocoon from the works of Fabricius alone. The upper and under sides are beautifully figured in Jones's Icones, which have enabled me to identify the species. Cramer gave it as the female of a species of Danais (D. Niavia), to which indeed it bears great resemblance. It is a native of Guinea and Sierra Leone.

SPECIES XXII.—PAPILIO TROPHONIUS. (Plate 39, fig. 1, 2.)

SYN.—*Papilio Trophonius*, Westw. in Ann. Nat. Hist.

Papilio Cenea, Stoll, pl. 29, fig. 1. (nec *P. Cenea*, Linn.)

This species, which has been overlooked by M. Boisduval, bears considerable resemblance to several of the preceding species, but differs from them all in the colour of the pale portion of the wings. In the specimen figured the wings of the upper side are dark brown, with a large fulvous red patch, occupying a large space along the inner margin of the fore wings, and the greater portion of the hind wings, with a rather narrow edge of brown with white spots arranged in pairs on the hind wings. The fore wings have also a clay-coloured oblique bar running nearly across the discoidal cell, with a large pale patch beyond its extremity, and several small submarginal pale spots. On the under side the arrangement of the colours of the wings is nearly similar, except that, as in all the allied species, the extremity of the fore wings is pale clay-coloured brown, and the veins, as well as the intermediate longitudinal striae, are darker brown. The body is brown, spotted in front with white; the abdomen buff, with a longitudinal dorsal stripe, brownish-black, and the sides with two rows of dark dots.

Stoll's figures agree with other specimens in the cabinet of the British Museum, and my own, in which the fore wings have an oval patch of pale clay colour behind the middle of the discoidal cell, and the clay-coloured portion of the hind wings does not extend beyond the middle of the wing. The pale spots on the fore wings are also much smaller than in the specimen figured by me, and the base of the hind wings is also brown on the upper side. It is possible that these latter may prove to be specifically distinct from the more richly-coloured specimen which I have figured, as I believe the allied species of *Papilio* do not exhibit such marked sexual differences. In such case the name of *Trophonius* should be retained for the species here figured; and Stoll's kind may be named *P. Ceneus*, although his statement that his insect is a "Nymphe aveugle à quatre pieds," and his error in giving to the species a name employed by Linnæus for a different species of *Papilio*, scarcely warrant the retention of his specific name. It is a native of Guinea and Caffraria.

SPECIES XXIII.—PAPILIO ADAMASTOR. (Plate 38, fig. 3.)

SYN.—*Pap. Adamastor*, Boisduval, Sp. Gen. Lep. I, 371.

Described by Boisduval, from a specimen sent to him by M. Westermann, who had received it from the coast of Guinea. Mr. Hope

has it from Ashantee, and there is a specimen in the collection of the British Museum. As the species has not hitherto been figured, I have represented its under surface (the upper side differing only in being uniformly black, with similar white markings) in order to show the difference between it and the next species.

SPECIES XXIV.—PAPILIO AGAMEDES. (Plate 39, fig. 3, and Plate 37, fig. 3.)

SYN.—*Pap. Agamedes*, Westw. in Anu. Nat. Hist.

P. alis anticis subdiaphanis basi obscurioribus, fascia lata alba e margine interno ad medium ala, inde versus costam per medium areæ discoidalis, extensâ, punctisque submarginalibus albis : posticis ecaudatis fascia lata albâ e medio fere ad basiu extensa postice dentata, punctisque albis duplice serie ordinatis; alis posticis subitus pone fasciam pallide fascis nigro lineatis et albo maculatis, basi aurantiis nigro bimaculatis. Expans. alar. unc. 3.

This species, which is unique in the cabinet of the Rev. F. W. Hope, inhabits Ashantee. It is closely allied to the preceding, but differs not only in the disposition of the white markings of the wings, but in the semitransparency of the apical portion of the fore wings, which is narrower than in the preceding species. I at first thought it possible to be the other sex of that species, until I carefully examined the body, when I found it was of the same sex as specimens of Adamastor in Mr. Hope's collection.

SPECIES ? XXV.—PAPILIO ORESTES.

SYN.—*P. Orestes*, Fabricius, Ent. Syst. 3, part 1, p. 34.

Fabricius describes a species of Papilio under this name, giving it as a native of Africa, on the authority of Mr. Francillon's collection. This species is regarded both by Boisduval and Godart as a doubtful species of Papilio. Mr. Francillon's insect was, however, fortunately drawn by Mr. Jones in his *Icones* (to which, however, Fabricius does not refer), and from a careful examination of these figures it appears that the insect is in fact a species of Papilio, exceedingly like the Indian *P. Nomius* of Esper, and *P. Aristaeus*, Cr., but with a very short tail. Both those species have, however, long tails. Notwithstanding the species of the group to which these insects belong are widely dispersed, I have little doubt that the specimen in question was an Indian insect, which had been partially mutilated.

All the plants represented in these plates are natives of Sierra Leone, and belong to singular African orchidaceous genera; namely, Plate 37, *Bolbophyllum barbigerum*, Lindl. (Bot. Reg. 1942); Plate 38, *Polystachya grandiflora* (Bot. Mag. 3707); Plate 39, *Angraecum distichum*, Lindl. (Bot. Reg. 1781); Plate 40, *Eulophia lurida*, Lindl. (Bot. Reg. 1821).

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

No. X.

COLLECTIONS AND LIBRARY OF THE LATE PROFESSOR AUDOUIN.—
 It was stated in p. 94, that the collections of M. Victor Audouin had, since his decease, been transferred to the Jardin des Plantes, and that his library would most probably be sold by public auction. In a notice of this work, which appeared in the *Revue Zoologique* for 1842, p. 121, a doubt was thrown upon the former of these statements. It is proper, therefore, to mention that it was intended only to apply to such collections of M. V. Audouin as had been formed with the view of illustrating the habits and economy of various insects, and which had been more especially alluded to in the former part of my memoir of the deceased gentleman ; and when in Paris, in May and June last, I had the pleasure to see portions of these collections already arranged with the greatest care, and publicly exhibited in one of the galleries of the Jardin des Plantes ; these portions consisting of specimens of the nests of insects, and illustrations of their various modes of attack on wood and other materials. Such a public exhibition of objects tending to elucidate the economy of insects, carefully arranged and labelled, together with specimens of the insects by which the various labours, &c., have been performed, must, in my opinion, be not only far more interesting, but also more instructive, than a few cases of specimens with merely their scientific names attached ; the greatest praise is, therefore, due to M. Milne Edwards, not only for the arrangement and exhibition of these specimens collected by M. Audouin, but also for the great care which has been bestowed upon the arrangement of the magnificent collection of Crustacea belonging to the Jardin des Plantes, all of which are beautifully set, named, and exposed in the galleries of the Jardin des Plantes. I know of but one collection in this country arranged with the view of illustrating the various branches of the economy of insect life—namely, that of the late Mr. Sells ; and all who had the pleasure of knowing that gentleman, and of examining his museum, will agree with me as to the great amount of knowledge to be obtained by the inspection of a single drawer of one of his cabinets. At my request he drew up, shortly

before his lamented decease, a brief notice of his plan of arrangement, which has been published in the last part of the Transactions of the Entomological Society of London. A more philosophical arrangement might perhaps be proposed, but it would probably be more beneficial to take the Introduction to Entomology* of Messrs. Kirby and Spence as the guide for such an arrangement, because as that work is so deservedly well known, it would be easy to refer to its pages as a catalogue raisonnée of the collection.

Of the other portions of M. Audouin's collections, as well as of his numerous manuscripts and drawings, entomologists will learn with pleasure that a careful revision will be made, with the view of publishing all which are found to be of sufficient interest and in a sufficiently complete state. The publication of the completion of his Memoir on the Pyralis of the Vine (which has lately taken place), will sufficiently prove the value of these manuscripts, and the justness of my estimate of M. Audouin's talents, and at the same time raise our anxious anticipation for the publication of the remainder.

The sale of M. Audouin's library took place in May last, and occupied fourteen days (see ante, p. 110). The prices obtained for the books was in general high, the amount realised being about 20,000 francs. Many of the works were purchased for the libraries of the Jardin des Plantes and of the Royal Society of London. The prices obtained for a few of the books are subjoined.

	FRANCS.
De Geer's Mémoires, 7 tom. in 9 vol. 4to	500
Goeze, Entomologische Beiträge, 3 vols. 8vo	38½
Kirby and Spence, Introduct. 4 vols., 4th Ed.	70
Latreille, Précis des Caractères Génériques, 1 vol. 8vo.	20
Réaumur, Mémoires, 6 vols. 4to	40
Rosel, a beautiful MS. translation, 6 vols., 4to	140
Schäffer, Icones Insect., Ratisb., 4 vols., 4to	94
Germar, Fauna Ins. Europ., 21 fasc.	82
Harris, Exposition Engl. Ins.	50
Latreille, Déscript. d'Ins. d'Afrique, 22 pages ,	10½
Say, American Entomol., 3 vols., 8vo	139
Stephens, Illustr. of Brit. Ent.	170
Germar's Magazin d. Entomol., 4 vols., 8vo	44
Illiger, Magaz., 5 vols. 8vo in 3	55
Silbermann, Rev. Entomol.	80
Annales de la Société Entomol. de France, 1832—1840	200
The Entomological Magazine, <i>complete</i>	100
The Arcana Entomologica (7 numbers)	29½
Billberg, Monographia Mylabridium	40
Dejean and Boisduval, Iconogr. Col. d'Eur.	212

* A new edition of this work is in the press, in which I am able to state, from an examination of some of the proof sheets, very great additions have been made both to the text and notes, portions having been entirely re-written. Notwithstanding this, the work is announced at a reduced price.

	FRANCS.
Herbst and Jablonsky's Coleoptera	200
Laporte and Gory, Icon. Ins. Col.	192
Cramer, Exotic Lepidopt.	180
Godart and Duponchel, Lep. de France	411

AUSTRALIAN SPECIES OF SCARITIDE.—In the notice of the sixth number of this work, which appeared in the *Revue Zoologique*, as already mentioned in the preceding article, M. Reiche suggests that *Carenum perplexum*, on account of the square base of the elytra with the humeral angle *saillant*, may be presumed to possess wings, and thus generically to differ from the others, whilst *C. megacephalum* and *tinetilatum*, on account of the form of the thorax, should probably be retained as a distinct genus, under Mr. Newman's name *Eutoma*.

The three large species of *Scarites* are considered by M. Reiche as forming (probably with the *Se. rotundipennis*, Dej., which is stated to be a native of the Cape of Good Hope *), a separate group, distinguished by the absence of wings, the dilatation of the abdomen, and the cylindrical terminal joint of the palpi.

Mr. Hope informs me that Mr. MaeLeay has named this section in his manuscripts *Scaraphites*, and that he has discovered a new species on the east coast of New South Wales, at Elizabeth Bay, where it was found many feet deep in the earth, whilst trenching in sandy soil to form a Pinetum. I would suggest that it should be named in honour of its discoverer.

SPECIES XVI.—*Scarites (Scaraphites) MacLeayi*. S. niger subnitidus, elytris obovatis, singulo striis 6 tenuibus punctatis serieque sub-laterali punctorum majorum, pedibus anticus obtuse dentatis, tibiisque intermediis spina acuta apicali externa armatis. Long. corp. lin. 13; lat. elytr. lin. $5\frac{1}{2}$.

This species most resembles *Se. Lenaeus* in its narrower form and distinctly striated elytra, but it differs from that species in several respects. The mandibles are obtusely dentated, each having one minute tooth below the apex, and a large compressed one in the middle. The two oval impressions on the head are radiato-striolated in front. The pronotum has a slender, but rather deep central impressed longitudinal line, as well as a distinct anterior transverse one, most decided at the sides; and there is no impression on each side towards the anterior angles, nor are the posterior angles obliquely foveated, being, on the contrary, convex. The elytra are broadly obovate, being evidently narrowed towards the base. Each has six fine impressed punctate striae, beyond which is a row of seven larger submarginal punctures, three others of which are placed in an

* Is not this an erroneous habitat?

oblique line towards the tip of the elytra; there is also a marginal row of punctures at the base of each side. The teeth of the fore tibiae are obtuse, and the middle tibiae have a single acute tooth on the outside, at the tip.

I also possess a species of this group, which I had considered to be identical with Sc. Silenus, with which it agrees in size, but from which however it differs, in having the elytra more regularly rounded; the mandibles are also differently toothed, wanting the small tooth on the inside near the tip, and the left mandible having one large central simple tooth, with a small lobe towards the base, whilst the right mandible has two strong central teeth. If this should ultimately prove a distinct species, it may receive the name of Scarites (Scaraphites) confusus.

My Sc. sculptilis is, by M. Reiche, in the article above referred to, considered as closely allied to Scarites lateralis, Dej., supposed to be a native of the East Indies, and belonging to Dejean's 5th section of the genus.

M. Reiche has also added descriptions of two new Australian species, belonging to my genus *Gnathoxys* *, namely—

SPECIES XVII.—*Gnathoxys obscurus*, Reiche. G. nigro-æneus subnitidus, pronoto subrotundato canaliculato angulis anticis haud porrectis, elytrorum disco punctato-striato; striis octo geminatis interruptis; lateribus et apice crebre et irregulariter punctatis. Long. 14 mill. (= fere 7 lin. mens. Angl.) Hab. Australia, Swan River. Mus. Reiche.

SPECIES XVIII.—*Gnathoxys cicatricosus*, Reiche. G. elongatus æneo nitidus, pronoto subovato canaliculato, angulis anticis haud porrectis, elytris profunde, late et irregulariter impressis, apice rugoso plicatis. Long. 13 mill. Hab. Australia, Swan River. Mus. Reiche.

Mr. Newman has also published the description of another species of Carenum in the Entomologist † for September last (p. 369).

SPECIES XIX.—*Carenum loculosum*. C. nigrum fronte profunde longitudinaliter bisulcata, prothorace transversè lunato medio longitudinaliter sulcato; elytris foveis magnis prævè dispositis asperis; tibiis anticis dentibus 2 longis externis spinisque 2 internis armatis; tibiis intermedii dentibus 5—6 externis minutis spinis 2 apicalibus. Long. corp. .625 unc., lat. .25 unc.

It is perfectly distinct from Carenum Spencii, Westw.

Mr. MacLeay has recently forwarded to Mr. Hope a Carenum, under the name of C. 4-punctatum, which agrees with Bonelli's species (C. Bonellii mihi), except that the central fossula of the pronotum is scarcely transversely striolated, and the oblique impressions on each side at the base are scarcely distinct. It is a native of New South Wales, and was found under stones at Illawarre.

* M. Guérin Meneville showed me, whilst in Paris, two Indian insects apparently belonging to this genus, possessing the same structure of the fore feet.

† I regret to mention that the proprietors of this work are under the necessity of discontinuing its publication with the number which will appear on the 1st of November.

MONOGRAPHIA ANOPLURORUM BRITANNIC; or an Essay on the British species of Parasitic Insects belonging to the order Anoplura of Leach, with the modern divisions of the genera according to the views of Leach, Nitzsch, and Burmeister; with highly magnified figures of each species. By HENRY DENNY. Author of "Monographia Pselaphidarum et Scydmaenidarum Britanniæ," &c. London. Henry G. Bohn, 1842. 8vo, 286 pages, and 26 plates.

Mr. Denny, so well and advantageously known by his illustrated work on the British Pselaphidae and Scydmaenidae has, in this work, published a beautiful series of more than 200 highly magnified coloured figures, with descriptions and notices of 248 species of lice found in this country, one half of which at least are now for the first time made known to naturalists.

The excellent manner in which the work is executed, has led to a request on the part of the British Association, that he will also illustrate the exotic species of the group. A few remarks upon the introductory portion of the work will not, however, be irrelevant. Mr. Denny states that the opinion that *each* and every animal has its own peculiar parasite is not borne out by facts; thus *Docophorus icteroides* is found on nearly every species of duck which has come under the author's notice. On extending our observations to genera, we find them take a wider range; and it is in only two or three cases that it could, with any confidence, be asserted that they were diagnostic of certain families of Vertebrata. It is easy to say whether they belong to quadruped or bird, but more difficult to pronounce the peculiar family of either, as some genera of each division appear perfect cosmopolites; thus, *Pediculus* infests man, *Quadrumania* Rodentia, Carnivora, Pachydermata and Ruminantia; *Nirmus* infests every order of birds except the Gallinacea: *Docophorus* all but Gallinacea and Columbidae; *Lipeurus* infests the orders Gallinacea, Grallae, Palmipedes, and Accipitres: whilst a few on the other hand are nearly certain indexes to the families; *Eureum* being only found on Chelidones; *Trinoton* only on Palmipedes; *Goniocotes* and *Goniodes* only on Gallinacea and Columbidae; *Gyropus* only on the Guinea pig in this country; and *Phthirus* only on man. Mr. Denny has not made any observations on the occurrence of several distinct species, and even genera, upon the same animal.

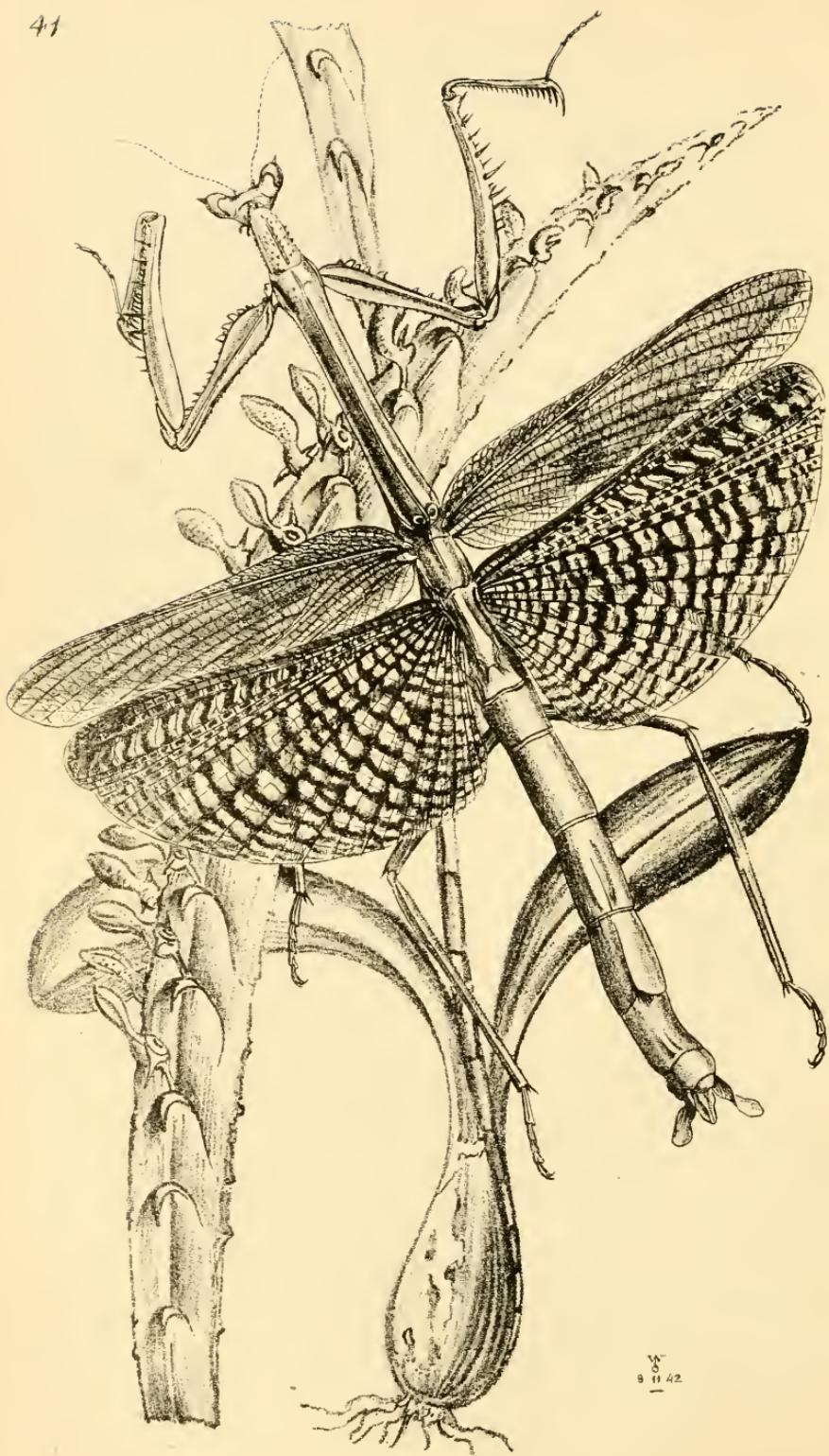
The extent of the variations of form at different ages in these insects, has not received the attention which it merits; indeed Mr. Denny's observations hereon in pages xii. and xvii. are somewhat at variance with each other. This is a point the more neces-

sary to be elucidated, as the character of the Ametabola of Leach (insects undergoing no metamorphosis) adopted by Mr. Denny, depends upon its existence. My own opinion on the position of these insects, given in my Introduction to the modern classification of insects, is called into question. As however I consider the fundamental characteristic of the class Ptilota to consist in a *distinct metamorphosis involving the development of wings*, I cannot admit the Anoplura of Leach into that class ; and my answer therefore to Mr. Denny's question as to the class to which I consider these parasitic insects to belong, will be found in the development of my views on the primary divisions of the annulose animals given in the fourth page of my Introduction, where I have adopted the order Ametabola of MacLeay (with the omission of his Vermes) because it leaves the *Ptilota distinct*, whilst Mr. Denny unites the Thysanura and Anoplura as a primary division, with the metamorphic insects, under the general name of Insecta, which I maintain ought to be applied to the whole of the annulose animals with articulated feet. Mr. Denny justly eulogises Dr. Burmeister as the "first authority for this tribe of insects," although he properly rejects his division of the Anoplura into Rhynchota and Mallophaga, the former (Pediculidae) being united with the rostrated Hemiptera of Linnaeus, whilst the latter are grouped with the mandibulated Hemiptera or the Orthoptera of recent authors.

Mr. Denny has carefully investigated the writings of preceding authors ; a few of the figures published in the posthumous work of Lyonnet, appear however to have been overlooked : thus, Lyonnet's plate 4, fig. 4, represents a species found upon the heron, which appears to be identical with *Liotheum importunatum*.

As a work upon the indigenous species of these insects it is invaluable, but for the higher ends of zoological science, this group of insects still requires illustration. With the exception of a figure of the female organs of generation of the human louse, copied from Swammerdam, we have no attempt to exhibit the internal structure of these insects ; and the only figures which are given of the details of the mouth from a single species (*Pediculus vestimenti*) are copied (and not quite correctly) from Burmeister's *Genera Insectorium*, a few figures are indeed added of the trophi *in situ* of two or three of the mandibulated species ; but the interest attached to the distinction of haustellated and mandibulated trophi in a group whose general habits are so entirely identical, required a much more precise examination of their structures in this respect.

41



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8.11.42

PLATE XLI.

DESCRIPTION OF A NEW MANTIDEOUS INSECT WITH POINTED EYES.

OF the many curious forms exhibited by the different species of Soothsayer insects (Mantidae), those which have conical pointed eyes are not the least remarkable. The insects thus circumstanced constitute several distinct genera. Two of these genera are distinguished by having an upright horn in the middle of the head; namely,

HYMENOPUS, Serv., having the four posterior femora furnished with a broad membrane throughout their entire length, and consisting of the single species *M. coronata*, Oliv., from the Eastern Archipelago; and

HARPAX, Serv., having the fore posterior femora furnished near the apex on the lower or posterior edge with a foliaceous lobe, and consisting of several species natives of Senegal, the Cape of Good Hope, and other parts of Africa as well as Java and Sumatra. One species is described by Serville as a native of Cayenne, *H. pictipennis*, Serv.; but this is most probably doubtful, especially as Burmeister gives this species as apparently identical with the *H. cornuta*, Oliv., Latr., which is a native of the Cape of Good Hope. The synonymy of the species of this genus is rather confused. See Charpentier and Burmeister's Memoirs in the first and second volumes of Dr. Germar's Zeitschrift f. die Entomologie, and De Haan (Bijdragen tot de Kennis d. Orth. p. 89,) who has, however, added some species which have not conical eyes, including *Epaphrodita musarum* Serv.*

Serville divides the species of this genus into two sub-genera:—

- Harpar*, proper. Prothorax with the sides greatly dilated; sides of the terminal abdominal segments lobed. Head with a vertical horn bifid at the tip. [The latter character is, however, sexual, all Serville's specimens belonging to this section being females, whereas the male has the vertex furnished with a shorter horn obtusely mucronated]. Type, *M. ocellata*, Pal. de Beauv.
- Creobroter*, Serv. Prothorax scarcely dilated at the sides; sides of abdominal segments not denticulated. Vertex furnished with a tubercle. Type, *M. urbana*, Fabr. (*gemmata*, Serv.).

The three other genera which possess conical pointed eyes are destitute of a horn on the crown of the head as well as of lobes on the hind femora.

ACANTHOPS, Serv., has the body short and comparatively broad, with the fore margin of the wing-covers sinuated, and the terminal segments of the abdomen dilated at the sides. Type, *M. sinuata*, Fabr. (*fuscifolia* Stoll, f. 14). See as to the synomyms of the species of this genus, Charpentier in Germar's Zeitsch 1, 375; 3, 299. South America is the geographical station of this genus.

The two remaining genera are very long and slender in form.

SCHIZOCEPHALA, Serville, has the eyes porrected, the hind femora destitute of spines or lobes, and the abdominal setæ elongated, slender, articulated, and attenuated to the tip. Type *Mantis bicornis*, Linn. An inhabitant of the East Indies. Dr. Burmeister has described a second species from the Berlin Museum.

TOXODERA, Serv. (Ann. Soc. Ent. de France, tom. 6, p. 25, pl. 2; and H. n. Orth. p. 168, pl. 5). The type of this singular genus (*T. denticulata*, Serv.) possesses conical eyes which are laterally extended. The fore posterior femora are furnished, along more than half their length, with three membranous lobes emarginate at the middle, and the apex of these femora is armed with four strong spines. The abdomen is terminated by two broad foliaceous appendages, which appear to be articulated. This insect (which is $4\frac{1}{2}$ inches long) is a native of Java, and is unique in the Museum of the Jardin des Plantes. It appeared to me on an examination of this specimen that the apex of each of the ocular cones was not faceted but similar to the remainder of the skull.

Notwithstanding various structural differences, I have considered the insect figured in the opposite plate as also belonging to the genus *Toxodera*; it is, however, a native of Senegal, where it represents its Javanese ally, as is also the case in the genus *Harpax*.

TOXODERA (HETEROCHÆTA) *tenuipes* (Plate 41).

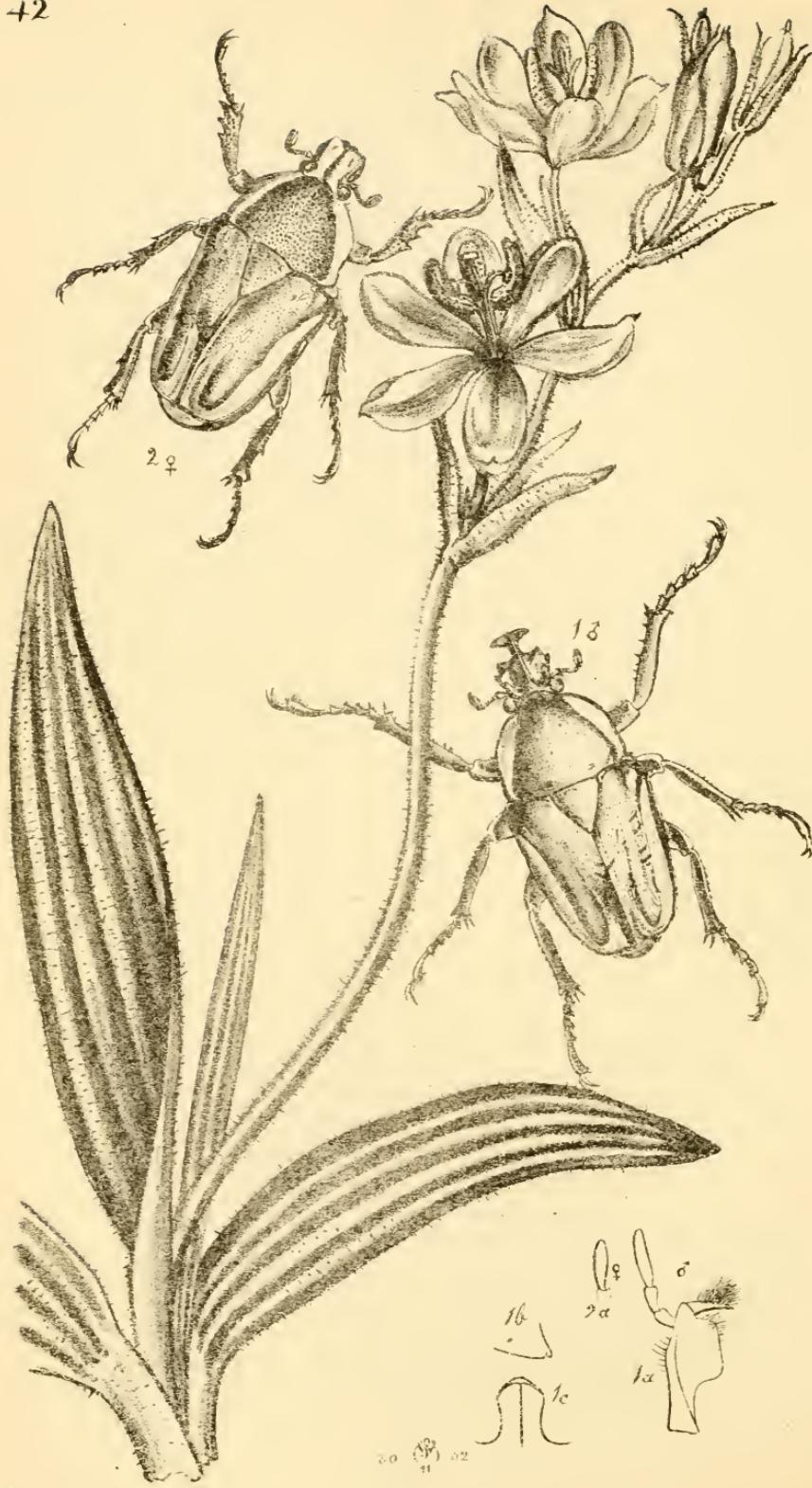
Fusca, tegminibus brunneis, postice pallidis, alis infumatis, nigro fasciatis, cyaneo-iridescentibus, coxis anticis longis, antice lobatis et spiuosis, femoribus anticis basi vix crassioribus, femoribus 4 posticis longis apice subtus foliolis duobus minimis instructis, supra intermixtis, cercis analibus latius foliatis, ut videtur 6-articulatis, oculis oblique porrectis; spina terminali nigra haud granulata. Long. corp. unc. 5. Expans. tegm. unc. $4\frac{1}{2}$.
Inhabits Senegal. In the collection of the Rev. F. W. Hope.

Obs. In the elongated form of the body and the dilated appendage at the extremity of the abdomen, these insects approach the Phasmidæ, whilst in general characters they are very nearly allied to the typical Mantidæ.

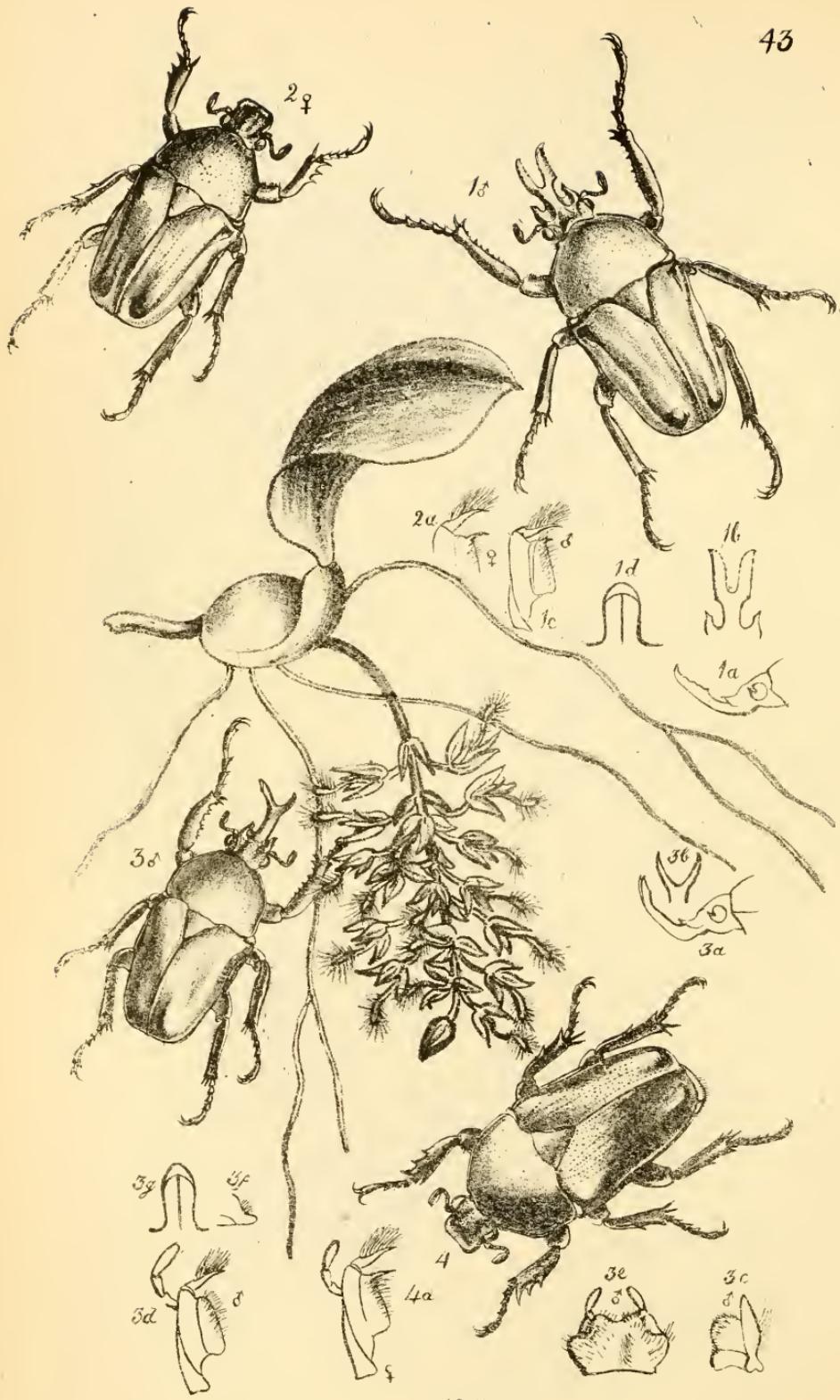
The singular Orchidaceous plant represented in the plate is the *Megaclinium maximum*, Lindl., a native of Sierra Leone.

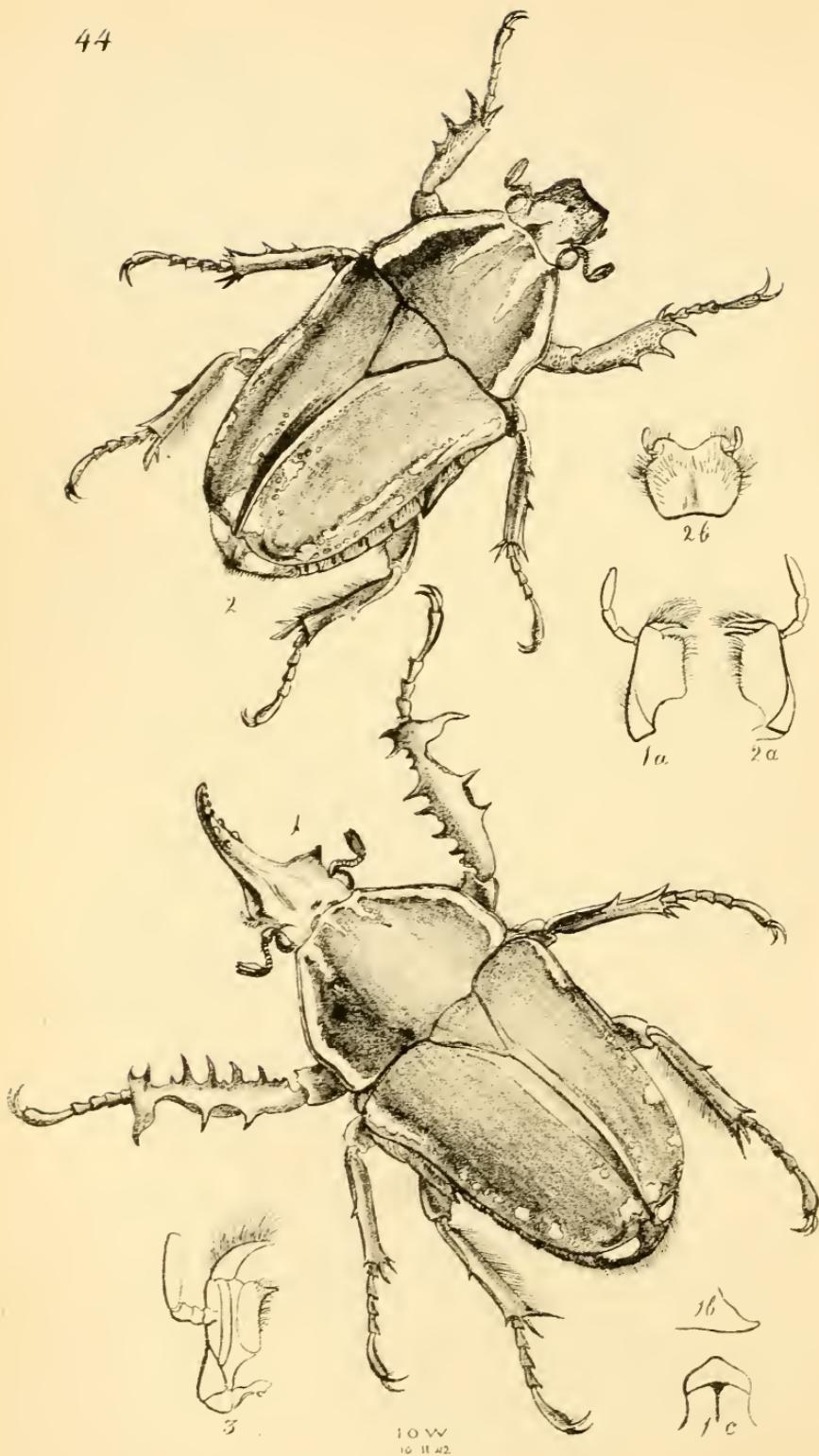
* M. De Haan has formed *Mantis rubicunda* into a subsection of his *Mantis C.* with the character "Oculis trigonis acutis." He also gives to the genus *Orthodera* the character "oculi angulati," but this is not correct.

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PLATES XLII, XLIII, AND XLIV.
ON THE GOLIATHIDEOUS CETONIIDÆ OF AFRICA.

PART I.

THERE is scarcely any group of insects which more fully shows the great increase of our modern stores of novelties than the Goliathideous Cetoniidæ, our knowledge of the number of species of which having been more than doubled during the last five years. Having in the 8th and 9th numbers of this work given a complete revision of the Asiatic species of the group, I propose in this and the following number to treat the African species in like manner, having been favoured, from several of our most extensive collections, with the loan of a number of fine unfigured species. I am further induced to this by the circumstance of the remaining insects of this group being confined in their geographical range to Africa* (including Madagascar), whereby a complete revision of the group will have appeared in this work; and because the insects of Africa are at the present time more particularly the subject of my entomological study; having undertaken, at the request of the Rev. F. W. Hope, to prepare a report on the state of our knowledge of African entomology, other gentlemen having in like manner undertaken other geographical districts, whereby we may hope to obtain a series of papers, which cannot fail to be of very considerable value.

The typical genera of this group, as already noticed (*ante*, p. 114), are distinguished by two peculiarities, which are not found in the majority of the group—namely, the suborbicular form of the prothorax, and the dentated upper lobe of the maxillæ. Here belong the two following African genera; which are at once distinguished from their Asiatic analogues, *Narycius*, *Cyphonocephalus*, *Myetristes*, and *Phædimus*, by their want of metallic colours, the more

* With the exception of the Brazilian *Yncea* (which Burmeister has satisfactorily shown to belong to the Trichiideous section), and the Mexican *Goliathus* *Hoepfneri*, *G.* and *P.* (*Ischnoscelis* *H.* *Burm.*) a very interesting insect, of which only the cornuted male has been observed. Dr. Burmeister, as already stated (p. 70, note +), at first considered it as nearest allied to *Ischnostoma*, but he is now of opinion that it ought to be introduced into the Goliathideous group. From a careful examination and dissection of the insect, which I made whilst in Paris in the past summer, I am not prepared to admit this relationship.

robust galea of the maxillæ, and the comparatively shorter fore-feet of the males.

HYPSELOGENIA, *Burmeister.*

This genus is composed of two species, whose affinities have, until recently, been imperfectly understood; Gory and Perchéron placing them with *Diplognatha*, whilst Mr. MacLeay, who did not correctly examine the structure of their maxillæ, referred them to his Cælocephalous section of *Ichnostoma*; (*Ceton. of South Africa*, p. 43). By Dr. Burmeister their true structure has been observed, and their affinity to *Goliathus* (long ago pointed out by Latreille and others), satisfactorily established, in his beautiful work entitled ‘*Genera Insectorum.*’ They are of small size, and natives of Southern Africa. The clypeus is moderately cornuted, the disc of the head being concave, terminated in front by an ob-conical, porrected, and erect lobe. The fore-feet of the males are scarcely longer than in the females, and the tibiae in both sexes are externally tridentate, the teeth, however, being very obtuse in the males. The inner lobe of the maxillæ is not armed with a tooth.

SPECIES I.—*Hypselegenia concava*, Gory and Perch., Mon. pl. 17, fig. 1. (*Diplognatha c.*) ♂.
Burmeister, Gen. Ins. fasc. 7. ♀. MacLeay, op. cit. p. 43.

SPECIES II.—*Hypselegenia albopunctata*, Gory and Perch., pl. 17, fig. 2. ♂. Burm. Gen. Ins. fasc. 7. ♂.

SYN.—*Cetonia Georupina*, Schonherr, Syn. Ins. 1, 3. App. 46.

GOLIATHUS, *Lamarek.*

The insects of this genus are indeed well entitled to the generic name, which Lamarek gave to them by making use of the specific name which had been given to one of the species by Linnæus. Dr. Harris, the most distinguished of living American entomologists, adopting the opinion which has been entertained with much justice by many recent writers, of the injustice of such a system of nomenclature, has proposed to restore the specific name *Goliata*, and to substitute that of *Hegemon* instead of the present generic name. Perfectly agreeing with Dr. Harris in his opinion of the impropriety of such nomenclature, I yet do not adopt his generic name, because I also consider that when such an improper substitution of names has been universally adopted for nearly half a century (as in this case), it would not be advisable to alter it.

From *Hypselegenia* the true Goliath beetles are distinguished by the bifid horns of the clypeus of the males, and the entire clypeus of the females. The inner lobe of the maxillæ is produced into a sharp tooth. The fore tibiæ of the males are externally destitute of teeth,

and the four hind tibiae in this sex are also without a central spine on the outside. The metasternal process is conically protracted, and at its extremity appears a slight channel, separating the scarcely visible portion of the mesosternum.

Mr. MacLeay in his observations on this group was unable to state whether plantulae and pseudonychia exist in all the feet, in consequence of his specimens being mutilated. I may, therefore, mention that a rather strong plantula exists between the tarsal unguis of all the feet in both sexes, and that it is terminated by two or three very short bristles, which are often broken off, even in all the feet. In noticing the figures of the so-named *Goliaths regius* and *princeps*, Mr. MacLeay states that no allusion is made by their respective authors to the existence of plantulae: although they are distinctly shown, both in Dr. Klug's and my figures, of those insects. The four posterior tibiae in both sexes are fringed throughout the hinder margin with fine soft fulvous hairs, which in the middle feet are longest at the base; Mr. MacLeay also describes the males as having "the anterior tibiae thus lined only half-way," which is not the case, the inside of these tibiae having, at the base within, a patch of fulvous velvet-like plush of a texture totally unlike the long soft marginal hairs of the other feet; a similar patch, of the same texture, also existing at the base of the other tibiae within.

It has been long observed that the Cetoniidæ, during flight, do not erect the elytra, but keep them horizontal, and I have observed a peculiarity in the structure of the scutellum, which has an evident effect in this peculiarity, each side of the scutellum being suddenly and deeply deflexed, which I have found (by the examination of individuals moistened in spirits of wine), forms a strong line of resistance against the sides of the inner margin of each elytron, when I have attempted to elevate them perpendicularly.

The species of this genus (as first restricted in Mr. Hope's 'Coleopterists' Manual' to the giant types of the family possessing the characters above mentioned), are peculiar to Western tropical Africa.

SPECIES I.—*Goliathus giganteus*, Lamarek, Kirby, Westw., in Drury, Illust. Exot. Ent. vol. i. p. 61, (2nd Edit.) plate 31. Ditto (var.) Burm.

SYN.—*Scarabæus Goliatus*, Linn. Mantissa 530.

Cetonia Goliata, Fabricius. Ent. Syst. 1, 2, p. 124.

Cetonia Goliatus, Olivier.

Goliathus Africanus, De Lamarek.

Goliathus magnus, Duncan, in Naturalist's Library, Beetles, pl. 16.

Hegemon Goliatus, Harris, in 1st volume of the Journal of the Essex (U. S.) County Nat. Hist. Society.

Cetoninus (Goliatus) Druri, MacLeay, (nec. Westw.).

This species still remains of the greatest rarity, the only known

individuals being the one in the Hunterian Museum, at Glasgow, and a second in the collection of Mr. MacLeay.

SPECIES II.—*Goliathus Drurii*, Westw. in Drury, Illust. Exot. Ent., vol. iii. pl. 40, (2nd Edit.)

Hegemon Drurii, Harris.

Goliathus giganteus, MacLeay, (nec. Westw.)

Goliathus giganteus, Burmeister.

I have now seen so many specimens of the males of this species, in the collections of the Jardin des Plantes, Messrs. Hope, Melly, MacLeay, Raddon, and others, all of which agree together in their specific characters, that I have not the slightest hesitation in giving it as distinct from the preceding species, with which Dr. Burnmeister still unites it. Had he however had an opportunity of comparing the two species side by side, as I have had in the collection of Mr. MacLeay, he would have no longer hesitated in admitting them to be distinct. The insect represented by Dr. Klug, in Erman's voyage, pl. 15, fig. 7, under the name of *Goliathus regius*, is evidently the female of this species.

It is unfortunate that Mr. MacLeay has reversed the specific names which I applied to the two preceding insects in my edition of Drury's Illustrations.

SPECIES III.—*Goliathus Cacicu*s, ♂ Voet. Col. 1, tab. 22, f. 151. Olivier, Gory and Percheron.

♀ *Goliathus princeps*, Hope, Col. Man. frontisp.

Of this fine species many specimens have, during the past summer, been received in England, by Mr. Hope, from Cape Palmas, on the western coast of tropical Africa, where they were collected by Mr. Savage, who thus notices their habits, in a letter forwarded to Mr. Hope:—"As to *Goliathus Cacicu*s, these regions abound with them; and, after a year's watching, I have obtained the flower, and know botanically, the tree from which they derive their food. It is a syngenesious plant belonging to Jussieu's *Compositæ Corymbiferæ*. The *Cacicu*s inhabits no other tree, as it is said. The *Mecynorrhina torquata* inhabits two kinds of trees, one a magnificent Mimosa, a Goliath of its kind; I have not yet obtained the blossom; it is now in seed, which I have. The *Goliathus Drurii* is not found in the locality of Cape Palmas: it has been taken at Bussa, near Montserrado, and the specimen I now send is from Cape Coast." [The insect here alluded to is a splendid specimen of the insect figured in *Drury's 3rd volume*, or my G. Drurii.] "I lately saw Professor Klug's *Regius*, which is no more nor less than the female of *Drurii*. Of this I am as certain as that

the *Princeps* of Hope is the female of *Caciclus*. The Gold Coast would seem to be the locality of *Drurii*, andt he Grain Coast that of the *Torquatus* and *Caciclus*."

The tarsi of the males of this species are much more slender than in G. *Drurii*.

The largest specimen of the male of G. *Caciclus* which I have seen measures three inches and a half in length, including the horns of the head, whilst some are at least one-third shorter. The smallest female which I have seen measures two inches and a half in length, the elytra at the base being one inch and one-third in width. In some specimens of the female the two lateral fulvous marks on each side of the prothorax are united, and broader than in the speeimen figured by me in Mr. Hope's Coleopterists' Manual, and in others the elytra have the pearly portion much more extended, leaving only a dark patch at each shoulder, and a large triangular basal spot extending half the length of the elytra.

Africa possesses, at least as far as known at present, no species analogous to the Asiatic genera,

Narycius and *Cyphonocephalus*, in having the sides of the head alone produced into horns, and the maxillæ multidentate.

Mycteristes and *Phædiinus*, in having the front of the prothorax cornuted, and the maxillæ multidentate, or

Diceronocephalus, in having the prothorax broadest across the middle, with the maxillæ edentate.

We therefore now proceed with that section of the subfamily which possesses a trapezoidal prothorax, broadest at its hinder angles, and a simple terminal lobe to the maxillæ. The types of this group nearly rival in size the great Goliaths ; they are, however, for the most part much more brilliantly coloured ; the elytra are much broader at the base than behind ; the body is very much depressed, and tho prothorax has the posterior margin slightly emarginate in front of the scutellum. The fore-feet, in the males of this section, are considerably more elongated than in the opposite sex. The majority of the species of this section possess a short sternal process between the middle feet, and the species are at once distinguished from their Eastern analogues, by a peculiarity in the formation of the sternal process between the middle feet, which

has not been previously observed. In the African species, the anterior portion, or the apex of the mesosternal process, forms only the narrowed point at the extremity of the metasternal lobe, whereas in the Asiatic species the mesosternal portion is broader than the metasternal base of which it forms the apex, so that the process is generally clavate. (Compare, for example, Plate 30, fig. 1 *a*, with Plate 19, fig. 1 *c*.)

In the Asiatic species, as will be seen from the short table given in page 132, and page 117, Jumnos takes the lead, with its long fore legs in the males which have the tibiae internally serrated, in which respect we find it to agree, analogically, with the leading species of this section found in Africa, although differing materially in the structure of the clypeus, destitute of horns in the male, and the externally bidentate fore tibiae of the males.

MECYNORHINA, *Hope* (Col. Man. 1. pp. 60, 119).

As at first proposed by Mr. Hope this group was intended to comprise *G. micans*, *Daphnis*, *Grallii*, &c. as well as its type *Polyphemus*. In the appendix, however, to the first part of his Coleopterist's Manual, he restricted it to *G. Polyphemus*, no description of the male of *G. torquatus*, nor even of the female of *Polyphemus*, having at that time been published. The characters assigned in p. 119 are "♂ Tibiae anticae dentibus utrinque armatae; tibiae intermediae dente parvo medio armatae," which are not applicable to the female.

Both Mr. MacLeay and Dr. Burmeister have divided the genus into two sub-sections. Those of Mr. MacLeay being thus characterized :—

1. ♂ Clypeus with a single porrected horn. *G. torquatus*, Drury.
2. ♂ Clypeus with three horns, the middle one diverging or bifid at the apex. *G. Polyphemus*, Fab.

Whilst Dr. Burmeister proposes (contrary to Mr. Hope's intention) to restrict the name of,

Mecynorrhina, to *G. torquata* (the male having only a single horn to the clypeus, and the mando of the maxillæ destitute of a tooth, which exists in the female, and the female with only one spine in the middle of the intermediate tibiae; and to give the name of,

Chelorrhina, to *G. Polyphemus*, with the character :—Head with a strong frontal horn, bifid at tip, and two moderately long lateral horns. Both sexes with a spine at the extremity of the mando, and the female with two spines in the middle of the intermediate tibiae.

I do not consider it necessary to adopt these two divisions, the general characters of the two species being identical; the male of *G. torquatus* has, moreover, the sides of the head produced into a conical horn, which is analogous to the side horns of *Polyphemus*, and the bifid extremity of the middle horn in *Polyphemus* being, in my opinion, but a specific character. The second character employed by Dr. Burmeister, namely, the possession of a spine to the mando of the male *Polyphemus* (see Plate 44, fig. 3, drawn from a sketch sent me by Dr. Burmeister) would have been entitled to greater weight, were I not able to show similar instances of a difference in this respect existing between other species (*E. G. Eudicella frontalis*, *Dicranorhina Burkei*), whilst Dr. Burmeister's third character is certainly erroneous, as the females of both species agree in the toothing of the intermediate tibiae.

The two species at present composing the genus form an admirable link between the gigantic species and those which follow, agreeing with the former in the singular velvet-like coat in which they are superficially clothed, as well as in their large size.

SPECIES I.—*Mecynorrhina Polyphemus*, ♂, Fabricius, Ent. Syst. I, 2, 125; Oliv. Ent. 1, 6, 9, 3, T. 7 f. 61; Gory and Perch. Pl. 23, fig. 1; Arc. Ent. Pl. 19, fig. 1 d, and 1 e;—♀ Westw. Arc. Ent. p. 69, Pl. 19, fig. 1, 1 a, 1 b, 1 c.

SPECIES II.—*Mecynorrhina torquata* (Plate 44, fig. 1, ♂, 2 ♀); Drury Illust. Exot. Ent. 3, Pl. 44, fig. 1, ♀; Herbst Naturs. Kaf. 3, tab. 28, fig. 1; Waterhouse Mag. Nat. Hist. 2d Ser. p. 636, and fig. ♂

Cetonia collaris, Schönherr, Syn. Ins. 1, 3, 117.

It is to Joseph Hooker, Esq. (the son of Sir W. Hooker, the distinguished botanist), a most zealous Entomologist, whose attention had been particularly directed towards the Goliath beetles, and who is at present with the Expedition engaged in exploring the South Seas, that I am indebted for my first acquaintance with the male of this species, and which* is at present deposited at his father's residence at Kew, with his Entomological collection.

The magnificent male here figured is contained in the cabinet of A. Melly, Esq., of Liverpool, to whom I beg to offer my best thanks for the kind reception afforded both to Dr. Burmeister and myself during the visit of the former in this country. This specimen exceeds in size any other I have yet seen, and has the frontal horn of the head proportionately more developed, with a double series of black rounded tubercles towards the tip. In addition to this and Mr. Strachan's male specimen, a figure of which by the late

* This is the specimen to which Mr. MacLeay alludes as being probably a second individual of *G. Polyphemus*.

Mr. C. Curtis, was published by Mr. Waterhouse, I have seen several other specimens in the collection of the Rev. F. W. Hope, one of which measures as follows :—

Length of the head	6 lines.
" prothorax	9 "
" elytra	16 "
Breadth of hind part of prothorax	12½ "
" base of elytra	13½ "

The female here figured is also contained in the splendid collection of Mr. Hope, having been brought from Sierra Leone by Mr. Strachan. Its measurements are as follow :—

Length of the head	4½ lines.
" prothorax	8 "
" elytra	17½ "
Breadth of the base of the elytra	13½ "

The male differs from every other Goliathideous insect in not having the frontal horn dilated at the tip ; this sex possesses no tooth on the inner lobe of the maxilla (fig. 1 a), whereas it has a very strong one in the female (fig. 2 a) ; fig. 2 b represents the mentum of the female, and fig. 1 b and 1 c, the sternal process alike in both sexes, the apical mesosternal portion being much more developed than in the giant Goliaths. The fore posterior tibiae in both sexes have their extremities produced into several acute spines independently of the calcariae, which in the two posterior feet of the female are unequal in size, one of them being spatulate in form. The reason which induced Schönherz to change the name of this species to *C. collaris*, (which appears to have perplexed Mr. MacLeay, who by the bye cites both the name and reference of Schönherz incorrectly) was that there was another *C. torquata* described by Fabricius. As, however, Drury's name has a long priority it ought, even on these grounds, to have been retained.

As the species is entirely omitted in the "Monographie des Cétoines," I have represented both sexes in the accompanying plate.

CERATORHINA, Westwood.

The following characters at once distinguish a most natural group of these insects :—Head of the males with the clypeus (and occasionally the hind part of the head) cornuted, simple in the females. —Fore-tibiae of the males not dentated on the outside (occasionally spinose along the inner edge), those of the females internally simple, and externally 3-dentate. Middle tibiae of the females with only one spine in the middle of the outer margin. Sternal process, with

the apical (mesosternal) portion, small, and not wider than the extremity of the metasternal portion.

Nearly every species in the group thus naturally associated is distinguished by splendid green or golden colours. This is, in fact, the case with all those which are natives of the tropics; but I have received, within the few last days, two species from Mr. Melly from a more southern latitude, both of which exhibit white velvet-like patches, and one of them is entirely destitute of metallic tints.

In the Coleopterist's Manual of Mr. Hope (vol. i, p. 119) a genus was proposed under the name of *Diceronorrhina*, comprising *Cetonia micans*, *Daphnis* and *Grallii*, characterised by the internally spinose fore tibiae of the males. As however several species are now known, (*D. Nireus*, *Burkei*, *4-maculata* and *guttata*) the males of which possess unarmed fore tibiae, I have considered it as likely to lead to less confusion by uniting them under a different generic name. The group now proposed, comprises Mr. MacLeay's sub-sections 3, 4, and 5 of the section 'Goliathi Smithii,' and his 4th sub-section of *Coryphe Nariciæ*, with several other species which must have been formed into other sub-sections according to his arrangement.

By Dr. Burmeister they are formed into the genus *Diceronorrhina*, and portion of *Cœlorrhina*, which are, as it appears to me, unnaturally placed in different sections of his family *Goliathidae*.

They may be formed into several sections as follows:—

- A. Tibiae antice ♂ intus denticulatae.
 - a. Clypeus ♂ in cornu obtriangulare porrectus (1. *Diceronorrhina*, HOPE.).
 - b. " " furcatum porrectus (2. *Eudicella*, WHITE.).
- B. Tibiae antice intus haud dentatae.
 - a. Clypeus ♂ in cornu obtriangulare medium porrectus.
 - a. Corpus haud metallicum, tarsi antici ♂ apice penicillato (3. *Cheirolasia*, WESTW.).
 - β. Corpus metallicum tarsi antici haud penicillati.
 - * Caput ♂ cornu postico armatum clypeus
♀ haud recte truncatus (4. *Taurhina*, BURM.).
 - ** Caput ♂ haud cornu postico armatum;
clypeus ♀ recte truncatus (5. *Cœlorrhina*, BURM.).
 - b. Clypeus ♂ in cornua duo lateralia porrectus (6. *Stephanorrhina*, BURM.).

SECTION 1.—DICRONORRHINA, *Hope*.

The first of these sections, which has for its type the typical species of Mr. Hope's genus *Diceronorrhina* (a name altered by Dr. Burmeister to *Dieranorrhina*), namely the *Cetonia micans* of Drury, is further characterised by having the inner lobe of the maxillæ in both sexes destitute of a tooth, which is found, at least

in the females, of almost every other Goliathideous insect ; the anterior tibiae of the males are also externally destitute of any tooth, and the terminal joint of the anterior male tarsi is clothed beneath with a pencil of hairs. The four posterior tibiae are not spined in the centre of the outer margin in the males, but in the females each of them has a single strong central spine.

SPECIES I.—*C. micans*. Drury. Viridi-nitens, capite viridi quadrato maris lateribus unispinosis et in angulos obtusos nigros productis, medioque marginis antici in cornu nigro porrecto recurvo apice bifido producto. Long. corp. (e cap. ad anum, testo Drurio 1 $\frac{7}{8}$ unc. (teste MacL. 25 lin.).)

SYN.—*Scarab. micans*. Drury, vol. ii., tab. 32, fig. 3 ; MacL. Cet. So. Afr., p. 33 ; Fab. Ent. Syst. 2, p. 126, 5 ?

The description and figure of Drury disagree with the insect, now known to the majority of Entomologists under the name of *Goliathus micans*. Drury's description of the head is "green and nearly square ; the surface irregular and uneven, the corners pointed, forming two black obtuse angles ; from the front of the head issues a small black and thick protuberance like a horn, that divides into two branches, each of which terminates in a sharp point." Drury states that his specimen was received from Calabar, on the west coast of Africa, about 5° or 6° north latitude. In my prized copy of the catalogue of Drury's collection, I find that lot 112, comprising "Cetonia hamata, nitens, grandis, [torquata?] Scarabaeus festivus, and 12 others," was purchased by Mr. MacLeay at the price of 17*l.* In the memoir on the Cetoniidae of South Africa, Mr. MacLeay, quoting only Drury under *G. micans*, describes the male and female from his cabinet thus :—"Viridi-nitens antennis palpis tarsisque nigris, ♂ clypeo lateribus unispinosis, cornu medio porrecto recurvo, apice bifido ; ♀ clypeo simplice quadrato."

It appears to me very doubtful whether the Fabrician description of *C. micans* can be intended to apply to this species.

SPECIES II.—*C. cavifrons*, Westw., Viridi-nitens, capite ♂ supra nigro ; lateribus acute dilatatis parteque postica viridibus ; clypeo valde excavato, antice 3-corni cornibus lateraliibus brevibus truncatis ; intermedio haud recurvo apice dilatato bifido ; margine antico clypei in ♀ sub 3-sinuato. Long. corp ♂ (in spec. nostr. cornu clypei inclusu) 1 $\frac{7}{8}$ unc. ; ♀ 1 $\frac{3}{4}$ unc.

SYN.—*Goliathus micans*, Gory and Percheron, Mon. des Cet. pl. 25, fig. 2 ; Guérin, Icon. R. An. Ins. pl. 26, fig. 5 ; Burneister Handb. d. Ent. Lamellic 1, p. 188.

This insect is now widely distributed in collections under the name of *Goliathus micans*, having been received from the French collectors at Senegal in considerable numbers. The structure of the head is however quite unlike that of *C. micans*. Mr. Strachan has also brought it from Sierra Leone, his specimen being the insect

alluded to by Mr. MacLeay, in his observations on *C. micens*, and which (ante p. 6), I stated to be identical with *C. micens*, knowing only the species so named and figured by modern French authors, Mr. MacLeay himself not having alluded to any difference between the figures of Drury and Guérin.

SPECIES III.—*C. splendens*. M'L. Viridi-nitens, thorace punctis duobus cæruleis, elytris vix striatis lineâ obliqua humerali cærulea; clypeo ♂ lateribus bispinosis cornu medio porrecto recurvo apice bifido. Long. corp. lin. 24.

Mr. MacLeay adds, "It is a species which comes very close to *C. micens*, and belongs to the same section."

The above is all the description given by Mr. MacLeay of this species, of which he gives no habitat; so that we are left in doubt whether it be a native of South Africa, or not.

SPECIES IV.—*C. Derbyana*. Melly's MS. Plate 42. Viridis nitidissimus, clypeo porrecto elytisque albido-marginali, capite nigro, ♂ cornibus duobus elevatis inter oculos, cornuque antico subrecurvo; apice obtriangulari, ♀ elyperi margine antico sub 3-sinuato. Long. corp. ♂ (cornu clypei excl.) $1\frac{1}{2}$ unc. ♀ $\frac{5}{12}$ unc.

The general colour of this splendid insect is a shining green with a bluish tinge. The head of the male above is black, except at the hinder part, which is green, and a large patch on each side of the central carina, covered with whitish velvety tomentosity. The front margin of the clypeus is nearly square, there being behind each of the anterior lateral angles an acute prominence, whence the head is gradually narrowed to the base of the antennæ. The sides of the head are not elevated, but there are two horns elevated and obtuse between the eyes, standing out obliquely. (In *C. cavifrons* these horns are not distinct, but are confluent with the sides of the head, forming a very deep excavation on each side of the central carina). Along the middle of the head runs an elevated carina extending to the extremity of the central horn of the clypeus, which is rather recurved, with the sides angularly dilated. The underside of the head, together with the trophi and antennæ, are also black. The disk of the prothorax is very finely punctured. The sides with a very slight margin, and with a rather broad lateral band (gradually narrowed towards the hind angles) covered with whitish tomentosity. The elytra are similar in colour to the prothorax but rather more distinctly punctured, the punctures occasionally forming longitudinal lines. At each shoulder and subapical tubercle is a black patch; the tomentose marginal band ascends to a considerable distance along the suture, breaking into small spots. The fore tibiæ have several (seven or eight) teeth along their inner

margin. The basal joints of the tarsi are terminated by a small point; and the last joint on the fore tarsi is furnished beneath with a small tuft of black hairs. The tibiae are chalybaeous or æneous black, and the tarsi black. The body beneath is of a dark shining olivaceous green. The femora and sides of the metasternum tinged with coppery red: the third, fourth, and fifth segments of the abdomen are marked on each side with a white spot; and the podex has a transverse patch of white at the base.

The female is similarly coloured, but rather darker, and with the punctures very close and strong, especially on the prothorax, with an interrupted narrow line along the middle, partially free from punctures: the sides and anterior margin of the head are elevated and black, as are also the tibiae and tarsi. The abdomen of the male presents only a slightly depressed and very slender line along the middle of the three or four basal segments; and the extremity is more pointed than in the female. The sternal process is but slightly porrected, with a very small portion only of the mesosternal portion visible in front (pl. 42, fig. 1 b 1 c). The basal lobe of the maxillæ is destitute of a spine in both sexes (fig. 1 a), and the terminal joint of the maxillary palpi is somewhat longer in the male than in the female (fig. 2 a).

I have to return my best thanks to Mr. Melly for an opportunity of describing and figuring this new and beautiful species, as well as several other interesting novelties, which will appear in the next number of this work, recently arrived in this country, having been collected by Mr. Burton in the hilly and hitherto unknown country lying between 25 and 26° S. lat. and 27 and 28° E. long. The specimens of the present species were taken on the trunks of a tree named *Zizyphus*; they flew exceedingly fast, and only those specimens were taken which were found in pairs. Mr. Melly has proposed to name the species in honour of the Earl of Derby, President of the Zoological Society; and I have much pleasure in adopting his suggestion.

SECTION 2.—EUDICELLA. *White.*

This section is distinguished by the forked central horn of the clypeus of the males; the anterior male tibiae simple externally, but denticulated within; the terminal joint of the fore tarsi, in the same sex, not furnished with a brush of hairs; the broader mentum and shorter scutellum: together with the strongly dentate inner lobe of

the maxillæ of the females, the same part being either simple or less strongly dentate in the males. Hitherto no species has been found which has not the superficies of the body of a shining green, or glossed with a fulvous tint, no trace of tomentosity occurring in the species. The females have the hind part of the prothorax and base of the elytra considerably dilated, and the tarsi, in all the known species, are black. The female has the front margin of the head nearly straight, with it and the sides margined.

SPECIES I. (V.)—*Ceratorhina (E.) Daphnis*, Buquet, Ann. Soc. Ent. de France, 1835
(tom. IV.) pl. 2, fig. 3, 4.
Inhabits Senegal.

Mr. Melly possesses a specimen exactly agreeing with M. Buquet's description; in which the frontal horn, when seen in perspective from above, appears to have the two branches curved at the tips; but when seen of their proper form from behind, they are nearly straight, like those of *C. Morgani*. I mention this because Mr. MacLeay (judging only from M. Buquet's figure) gives as one of the characters distinguishing it from *C. Smithii*, "ramis extus arcuatis," which is not the case.

SPECIES II. (VI.)—*Ceratorhina (E.) Smithii*, MacLeay, Cet. of South Africa, p. 34,
pl. I., fig. med.

Taken by Dr. Smith in Africa, near the Tropic of Capricorn.

SPECIES III. (VII.)—*Ceratorhina (E.) Morgani*. (Plate 43, fig. 3 ♂, 4 ♀). White in
Mag. Nat. Hist. N. S. 1839, p. 24.

The accompanying figures are made from beautiful specimens in the collection of the Rev. F. W. Hope, natives of Sierra Leone. They are of an intense uniform shining green colour, without any spots on the elytra by which they are distinguished from the other species; with the forks of the horn of the head nearly straight and diverging. The female is very broad across the base of the elytra, which, as well as in the male, are considerably more attenuated towards the tip, than in the other species represented in the plate. Fig. 3 *a* represents the side view of the head, and 3 *b* the apex of the horn seen from behind; 3 *c* the mandible, 3 *d* the maxilla of the male; 4 *a* that of the female; 3 *e* the mentum of the male (that of the other sex not being quite so broad nor so deeply channelled in the middle, the labial palpi being thicker in the female); 3 *f* and 3 *g* the sternal process, alike in both sexes.

SPECIES IV. (VIII.)—*Ceratorhina (E.) frontalis*, Westw. (Plate 43, fig. 1 ♂, 2 ♀).

SYN.—*Eudicella frontalis*, Westw. in Taylor's Phil. Mag., Nov. 1841. Læte viridis nitidissima, subaurata, capite ♂ tricorni, cornu medio fulvo capite paullo longiori basi crasso, ante medium in ramos duos subparallelos lateribus externis serrulatis apiceque recurvis; elytris disco lateribusque fulvo tinctis maculis duabus humeralibus alterisque, duabus subapicalibus nigris, clava antennarum fulva, ♀ clypeo antice fere recto fulvo.
Long. Corp. ♂ (excl. cornu capitis) lin. 17. ♀ lin. 16.
Inhabits the Gold Coast.

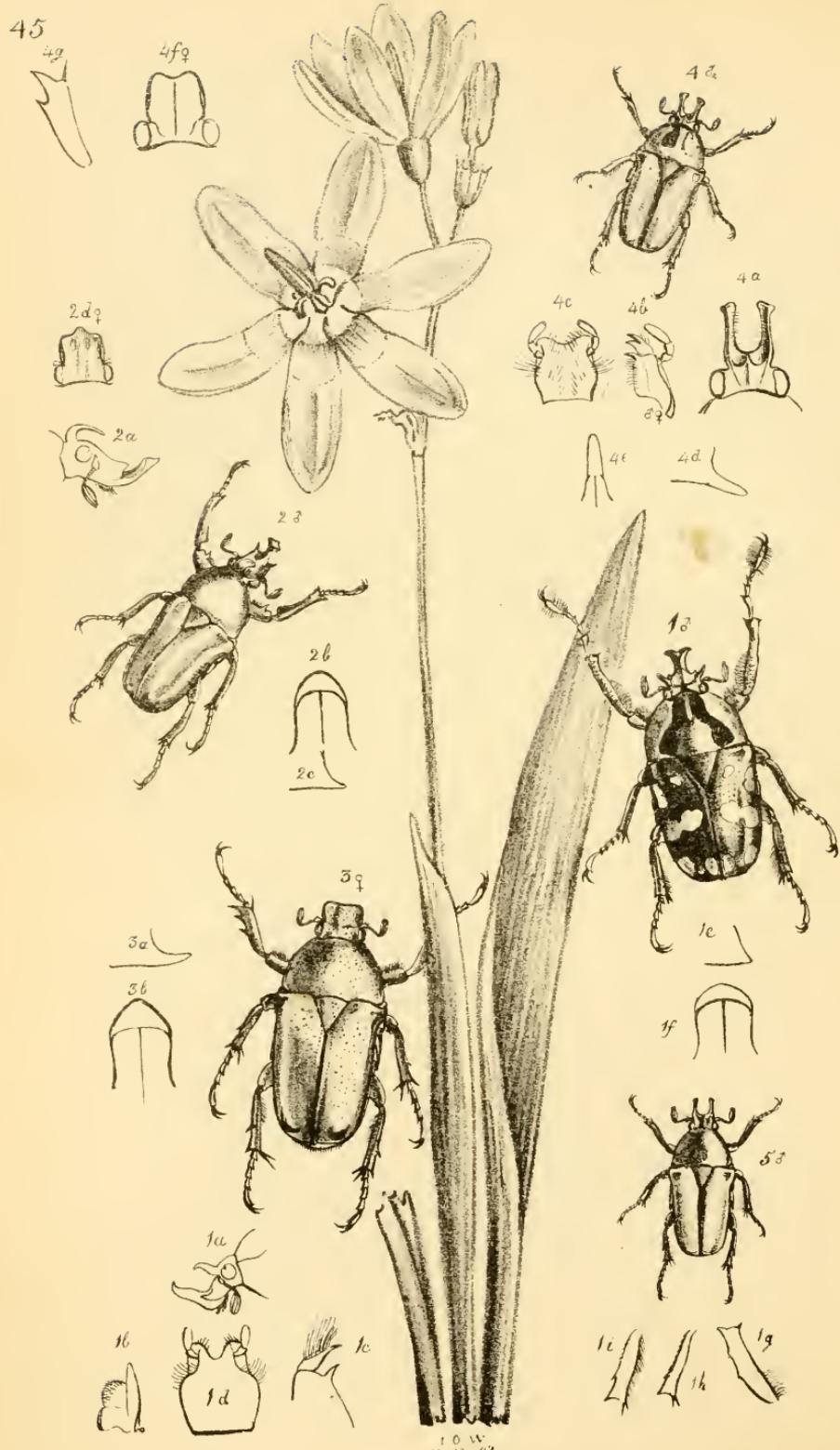
Both sexes of this beautiful species are in the collection of Mr. Turner of Manchester, who kindly forwarded them, and numerous other rarities, to Liverpool, for the examination of Dr. Burneister and myself during our visit to the latter city. The prothorax and elytra in both sexes are most delicately punctured; the suture, and a broad stripe down the sides of the latter, of a splendid green, the other parts of the elytra being stained with fulvous. The front of the head of the male is bright fulvous, the extreme tips of the lateral horns black. On the underside, the male is of a splendid golden green, the femora with a dorsal stripe of bright red, the tibiæ above green, beneath black, as well as the tarsi; underside of the front of the head and horn rich brown the latter tinged with green; the abdomen deeply impressed in the centre, the impressed part bright fulvous red; clava of antennæ fulvous. Abdomen of female beneath concolorous, with the rest of the underside of the body. Sides of metasternum and of abdomen thickly punctured. Figure 1 *a* represents the side view of the head; 1 *b* the horns seen from behind; 1 *c* the maxilla of the male (*the inner lobe in both maxillæ terminated by a short tooth*); 2 *a*, the extremity of the maxilla of the female, with a stronger tooth.

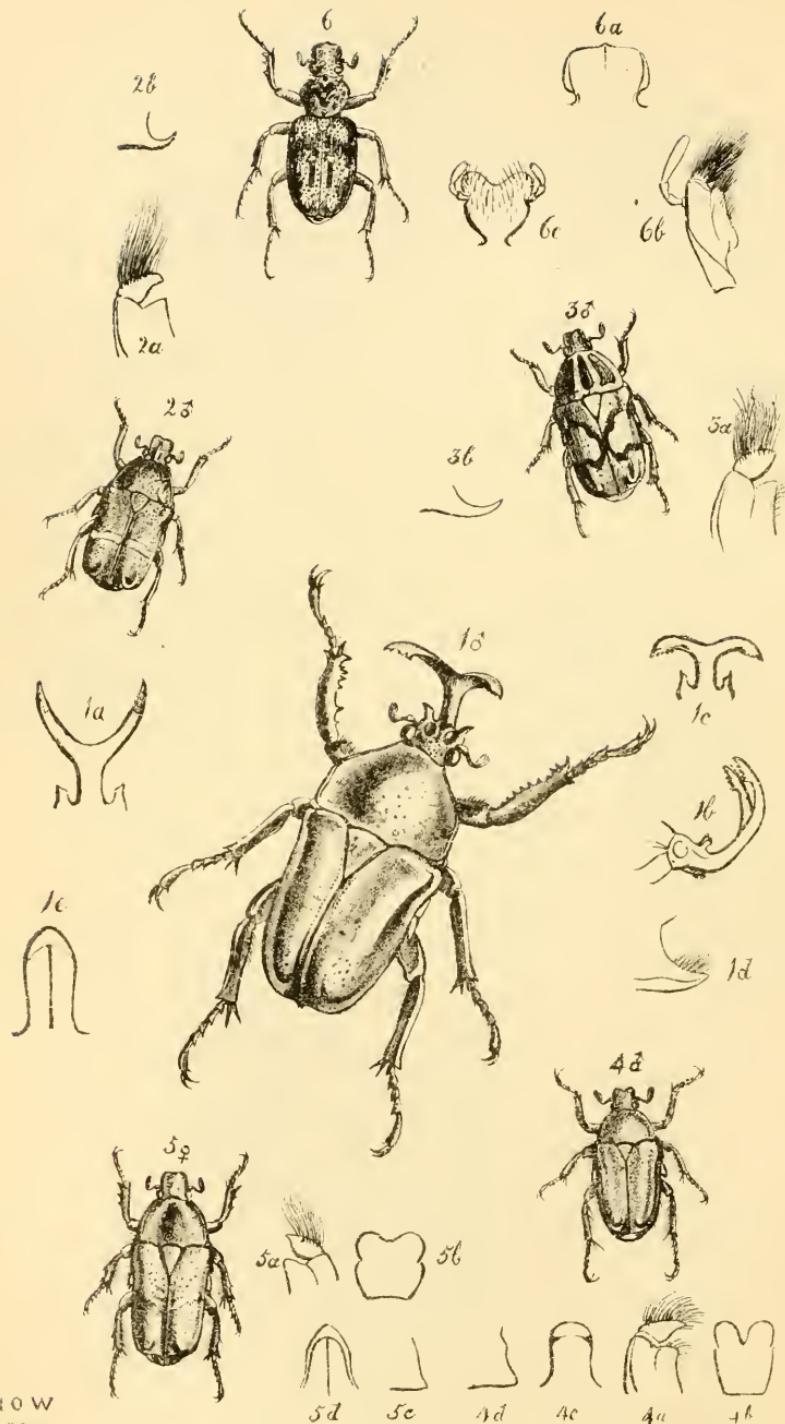
SPECIES V. (IX.)—*Ceratorhina (E.) Grallii*, Buquet in Ann. Soc. Eat. de France, 1836, (Tom. v.) p. 201, Pl. 5, fig. 3.

Supposed by M. Buquet to be a native of Western Africa.

SPECIES VI. (X.)—*Ceratorhina (E.) ignita*, Westw. (The description and figure of which will appear in the following Number).

The plant represented in Plate 42, is the *Babiana villosa*, a bulbous native of South Africa; and that in Plate 43 is the singular Orchidaceous *Bulbophyllum saltatorium* Lindl. from Sierra Leone.





PLATES XLV AND XLVI.

ON THE GOLIATHIDEOUS CETONIDÆ OF AFRICA.

PART II.

CERATORHINA (EUDICELLA) IGNITA. *Westw.*

(Plate 46, fig. 1. ♂.)

C. (E.) *viridis*, cupreo-micans, capite ♂ tricorni, cornu medio capite plus duplo longiori porrecto recurvo, bifido, luteo-brunneo ramis divergentibus apice tuberculatis, elytris concoloribus immaculatis, tibiis castaneis tarsis antennisque nigris. Long. Corp. (exclus. cornu capitis) lin. 17 $\frac{1}{2}$. Lat. ad basin elytrorum, lin. 8 $\frac{1}{2}$.
 Habitat in Africa tropicali. Gold coast. In mus. D. Raddon.

Considerably larger than any of the other species of Eudicella, the male having the upper surface of the body of a splendid opaline green, strongly tinged with coppery orange; the insect when held towards the light appearing entirely green, while when held from it, it appears of a rich coppery red.

The head has less of the coppery hue, it is almost flat above and nearly quadrate; it is closely punctured, the punctures being quite visible to the naked eye. From the base of each antenna runs a sinuated dark slender impression, almost parallel with the inner margin of the eye; the anterior angles of the head are produced into a short diverging spine, directed upwards, of a brown colour, black at the extreme tip, and obliquely truncate within. Between each of these spines and the middle of the head is a deep oval impression of a green colour. The space between these two impressions is occupied by a triangular brown patch running backwards from the middle of the front of the head, which is produced into a long luteous-brown horn, the base of which is darker reddish brown, and nearly straight, being elevated in a slight curve, at the extremity of which the horn is divided into two branches, which follow the curve of the basal part, each terminating in a point, behind which are several (three or four) black tubercles; the junction of these two branches forming a regular curve when seen from behind. The entire horn is more than double the length of the head. (Fig. 1 *a*, 1 *b*, 1 *c*, the horn seen in different positions.) The eyes and the antennæ are black, the palpi pitchy, the maxillary being paler than the labial.

The pronotum is, at the hind part, half as broad again as it is long, and is very finely and closely punctured, especially at the sides and fore-angles, the punctures being scarcely visible to the naked eye; it is slightly dilated in the middle of the sides, which have slender thickened margins. Near the base of the scutellum are two slight impressions. The scutellum and elytra are covered with excessively fine punctures not visible to the naked eye; the latter has two lines of deeper punctures running along the sides of the suture. This is elevated at the extremity of the elytra, where it has a slender black margin and terminates in two points. The sides of the elytra are concolorous, the middle of the raised humeral part appearing rather darker, but not in the least marked with the black spot observable in the other species. The base of the elytra is rather broader than the hind part of the thorax. The elytra are one fourth longer than broad. The underside of the body is green tinged with coppery orange, especially across the middle of the metasternum; this has a dark longitudinal line in the centre, and the sides are thickly punctured. The underside of the femora are marked with minute slender dark oblique striae; the femora on the upper side are entirely castaneous red; the anterior with a thick coating of hairs along the edge. The tibiae are castaneous brown, very slightly tinged with green; the anterior curved and irregularly dentate along the inner edge. The teeth, spines, and tarsi are black; the tibiae beneath are dark brown. The anterior extremity of the metasternum is green, whilst the base of the mesosternum is coppery, (fig. 1 *d*, 1 *e*, sternal process). The abdomen beneath is green, with the slender margins of the segments dark brown. The centre of the abdomen has a deep impression, which is dark along the middle.

SECTION 3.—CHEIROLASIA. *Westwood.*

This section is distinguished by the anterior tibiæ of the males being destitute of the serrations which so singularly arm those of the preceding sections. The apex of the anterior femora, and the base of the tibiæ are, however, clothed with a thick coat of fulvous hairs, of which also a broad brush ornaments the apical joint of the fore tarsi. The head of the males is armed on each side, in front of the eyes, with a porrected horn; and the middle of the clypeus is produced into a thick horn, dilated and very slightly bifid at the tip. The sides of the front of the clypeus are also pointed. The body is comparatively short and broad, destitute of metallic colours, but marked with pale pubescent patches. The mandibles have the blade slender and rather acute (Pl. 45, fig. 1*b*). The maxillæ have the basal lobe produced into an acute spine; and the apical lobe is also very acute (fig. 1*c*, both maxillæ being alike). The mentum has the fore margin deeply cleft (fig. 1*d*). The sternal process is broad, obtuse, and but slightly porrected (fig. 1*e* and 1*f*).

SPECIES I. (XI.)—*Ceratorhina (Cheirolasia) Burkei*. Melly's MS. (Plate 45, fig. 1). *Nigra nitida, capite, prothoracis lateribus maculis elytrorum, corporeque subtus albida pubescens obsitis, tibiis posticis tarsisque omnibus fulvis ♂. Long. corp. lin. 12—14 (cornu capitis inclusu).*

Habitat in Africa australiori. D. Burton.

This is one of the fine new species collected by Mr. Burton in Southern Africa (see p. 174), for a knowledge of which I am indebted to A. Melly, Esq. The head is fulvo-castaneous, the edges of the large frontal horn and the tips of the two short ones at the fore angle of the clypeus black, the hind part of the head black, with two large triangular patches of pale pubescence, of which there is also a large one on each side of the carina, running to the middle of the frontal horn, where it forks, and extends to the tip of each branch; the horns in front of the eyes are fulvo-castaneous, the antennæ fulvous, the underside of the head and trophi fulvo-castaneous. The prothorax has its upper surface marked on each side with a broad band of pale pubescence, in which is a small dark dot; this pubescence extends narrowly along the fore margin of the prothorax, from the middle of which it is extended backwards in a narrow line to the middle of the disk. Within each pale band is a sooty-black opaque one, the space enclosed within which and the hind margin is very bright, with a few very minute punctures. The elytra are black and shining, with a slight pitchy tinge, the base and extreme apex being bright castaneous; they are marked with a variable number of impressed patches of pale pubescence, which become more or less confluent in different individuals. The disc is slightly and very minutely punctured. The podex is castaneous, with a large white spot on each side. The fore legs are elongated; the femora castaneo-fulvous, with the tips black; the anterior ones thickly clothed within with fulvous hairs; the fore tibiae black, with the tips fulvous, which is also the colour of the dense patch of hairs within, at the base; the outer margin presents the slightest possible indications of an approach to the common tridentate structure, in the existence of two slight sinuations; the tarsi are long, with the joints produced acutely at the tips within, the terminal joint rather broad and thickly clothed with fulvous hairs; the four posterior tibiae are fulvous, with the base beneath black; the tarsi are also fulvous; they are slightly serrated along the outer margin; each of the four posterior tibiae is furnished with two rather short spurs; and there is a very minute bisetose appendage between the ungues of each foot. The metasternum is black, with the sides covered with pale pubescence, as are also the posterior coxae; the abdomen black, with two rows of large pale patches down the middle, and several smaller spots on each side. It is very slightly channelled down the three

basal segments. The smaller specimen sent me by Mr. Melly had the horns of the head rather shorter, the spots of the elytra more confluent, the four hind legs entirely fulvous, the anterior tibiae with the sinuations more distinctly marked so as to give them more the appearance of being tridentate (fig. 1 g), and the four hind tibiae more serrated (fig. 1 h, 1 i). The maxillæ in this specimen were of a similar form to those of the larger specimen figured in the plate.

SECTION 4.—TAURIIINA, *Burmeister.*

This section is distinguished from the last by its splendid metallic colour and by its fore tarsi being destitute of an apical brush, and from the following by, having the hind part of the head, in the males, produced into a broad curved horn (pl. 45, fig. 2 a), whilst the centre of the front margin of the clypeus is porrected in the shape of a thick obtiangular horn; the front of the clypeus of the female (pl. 45, fig. 2 d, from Schaum) is not straight. The inner lobe of the maxillæ is simple in the males: (I have not seen a female in nature). The anterior femora and tibiae, in the males, are singularly constructed, evincing an approximation to the internally serrated tibiae of some of the preceding species. The sternal process is broad and somewhat triangular at the tip, which is more porrected than in the last group (fig. 2 b, 2 c). The abdomen is channelled beneath, and the pseudonychiaæ are distinct but very minute, the unguiculæ being scarcely visible.

SPECIES I. (XII.)—*Ceratorhina (T.) Nireus* (Plate 45, fig. 2.)

SYN.—*Dicranorhina Nireus*, Schaum. Anal. Ent., p. 40, tab. annex. ♂ ♀. Burmeister, Handb. d. Ent., Vol. 3, p. 190.

This beautiful species inhabits Guinea. The only specimen I have yet seen is in the collection of Captain Parry of Cheltenham, who has kindly permitted me to illustrate it in this work.

SECTION 5.—CŒLORRHINA, *Burmeister.*

The type of this section exhibits equally splendid colours with Taurhina, from which it differs in the armature of the head of the male, which is thus described by Mr. MacLeay, who, I believe, alone possesses this sex:—"Clypeo antice concavo, cornu medio brevi recurvo, apice dentato, triangulum obversum simulante." He also describes the anterior tibiae as having no teeth externally or internally. The female has the head unarmed, with the front margin of the clypeus slightly emarginated; the inner lobe of the maxillæ is strongly toothed; the front margin of the mentum is deeply incised; the anterior tibiae are tridentate, and the four posterior ones have a tooth on the outside, beyond the middle. The sternal process is of the same form as represented in pl. 45, fig. 3 a, 3 b.

SPECIES I. (XIII.)—*Ceratorhina (C.) 4-maculata.*

SYN.—*Cetonia 4-maculata*, Fabricius. Olivier. Gory and Perch., Mon. 131, 4 pl. 19, fig. 4. MacLeay. Burmeister, H. d. E., iii. p. 207.

The typical specimen of this insect, described by Fabricius from the Banksian Cabinet, is still in that collection at the Linnæan Society, being a female.

SPECIES II. (XIV.)—*Ceratorhina (Cælorrhina ?) aurata*, Westw. (Plate 45, fig. 3).

Læte viridi-aurea, antennis et clypei iuargiuibus nigris, hujus margine antico ♀ lato ferè recto; elytris maculis duabus parvis triangularibus humeralibus alterisque duabus apicalibus nigris, iuarginibus fulvo-aureis; tibias tarsisque aureo-viridibus ♀. Long. corp. lin. 16 $\frac{3}{4}$. Lat. ad basin elytr. lin. 8.

SYN.—*Goliath. (Eud.) auratus*, Westw. Ann. of Nat. Hist., Nov. 1841.

Cælorrhina aurata, Burmeister, H. d. E., iii. p. 208.

Inhabits the shores of the Cameroons River, in Western Tropical Africa. In the Cabinet of J. Turner, Esq. of Manchester.

I am unfortunately unacquainted with the male of this species, and am therefore unable to determine the precise group to which it belongs, placing it here provisionally, since it differs from the Eudicellæ and Cælorrhina 4-maculata in the broader shape of its clypeus and green tarsi, although agreeing with the latter insect in a narrower form than that of the female Eudicellæ, as well as in the narrowed shape of the mentum. It agrees with Taurhina Nireus ♀ in possessing green tarsi, but differs in the truncature of its clypeus.

The general colour of this insect is a rich golden-green. The hind part of the prothorax and the suture and margins of the elytra more fulvous. The clypeus is very much punctured; its margin and the antennæ and palpi black. The maxillæ in the female have both lobes armed with an acute tooth. The elytra have a small black triangular patch at each shoulder, and a black spot near the tip of each. The suture is also black at the tip. The feet are golden-green; the femora above are fulvous golden-green; whilst the tibiae and tarsi are green-golden, with the ungues black. The podex is green, with numerous black transverse-indentated striolæ. The body beneath is of a richer golden-green, with the legs and tarsi green, the femora fulvous-green on the upper edge, the clypeus beneath green with the margin black. The sides of the metasternum and of the abdominal segments are much punctured; the middle of the metasternum with a red line. The sternal process is broad, with the apex subtriangular (fig. 3 a, 3 b).

SECTION 6.—*STEPHANORRHINA*, Burmeister.

This section (which Dr. Burmeister has regarded as congeneric with *C. 4-maculata* and *simillima*) is distinguished by the anterior tibiæ of the males being simple in both margins, and by the head of the same sex having an oboconical horn on the front of the forehead, and the anterior angles of the clypeus elongated into porrected horns. The sternal process is very similar in form to that of *C. aurata* (pl. 45, fig. 3 a, 3 b). The female has the head simple, the clypeus slightly emarginate, and the anterior tibiæ 3-dentate. The elytra are carinated and marked with numerous white pubescent spots.

Species I. XV.—*Ceratotrichia* S. *rufata*. Olivier. Gory and Percheron. in 12. fig. 6. 2. Biograp. et Annales Soc. Ent. France. v. 5. pt. 3. p. 3. t. 3.

The locality of this species has been the subject of much confusion. Olivier cites South America. Gory and Percheron give China as its probable habitat, whilst Mr. MacLeay (Cat. Soc. Ent. p. 29, 30), introduces it into his Indian group named *Narcisea*. It is, however, a native of Guinea and the neighbouring parts of Africa.

TMESORRHINA. Westwood.

The description of this genus will be found in a preceding page (71). The genus is here restricted to two species, from a consideration of the structural peculiarities alluded to in page 108.

Species I.—*Tm. concinna*. Plate 19. fig. 3. undi fessile. Dr. Burmeister as well as myself have regarded the *Senecorhinus* Thoms. of Sennar. Ann. Ent. p. 221 as the male of this species.

Species II.—*Tm. lins.* Fabricius. Oliver. Westw. ante. p. 107.
var. *Tm. amoenis*. ante. pl. 19. fig. 1.

Both sexes of this tropical African species are now in the collection of the Rev. F. W. Hope. The female is contained in the Banksian Cabinet. The habitat Surinam, given to the species by Fabricius, is altogether erroneous.

APHELIORRHINA. Westwood.

This generic name is now proposed for the insect represented in plate 19. fig. 4. under the name of *Tmesorrhina simillima*, of which I am acquainted only with the male, in which sex the head is unarmed, with the front margin of the elypterus slightly emarginate, the fore-legs long and simple: the sternal process long, prorected, with the apex slightly bent upwards: the apical mesosternal portion narrower than the basal metasternal part, and subtriangularly elongated. The elytra are marked with numerous white pubescent spots, and the maxillæ have the inner lobe obtuse and the outer one entire.

Species I.—*Apheliorrhina simillima*. Plate 19. fig. 14. und pages 12 and 108. 3.

DYMUSIA. Burmeister.

The head in both sexes is unarmed, and the elypterus deeply emarginate. The maxillæ have the basal lobe obtuse in both sexes, and the apical one very acute. The mentum is very deeply emarginate. The sternal process is elongated: the apical mesosternal part narrower than the base and rounded off at the tip. The fore-

legs in the male are scarcely longer than in the females, with the tibiæ bidentate at the tip, those of the females being 3-dentate. The elytra are terminated by two sutural spines, the disc being more or less marked with white dots.

SPECIES I.—*Dymusia cyanea*. Burmeister, Olivier, (*Cetonia c.*) Gory and Perchéron (*Schizorhina c.*) pl. 27, fig. 6.

SPECIES II.—*Dymusia punctata*. Burmeister, Schonherr, Syn. 1, 3, App. p. 52. (*Cetonia p.*).

SYN.—*Schizorhina Swartzii*, Schaum Anal. Ent. p. 43.

BOTHORRHINA, Burmeister.

By an accident, the typical species of this group was illustrated by me in a previous Number (p. 126) under the name of *Plæsiorrhina*, a name given by Dr. Burmeister to a different (subsequently mentioned) group. It comprises two species, natives of Madagascar, of great rarity.

SPECIES I.—*Bothrorrhina reflexa*, Burmeister.

SYN.—*Cetonia (Goliath) reflexa*, Gory and Perchéron, op. cit. supr.

Plæsiorrhina reflexa, ante, p. 126, and plate 32, fig. 1 and details.

SPECIES II.—*Bothrorrhina ochreata*, Burmeister, Gory and Perchéron (op. cit. sup. C. G. ochr.).

CHORDODERA, Burmeister.

This group has the front of the head in the males produced into a short straight truncated horn, with another flat deflexed truncated horn arising between the eyes; the female has the middle of the front margin of the clypeus slightly elevated, and an acute triangular horn arising between the eyes. The maxillæ have the inner lobe acutely pointed. The mentum is rather deeply emarginate. The fore tibiæ are tridentate in both sexes. The sternal process is but very slightly porrected, and dilated into a short round lobe in front. The colours are obscure, the thorax with lines, and the elytra with spots of pale pubescence. The species are from tropical Africa.

SPECIES I.—*Chordodera 5-lineata*, Burmeister, Handb. d. Ent. 3, 203, Fabricius, Olivier 1, 6, 33, f. 76, (*Cetonia 5-l.*).

SPECIES II.—*Chordodera pentachordia*, Burmeister, Klug in Erman's Reise, t. 15, f. 9. (*Ceton. p.*).

PLÆSIORRHINA, Burmeister (nec. Westw. ante, p. 126).

This genus is remarkable rather on account of its non-possession of striking characters distinctive of the opposite sexes; thus, the head is simple, with the clypeus nearly straight in both sexes. The maxillæ also have both the lobes unarmed. The fore tibiæ are nearly alike in both sexes, and destitute of teeth on the outside*.

* D. Schaum has erroneously assigned the character of tridentate tibiæ in both sexes to this group. Anal. Ent. p. 42.

The mentum with the front margin nearly straight. The sternal process long, narrow, rather acute at the tip, and bent upwards.

SPECIES I.—*Plæsiorrhina depressa*, Burmeister; Gory and Perchéron pl. 21, fig. 1, (*Gnathocera d.*).

SYN.—*Gn. Cleryi*, Dej. Cat.; and *Gn. tristis*, Buquet.

SPECIES II.—*Plæsiorrhina cincta*, Burmeister; Voet, Olivier, Herbst, Schonherr (*Cetonia c.*).
SYN.—*Cetonia tænia*, Pal. Beauv.; Gory and Perchéron, pl. 21, fig. 4.

SPECIES III.—*Plæsiorrhina plana*, Burmeister; Wiedemann, Germar Mag. 4, 145, (Cet. p.).

SYN.—*Coryphe Herschelii*, MacLeay, Cet. Soc. Afr., p. 31.

SPECIES IV.—*Plæsiorrhina mediana*, Westw. Plate 46, fig. 2. Supra nigra, pronoti lateribus fasciæ tenui mediana elytrorum corporeque subtus cum femoribus fulvis. Long. corp. lin. 8. Inhabits Cape Palmas, Mr. Savage. In the collection of the Rev. F. W. Hope.

The upper surface is black, moderately shining, and very delicately punctured; the front margin of the clypeus is very slightly emarginate; the prothorax has a very slender yellow margin on each side, within which the disc is obliquely strirose; the elytra are black and depressed, with a slender, nearly straight, fulvous transverse fascia, interrupted by the suture; the epimera are fulvous; the podex black, with a fulvous patch on each side; the underside of the body entirely fulvous (except a slight dash of black at the base of the abdominal segments, on each side); the femora are fulvous, and the tibiae and tarsi black.

SPECIES V.—*Plæsiorrhina abbreviata*, Burmeister, Fabricius, (*Cetonia a.*)

SYN.—*Gnathocera flavo-succincta*, Gory and Perchéron, pl. 22, fig. 2.

This species varies greatly in the colour of the prothorax, which in some specimens is entirely black, in others entirely red, and in some is red with a very large black discoidal patch. All these varieties are contained in the collection of the Rev. F. W. Hope, the first being labelled with the name of "Cingulata Gory," and from Guinea. Burmeister, however, describes that species (H—b. d. Ent. p. 561,) under the genus *Anochilia*, and as a native of Madagascar.

HETERORHINA, *Westwood*, ante, p. 132.

The great diversity in the armature of the head of the males in the species associated under this group, appears to me to be a sufficient proof of the comparative unimportance of such a character for the establishment of genera to be founded thereupon. Dr. Burmeister, in his *Handbuch der Entomologie*, III., p. 216 et seq., has, on the contrary, not only adopted the genus *Diceros* as distinct from the group which he calls *Coryphocera* (comprising most of my *Heterorhinæ*), but has also raised the *Gnathocera* MacLeay, of Gory and Perchéron (my *Heterorhina* dives), to the rank of a genus, under the name of *Mystroceros* Diardi, whilst he has sunk the *Trigonophori* into a section of his *Coryphocera*. In the appendix to his volume, p. 790, he has reduced *Mystroceros* to a species of *Diceros*. The opinion, however, which I formerly expressed

respecting the unity of these groups, has been more strongly confirmed by the examination of the new species represented in plate xlvi., figs. 4 and 5, which present another diversity in the structure of the head, accompanied by an equally marked difference in the maxillæ and fore tibiae, which would render it as unnatural to unite them into a genus with *Diceros bicornis* as it is to unite *Heterorhina dives* (Gn. MacLeay, G. and P.) with them; the general habit of the last-named species agreeing with that of the true *Cetonia MacLeaii*, of Kirby.

The following are the African species of this group:—

SPECIES I.—*Heterorhina Africana*, Drury (Scar. Afr.) Fabricius, Olivier, Gory and Perchéron, pl. 19, fig. 6.

SYN.—*Scarab. æruginous*, Voet.

?—*Scarab. pyropus*, Voet.) An Syn. Het. laetæ?

SPECIES II.—*Heterorhina viridi-cyanea*, Pal. Beauv. Ins. pl. 5, fig. 5. Gory and Perch. pl. 21, fig. 2.

SYN.—*Cet. Stigma*, Pal. Beauv. pl. 5, fig. 4 (variety).

Note.—The Rev. F. W. Hope informs me that the insect represented in my plate 35, fig. 4, p. 138, is a native of Africa, in which case I apprehend it, like *C. stigma*, is a variety of this species. Messrs. Gory and Perchéron have confused the two African and Indian allied species under the name of *Gnathocera elegans*.

SPECIES III.—*Heterorhina monoceros*, Gory and Perch. Mon. Cet. pl. 21, fig. 3. Burm. Handb. 3, p. 232.

SPECIES IV.—*Heterorhina suturalis*, Fabricius, Olivier, Gory and Perch. Mon. pl. 21, fig. 6.

The original specimen of this species described by Fabricius, is in the Banksian Cabinet, being a female. It has the fore tibiae rather more strongly bidentate than the male. A male insect of this species is contained in the cabinet of the British Museum, marked as a new species. Having compared the drawing of it (which I made with the view of figuring it in this work) with the original Banksian specimen, I find them specifically identical.

SPECIES V.—*Heterorhina Algoensis*, Melly's MSS. (Plate 45, fig. 4.) Luteo-fulva, pronoti maculis duabus, alterisque duabus minoribus humeralibus nigris, elytris flavis, abdomineque nigro, hujus apice rufo; capite ♂ bicornuto. ♂ ♀. Long. corp. lin. 9—10. Inhabits the south-eastern part of Africa. In the collection of A. Melly, Esq.

The head of the male (Pl. 45, fig. 4 a.) has the anterior angles of the clypeus produced into two long prorected, nearly straight, horns, with the apex obliquely truncated, the inside of each being rather concave and hairy. The disc of the head is also armed with a short triangular deflexed spine; the head, pronotum, scutellum, suture of the elytra, epimera, posterior coxae, femora, tibiae, podex, sternal spine, and centre of the metasternum, are fulvous red and very shining. The tips of the horns of the head, the eyes, club of the antennæ, patches on the pronotum, and humeral spots, black; the tarsi pitchy; the sides of the metasternum strongly punctured; the abdomen black and shining, with the apex red. The elytra are very slightly punctate-striate. The maxillæ in this sex (fig. 4b) are bidentate, both being alike; the mentum is emarginate in front (fig. 4c). The anterior tibiae have the slightest possible indication of a tooth on the outside, towards the apex, which is very acute, the four posterior tibiae are furnished with a spine in the middle; the unguiculae are minute but distinct; the sternal process is long, narrow, straight, and deflexed (fig. 4 d, 4 e). The female differs, in having the head

simple, with the front margin of the clypeus emarginate (fig. 4*f*); the anterior tibiae strongly bidentate (fig. 4*g*, in which respect it differs from all the other African Goliath beetles); and I observed that one of the maxillæ had the apical lobe bidentate, whilst it was simple in the other maxilla. It is similarly coloured to the male, except that the red is less bright, and the sides of the posterior coxae are less broadly marked with red, and the antennæ have the clubs pitchy red. Brought, together with the following species, by Mr. Burke from the hilly country in Africa, lying between 25 and 26 degrees South Lat., and 27 and 28 degrees Long. East.

SPECIES VI.—*Heterorhina flavipennis*, Westwood. (Plate 45, fig. 5.) Nigra nitida, elytris pallide flavis, capite ♂ antice bicornuto. ♂ Long. corp. lin. 9.
Inhabits the south-eastern part of Africa. In the collection of A. Melly, Esq.

Closely allied to the preceding species, but narrower. Black, shining, slightly punctured, especially at the sides and hind part of the pronotum. Elytra pale yellow with two small dark humeral spots, and with several rows of slight longitudinal punctate striae. The horns of the head are similarly formed to those of *H. Algoensis*. The fore tibiae of the males are simple, and the hind ones less strongly toothed in the centre. Beneath entirely black and shining; the sides of the metasternum punctured.

SPECIES VII.—*Heterorhina Feisthamellii*, Gory and Perchéron, Mon. pl. 19, fig. 5.

Messrs. Gory and Perchéron give Senegal as the habitat of this species, which seems from their figure to approach *H. viridi-cyanæa* as figured by Palisot de Beauvais. Burmeister, however, who examined the insect in Paris, gives it as a probable variety of the Indian *C. elegans* (Handb. d. Ent. 3, 228).

There still remain two species of this group of whose true locality there appears to be some doubt, namely:—

SPECIES VIII.—*Heterorhina Chloris*, Hope, Gory and Perch. Mon. pl. 20, f. 5.

The typical female specimen in Mr. Hope's collection is labelled "Brazil," but which (notwithstanding Burmeister gives it as a variety of the Indian *H. elegans*, Hand. d. Ent. 3, 228), I apprehend is an African insect, differing from *H. Africana* ♀ in not having the head cornuted above, and in having shorter and thicker tibiae and tarsi; whilst as compared with the females of the *H. elegans* it is more elongated, and the tibiae are less strongly bidentate.

SPECIES IX.—*Heterorhina Smaragdina*, Hope, Gory and Perch. Mon. pl. 20, fig. 1, (but not of Herbst., &c.) See page 137.

ANISORRHINA, Westwood.

See p. 126. (*Genyodonta*, Burm. H. d. E. 3, 234.)

SPECIES I.—*Anisorrhina bimaculata*, De Geer, Olivier, 1, 6, 14, pl. 7, fig. 52 ♂; pl. 2, fig. 6 ♀. Herbst. Icon., tab. 27, fig. 5.

SYN.—*Cetonia flavo maculata*, Fabricius, Gory and Perch., Mon. pl. 21, fig. 3 ♀. MacLeay, Burmeister.

Scarabæus bisignatus, Herbst., col. 3, p. 164.

The male has the head armed with a short flat horn on the vertex, and the front of the clypeus has the centre recurved and more or less emarginate. In both sexes the inner lobe of the maxillæ is armed with a strong curved hook at the apex, and the outer lobe is broad and entire.

SPECIES II.—*Anisorrhina umbonata*, Gory and Perchéron, Mon. pl. 22, fig. 1 ♂. MacLeay, Burmeister.

The head is simple and unarmed in both sexes of this species. The maxillæ are alike in both sexes, with the apical lobe strongly bidentate, and the basal lobe terminated by an acute point. The male has no depression along the under side of the abdomen, and the clava of the antennæ is larger in this sex than in the female.

Mr. MacLeay has given the *Cetonia propinqua* of Hope, Gory and Perchéron, Mon. pl. 51, fig. 3, as the female of this species, although those authors state Mexico as the habitat of the last-named insect. I have now before me Mr. Hope's typical specimen of *C. propinqua* (labelled as all the individuals in his collection, which have served for the descriptions of the various new species described therewith are, with red paper tickets *), and find it to belong to a different sub-family of Cetoniidæ, although having a very great *general* resemblance to *H. umbonata*. It is a male with the abdomen slightly channelled beneath, and with tridentate anterior tibiae; the two terminal teeth being very close together.

SPECIES III.—*Anisorrhina trivittata*. (Plate 46, fig. 3 ♂.) Rubro-fusca, pronoto vittis tribus nigris, elytris macula magna sinuata flava nigro-cincta.

SYN.—*Gnathocera 3-vittata*, Schaum, Anal. Ent. p. 41. Burmeister Handb. d. Ent. 3, p. 236.

This new and hitherto unfigured species inhabits Caffraria and Port Natal. In its colours and markings it approaches nearest the first species, but differs from it as well as from *umbonata* in structural characters. I have only seen a male in Mr. Hope's collection, from which the accompanying figure is taken. It has the legs short and thick. The head is unarmed with the clypeus somewhat emarginate. The maxillæ have both the lobes simple and obtuse (pl. 46, fig. 3 a). The sternal process is very much curved upwards at the tip (fig. 36), and the abdomen is not channelled beneath.

SPECIES IV.—*Anisorrhina bicolor*. (Pl. 46, fig. 5 ♀.) “ Nigra nitidissima, elytrorum basi rubra, ♀.”

SYN.—*Genyodonta bicolor*, Burmeister, Handb. d. Ent. 3, 238.

This curious species is a native of South Africa (Enon), and is unique in the collection of M. C. Sommer, Esq. of Altona, to whose kindness in forwarding the insect for my examination I am greatly indebted. It is of a narrower and more elongated form than the other species, with the head unarmed; and the fore margin of the clypeus slightly emarginate. The maxillæ have the inner lobe simple, and the apical lobe short and thick (fig. 5 a). The mentum is deeply emarginate in front (fig. 5 b). The scutellum is long and narrow-triangular, and the sternal process is very short and thick (figs. 5 c and 5 d).

SPECIES V.—*Anisorrhina Natalensis*, Hope. (Plate 46, fig. 4 ♂). “ Smaragdina, capite fere quadrato marginibus elevatis nigris, thorace viridi varioloso, elytris viridi-opalinis crebrissime punctulatis, podice postice aureo; tarsis piecis.”

SYN.—*Gnathocera Natalensis*, Hope in Proc. Ent. Soc., p. 33.

This new and hitherto unfigured species inhabits Port Natal in South Africa, and is unique in the collection of the Rev. F. W. Hope, to whom I am indebted for an opportunity of illustrating it. The specimen is a male. The fore margin of the clypeus is slightly emarginate. The maxillæ have both lobes simple (fig. 4 a). The mentum is very deeply incised in front (fig. 4 b). The legs are rather long and slender, with the fore tibiae simple. The sternal process is short, broad and rounded in front (figs. 4 c, 4 d). The abdomen is deeply channelled; and the elytra have no sutural spines at the extremity.

CETONIA RECURVA, Fabricius, Syst. Eleuth. 2, 138, is too concisely described to be accurately determined, although from the characters “ tota ænea, sterno magno porrecto, cornuto recurvo,” it appears to enter the genus *Plaeiorrhina*, if indeed it be not identical with *P. depressa*. It is a native of Guinea.

* The idea of thus, or in some other manner, indicating the *type* specimens in collections, is a most excellent one, and ought to be adopted, especially in all public collections.

CETONIA NITIDULA, Fabr., Ent. Syst. 1, 2, 146, is another African species which cannot be determined from the concise description of Fabricius. The emarginate clypeus, however, and the elytra acuminated at the apex, &c. seem to refer it to the genus *Dymusia*. It was described from the collection of Mr. Lee. Mr. Hope (Col. Man. 1, 38) refers it to the genus *Cetonia* without any expression of doubt.

INCA LINEOLA, Westwood. (Plate 46, fig. 6.)

Although the genus *Inca* has, as it appears to me, been satisfactorily proved to belong to the Trichiideous and not to the Goliathideous Cetoniidæ, I cannot resist the opportunity of figuring a species recently received by the British Museum from Sierra Leone, where it was collected by the Rev. D. Morgan; all the other known species of the genus being natives of South America. Various instances have been recorded of equally strong peculiarities, in the Entomio-geographical distribution of the species of different groups; as, for example, in a species of *Cerapterus*, brought from Brazil by Mr. Miers; all the other Paussidæ being natives of the old world.

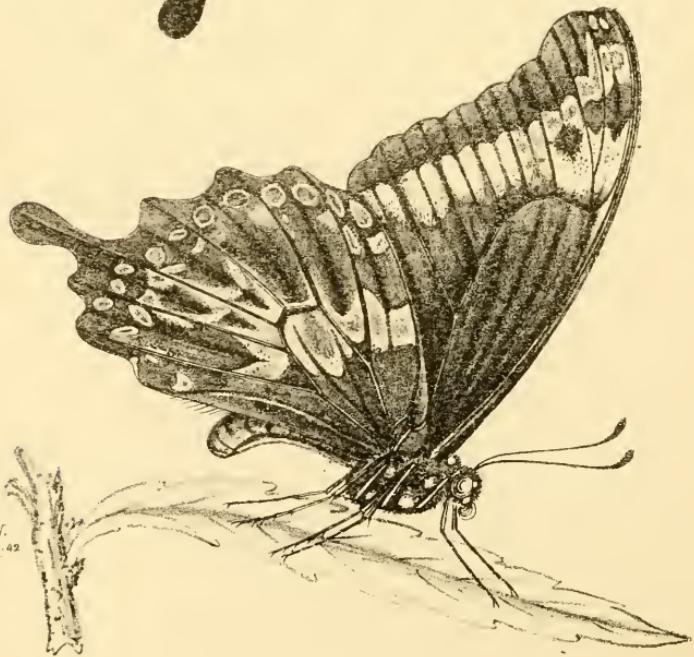
I. nigra, capite et pronoto fulvo, varioloso, hoc tuberculis nigris, elytris albido griseo nigroque variis, alboque guttatis, singulo ultra medium et versus suturam lineola nigra ornato.
Long. corp. lin. 10. Habitat Sierram Leonam, Rev. D. Morgan. In Mus. Britan.

The head and pronotum are black, the latter especially, covered with large fulvous punctures, except in various parts which form small, round, and oblique black, raised, shining tubercles. The head is unarmed and simple (fig. 6 a), the front margin of the clypeus being alone very slightly angulated in the middle. The maxillæ (fig. 6 b) are terminated by a triangular densely hairy lobe. The mentum is deeply emarginate in front, and narrowed at the base (fig. 6 c). The sides of the prothorax are slightly serrated. The elytra are not sinuated at the humeral angles, nor are the epimera visible; the former are punctured, variegated with pale gray, whitish, and black colours, each with four small white round spots, one near the suture in the middle, the other three towards the outer and apical margin. There is also a small black stripe running from the middle white spot parallel with the suture. The legs are black and punctured. The anterior femora have a very slight sinuation near the tip within. The tibiae are straight and destitute of a spine on the inside, but 3-dentate on the outside. The four posterior tibiae have a slight indication of a spine beyond the middle. The sternal process is simple. The body beneath is covered with pale fulvous pile, except in the middle of the metasternum. The abdomen, except at the sides, is also luteous. I presume from the straight middle tibiae, and the rather broad fore ones, that the unique specimen is a female.

I have now brought my revision of the whole of the Goliathideous Cetoniidæ to a close. My object in illustrating this tribe of insects has been twofold; first, to present a series of figures of the many new and rare species of these insects, which, both from their singular forms and beautiful colours, are pre-eminently favourites

with the Entomologist; and second, to obtain, by the very minute analysis to which the species have been subjected, a clew to their natural classification. Naturalists are aware that another tribe of Lamellicorn beetles (namely, the family of the Sacred Scarabæi) was, twenty-four years ago, investigated by Mr. MacLeay with great care, the result whereof led him to propose a quinarian and circular distribution of the species, which he afterwards extended to the whole of the animal kingdom ; and as no subsequent author has revised his arrangement of the Scarabæi, it has been repeatedly held up as an unanswerable proof of the truth of the quinarian system. Five years ago, Mr. MacLeay published his Quinarian Revision of the Cetoniidæ, since which period I have neglected no opportunity of analysing the species of one of the tribes of that family. The result is now before the entomological world, and I feel convinced that no one, after a careful examination of my figures and dissections, can arrive at any other conclusion than that these insects can neither be arranged in a quinarian nor in a circular system. I do not mean hereby to assert that such a system is totally unnatural, but simply that Mr. MacLeay has entirely failed in his endeavour to carry out such a system amongst the Goliathideous Cetoniidæ.

The plant figured in plate 45, is the South-African *Ixia monadelpha*.



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PLATES XLVII. AND XLVIII.

ILLUSTRATIONS OF TWO NEW AFRICAN SPECIES OF PAPILIO.

SINCE my Memoir on the African Species of the Genus Papilio of Modern Authors was published (Plates 37—40), Mr. Edward Doubleday has been so kind as to place in my hands two additional undescribed species, received by his brother, Mr. H. Doubleday, from Mr. Raddon, who obtained them from the Gold Coast. It is with great pleasure, therefore, that I introduce them into the present volume by way of Supplement to my Memoir.

PAPILIO CHIAROPUS. (Plate 47.)

P. alis nigris, fasciâ communî lâte viridi, in posticis dilatata et extus denticulata, versus costam anticarum in maculas divisa, alis posticis caudatis maculisque submarginalibus viridibus, alis subtus fuscis, anticis fascia submarginali lutea versus costam bifida, posticis nebulis ocellisque submarginalibus griseo argenteoque variis. Expans alar. unc. 4 $\frac{3}{4}$.
Inhabits the Gold Coast of Africa. In Mus. H. Doubleday.

This species is closely allied to *Papilio Nireus*, and still nearer to the *Madagascar P. Oribazus* of Boisduval, with which last it might be at first confounded. Having however, whilst in Paris last summer, made drawings of the last-named species and its allies *Phorbanta*, *Epiphorbas*, *disparilis*, &c. (with a view to their publication in this work), I am enabled to state its specific distinction from all of them. The beautiful green bar which crosses the wings is much narrower in the fore wings, and much broader in the hind ones, than in *P. Oribazus* (which is similarly tailed); whilst the underside of this species is quite different, being in fact far more beautiful in its cloudings and silvery ocelli than in any of the allied insects.

PAPILIO HESPERUS. (Plate 48.)

P. alis nigris, fascia communî curvata, macula obliqua versus medium costæ anticarum maculisque duabus discoidalibus posticarum sulphureis, his caudatis. Expans. alar. unc. 5 $\frac{1}{2}$.
Inhabits the Gold Coast of Africa. In Mus. II. Doubleday.

The fore wings of this very distinct species are of a velvety black colour, with an oblique brimstone spot at the extremity of the discoidal cell, divided into three parts by the veins, a small oval subapical spot and a curved fascia extending half across the fore wings and nearly across the hind ones, being broadest in the space

between the first two branches of the great median vein of the fore wings; the hind wings have also a spot near the costal margin, and two patches on the disc beyond the middle. On the underside, the wings are brown, shaded along the apex and hind margins with paler purplish and brownish clouds; the various pale markings are here only partially apparent, the bar across the hind wings being much narrowed, and the discoidal spots on these wings as well as the subapical dot of the fore wings being obsolete. The neck is marked with four minute white spots.

The plant figured in plate 48, is the *Clerodendron splendens* (*G. Don*), a native of Tropical Africa.

“ ————— The fall of kings,
The rage of nations, and the crush of states,
Move not the man, who, from the world escaped,
In still retreats and flowery solitudes,
To Nature’s voice attends, from month to month
And day to day, through the revolving year;
Admiring sees her in her every shape,
Feels all the sweet emotions at his heart,
Takes what she liberal gives, nor thinks of more.”

THOMSON.

ADDENDA ET CORRIGENDA.

Page 2, line 18, and page 6, line 35. for "Eudacilla," read Eudicella.

Page 6, line 28, for "genera," read sub-genera.

— foot note *. Mr. Strahan's insect is the *micans* of Gory, but not of Drury.
See page 172.

Page 8. I now possess an additional species of *Phyllophorpha*, intermediate between *P. Latreillii* and *P. Persica*, which may be thus characterised.

PHYLLOPHORPHA PELLICULA, W. Albida; pronoto postice haud profunde inciso, lateribus in lobos duos lateraliter extensos productis, abdominis lati laciniis penultimis et antepen. maximis æqualibus apice recte truncatis. Long. corp. lin. 5. Habitat in Africâ tropicali.

The plant figured in plate 2 is *Lobelia ramosa* Benth., from the Swan River, given by mistake for *L. gracilis*, which inhabits the Cape of Good Hope.

Page 12, *Systella Rafflesii*, W. Plate 4, fig. 1, 2.

Systella Hoppii, W. Plate 4, fig. 3.

Page 14, The idea of the publication of an English Encyclopædia of Natural History has, I believe, been abandoned.

Page 17, *Epicopeia*. I have recently examined a female of this genus, which possesses setaceous antennæ: thus corroborating its affinity with *Gymnautocera*, &c.

Page 19, *Eterusia bicolor*, Hope, is most probably a variety of *Papilio Edea*, Clerck. Icon. t. 41, fig. 3-4.

Page 24, The genus *Dictynna* may be identical with *Eurys*, Newman, who however gives no description of the peculiar veining of the hind wings. *Entom.* p. 90. *D. lata* is distinct from *E. oratus*.

Page 33, M. De Haan, in the Verhandl. o. d. Natuurl., &c., Orthopt. 1842, has figured *Deroplatys desiccata* ♀ and *D. arida* ♂ (*M. palleata*, Hag. MSS.), as the sexes of one species.

He has also figured, under the name of *D. rhombica*, Hag. MSS., a male insect, which appears to be identical with my *D. angustata*, and giving, as the female, the *D. lobata* of Guerin.

Page 40, line 2, *Cantharocnemis Spondyloides*, Serv. Ann. Soc. Ent. France, I, 133.

Page 43, The Count de Castelnau informs me that some of the insects figured in this plate had been previously described in his Histoire Naturelle des Animaux articulés.

Page 52, line 29, *Dele nostr.*

line 31, read trianguli utrinque ad, &c.

Page 53, *Midas bicolor*. Plate 14, fig. 4.

Page 57, for "*Colobothea leucospilota*," read *C. albo-notata*. See p. 112.

Page 58, *Urocalymma*. Mr. Newman has described several additional species of this genus from the British Museum collection, unnecessarily changing its name to *Homonæa*. *Entom.*, p. 320.

Page 60, line 25, for "greater," read greatest.

Page 65, *Opsomala gladiator*. I now possess this singular insect from Tropical Africa.

Page 67, *Papilio Pelaus* is identical with *P. Imerius* of Godart (Enc. Méth.) and Boisduval, and *P. Augias* of Menetries. It is a native of Haiti. See also p. 107.

Page 70, note †. The removal of *Inca* to the Trichiideous group of *Cetoniidae* should also have been noticed.

Page 71, *Tmesorrhina amabilis* = *Cetonia Iris*, F. Vide p. 107.

Page 72, *Tm. simillima*. Now removed to a new genus, *Aphelrhina*. Vide p. 108 and 181.

Page 79, *Aenictus certus*, Plate 20, fig. 5. W. W. Saunders, Esq. has received a species of this genus from Southern Africa, which I have described in a paper recently read before the Entomological Society.

Page 81, See p. 157 and seq. for additional species of Australian Scaritidæ, to which may be added the following species, which is intermediate between *C. Bonelli* and *C. tinctillatum*, thus confirming the propriety of my rejection of *Eutoma*:—

CARENUM SCARITOIDES, W. Nigrum nitidum subangustum, elytris violaceo tenuisime marginatis, punctis duobus humeralibus alterisque duobus subapicalibus, pronoto linea tenui centrali impresso, tibiis anticis externe bidentatis. Long. corp. lin. 9 $\frac{1}{2}$ (mens. angl.). Lat. elytr. ferè lin. 3. Habitat Port Philip, West Australia. In Mus. D. Hope.

- Page 91, Plate XXIV.
- Page 93, Entomol. Intell., (No. VI.).
- Page 103, *Schizorhina obliquata* is synonymous with the subsequently published *Diaphonia eucnemis* of Burmeister.
- Page 104, *Macronota Rafflesiana* = *Tænioderia histrio*, Burm.
- Macronota tristis* is probably the female of *Chalcothea Barrotiana*, Burm.
- Macronota Vittigera*, Hope, is described by Burmeister as the variety *a* of *Clerota Budda*.
- Page 118, *Rhomborhina opalina*. Some of the specimens of this species received by Captain Parry from India differ in the colour of the scutellum, and have been considered by that gentleman as distinct, under the name of *Rh. intermedia*.
- *Rhomborhina Japonica*. Dr. Burmeister (p. 779) considers this species as identical with *Rh. opalina*, in which, however, he is certainly mistaken, since the two insects are structurally distinct. His strictures on the breadth of my figure of *Rh. Japonica* and the width of its feet, are contradicted by my short description of that species derived from Mr. Hope's typical specimen. The sternal process of *Rh. Japonica* is scarcely more than half of that of *Rh. opalina*.
- Page 119, Dr. Burmeister considers *Rhomborhina microcephala* (the specific name of which he has unnecessarily altered to *An. Mearesii*) as well as *Heterorrhina glaberrima*, as belonging to the genus *Anomalocera*, which does not accord with my views of the relations of these insects.
- *Rhomborhina clypeata*. (Plate 34, fig. 3).
- Page 120, *Rhomborhina pilipes*. Melly's MSS. (Burm., p. 779.) Mr. Melly having been so good as to send me the unique specimen in his collection thus named, I find it agrees with the insect named by Mr. Hope *Rh. distincta*, and which, as stated in p. 118, appears to me only a variety of *Rh. Mellii*, agreeing therewith in antennæ, sternal process, metasternal carina, black extremity of abdomen, black hairs on the tibiae, form of clypeus, &c. Dr. Burmeister (p. 780) has incorrectly considered *Rh. apicalis* as a variety of *Rh. pilipes*.
- Mr. Hope has recently received a very distinct species of *Rhomborhina* from India, allied to, but larger than, *Rh. Mellii*.
- Page 122, *Trigonophorus Delessertii*. (Plate 29, fig. 4).
- Mr. Hope has recently received another species of *Trigonophorus* from India, allied to *Tr. Saundersii*.
- Page 126, line 6 and 7, for "Plæsiorrhina," read Bothrorrhina.
- Note *, *Anisorrhina* is synonymous with the subsequently published genus *Genyodontia*, Burm.
- Page 127, *Schizorhina Guerinii* belongs to the genus *Stenotarsia*, Burm., and is allied to *St. coccinea*.
- *Schizorhina plumigera* is the *Pogonotarsus plumiger*, Burm.
- Page 128, *Chromoptilia diversipes* is identical with the subsequently published *Trichotarsia fimbriata*, Burm., p. 587.
- Page 134, *Heterorrhina dives* is the *Mystroceros* or *Diceros Diardi*, Burm.
- Page 136, *Heterorrhina tibialis*. Dr. Burmeister (p. 787 and 789) thinks that this very distinct species is a variety of *H. Hopei*. My figures of the armature of the clypeus and sternal process of the two species will sufficiently prove their distinction.
- Page 137, *Heterorrhina jucunda* (*smaragdina*, Gory and Percheron), judging from Mr. Hope's typical specimen, is certainly quite a different species from *H. punctatissima*, although Dr. Burmeister considers the contrary to be the case (p. 788).
- Dr. Burmeister having commented upon my figures of the maxillæ of the various species of this genus, I will only observe that they were all made with the express desire of determining the form of that organ, and that if the specimens examined by Dr. Burmeister do not precisely agree with my figures, I am of opinion that it has resulted from the specimens varying in this respect from each other.
- Page 153, *Papilio Trophonius*, as stated to me by Mr. E. Doubleday, is identical with the *Danais Rechila* of Godart. Enc. Méth.
- Page 173. line 14, add "pronoto" after "clypeo porrecto."

ARCANA ENTOMOLOGICA;

OR

Illustrations

OF

NEW, RARE, AND INTERESTING

INSECTS.

BY J. O. WESTWOOD, F.L.S.,

Hon. Mem. Hist. Soc. Quebec; Soc. Nat. Hist. Boston, U.S.; Mem. Soc. Cæs. Nat. Cur. Moscow; Physiogr. Soc. Lund; Soc. Roy. Scienc. Lille; Soc. Hist. Nat. Mauritius; Soc. Cuvier. and Philomat. Paris; Lit. Phil. and Nat. Hist. Soc. Belfast, Richmond, Sheffield; Mem. Soc. Entomol. de France; Secretary Ent. Soc. London, &c. &c.

IN TWO VOLUMES.

VOL. II.

“ Quand à nos yeux, à nos oreilles,
Tout parlait d'un Dieu créateur,
Pourrons-nous admirer ces nombreuses merveilles
Sans rendre gloire à leur auteur ? ”—MULSANT.

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Systematic Arrangement
OF THE
ILLUSTRATIONS CONTAINED IN THE PRESENT VOLUME.

COLEOPTERA.

MONOGRAPH OF THE FAMILY PAUSSIDÆ	Plates 49, 50, 58, 68, 88, 89, 90, 91, 92, 93, & 94
GOLIATH BEETLES OF AFRICA	Plates 67, 81, & 96
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LONGICORN BEETLES OF NEW ZEALAND	Plate 56
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HYMENOPTERA.

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NEW MANTIDÆ	Plate 62
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HOMOPTERA.

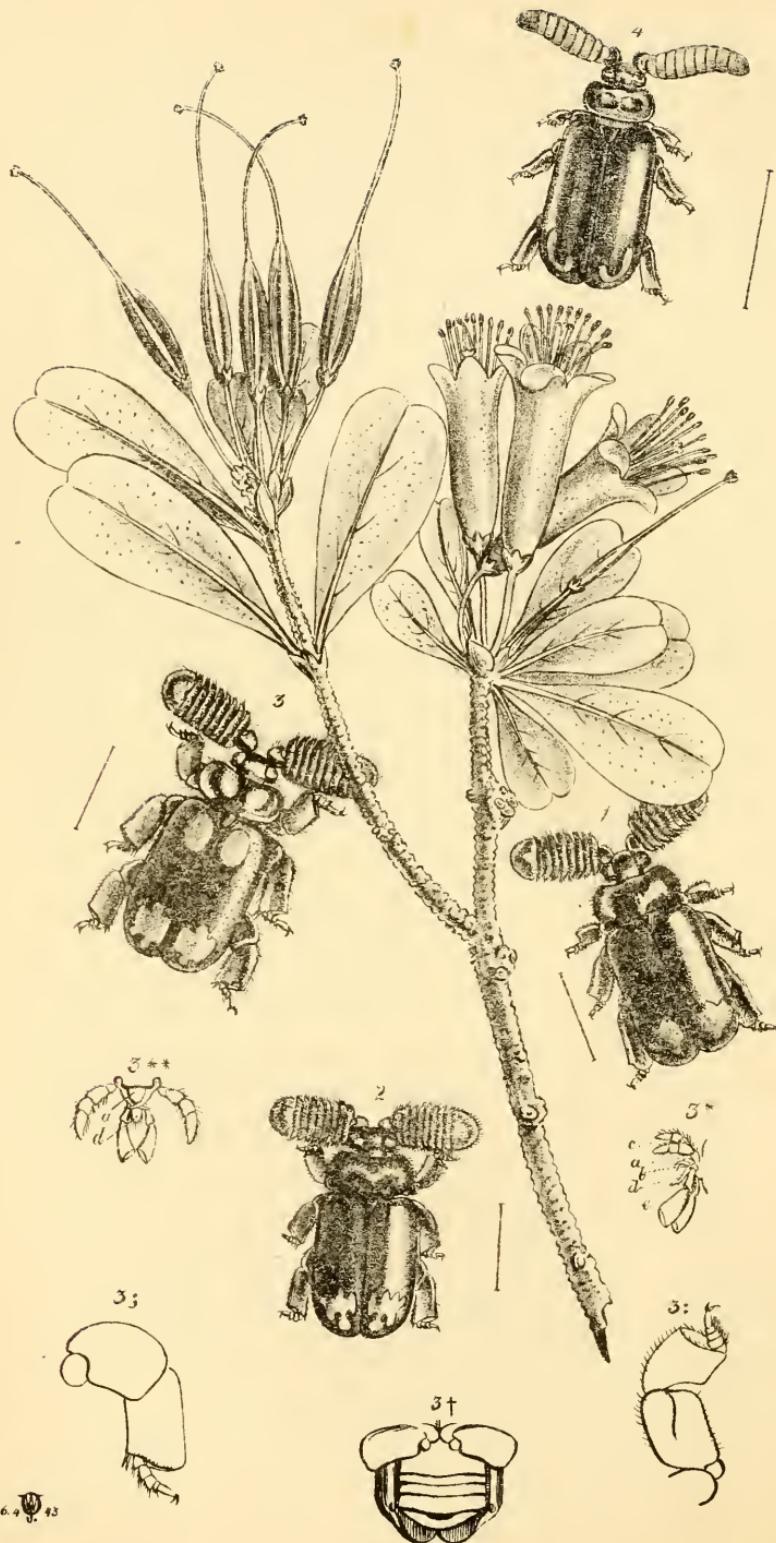
CICADA IMPERATORIA	Plate 51
NEW CICADÆ AND FULGORIDÆ	Plates 57 & 71

LEPIDOPTERA.

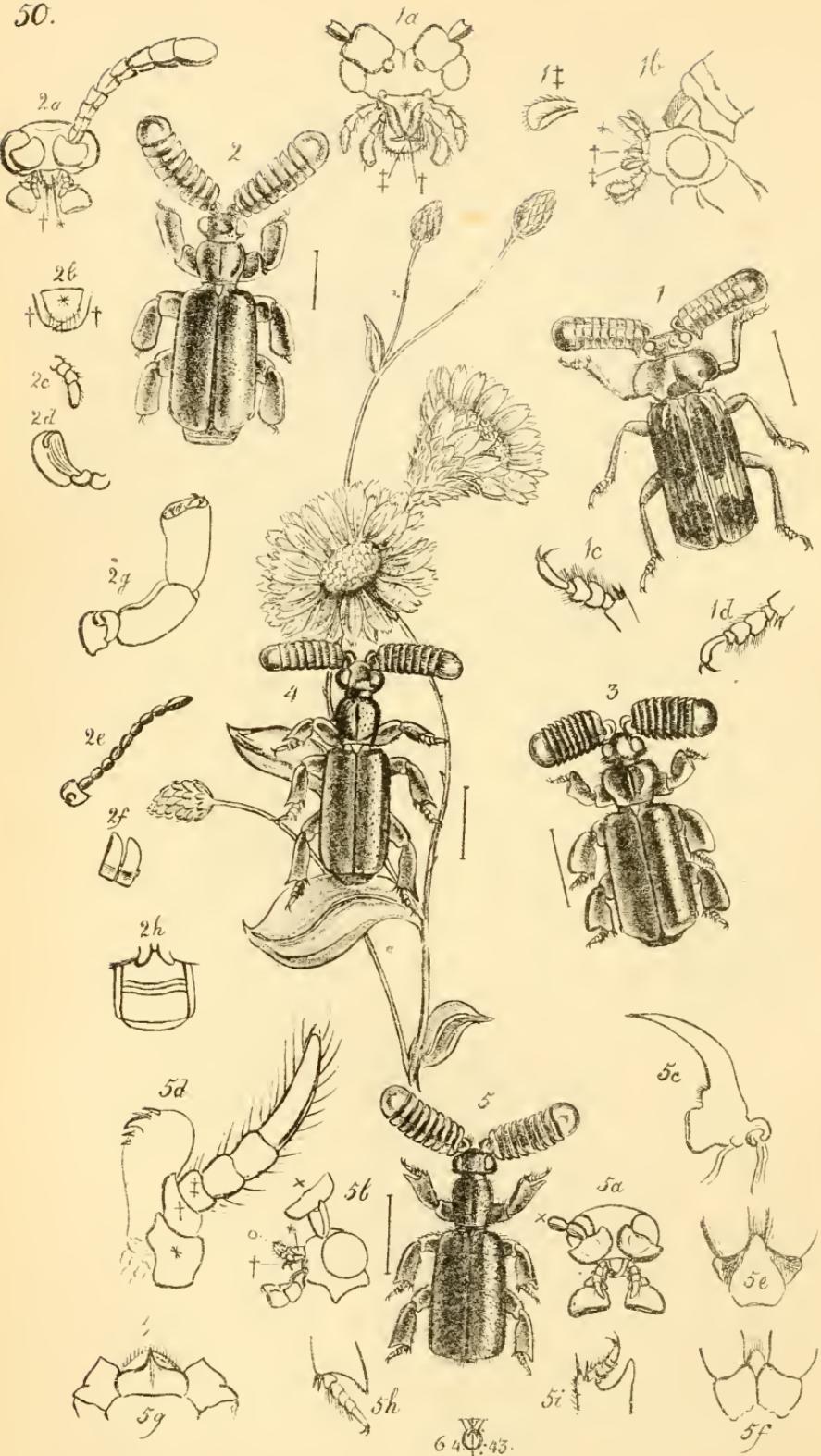
TEINOPALPUS IMPERIALIS AND PARRYÆ	Plates 59 & 60
NEW HOLLAND SPECIES OF PAPILIO	Plates 52 & 68
INDIAN SPECIES OF PAPILIO	Plates 55, 66, 72, 79, & 80

ERRATA.

- P. 5, l. 24, *read* "Palpi labiales articulis *duobus* *ultimis æqualibus.*"
- P. 20, l. 25, *add Note*, In *Tachypterus* both the recurrent veins enter the 2nd submarginal cell as in *Psamatha*.
- P. 42. The species of *Teinopalpus* were captured at Darjeeling, an invalid station in the Himalayan Mountains, near the Nepaul frontier, about fifty miles from Dhawalagiri, by George R. J. Meares, Esq., by whom they were presented to Captain Parry.
- P. 54. Transpose the references † and ‡ to the second and third foot notes.
- P. 84. *Lamia (Sternotomis) Palinii*, is the *Lamia principalis*, Dalm. Sch. Syn. I. iii. App. p. 162.
- P. 103, l. 17, *add* "The Genus *Ælurus*, Klug, founded on two New World Species."
- P. 115, *for* "Thynnus interruptus," *read* "Thynnus Leachiellus."
- P. 124. "Aelurus mœrens," *add*, "alis fusco *parum* tinctis, apice areæ marginalis obscuriore."
- P. 125. "Lamia Comes," *is* "L. cornutor, Fabr."
"Lamia princeps," *belongs to the* "Sub-g. Zoographus."
- P. 161. "Platyrhopalus suturalis," *is* "Pl. angustus, var."



50.



ARCANA ENTOMOLOGICA.

PLATES XLIX AND L.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART I.

[HAVING acquired, since the publication of my various memoirs on the family Paussidæ, which have appeared in the Transactions of the Linnaean Society, vols. 16, 18, and 19; the 2nd volume of the Transactions of the Entomological Society, and the Entomological Magazine, vol. 5, much additional matter relating to these singular insects, as well as a considerable number of new species, of which no figures have yet been published, I have thought that a complete series of coloured figures of the entire family *, most of them redrawn with care for the purpose of this work, would be received with interest by entomologists.]

The family Paussidæ comprises a small assemblage of exotic coleopterous insects, varying from a quarter to rather more than half an inch in length, the species of which are of extreme rarity in collections (single individuals only of the greater portion being known); and at the same time so remarkable in their structure, that Latreille observed, “vainement chercherions nous dans tout l’ordre des Coléoptères un genre qui nous offre des caractères aussi bizarres, et aussi insolites que les Paussus.”—Nouv. Dict. d’H. N. v. 25, p. 57.

* The figures accompanying my monograph in the Linnaean Transactions, published twelve years ago, were uncoloured.

The following are the *chief characters* of the family.

PAUSSIDÆ, Westw. (*Paussili*, Latr.; *Paussides*, Leach.)

Corpus oblongo-quadratum subdepressum, rigidum. Caput subtriangulari-globosum porrectum, collo instructum, antennæ permagnæ crassæ, difformes, articulis 2-10, articulo basali compresso, parte reliqua antennarum plus minusve depressa: labrum corneum porrectum; mandibulæ falcatae cornæ acutæ; maxillæ lobo satis magno, tenui, apice dentato, palpi maxillares magni. Labium corneum vel coriaceum: palpi labiales maximi. Thorax formæ diverse. Elytra postice quadrata angulo externo apicali tuberculo sèpius instructo. Pedes subæquales breves compressi. Tarsi breves 5-articulati in plurimis; articulis haud lobatis; basali sèpius minuto. Abdomen thorace multo majus et elytris longius, e segmentis 4 constans, duobus intermediiis multo brevioribus.

A short notice of the *history* of this family will show the great increase which has been made in our knowledge of its contents. The genus *Paussus* was proposed by Linnaeus in 1775, in a short paper, in the *Dissertationes Academicæ*, in which he also described the genus *Diopsis*, and with which he terminated his entomological career. Of the former genus he knew only a single species. Thunberg, in 1781, described two more species of *Paussus* in the Swedish Transactions, in which work the genus *Cerapterus* was described by Swederus in 1778. In 1798, Afzelius published an excellent paper on the *Paussi* in the Linnaean Transactions, in which he described the then known species in detail, adding a new one. Donovan added several new species of *Paussus*, in the "Insects of India," and a new *Cerapterus* in his "Insects of New Holland," in which, for the first time, the relation existing between these two genera was noticed. One or two other species were added by Schönherr, Dalman, and Fabricius; those introduced by the last-named author not belonging to the family. In the various memoirs which I have published, the number of species has been increased four-fold, excluding several now proved not to belong to the family; namely, those constituting the genus *Trochoideus* W. *, which, as shown by my dissections of one of the species published in the Transactions of the Entomological Society, is referable to the Endomychidæ, and those which strictly belong to the sub-family of which *Malachius* is the type †.

Of the *habits* of this family but little is known. The specimens of *Paussus sphærocerus* captured by Afzelius at Sierra Leone, in the months of January and February, were taken in houses by

* 1. *Paussus cruciatus*, Dalm., found in Gum copal.; 2. *Troch. Dalmanni*, Westw., from Madagascar; 3. *Troch. Desjardinii*, Guér., from the island of Mauritius; and 4. *Troch. Americanus*, Buq., from Colombia. A 5th unnamed species is in the collection of the Rev. F. W. Hope, from New Granada, probably identical with *T. Americanus*.

† 1. *Paussus flavicornis*, Fabricius (Megadeuterus flav., Westw.; Laius cyaneus, Guér.). 2. *Paussus ruficollis*, Fabr. (Collops 4-maculatus, Fabr., Erichson). 3. *Malachius vittatus*, Say (Collops vittatus, Erichson, Megadeuterus Haworthii, Westw.)

night, falling upon the table from the ceiling, on the introduction of lights upon the table. They are slow and steady in their movements, and evidently of great rarity. I have received statements of similar habits exhibited by several other Indian and Javanese species; and Mr. Westermann states that the eight species of the family captured by him, were all taken accidentally in houses by night, flying about wood, whence he conceives them to be nocturnal and xylophagous. (Silbermann, Rev. Ent. No. 3.) A species of *Paussus* was received by M. Dupont from Senegal, with the statement that it had been observed to crepitate like the Bombardier beetles; and M. Payen informed M. Lacordaire that the species which he had detected in the Moluccas and isles of Sunda, possess the same power. (Lacord. Introd. ii., p. 57.) M. Verreaux at the Cape of Good Hope, and Mr. George MacLeay in New Holland, have detected species of Paussidae in ants' nests: the latter having also observed that the species of *Cerapterus* captured by him crepitates. A new species of this genus has recently been received by Mr. Hope from Port Philip, with the observation that it had been found under dried cow-dung as well as under the loose bark of trees.

Afzelius also states that in looking at one of his specimens of *Paussus sphærocerus* (remarkable for the globular, glossy, and pale-coloured club of its antennæ) in the evening, and happening to stand between the light and the box in which it was enclosed, so that his shadow fell upon the insect, he observed, to his great astonishment, the globes of the antennæ, like two lanthorns, spreading a dim phosphoric light. He adds, however, that he was "prevented from ascertaining the fact by reiterated experiments," as his specimen died. May not the reflected light falling upon the semipellucid livid-coloured balls of the antennæ give them the described appearance? Or, may it not be accounted for precisely in the same manner as the light emitted by the shining moss mentioned in Loudon's "Magazine of Natural History," (No. xv. p. 463,) by the late Mr. Bowman?

In their *geographical distribution* the insects of this family, hitherto known, are natives of the old world, if we except the species represented in plate 50, f. 2, which Mr. Miers has brought from Brazil. The others are from tropical and southern Africa, India, the islands of the Indian Ocean, and New South Wales; and one from the Balkan Mountains in Turkey.

The *relations* of these insects with other Coleopterous families

has been the subject of much doubt. Afzelius separated Paussus into a distinct fifth section of the Coleoptera, on account of its antennæ, observing, however, that they bear so much natural resemblance to Clerus, that their proper place in the systematic arrangement will be next to that genus. With Clerus, however, as well as with Cerocoma, (a relation proposed by Fabricius), or Silpha and Hispa (as suggested by Swederus), the Paussidae can scarcely be said to possess a single point of relationship. Latreille united them, with many other groups, into a great tribe, under the name of Xylophaga, intermediate between the Rhynchophorous and Longicorn beetles. That they are related to some of the insects introduced amongst the Xylophaga, appears to me to be the case; but, as has been proved by various later writers, many of the Xylophaga belong to the great division Necrophaga, into which the Paussidae must also enter, together with the Trogositidae and aberrant Cneujidæ, "which last may perhaps be regarded as possessing the greatest affinity with the Paussidae, more particularly when we notice the depressed bodies, the formation of the antennæ, and especially the pentamerous tarsi in many of the genera of that family, such as Catogenus, Clinidium, Rhysodes," &c. Such is the opinion I expressed in my first Paper in the Linnaean Transactions, after a very extended series of dissections of a great number of allied genera of Xylophaga, and such is still my opinion notwithstanding Mr. MacLeay (Annul. of S. Afr. p. 73) has given me credit for having been the first to suspect the affinity of Cryptophagus with the Paussidae, without having however expressed myself very clearly upon the subject. It would indeed have been extraordinary had I done so, because I never entertained such an opinion.

Mr. MacLeay also states that Trochoileus certainly leads off from the Paussidae to Myrmecoxenus, Chevr., Cryptophagus, &c., but in my opinion the first-mentioned genus does not possess the slightest relation with any of the others; in like manner the relationship asserted by Mr. MacLeay to exist between the Paussidae and Pselaphidæ, seems to me equally unnatural, since no two groups can possess fewer points of resemblance in common. "It would have been quite as natural to assert the relation of the Paussidae with the Ozenæ, for the latter crepitate, their bodies are polished, and their elytra furnished with tubercles at the outer posterior angles, as in the Paussi."

The resemblance thus pointed out by me in 1838 has appeared

to Dr. Burmeister to be of greater importance than I felt and still feel disposed to accord to it, since in a very philosophical memoir published by him in Guérin's Magasin de Zoologie, 1841, he has endeavoured to prove that the Paussidæ are nearly related to the Carabidæ, and especially to the Ozænæ, considering them as a group annexed to the Carabidae, in the same manner as the Gyrinidæ are attached to the Dyticidæ.

My observations on the grounds on which Dr. Burmeister has deduced this relationship will be given in treating on the genera *Paussus* and *Platyrhopalus*, an examination of which led Dr. Burmeister to adopt these views.

The following is a *synoptical table* of the genera belonging to the family :—

Antennæ quasi 10-articulatae	1. <i>Cerapterus</i> , SWED.
Antennæ quasi 6-articulatae	
Prothorax truncato-cordatus	2. <i>Ceratoderus</i> , WESTW.
Prothorax transversus angulis anticis rotundatis ; posticis valde emarginatis	3. <i>Lebioderus</i> , WESTW.
Prothorax angulis anticis valde productis	4. <i>Pentaplatarthrus</i> , WESTW.
Antennæ quasi bi-articulatae.	
Caput in prothoracem immersum : ocellis 2	5. <i>Hylotorus</i> , DALM.
Caput in prothoracem haud immersum, collo distineto, ocellis nullis.	
Palpi labiales articulis æqualibus	6. <i>Platyrhopalus</i> , WESTW.
Palpi labiales articulo ultimo elongato	7. <i>Paussus</i> , LINN.

The various relations existing amongst the species of these different genera, do not appear to me to allow of their arrangement either in a linear or circular series in our present limited knowledge of the family. Mr. MacLeay, adopting a series of relations pointed out by me in the Linnaean Transactions, proposed to arrange them in a circle by commencing with the Paussi, thence passing to *Platyrhopalus*, *P. Mellii* leading to *Cerapterus latipes*, *Cerapterus MacLeaii* to *Pentaplatarthrus*, by which last he returns to the Paussi with a bipartite prothorax. Considering the discovery of a circular arrangement of the species of a group to be the essential proof of its being natural, it follows that all other genera which appear to belong to the family must be rejected, "since, if inserted in the above circular series, they appear to interrupt it." I consider it however unquestionable that *Ceratoderus*, *Lebioderus*, and *Hylotorus*, are as truly Paussideous as *Cerapterus* or *Pentaplatarthrus*, and to be groups as high in the importance of their characters as either of those genera which Mr. MacLeay himself admits.

I shall accordingly describe the genera in the order given in the above table, without wishing it to be considered as their natural

linear series ; and shall, under each group, notice the relations it appears to bear to the rest.

CERAPTERUS, *Swederus.*

Corpus depresso abdomen elytrisque latis. Caput subtriangulare postice collo brevi cylindrico instructum : oculi globosi valde prominuli : antennæ capitis fronte insertæ pubescentes perfoliatae 10-articulatae, capite cum thorace paullo longiores, articulo 1mo compresso sublunari, reliquis latis depresso, 2—9 transversis, ultimo fere quartam partem antennæ constitutæ apice rotundato : labrum mandibulae et maxillæ parvæ. Palpi elongati inæquales ; labiales cassirores. Elytra ad angulos posticos externos tuberculo instructa. Tarsi breves 5-articulati in excavatione apicali tibiarum sœpius recepti, articulis basalibus crassioribus subtus setosis.

In the number of the joints in the antennæ this genus stands alone in the family ; several of its species, however, exhibit relations with some of the genera ; thus *Cerapterus latipes* bears a strong resemblance to *Platyrhopalus Mellii* ; the Australian species in their simple-formed prothorax and general form resemble the species of *Paussi* in which the prothorax is not bipartite, whilst *C. Westermannii* in its slender legs and dilated prothorax resembles *Lebioderus*.

Mr. MacLeay, in 1838, in his Paper on this genus, (introduced into Dr. Smith's Illustrations of the Zoology of South Africa, in consequence of a new species of the genus having been brought from thence by that naturalist) published figures of four species.. I am now enabled by the kindness of several correspondents to describe as many as nine distinct species, which may be divided into the following subgenera.

SUB-GENUS I.—CERAPTERUS (*stricte sic dictus*).

Prothorax latissimus, lateribus rotundatis, antennæ latissimæ lateribus serratis articulo ultimo maximo. Elytra abdomen tegentia. Tibiæ latissimæ (in C. 4-maculato biealcaratæ, in reliquis ecalcaratæ). Scutellum mediocre.

SPECIES I.—*Cerapterus latipes*. (Plate 49, fig. 1.) “C. piceus ; elytris macula apicali flavescente subrotunda antice quadridentata postice lobata ; antennis rufis articulo ultimo in tuberculo ad basin elevato.” MacL. [Palpis labialibus sec. figuræ Swederi articulo ultimo paullo securiformi]. Long. corp. sec. fig. Swed. lin. 6.
Habitat in Oriente.

SYN.—*Swederus*, Kongl. Vetensk Acad. &c. t. 9, 1788, p. 203, pl. 6, f. 1. Westw. Linn. Trans. 16, p. 669, and 18, p. 582. MacLeay Ann. Soc. Afr. pl. 4, fig. inf. sinistr.

The above description and the accompanying figure are taken from Mr. MacLeay's memoir above referred to, as that gentleman now possesses the original and still unique specimen described by Swederus, who states that it came from Honduras ; but Donovan, on the authority of General Davies, the original possessor of the insect, stated it to be a native of Bengal. Mr. MacLeay further adds, “Thorax capite duplo latior medio posticeque utrinque foveo-

latus, antennæ lateribus convergentibus serratis, articulo ultimo quatuor praecedentibus simul sumptis longiore. Elytra thorace vix latiora. Tibiae rufæ latissimæ apice haud spinosæ."

SPECIES II.—*Cerapterus Horsfieldii*. (Plate 49, fig. 2.) C. picceus thorace antice emarginato, elytris macula apicale flavescente haud rotundata, literam T quodammodo simulante, palporum labialium articulo ultimo valde securiforme. Long. corp. lin. 5 $\frac{1}{3}$. Habitat in insula Java, Dr. Horsfield. In the collection of the East India House, and Mr. Melly.

Syn.—*Cerapterus Horsfieldii*, Westw. Linn. Trans. v. 16, p. 672, v. 18, p. 583. MacLeay op. cit. tab. 4, fig. sup. dext.

Mr. MacLeay from a careful comparison between Dr. Horsfield's and Swederus' insects, gives the following characters as distinctive of this species.

"Caput nigro-piceum, antennis rufo-ferrugineis lateribus parallelis vix serratis articulo basili lobato, ultimo quinque precedentibus simul sumptis longiore: thorax capite triplo latior, postice utrinque subfoveolatus. Elytra thorace latiora: tibæ rufæ apice haud spinosæ."

SPECIES III.—*Cerapterus quadrimaculatus*. (Plate 49, fig. 3, and details.) C. piceo-niger, nitidissimus, prothorace (antice viso) subemarginato maculis duabus magnis obscure rufescentibus, elytris tenuissime punctatis maculis duabus magnis ovalibus prope scutellum alterisque duabus apicem versus majoribus antice et postice lobatis rufo-fulvis. Long. corp. lin. 5.

Habitat in insula Java, D. Westermann.

Syn.—*Cerapterus quadrimaculatus*, Westw. Trans. Linn. Soc. v. 18, p. 583.

Fig. 3* represents the trophi seen laterally in situ; *a* is the labrum, *b*, the two mandibles, *c*, the maxillary palpi, *d*, the elongated labium, and *e*, the labial palpi, which are moderately securiform. Fig. 3 ** represents the same organs seen in front similarly lettered. Fig. 3 : represents one of the fore feet; and 3 ; one of the hind ones, the tibiae in the four latter bicalcarated, and the tarsi 5-jointed; and fig. 3† the under side of part of the body, the deflexed podex being visible beyond the terminal joint.

SUB-GENUS II.—ORTHOPTERUS, Westw.

Thorax latus (capite haud duplo latior): antennæ longiores sublatæ planæ lateribus subrectis, articulo ultimo mediiori. Elytra abdomeni tegentia: tibæ spina apicali iutus instructæ.

SPECIES I. (IV.)—*Cerapteras (Orthopterus) Smithii*. (Plate 49, f. 4.) C. nigro-piceus subnitidus, elytris macula fulva notatis, thorace latioribus et fere quintuplo longioribus. Long. corp. lin. 7 $\frac{1}{2}$.

Habitat, South Africa within the tropic of Capricorn.

Syn.—*Cerapterus Smithii*, MacLeay op. cit. p. 74, pl. 4, fig. sup. sinistr. Westw., Linn. Trans. v. 18, p. 583, and Entomol. Mag. 5, p. 502.

This is the largest species in the family. A unique specimen was collected by Dr. Smith, and described and figured by Mr. MacLeay in the "Annulosa of South Africa," from which work my figure and description are derived.

SUB-GENUS III.—ARTHROPTERUS, *MacLeay.*

Caput thorace haud augustius : thorax subquadratus antice paullo latior. Antennæ sublateæ lateribus haud serratis articulo ultimo mediocre. Elytra angusta abdomine breviora : tibie apice bicalcarata angulo oposito acuto : scutellum minutum : tarsi intra tibiarum apices haud contractiles.

SPECIES I. (V.)—*Cerapterus (Arthropterus) MacLeaii.* (Plate 50, fig. 4.) C. rufo-brunneus antennarum lateribus haud serratis; thorace subconvexo postice angustiore angulis anticus rotundatis posticis acutis disco in medio vix canaliculato ; elytris oblongo-quadratis ; pedibus rufo-brunneis. Long. corp. lin. $4\frac{1}{2}$.

Habitat in Nova Hollaudia. In Mus. D. MacLeay.

SYN.—*Cerapterus MacLeaii*, Donovan, Ins. of New Holland, Plate 3. MacLeay, op. cit. pl. 4, fig. inf. dext. Westwood. Linn. Trans. 16, p. 672, 18, p. 384, and Ent. Mag. 5, p. 503.

Mr. Francillon's unique specimen of this species is now in Mr. Macleay's possession, from whose figure in the work above quoted mine is copied.

SPECIES II. (VI.)—*Cerapterus (Arthropterus) Hoppii.* (Plate 50, fig. 5, and details.) C. piecus punctatus nitidus setosus, elytris brunno-piceis, antennis pedibusque nigricantibus prothorace ovali postice truncato medio leviter canaliculato, antennarum lateribus subserratis. Long. corp. lin. $4\frac{1}{2}$ —5. Habitat in Nova Hollandia. Port Philip. Mus. D. Hope and Parry.

Several specimens of this species have been received by the Rev. F. W. Hope, from New Holland ; namely, one from Mr. W. S. MacLeay, who has suggested the specific name which I have adopted above ; and others, from Port Philip : the latter captured under bark, and beneath dried cow-dung.

Fig. 5 *a* represents the head from the front, and 5 *b* sideways, * being the labium, † the mandibles, and o the maxillary palpi ; the labial palpi, as seen in these figures, are of large size, and very securiform. 5 *c* is one of the mandibles highly magnified ; 5 *d* one of the maxillæ, also highly magnified, with the basal portions separately indicated for more easy comparison with the figures to appear in the subsequent plates of this monograph ; 5 *e* represents the labium and basal joints of the labial palpi as seen from the outside of the mouth, the former of small size, and scarcely extended beyond the extremity of the basal joint ; in 5 *f* (as seen within the mouth) the two basal joints are seen to be soldered together, forming the inside of the labium ; 5 *g* represents the mentum, which in this species forms, with the two lateral pieces, a kind of collar, enclosing the labium and base of the labial palpi ; 5 *h* represents one of the hind feet ; and 5 *i* a fore-foot : all having two apical spines, and the tarsi, especially in the hind feet, clearly seen to be 5-jointed.

SUB-GENUS IV.—*PHYMATOPTERUS*, *Westw.*

Depressiusculus : caput thorace augustius : prothorax cordato-truncatus medio longitudinaliter impressus : antennæ late serratae : elytra oblongo-quadrata ad angulum externum apicalem tuberculo instructa. Tibia late interne ad apicem bicalcarata, angulo externe opposito rotundato. Tarsi distinete 5-articulati.

SPECIES I. (VII.)—*Cerapterus (Phymatopterus) piceus*. (Plate 50, fig. 3.) C. piceus tenuissime punctatus antennis pedibusque rufo piceis, capite thorace minori angulis pone oculos acute productis. Long. corp. lin. 5.

Habitat in Nova Hollandia. In Mus. D. Curtis et Gory.

Cerapterus (Phymatopterus) piceus. Westw. in Ent. Mag. 5, p. 503 ; Linn. Trans. v. xviii. p. 584.

Cerapterus MacLeaui?. Westw. in Trans. Ent. Soc. vol. ii. p. 95, pl. x. fig. 7.

SUB-GENUS V.—*IIOMOPTERUS*, *Westw.*

Depressiusculus : caput thorace paullo latius vertice depresso ; palpi maxillares parvi graciles articulo ultimo longiori attenuato ; labiales 3-articulati articulo 1mo. minuto 2do. latiori brevi angulis apicalibus acutis, 3to. maximo valde securiformi ; antennæ longiores subplanæ anticè subscrratae, margine postico subcontinuo ; thorax cordato-truncatus ; elytra elongato-quadrata. Femora et tibiae latissimæ, basi apice ecalcaratae et pro receptione tibiarum excavatae. Tarsi breves articulis intermediis subtus setosis.

SPECIES I. (VIII.)—*Cerapterus (Homopterus) Brasiliensis*. (Plate 50, fig. 2, and details.) C. fulvo-rufescens, tenuissime punctatus oculis albidis, vertice depresso, thorace intra angulos posticos utrinque foveolato. Long. corp. lin. $3\frac{1}{2}$.

SYN.—*Cerapterus Brasiliensis*, Miers's MS. Westw. in Linn. Trans. vol. xviii. pl. 39, fig. C, a, and b.

"This insect was caught on the Corcovado Mountain, near Rio Janeiro, by a negro whom I employed."—Miers's MSS.

The unique species above alluded to is now in Mr. Miers's rich collection of South American insects.

Figure 2 a represents the head seen in front, * being the labrum, and † the mandibles, which are more highly magnified in 2 b ; 2 c is one of the maxillary palpi ; 2 d one of the labial palpi seen laterally ; 2 e one of the antennæ seen laterally, showing the broad compressed basal joint and the depressed terminal joints ; 2 f are two of the intermediate joints of the antennæ ; 2 g one of the fore legs ; and 2 h the abdomen seen from beneath.

SUB-GENUS VI.—*PLEUROPTERUS*, *Westw.*

Caput thorace duplo augustius. Antennæ elongatae subplanæ, articulo 2do. extus in angulum acutum producto. Palpi elongati, labiales articulo ultimo crassiori vix securiformi. Labium maximum rigidum. Thorax elytrorum latitudine lateribus margine elevato, postice valde sinuato utrinque in auriculam producto. Elytra oblongo-quadrata, basi bicostata ; Pedes elongati graciles tibiis bicalcaratis tarsisque latis, subtus setosis 5-articulatis articulis 1 et 4 minuoribus.

SPECIES I. (IX.)—*Cerapterus (Pleuropterus) Westermanni*. (Plate 50, fig. 1, and details.) C. rufi piceus haud nitidus ; elytris nigris postice cruce rufescenti notatis, basi bicostatis, disco longitudinaliter sub impressis apice rufescutibus. Long. corp. lin. $4\frac{1}{2}$.

Habitat in Insula Java. In Mus. D. Westermann.

I have named this species after the distinguished entomologist to whose kindness I am so greatly indebted, for sending me his unique

specimens of this and several other species of the family, from Copenhagen, for my examination.

Figure 1 *a* represents the head in front, and 1 *b* sideways—* being the labrum, † the mandibles, and ‡ the labium; 1 *c* is one of the fore feet; and 1 *d* one of the hind ones.

The plant represented in Plate 49 is the beautiful Javanese Rhododendron retusum, and in Plate 50 is figured the Rhodanthe Manglesii, Lindl., from the Swan River Settlement.

EXTRACTS FROM PROFESSOR BURMEISTER'S MEMOIR ON THE PAUSSIDÆ.

(MAG. DE ZOOL. 1841.)

After remarking upon the insufficiency of the characters derived from the tarsi for the natural distribution of the Coleoptera into primary groups, and noticing that the structure of the wings has been hitherto unemployed in characterizing the higher groups of beetles, Professor Burmeister considers that in the latter character he has discovered the true grounds for removing the Paussidæ from all the various families with which they have been associated, and bringing them into the neighbourhood of the Carabidæ. Considering the great service which has been long obtained by employing the variation in the structure and position of the wing-veins in the Diptera and Hymenoptera, and which has recently been extended to the Lepidoptera by Boisduval, Lefebvre, and more especially Milne Edwards (from whom we may shortly expect a most elaborate memoir upon the subject), to the Orthoptera by De Haan, to the Homoptera by myself, and to a portion of the Neuroptera by Rambur; it is surprising that this character should have received so little attention amongst the Coleoptera; and, without assigning to it the primary importance attached to it by Burmeister, I cannot regard his employment of it (as well as of the number of segments of the abdomen, both in this memoir and in his Handbuch der Entomologie, vol. 4) otherwise than as proofs of a deep and philosophic spirit of inquiry.

“ Je donne ici (observe Burmeister) quelques indications sur la construction générale des ailes des Coléoptères. D'abord il est nécessaire de connaître la construction de leur membrane, même

pour voir si elles sont couvertes de petits poils ou glabres. La petitesse des poils m'a fait longtemps croire que les ailes de tous les Coléoptères en sont privées, comme se sont véritablement les ailes des Lamellicornes ; mais un examen plus attentif, avec un microscope composé, m'a montré que le plus grand nombre des Coléoptères, comme les Carabiques, les Hydrocanthares, les Cycliques, les Dimières, les Mycétophagiens, ou la plupart des familles ont des ailes couvertes par des poils microscopiques. C'est aussi le cas des Pausidæ. Considérant, ensuite, la disposition des nervures dans les ailes, nous remarquons que tous les Coléoptères ont deux nervures principales, que je nomme *nervure marginale* et *nervure radiale*. La nervure marginale est située au bord antérieur de l'aile et est accompagnée généralement par une autre nervure, plus petite, qui part aussi de la base de l'aile. La nervure marginale n'atteint pas le bout de l'aile ; mais elle se termine, à peu près à la moitié, aux deux tiers ou aux trois quarts de sa longueur, près du bord antérieur, par un articulation ; c'est le point dans lequel l'aile est pliée, si elle doit être couverte par les elytres. La nervure radiale part de la base de la première, mais en divergeant sur un angle plus ou moins grand, cette nervure se dirige vers le bord postérieur de l'aile ; mais elle ne l'atteint pas et se termine aussi par un sorte d'articulation à la même hauteur que celle de la nervure marginale. J'ai trouvée ces deux nervures dans toutes les ailes des Coléoptères, et souvent seules, comme chez les Cis, et dans la plupart des genres contenant des espèces très petites ; mais, chez la plupart des Coléoptères, l'aile a des nervures accessoires. Ces nervures sont situées, tantôt entre les deux nervures principales et tantôt après la radiale. Je nomme les premières *discoidales* si elles sont entre la nervure marginale et la radiale, et *apicales* si elles sont après les articulations des deux nervures au bout de l'aile : enfin, je nomme *basales* toutes les nervures qui sont situées après la radiale, au côté du bord postérieur de l'aile. Ces trois groupes différents de nervures sont très variables chez les différentes familles des Coléoptères et donnent un très bon caractère pour les déterminer." The wing of the Paussidæ is then described in detail, and figures of the wings of *Platyrhopalus denticornis*, *Calosoma sycophanta*, *Dyticus marginalis*, *Gyrinus natator*, *Cueujus* sp., and *Bostrichus* sp., are given by Dr. Burmeister, who adds,

" Un suel regard montre une ressemblance générale parfaite entre les ailes des *Platyrhopalus*, *Calosoma*, *Dyticus*, and *Gyrinus* ;

mais la plus grande différence entre les quatre ailes des carnassiers et celles d'un *Cucujus* et d'un *Bostrichus*, genres aberrants de la famille des Longicornes et des Rhyncophores. Nous avons ici, en même temps, l'occasion de voir l'importance de la configuration des ailes pour déterminer les familles naturelles ; car nous voyons les quatre ailes des Coléoptères, qui sont des membres d'un seul groupe naturel, tout-à-fait semblable : mais celles des autres groupes different, non seulement de celles des carnassiers, mais aussi entre elles ; et la même ressemblance que l'on voit dans les ailes de ces quatre carnassiers se trouvera si l'on compare les ailes des Longicornes avec celles du *Cucujus depressus*, ou, d'un autre côté, si l'on compare celles des Rhynchophores avec celles d'un *Bostrichus*. Je le répète, les ailes de tous les carnassiers sont converties de petits poils microscopiques, et nous trouverons les mêmes poils à l'aile d'un *Platyrhopale*."

Hence he considers that—

" Les Pausides sont des Coléoptères carnassiers, très voisins des Carabiques et remplaçant la même modification du type des carnassiers terrestres, comme les Gyriniens parmi les carnassiers aquatiques."

He then institutes an extended and very careful series of comparisons between the structure of the various parts of the body of the Paussidæ and various carnivorous genera, and thus proceeds :

" L'analogie avec les Gyriniens n'est elle pas grande ? ceux-ci n'ont-ils pas les mêmes jambes courtes et comprimées comme la plupart des Pausides ; et les tarses des Gyriniens ne sont-ils pas tout-à-fait particuliers et différents des tarses des Dyticiens ? C'est pourquoi personne ne peut douter que ces deux familles ne soient les membres d'un groupe plus grand et naturel que nous nommons des Hydrocanthares et qui est placé à côté des Carabiques, dans le plus grand groupe des carnassiers. Il est nécessaire de donner un nom général pour les deux groupes des Carabiques et Pausides, qui forment ainsi les Coléoptères carnassiers terrestres, et je propose le nom de Geolestès, dérivé de γῆ, terre, et de ληστὴς, ravinisseur, puisqu'ils sont des ravisseurs de la terre, comme les Hydrocanthares les ravisseurs de l'eau. Ainsi les carnassiers sont déterminés et partagés de cette manière ;" the GEOLESTES composed of two groups, 1 *Carabidae*, and 2 *Paussidæ*, and the HYDROCANTHARIS of two groups ; 3 *Dyticidae*, and 4 *Gyrinidae*.

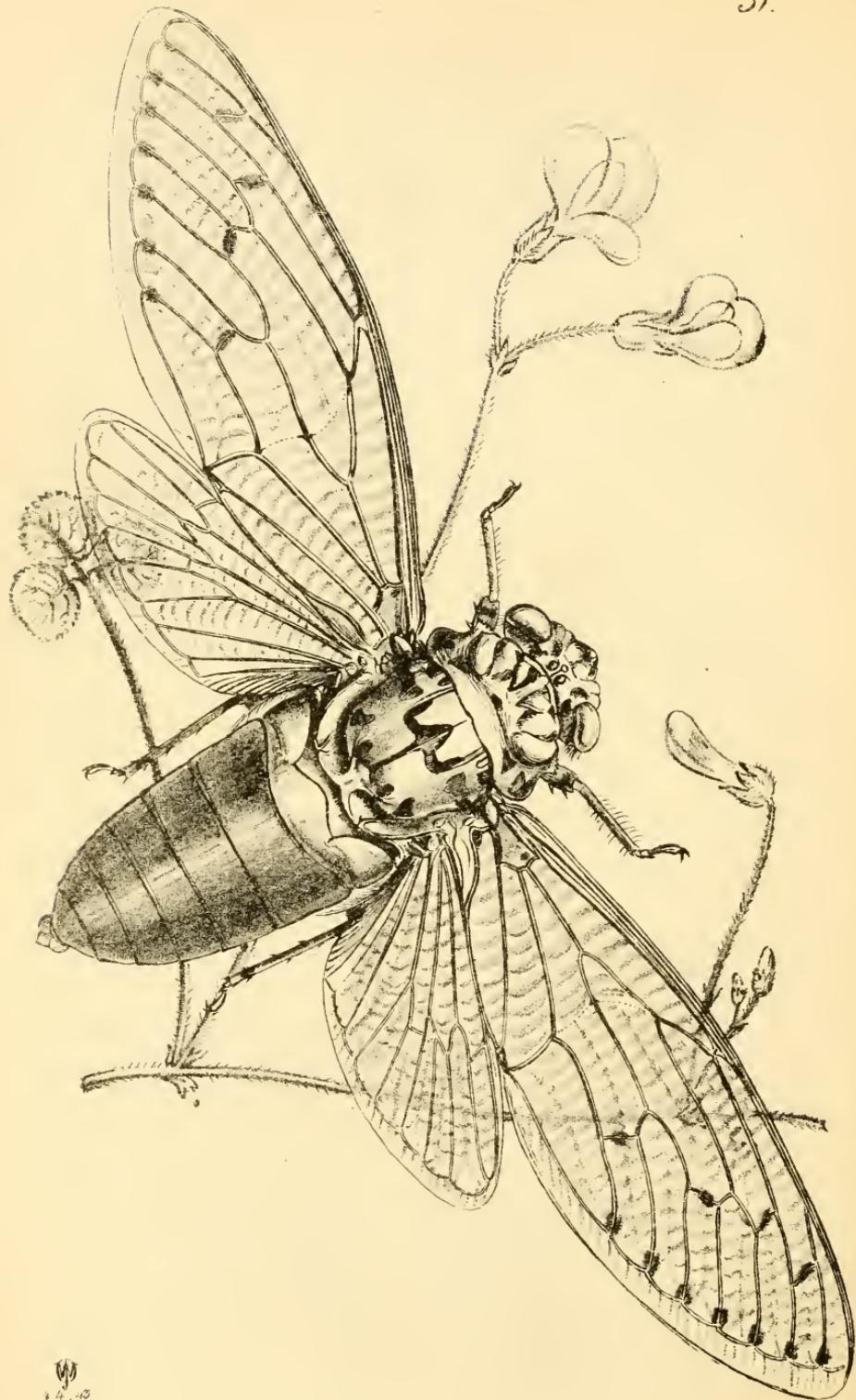


PLATE LI.

DESCRIPTION OF A GIGANTIC SPECIES OF CICADA, FROM INDIA.



DR. GERMAR, in his excellent memoir upon the species of the Genus Cicada, published in the 8th livraison of Silbermann's "Revue Entomologique," has arranged them in the following manner:—

1. Fore wings transparent and hyaline.
 - A. Scutellum emarginate, sp. 1—3.
 - B. Scutellum not emarginate.
 - a. Head broad and short, eyes prominent, sp. 4—38.
 - b. Head triangular, eyes simple, sp. 39—47.
2. Fore-wings coloured, coriaceous opako, sp. 48—53.
3. Fore-wings coriaceous at base, with a transverse vein which divides them into two halves, sp. 53—60.

It will be serviceable to compare Dr. Burmeister's arrangement, given in the second volume of his "Handbuch der Entomologie," with that of Dr. Germar. It is as follows:—

1. Fore-wings at the base parchment-like, apical portion transparent hyaline.
 - a. Prothorax dilated at the sides. (*C. stridula*, &c.)
 - b. Prothorax not dilated, narrower than the head. (*C. philæmata*, &c.)
2. Fore-wings not horny at the base.
 - A. Tarsi 3-jointed.
 - I. Lateral margin of prothorax not dilated into a plate.
 - a. Head small. (*C. formosa*, *villosa*, *rufescens*, &c.)
 - b. Head large; eyes prominent. (*C. ornata*, &c.)
 2. Lateral margin of prothorax dilated into a plate broader than the broad head. (*C. olivacea* Germar.)
 - B. Tarsi 2-jointed.
 1. Prothorax with lateral dilatations. (*C. tympanum*, &c.)
 2. Prothorax not dilated at the sides, narrow. (*C. mannifera*, &c.)

The species represented in the accompanying Plate (by far the largest of any hitherto known, and now for the first time figured), enters into Dr. Germar's section 1. B. b., and into that of 2. A. 1. a., in the arrangement of Dr. Burmeister. The following are its characters:—

CICADA IMPERATORIA, *Westwood.* (Annals of N. H.)

PLATE 51.

C. luteo-fulva, capite et thoracis dorso maculis plurimis magnitudine et forma variis, nigris; mesothoraceque figura trifida notatis; pronoti lateribus in medio emarginatis et angulatis; abdomine brunneo lateribus pallidioribus macula in singulo segmento utrinque nigra; alis flavidio-hyalinis, venis fulvis; anticarum venis transversis subapicalibus fusco nebulosis maculisque septem versus marginem fuscis. Long. corp. unc. 3½. Expans. alar. unc. 8¼.

Inhabits the East Indies (Nepaul, &c.) and the Indian Islands. In my own and other collections.

This fine insect is nearly allied to *C. fusca* Oliv. Stoll, Cigal, fig. 36, from the west coast of Sumatra, as well as to the Cicada *flavida*, of Guérin, figured in Belanger's "Voyage aux Indes Orientales." The specimen figured is a male, the drum-covers being visible at the sides of the base of the abdomen, hiding the greater part of the posterior femora on the underside. They extend no farther than is here represented. If this species make a noise proportioned to its size, it must indeed be loud. That of the small European species has long been famous, as the Odes of Anacreon prove. Having in the first volume of this work (p. 98) given an English translation of his Ode to the Cicada, a German one by Ramler, quoted by Burmeister, is here added.

Glücklich nenn' ich dich Zikade !
 Daß du auf den höchsten Bäumen
 Von ein wenig Thau begeistert,
 Ähnlich einem König singest.
 Dein gehört all und jedes,
 Was du in den Feldern schauest,
 Was die Jahreszeiten bringen ;
 Dir sind Freund die Landbewohner,
 Weil du keinem lebst zu Leide,
 Und die Sterblichen verehren
 Dich, des Sommers holden Boten ;
 Und es lieben dich die Musen
 Und es liebt dich Phoibos selber ;
 Er gab dir die klare Stimme ;—
 Auch das Alter dich nicht drängt,
 Seher, Erdgeborene, Sänger,
 Leidenlos, ohn' Blut im Fleische.
 Schier bist du den Göttern ähnlich !

The plant represented in the plate is the Indian *Parochetus communis*.



PLATE LII.

ON THE AUSTRALIAN SPECIES OF PAPILIO.

THE species of Papilio hitherto recorded as natives of New Holland, are very few in number. The following is a list of all those which I am acquainted with as inhabitants of that portion of the world.

SPECIES I.—*Pap. Ilioneus*, Donovan, Ins. N. H. (not of Abbot and Smith, Ins. of Georgia.)

SPECIES II.—*Papilio Canopus*, Westw. in Ann. of Nat. Hist.; of which figures will be given in a subsequent number.

SPECIES III.—*Papilio Capaneus*, Westw. (Plate 52, fig. sup.)

P. alis supra fuscis anticis striga tenui subapicali ad costam dilatata lutescenti, posticis caudatis macula magna straminea pone medium, in linea ad marginem analem ducta lunulis tribus rubris ocelloque rubro et cæruleo ad angulum analem; anticis subtus fuscis, striga obsoleta, parte ad costam pallida solum relicta; posticis pone medium serie irregulari macularum albarum; lunulisque sex fulvis spatio intermedio cæruleo irrorato ocelloque anali fulvo nigro et cæruleo, incisuris albis. Expans. alar. unc. 4 $\frac{3}{4}$.

Mus. Soc. Linn. et Entomol. Lond. D. Alex. MacLeay.

SPECIES IV.—*Pap. Erechtheus*, Donovan, Hübner, Exot. samm.

Pap. Aegeus, Donovan, Hübner (female).

SPECIES V.—*Pap. MacLeayanus*, Leach, Zool. Misc. Hübn. Zutr.

SPECIES VI.—*Pap. Sarpedon*, Linn. Westw. Brit. Cycl. N. H. pl. for Butt.

I have received an Australian specimen of this species from the Linnaean Society, being one of a collection sent by Alex. MacLeay, Esq. It has not before been recorded as inhabiting a more southern latitude than New Guinea.

SPECIES VII.—*Papilio Lycaon*, Boisduval MSS.

A new species, very closely allied to *P. Eurypilus* of Clerck's Icones and Evemon Bdv.; figures of which, already drawn, will be given in a future number of this work.

SPECIES VIII.—*Pap. Antinous*, Donovan, Ins. N. H.*

SPECIES IX.—*Papilio Sthenelus*, MacLeay. Scarcely distinguishable from *P. Epius*.

SPECIES X.—*Papilio Anactus*, MacLeay, in Append. to King's Survey of Aust. p. 458.

As no figure has hitherto appeared of this interesting species, I have represented its under surface in the lower figure of Plate 52. It has been described as allied to *P. Epius* and *P. Machaon*, but it has a much more striking relation to *Papilio Cressida Fabricius*. The upper side differs only in having the pale spots on the fore wings rather more dusky than beneath. I was first acquainted with this species from a specimen in the collection of Mr. Lewis, of Kensington, the possessor of a fine collection of shells. I have since obtained the species from a dealer in insects.

SPECIES XI.—*Papilio (Euryalus) Cressida*, Fabr. Donovan. *Cressida Heliconides*, Swainson, Z. I. 2d ser. pl. 94.

SPECIES XII.—*Papilio (Euryalus) Harmonia*, Fabr. Donovan.

The orchidaceous plant represented is the Australian *Diuris punctata*, Smith.

* A butterfly, which appears to me to differ in no respects from Donovan's figure, stands in the collection of the Jardin des Plantes, with the manuscript name of *Papilio Alexander* attached to it.

TO A BUTTERFLY.

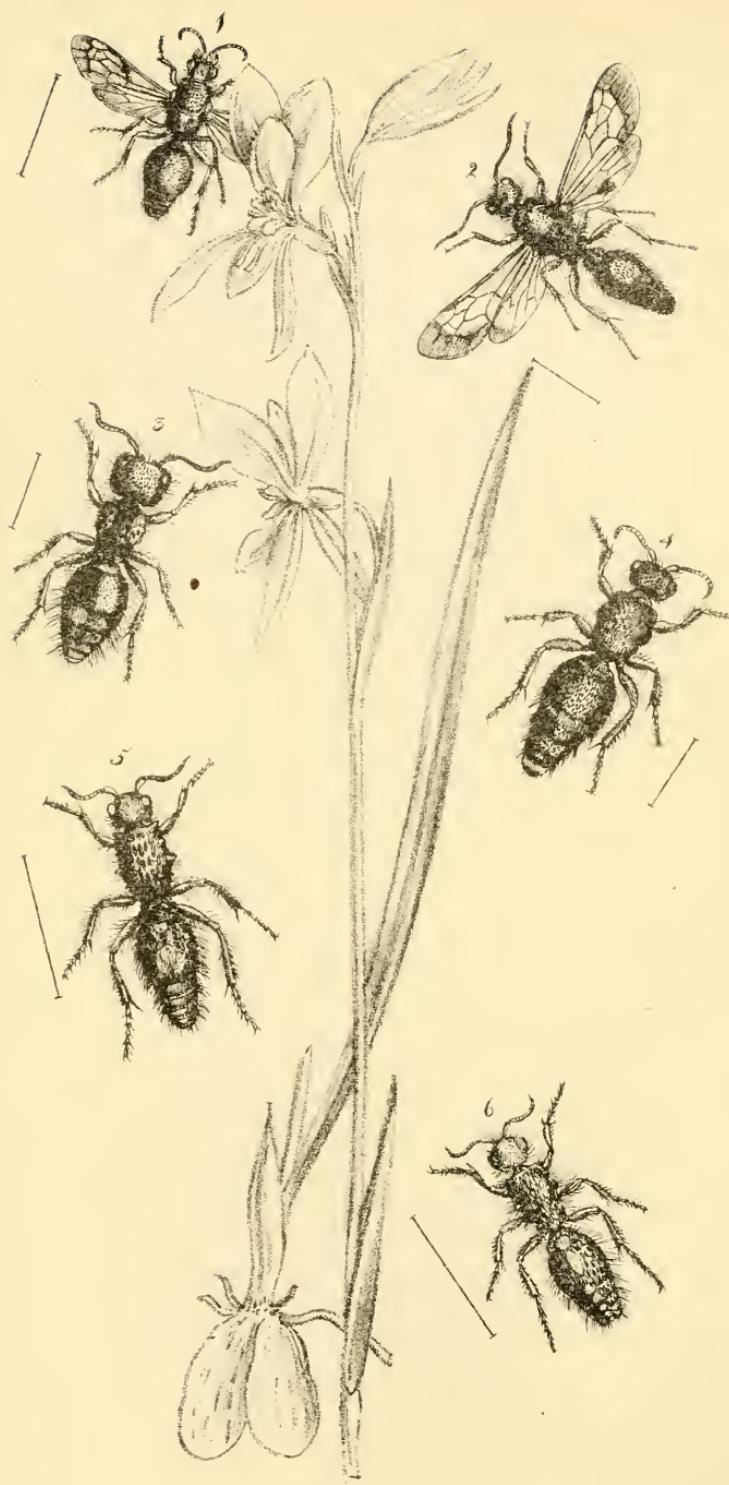
FROM HERDER.

—•—
 LIGHT and lovely thing of sky,
 Butterfly !
 Flutt'ring ever amid flowers,
 Fed on buds and dewy showers,
 (Flower thyself, or leaf with wings !)
 Say, what finger rosy-red
 Thy rich colours brings ?

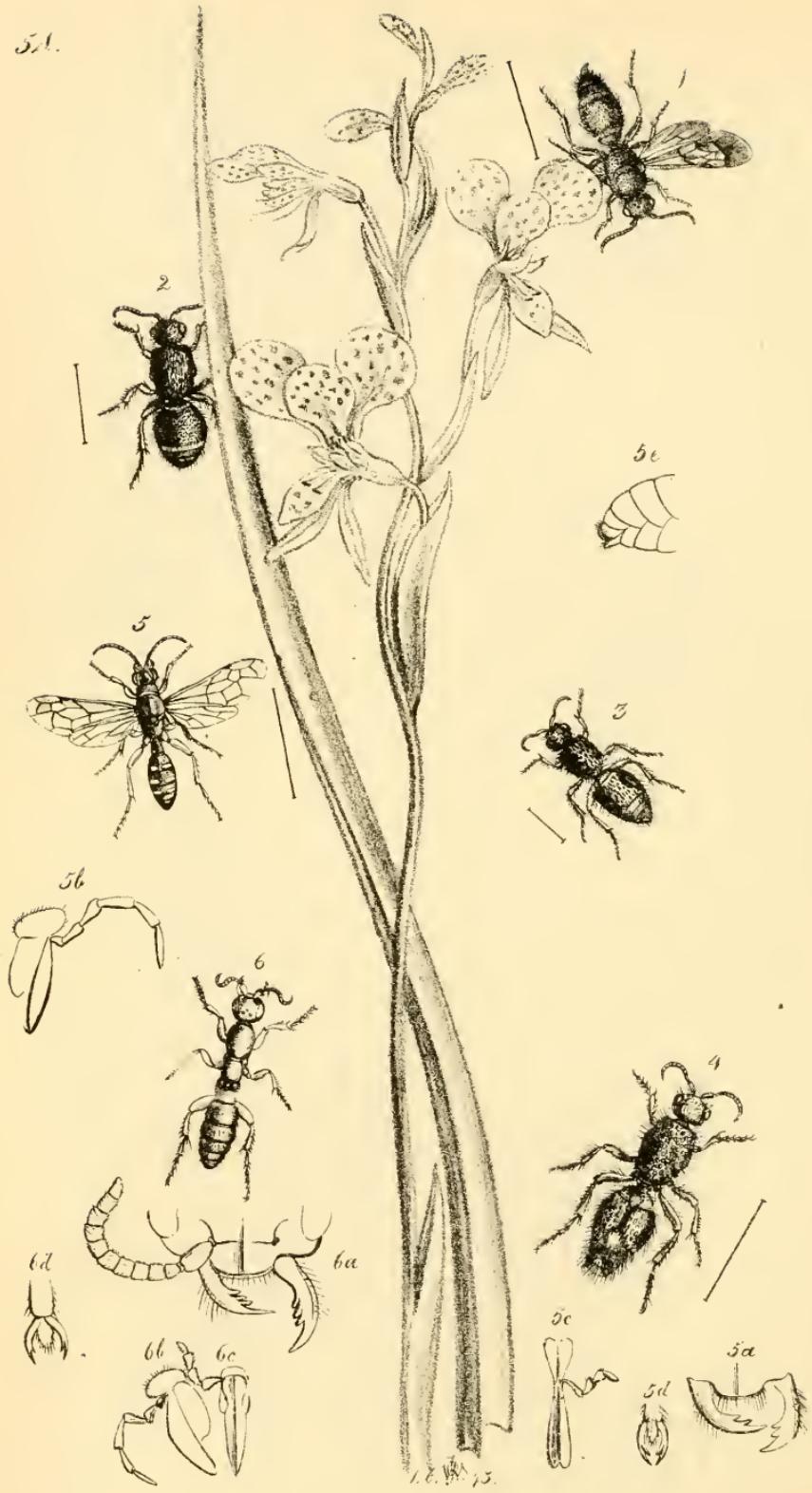
Was 't some sylph that o'er thee threw
 Each bright hue ?
 Raised thee from morn's fragrant mist,—
 Bade thee through thy day exist ?
 Ah, beneath my fingers prest,
 Palpitates thy tiny heart,
 E'en to death distrest.

Fly away, poor soul ! and be
 Gay and free !
 Thus, no more a worm of earth,
 I shall one day flutter forth ;
 And, like thee, a thing of air,
 Clothed in sweets and honeyed dews,
 Each sweet flow'ret share !





5d.



PLATES LIII. AND LIV.
ON THE MUTILLÆ OF NEW HOLLAND.

It is a curious circumstance, in reference to the geographical distribution of insects, that the two Hymenopterous groups of fossorial species, possessing apterous females, should be so unequally dispersed over the surface of the earth. Whilst the genus *Mutillæ* is found in every quarter of the globe, *Thynnus* is confined to the southern hemisphere, and is here only met with in the Australian and South American continents. It is further worthy of notice, that whilst *Thynnus* is a numerous group in Australia and rare in South America, the *Mutillæ* of the western world are far more numerous than those of New Holland and its dependencies.

It is most probable that the economy of both these groups are identical, and that the females are sand-burrowers; and the males attached to flowers rather than predaceous in their habits.*

GENUS.—*MUTILLA*, *Linnæus*.

The following are all the Australian species of *Mutilla* which I have hitherto seen in collections, or of which I have met with the descriptions:—

SPECIES I.—*Mutilla formicaria*. (Plate 53, fig. 6.) *M. nigra*, capite cinerascenti-hirto, thorace nigro, scabro, lateribus vix tuberculatis, abdomine nigro (subpiceo in certo situ), linea dorsali macularum albo-einerascentium lateribusque abdominis albo-hirtis. ♀. Long. corp. lin. 9.

SYN.—*Mutilla formicaria* Fabricius, Ent. Syst. 2, 368. Syst. Piez. p. 430.

Originally described by Fabricius from the Banksian Cabinet, where the specimen still remains. The Rev. F. W. Hope has recently obtained a specimen in Mr. Gould's collections from Port Essington.

SPECIES II.—*Mutilla rugicollis* Westw. (Plate 53, fig. 5.) *M. nigra* nitida scabra, capite, maeulis dorsalibus pilisque lateralibus abdominis albo-cinerascentibus, thoracis angulis anticis lateribusque tuberculato-angulatis, thoracis dorso punctis magnis oblongis, metathoraceque spatio elongato-trianguli impresso, abdominis segmento secundo magno valde sebro, medio tenue punctato, plaque rotundata albo-cinerascenti alteraque semicirculari basali e pilis segmenti basalis formatæ, segmentis reliquis etiam plaga ejusdem coloris notatis. ♀. Long. corp. lin. 9½.

In the cabinet of the British Museum, ticketed “Hunter, New

* A memoir on the habits of some Indian species of *Mutilla*, by Captain Boys, was read at the Entomological Society, on the 5th June, 1843, in which are described the proceedings of a male in the act of dragging along a dead cockroach, in a manner precisely similar to that adopted by female fossorial insects, whilst provisioning their nests. It is scarcely to be supposed that a male *Mutilla* could have been thus employed.

Holland," and in the collection of the Rev. F. W. Hope, from Western Australia.

Musca.—This species is very closely allied to *M. incognita*, but is at once distinguished by the structure of the thorax and sculpture of the body.

Scutellum IV.—*Musca fuscipes*, Westv. [Plate 34, fig. 2]. *M. incognita punctata*, some intercostal-area becoming yellowish brown; a pale band in media margin present segmentum 1. m. 5. et 6. ann. antennae pediculus regularis nigra, tarsus parvus, thorax rufi annuli transversi, first puncta regularis transversi lateribus luteo subtinctis; segmentum 10. antennae nigra, n. media longitudinaliter impressa; first puncta tibiis annulae rufa. L. Long. corp. 16.

In the collection of John Curtis, Esq., F.L.S., &c., from New Holland.

Scutellum IV.—*Musca vulgaris*. *M. obscurans* Westv. antennae fuscatae, abdominal segmentum 10. annuli thoracis majori basali luteo tincti; valvula segmentis basi lutea. L.

Sex.—*M. vulgaris* Fabricius, Ent. Syst. 2. 166. Spec. Pl. p. 410.

Described as a native of New Holland, by Fabricius, from the Banksia Collection. I have not, however, been able to discover the species in the cabinets of the Linnean Society.

Scutellum V.—*Musca vulgaris*. *M. nigra*, antennae rufa, capitis ocellis rufis, ab. ann. 5.

Six.—*M. vulgaris* Fabricius, Ent. Syst. 2. 167. Spec. Pl. p. 411.

Also described by Fabricius as a native of New Holland, from the same collection as the last, but I have not been able to find it there.

Scutellum VI.—*Musca Australasiae*. *M. nigra* Westv. annulus 10. concolor inter disticti rufi, abdominal area nigra segmentum 1. 2. thoracis majori oblongi lutei, pediculus rufus. *M. australis* Westv. major.

Six.—*M. Australasiae* Fabricius, Ent. Pl. p. 412.

Described by Fabricius as a native of "Nova Cambria," from the collection of Labillardière.

Scutellum VII.—*Musca dorsiger*, Westv. [Plate 34, fig. 3]. *M. nigra*, parva lutea, annuli rufi in thorace punctata, antennae pediculus, abdominalis basi luteo-picea, collaris et contractus major rufi, abdominalis area nigra, segmentum 1. 2. et 3. annuli majori thoracis et palea 1. 2. annuli intermixtae, annuli 10. mediae annuli parvi, nigrae contractae, parvi lutei, abdominalis major rufi, pediculus anterolateraliter levioribus. L. Long. corp. 16.

Bauer in Denks. für Naturw. D. Leys. In Mus. Westv.

I can scarcely think this to be identical with the *M. Australasiae*, although it is closely allied to that species.

Scutellum VIII.—*Musca opaca*, Westv. [Plate 34, fig. 4]. *M. nigra*, nigra nigra punctata, thorace parvo nigra levioribus, abdominalis segmentum 1. et 2. paleo-punctata annula pediculus rufi rufi, antennae transversi leviora, thorace major rufi tenui-punctata, abdominalis intermixta transversa punctata. L. Long. corp. 16.

Bauer in Mus. Berl. No. 15.

Allied to *M. dorsiger*, but much more robust in proportion to its size, and more obscurely coloured.

Scutellum IX.—*Musca laetula*, Westv. [Plate 34, fig. 5]. *M. nigra*, nigra punctata, antennae transversi nigrae, pediculus rufi, abdominalis segmentum basi nigra, 10. annuli

- clavis et rotundis ferruginea. Posterioria ut marginem posticam pila curva, tunc una omnia plana et recte transversa. ♂. Long. corp. in. 4 $\frac{1}{2}$.
 Habitat in Terra Van Diemen. In Mus. D. W. W. Saunders. F. L. 2.
 Species XI.—*Motilla elegans*, Westv. (Plate 14, fig. 2.) M. nigra varia nitida punctata, unicolorata-hirsuta, antennae longae transversae nigrae, abdominalis elongata, segmenta longa petiolata, abd. pilosa ciliata-serrulata apice lata fuscata. ♀. Long. corp. in. 4 $\frac{1}{2}$.
 Espan. Mus. in Terra Van Diemen. D. Evipp. Mus. Bonn. ex Westv.

In this species the veins separating the submarginal cells are inserted into the marginal cell at nearly equal distances apart; and the first recurrent vein is received by the second submarginal cell rather beyond the middle, whilst the second recurrent vein is received nearly at the extremity of the third submarginal cell, forming nearly a straight line with the extremity of the third submarginal cell.

- Species XII.—*Motilla elegans*, Westv. (Plate 14, fig. 3.) M. nigra varia punctata nigra, tarsus anterius oblongatus luteo, abdominalis rosaceo-purpureo transverso punctato pila clavis utroque utruncumque levigata; pedibus nigrae, tarsorum 4 posticorum et antariorum luteo; abd. pilosa ciliata apice nigra, segmenta basali ciliatis pila rotunda transverso ut lata formata, abd. magno ciliata. ♀. Long. corp. in. 4. Espan. Mus. in. 11.

Habitat in Australasia. In Mus. Bonn.

The insertion of the veins in this species is very similar to that of the preceding species.

- Species XIII.—*Motilla nervosa*, Westv. (Plate 14, fig. 4.) M. nigra punctata nigra, tarsus rugosus-punctatus, abdominalis testa plumbum adoratum, ut specie separantur. Unde et hoc, hoc parum distincta, abd. hyalina et fusa varia, apice lata fuscata. Long. corp. in. 4. Espan. Mus. in. 4 $\frac{1}{2}$.
 Habitat "Iova River." In Mus. Bonn.

- Species XIV.—*Motilla maculata*, Westv. (Plate 14, fig. 5.) M. nigra nigro-crenulata utroque transverso punctato nigra, tarsus parvo rugosus-punctatus, anterius et rotundis ferruginea, abdominalis nigra et lutea, tarsorum posticorum pila curva in maxilla disposita rotunda, anterius et luteus basali transverso ut lata formata, ut utroque transverso pedibus rotundis ferruginea. Long. corp. in. 4 $\frac{1}{2}$.
 Habitat in Terra Van Diemen. Mus. Neumann. Westvind. ex. The type is not differ in this curious species from those of the rest of the genus.

Genus—PSAMMATHUS, Shuckard.

This genus was established by Mr. Shuckard, in the Transactions of the Entomological Society of London, for the reception of an insect having precisely the habit of a male *Motilla*, but remarkable as being the only one yet characterized among the *Motillidae* in which the second sub-marginal cell receives both the recurrent nervures,* in which respect it also differs from all the species of insects of which *Thynna* is the typical form, except the genus *Tachypterus* Guérin. Dr. Klug having on this account omitted the genus and its supposed female in his beautiful memoir on the *Thynni*, recently published in the Berlin Transactions, I have been

* See in Trans. Ent. Soc. G. p. 60.

induced to add a figure of it, and of *Diamma cœrulæa*, to my representations of Australian Mutillæ.

As the genus *Psamatha* has been described at some length in the work above referred to, it will be necessary only that I should notice some peculiarities omitted by Mr. Shuckard; these relate especially to the structure of the mouth. The clypeus (plate 54, fig. 5 *a*) is carinated down the middle, being produced in a transverse lobe over the labrum, of which the anterior ciliated margin is almost hidden. The mandibles are much curved, and terminate in three acute teeth, the apical one being the largest. In the male *Mutillæ* the mandibles are simply bifid; the same is also the case with the majority of the *Thynni*. The Chilian *Telephoromyia* Guér. and the Kangaroo Island *Taehypterus* Guér. have, however, the mandibles bidentate within. The maxillæ (fig. 5 *b*) in *Psamatha* do not materially differ from the general form of these organs amongst the fossorial species, with 6-jointed maxillary palpi; the labium (fig. 5 *c*) in my specimen is considerably exserted and emarginate at the tip, arising from a very narrow carinated mentum, slender in front, and with 4-jointed labial palpi. The unguis in all the feet are bifid, (fig. 5 *d*), in which respect the insect agrees with the *Thynni*, and differs from the *Mutillæ*. The eyes are but very slightly emarginate on the inside, whereas they have a deep notch in the male *Mutillæ*. The veins of the wings extend quite to the apical margin as in the *Thynni*, whereas in the *Mutillæ* they stop at some distance from the margin. And lastly, the want of colour in these organs, as in this insect, occurs in the *Thynni* more ordinarily than in the *Mutillæ*. The extremity of the abdomen (fig. 5 *e*) is incorrectly described by Mr. Shuckard, as it has only one valve on each side projecting beyond it (in my specimen being coloured whitish) forming the quadrant of a circle, and externally fringed; the apical ventral plate is truncate at its extremity, and not produced into a spine as in many *Thynni*, nor bidentate as in the male *Mutillæ*.

SPECIES I.—*Psamatha chalybea*, Shuckard. (Plate 64, fig. 5.) *Chalybea nitida griseo-pubescentia*, margine postico prothoracis albido, abdomine atro utrinque maculis quatuor albidis, pedibus rufis basi nigris, tarsis piceis. Long. corp. lin. 6—6½. Expans. alar. lin. 11½.

Habitat in Terra Van Diemenii. Mus. Soc. Ent. Lond. Saunders, Shuckard, et Westw.

I am indebted to W. W. Saunders, Esq., for this interesting species.

DIAMMA, Westw. (In Proceedings of Zool. Soc., April 14, 1835.)

Corpus elongatum nitidum apterum, thorace in medio constrictum segmentisque abdominis basi subcoarctatis. Caput subhorizontalis fere rotundatum. Clypeus (fig. 6 a) medio longitudinaliter carinatus, antice in lobum transversum, super labrum productus. Labrum margin'e antico ciliato. Mandibulae longe curvatae falcatae, intus et ante apicem auctum dentibus tribus aequalibus armatae. Maxillae (fig. 6 b) lobo externo tenui margin'e rotundato; palpi maxillares graciles 6-articulati articulis 3 et 4 longioribus. Mentum corneum (fig. 6 c) elongatum labio in apice ejus retractile. Palpi labiales 4-articulati articulis intermedii obconicis. Antennae breves convolute 12, articulatae articulo 2ndo minuto, apicalibus gracilioribus. Thorax quasi binodosus. Nodus anticus fere rotundatus e collari maxime constans. Mesonotum in annulum brevem angustum contractum. Mesosternum majus, obliquum, et pedes intermedios gerens. Metathorax magnus nodum posticum thoracis constituens et spiraculis duobus lateralibus instructus. Abdomen oblongo-ovale subdepressum segmento basali ad apicem constrictum. Pedes breviusculi spiuosi unguibus bifidis (fig. 6 d).

THE very interesting insect, which is the type of this genus, is closely allied to *Myrmecodes* Latr., or the females of *Thynni* and to *Myrmosa* Latr. The peculiar toothing of the mandibles, is, however, quite unlike that of those insects, whilst the elongated maxillary palpi are still more unlike those of the female *Thynni*, *T. variabilis* ♀ for example, in which the maxillary palpi are extremely short and apparently only 3-jointed, a peculiarity overlooked by Dr. Klug in his Memoir on *Thynnus*, although it is one which would have caused him to hesitate previous to sinking all the genera established by M. Guérin. I am unwillingly prevented at present from entering into this part of the subject so fully as it deserves, and shall only add that, in the females of *Myrmosa*, *Methoca*, and *Mutilla*, the palpi do not differ from those of the males, which is also most probably the case in *Diamma*. The very slight pilosity of the body of the type of this genus, its polished surface, articulated thorax, and bifid unguis, are all characters which it, however, possesses in common with the female *Thynni*; which appear to me to be its nearest allies.

SPECIES I.—*Diamma bicolor*, Westw. (Plate 54, fig. 6.) *D. tota purpurea, cyaneo, vel aeneo nitens, antennis pedibus mandibulisque rufis, bis ad apicem nigris.* Long. corp. lin. 9½.

Habitat in Terra Van Diemenii. In Mus. nostr., &c. Communic. Dr. Ewing, &c.

M. Guérin has described a female insect from Kangaroo Island (in the Voyage de la Coquille, texte, p. 235,) under the name of “*Diamma ephippiger*; Apteris, niger nitidus laevigatus mesothorace, metathorace pedibusque fulvis.” Like *D. bicolor* ♀, it has 6-jointed maxillary palpi, but the mandibles have only a single tooth within, and Mr. Shuckard assures me that this insect is the female of *Rhagigaster unicolor*, an insect which differs considerably from *Psamatha*.

The plant represented in pl. 53 is the Australian *Diuris aurea* of Smith, and that in plate 54 is *D. maculata*, from the same country.

“ This is human happiness !

Its secret and its evidence are writ
In the broad book of Nature. ’Tis to have
Attentive and believing faculties ;
To go abroad rejoicing in the joy
Of beautiful and well-created things ;
To love the voice of waters, and the sheen
Of silver fountains leaping to the sea ;
To thrill with the rich melody of birds,
Living their life of music ; to be glad
In the gay sunshine, reverent in the storm ;
To see a beauty in the stirring leaf,
And find calm thoughts beneath the whispering tree ;
To see, and hear, and breathe the evidence
Of God’s deep wisdom in the natural world !
It is to linger on ‘ the magic face
Of human beauty,’ and from light and shade
Alike to draw a lesson ; ’tis to love
The cadences of voices that are tuned
By majesty and purity of thought ;
To gaze on woman’s beauty, as a star
Whose purity and distance make it fair ;
And in the gush of music to be still,
And feel that it has purified the heart !
It is to love all virtue for itself,—
All nature for its breathing evidence ;
And when the eye hath seen, and when the ear
Hath drank the beautiful harmony of the world,
It is to humble the imperfect mind,
And lean the broken spirit upon God ! ”



PLATE LV.

ILLUSTRATIONS OF TWO HITHERTO UNFIGURED SPECIES OF THE
GENUS PAPILIO FROM INDIA.

—•—

THOSE beautiful species of the genus Papilio, which are for the most part distinguished by having the ground of the wings pale yellowish or cream-coloured, traversed by straight black fasciæ, often extending across both the wings, and having the hind wings terminated by long slender tails, and which constitute Boisduval's sixteenth group, appear to be dispersed nearly over the whole globe, and hence from this cosmopolitan disposition, and the great similarity which exists amongst the species, some confusion both in the synomymes and habitats of several of them has taken place. Thus the Papilio Nomius of Esper, (P. Meges Hb. P. Niamus, Godart. Swainson, Zool. Ill., 2 ser., pl. 32.) an insect now known to be a native of India*, was described by Godart as an inhabitant of Brazil, whilst Mr. Swainson even asserts that he took the species in that country. Other allied species appear to be of the greatest rarity in the East, amongst which may especially be mentioned P. Telamon, of Donovan, a native of China, which we may now, perhaps, hope to receive; P. Dorcus Reinwardt, beautifully figured by M. De Haan in the 6th plate of his splendid Memoir on the Papillones of the East, and the two species represented in my plate; of these the two upper figures exhibit both surfaces of the wings of an entirely new species, whilst the under figure represents the underside of a species not hitherto figured, and of which a description of the upper side alone has hitherto been given to the public.

PAPILIO AGETES, Westw. (PLATE 55, figs. 1, 2.)

P. alis pallidissime stramineis costa vix virescenti, anticis fasciis 4 (tertia a basi abbreviata,) marginaque apicali nigris, posticis margine apicali nigro maculaque anali rubra. Expans. alar. unc. 3 $\frac{1}{2}$.

Inhabits the East Indies (Sylhet?) Mus. Brit.

This elegant species is allied to P. Agesilaus, and especially to P. Dorcus. The extremity of the discoidal cell in the fore wings is connected with the costa by a small black conical mark, which in some of the allied species becomes an additional fascia. The two basal bars of the fore wings are carried across the hind ones beneath;

* I have now before me a considerable number brought home by Colonel Hearsey, a gentleman devotedly attached to the study of the transformations of Indian Lepidoptera.

the second being marked near the costal margin of the latter with two red curves, which, as well as the bases themselves, are slightly visible through the wing, when seen from above; the dark margin of the hind wings bears two white lunules, and these wings have a white marginal spot below the anal angle, which is marked with a long red patch, surmounted above by black, and resting on an oblique short black streak.

PAPILIO GLYCERION, Gray. (PLATE 55, fig. 3.)

This species was first very concisely described by Mr. G. R. Gray, in the Zoological Miscellany*. Boisduval subsequently gave a more detailed description of its upper side from a drawing sent him by the former author. I have therefore preferred figuring the under side. The upper surface of the fore wings differs from the under in having the black bars at the extremity of the wing more distinct and broader, and the under wings are much less varied with the dark marks, which are confined nearly to the apical margin. The space between the base of the tail and the anal angle is covered by a patch of black; the yellow spot is, however, not surmounted by the black line.

I am indebted to Captain Parry for an opportunity of figuring this rare species, which he received from Semlah, in the East Indies.

The Nepalese plant represented in the plate is the Orchidaceous *Tribrachia reptans*. Lindl. Coll. Bot., tab. 41.

* The Plates and descriptions of General Hardwicke's insects, quoted by Boisduval, have not been published.

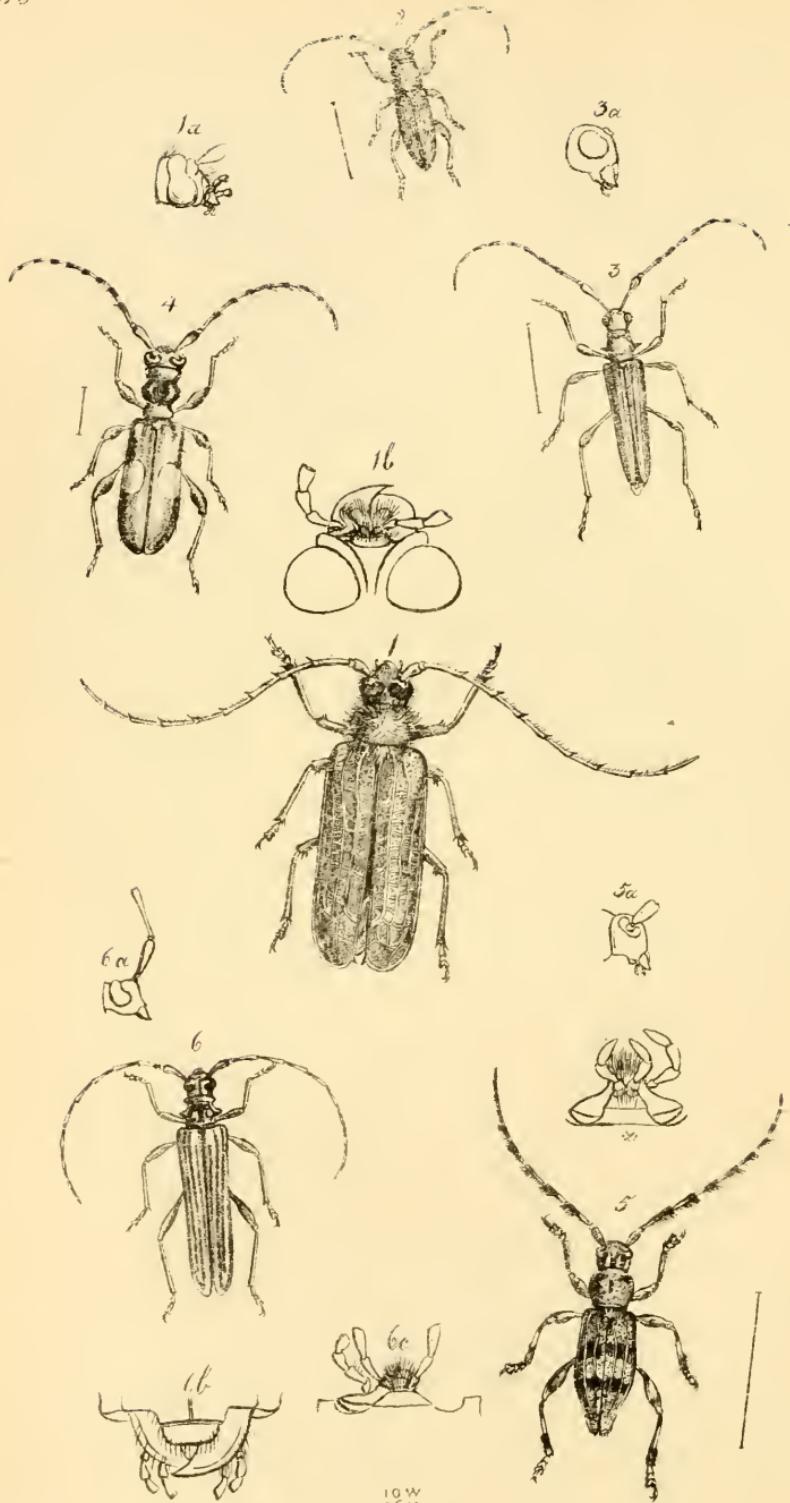
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PLATE LVI.

ON THE LONGICORN COLEOPTERA OF NEW ZEALAND.

CAPTAIN F. PARRY having placed in my hands for publication some of the Longicorn species of beetles which he has recently obtained from New Zealand, I have considered that it would be serviceable to add to my descriptions a list of all the Longicorn species, hitherto described as natives of that country, which is accordingly given beneath, being chiefly derived from the Appendix to Dieffenbach's Travels.

SPECIES I.—*Prionus (Prionoplus) reticularis*, White, in Dieff. Trav. vol. ii. App. p. 276. (Plate 56, fig. 1). *P. piceo-fuscus*; facie, pronoto, et thorace subtus pilis aureo-fuscis tomentosis, elytris pallide reticulatis.
Long. corp. lin. 17—18.

"This *Prionus* forms a section or sub-genus distinct from *Scelocantha* and *Toxeutes* of Newman (Annals and Mag. of Nat. Hist. v. pp. 14, 15), the latter founded on the Australian *Prionus arcuatus*, Fabr.; it differs essentially from *Malloderes*, Dupont (Guér. Mag. Zool. 1835, pl. 125), and *Aulacopus*, Serville (Ann. Soc. Ent. France, 1832, pp. 144, 145), of the characters of the species of which it partly partakes,"—White, op. cit. *Malloderes*, founded upon a Chilian insect, and *Trichoderes* of Chevrolat (Guér. Mag. Zool. 1843, pl. 113), upon a Mexican species, differ from the present in the armature of the thorax, each side of which, in our insect, is armed with a short spine in the centre. The eyes are of a very large size, the palpi short, the third and following joints of the antennæ terminated by a short spine. The male antennæ are rather longer than the body. All the femora are armed within at the tip by two short spines, and the elytra are rounded at the tips, with a short spine at the extremity of the suture.

Captain Parry's specimen is from Port Nicholson. Fig. 1 a, represents the head seen laterally, and fig. 1 b, the underside of the head.

SPECIES II.—*Phoracantha dorsalis*.

SYN.—*Stenochorus dorsalis*, MacLeay, in Append. to King's Survey, ii. p. 451.
Phoracantha dorsalis, Newman, Ann. of Nat. Hist. v. p. 19; White, op. cit. p. 278.

SPECIES III.—*Coptomma variegatum*, White, op. cit. p. 278.

SYN.—*Callidium variegatum*, Fabricius, Ent. Syst. 2, 325; Syst. El. 2, 340; Oliv. 70, tab. 5, fig. 58.

Tmesisternus var., Bd., Guérin.

Coptomma vitticolle, Newm. Ann. Nat. Hist., v. p. 18.

Described by Fabricius from the Banksian Collection, which still possesses the typical specimen. Also in the British Museum Collection, presented by Drs. Dieffenbach and Sinclair.

SPECIES IV.—*Coptomma sulcatum*, White, op. cit. p. 278.

SYN.—*Callidium sulcatum*, Fabr. Syst. Ent., p. 189; Syst. Eleuth. 2, 340; Oliv. Ent. 70, t. 4, fig. 48.

Tmesisternus sp., Latr.; Guér.; Voy. Coq. texte, p. 130.

Described by Fabricius from the specimen still remaining in the Banksian Collection.

SPECIES V.—*Coptomma lineatum*, White, op. cit. p. 279.

SYN.—*Callidium lineatum*, Fabr., Syst. Ent., p. 189; Oliv. Ins. 70, t. 4, fig. 50.

Tmesisternus sp., Latr.; Guér.; Voy. Coq. texte, p. 130.

Coptomma fusiforme, Newman, MS. in Brit. Mus.

Also described by Fabricius from the specimen still existing in the Banksian Cabinet. It is also in the Cabinet of the British Museum, although not so indicated by Mr. White.

SPECIES VI.—*Lamia crista*, Fabr., Syst. Ent., p. 176; Ent. Syst. 2, 268; Syst. Eleuth. 21, p. 282; Oliv. Ins. 67, tab. 14, fig. 101; White, op. cit.

Described by Fabricius from the Banksian Cabinet.

SPECIES VII.—*Lamia pulverulenta*, Westw., (Plate 56, fig. 5).

L. nigra obscura, albida pulverosa, thoracis lateribus iuermibus, elytris nigro-bifasciatis fulvoque costatis, antennis pedibusque albido fasciatis, illis externe setosis.

Long. corp. lin. 9.

Inhabits Port Nicholson, New Zealand. Mus. Parry.

This curious species differs from all the other Lamiæ, and somewhat approaches *Tmesisternus* in the form of the head. I am not, however, sufficiently acquainted with the distribution of the Longicorn beetles to warrant my proposing a new genus for its reception. The head (fig. 5 a) is rather elongated behind the eyes, with the front part nearly perpendicular; it has two whitish lines behind; the palpi are short (fig. *) with the extremity rather pointed; the antennæ are 11-jointed, the third joint being the longest, and all the joints being fringed on the outside with hairs, alternately coloured as the joints themselves, the bases of which are white and the extremities black. The thorax is nearly rounded, with the sides unarmed; the elytra are convex, the humeral angles prominent, and the hind part much attenuated and deflexed; the tips not spined but pilose; along each run four slender, fulvous, elevated costæ, which do not extend to the tip; the middle of the elytra are ornamented with two interrupted black fasciæ; the legs are varied with black and whitish colours, the extremity of the tibiae being externally setose.

SPECIES VIII.—*Cerambyx strigipennis*, Westw. (Plate 56, fig. 6).

C. sordide luteus, piceo longitudinaliter striatus, thoraci dorso et lateribus tuberculatis, antennis nigro annulatis, pedibus gracilibus pallidis.

Long. corp. lin. 11.

Habitat Port Nicholson, New Zealand. Mus. Parry.

The head is broad in front before the eyes, and with the face rather oblique (fig. 6 a), and truncate, and the parts of the mouth are small; the mandibles short (fig. 6 b), and black at the tip; the palpi also short, the maxillary ones scarcely longer than the labial (fig. 6 c); the antennae are shorter than the body, with the first joint clavate, the third and several following of nearly equal length, with the base of the joints black; the head has a dark central line, and the space behind the eyes is also dark-coloured; the thorax is constricted near the front margin, and dilated on each side into a short, thick, conical spine; the disk has also four elevated tubercles, placed thus, . . . ; the middle of the thorax is marked with a dark line. The elytra are long and nearly parallel, with the suture and five longitudinal streaks on each, of pitchy-brown; the first not extending to the base, the second and fourth united together near the tip, the third being insulated by them, the fourth much abbreviated at the base, and the fifth slender and submarginal; the feet are slender and simple, the femora being very slightly clavate.

SPECIES IX.—*Stenoderus Sinclairi* (Plate 56, fig. 3, and 3 a, head seen laterally). S. prasino-viridis sericeo-opacus, pedibus antennisque rufis, thorace utrinque spina armato, elytris tenuissime punctatis et flavido marginatis disco sub-bicostatis, abdomine piceo-rufescens.

Long. corp. lin. 4 $\frac{1}{2}$.

SYN.—*Callichroma (Calliprason) Sinclairi*, White, op. cit. p. 277.
Habitat New Zealand, D. Sinclair. Mus. Brit.

The eyes are very large and nearly rounded; the antennae are 11-jointed, slender, with the first joint long and clavate, the terminal joints rather thicker than the preceding; the thorax is narrowed both behind and before the middle, where it is armed on each side with a spine.

Mr. White considers this insect as a new sub-genus, near to *Promeces*, Serville, and as one of the links connecting the Cerambycidae with the Lepturidae.

SPECIES X.—*Xylotoles griseus*. (Plate 56, fig. 2.) X. griseus scutelli margine elytrisque lincolis aliquot brevissimis flavidis; basi punctis impressis apice vix acuminatis, pedibus fuscis femoribus clavatis antennisque fuscis.

Long. corp. lin. 4 $\frac{1}{2}$.

Habitat New Zealand, Mus. Banks et Mus. Brit.

SYN.—*Saperda grisea*, Fabricius, Syst. Ent. 186; Ent. Syst. 1, 2, 313; Syst. El. 2, 324.
Xylotoles griseus, White, op. cit.

SPECIES XI.—*Xylotoles latus*, Newman, Entomol., No. 1, p. 12.

SPECIES XII.—*Lamia heteromorpha*, Bd. Voy. Astral. 2, 505. I believe species XI. and XII. to be identical with *Xylotoles griseus*.

SPECIES XIII.—*Xylotoles lynceus*, White, op. cit. p. 279.

SYN.—*Saperda lyncea*, Fabricius, Ent. Syst. 1, 2, p. 313; Syst. Eleuth. 2, 323.

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, in which the typical specimen is still preserved. Its elytra, divergent at the tips, at once separate it from the preceding species.

SPECIES XIV.—*Obrium Fabricianum*, Westw.

SYN.—*Clytus minutus*, Fabricius, Syst. Ent. 192; Ent. Syst. 2, 332; Syst. El. 1, 2, p. 346; Oliv. Ins. 70; Fab. 5, fig. 56.
Nec *Obrium minutum*, Auct. hodiern.

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, where the typical specimen still exists, although in a bad state of preservation. The species is very closely allied to the following, of which it might perhaps be considered an immature individual, were not the joints of the antennæ black at the tips.

SPECIES XV.—*Obrium guttigerum*, Westw. (Plate 56, fig. 4.)

O. cyaneum nitidum, elytris magis purpurascensibus basi subtuberculatis, singulo plaga magna mediana rotundata albida parum elevata, articulis omnibus antennarum ad apicem, apicibusque clavatis femorum nigris. Caput antice fulvo-purpureum, trophis brevibus rufescensibus, mandibularum brevium apicibus nigris. thorax elongatus ante et pone medium valde constrictus, medio rotundato gibboso. Tibiae et tarsi pallide testacei.

Long. corp. lin. 2 $\frac{2}{3}$.

Habitat Port Nicholson, New Zealand. Mus. Parry.

SPECIES XVI.—*Saperda tristis*, Fabricius, Syst. Ent. 186, and Ent. Syst. vol. iv., Appendix, p. 453—(where Fabricius has corrected the errors in the transposition of the names of the species described by him in vol. i. part 2, p. 314 of that work, where the *S. lineata*, from Zanguebar, was described under the name of *tristis*.)

The species was described by Fabricius in his earlier works correctly as a native of New Zealand, from the Banksian Collection, where the typical specimen is still preserved. In the Syst. Eleuth. (2, p. 326) by another strange error Fabricius assigns Germany as the native country of the species.

SPECIES XVII.—*Saperda villosa*, Fabr., Syst. Eleuth. 2, p. 320; White, op. cit.

SYN.—*Saperda hirta*, Fabr. Ent. Syst. 1, 2, p. 309 (nec. *S. hirta*, Fabr. Ent. Syst. 1, 2, p. 317, ex Italia).

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, in which the typical individual is still preserved.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW WORKS, &c.

(No. XIV.)

KING'S COLLEGE, LONDON.—In the very large collection of objects of nature and art, presented to the museum of this institution last year by Her Majesty, and which was collected at Kew for the education of the family of King George III., was a considerable collection of insects, made, as it was stated, under the direction of Sir Joseph Banks, and other naturalists, his friends. Having, on the occasion of the opening of this museum, on the 22nd June (1843) had an opportunity of examining this collection, I can but express the disappointment I felt on not finding therein any of those species of insects which Sir Joseph Banks brought home from the islands of the Southern Ocean, of which it seemed probable that duplicates would have been presented to the cabinet of his royal patron. The only insects of value which I observed on a cursory view, are *Papilio Cressida*, *P. Harmonia*, the latter in fine preservation, as is also a specimen of *P. Pelaus*; several of the large species of *Ægeria* with very hairy hind legs; several fine species of *Mantis* and a large species of *Xya*. The collection was kept in glazed drawers, each insect stuck in a small square pasteboard tray, turned upside down, into which some waxen secretion had been poured.

ASHMOLEAN MUSEUM, OXFORD.—This very interesting and well-kept collection has recently received a valuable donation, consisting of a cabinet of insects of all orders, from Sylhet or some of the adjacent parts of India, in which many of the new and splendid species recently described by the Rev. F. W. Hope are comprised. It likewise contains several species of *Papilio* which appeared to me, on a casual examination, to be undescribed, as well as a specimen of the singular *P. Payeni*, being, I believe, the only specimen of that insect in this country.

ZOOLOGICAL SOCIETY.—The Earl of Derby, President of this Society, has recently presented to it a very extensive and valuable series of insects, from the hilly and hitherto unknown country in the interior of the south of Africa, lying between 25° and 26° S. lat., and 27° and 28° E. long., collected by Mr. Burton, as noticed

in vol. i. p. 174 of this work. In addition to the splendid goliath-beetles, described in my former volume, the collection is very rich in *Anthiæ*, *Graphipteri*, a new and singular large species of *Cicindela*; several new *Dromicæ*, several singular *Cremastocheili* and *Longicorn* beetles (of which I have made drawings and descriptions for publication in this work). The collection comprises all the orders of insects, and is extremely interesting in an entomo-geographical point of view. A second selection has been presented by the Earl of Derby to the British Museum.

INSECTS OF SICILY AND CORFU.—The insects of these two interesting localities have recently been closely investigated by A. Melly, Esq., and the Rev. Mr. Kuper, who have lately returned home from thence, bringing with them extensive collections, preserved with the greatest care, and comprising numerous series, especially of minute species of Coleoptera, many of which are quite new, both generically and specifically. An extensive selection of the species from Corfu has been presented to the Entomological Society by the latter gentleman.

INSECTS FROM SYLHET, THE KASYAH HILLS, AND THE ADJACENT PARTS OF INDIA.—In addition to the cabinet recently presented to the Ashmolean Museum, mentioned above, several collections of insects from these hitherto scarcely known districts of India have within the last few months arrived in England. One of considerable extent has been sent to R. H. Solly, Esq.; another received by the Rev. Mr. Stainforth, was subsequently sold, when the Rev. F. W. Hope obtained the Coleoptera, Orthoptera (containing some splendid *Grylli*), Homoptera (including some beautiful Fulgoridæ, &c.), and Mr. H. Doubleday the Lepidoptera. The Lepidopterous portion of another large collection, subsequently arrived, has been purchased by the British Museum, in which was comprised the new species of *Papilio*, figured in Plate 55. The Coleoptera of this collection were purchased by Captain Parry, and the other orders by the Rev. F. W. Hope, who has likewise received another collection from the same country, through the agency of Dr. Cantor. The Entomological Society of London has also received a considerable collection from Mr. M'Clelland; and within the last few days I have received a small but interesting collection of Assamese species, from W. Robinson, Esq., of Gowliatti, E. I. containing various new and interesting species, which I propose to figure in future Numbers of this work.

HISTOIRE DES INSECTES NUISIBLES A LA VIGNE, et particulièrement de la Pyrale, qui dévaste les Vignobles des départements de la Côte d'Or, &c., avec l'indication des moyens qu'on doit employer pour la combattre. Par M. VICTOR AUDOUIN. Paris, Fortin-Masson. 1842, large 4to, 350 pp. 23 coloured Plates.

THE publication of this splendid work at length enables entomologists to appreciate the vast loss which their favourite science has sustained in the lamented decease of M. Victor Audouin, and to determine his legitimate station amongst the "heroes scientiae." This work clearly shows the manner in which the study of insects was converted into a science by one of its most talented professors, and at the same time rendered beneficial to the great mass of mankind. It will also clearly prove to those who do not care to form collections of species, that the investigation of the habits of a single insect is sufficient to prove a great mine of enjoyment, and that entomologists may find sufficient employment for a life without moving far beyond the precincts of their own abodes.

The situation which was so well filled by M. Audouin, united to the great interest with which he regarded everything connected with the habits and economy of the insect tribes, especially fitted him to undertake the investigation of the economy of and determine the practicability of remedies against a small Lepidopterous insect, the Pyralis (*Tortrix*), *Vitana Fabr.*, which had proved extremely injurious to the vines of France, thereby materially affecting one of the great resources of part of the kingdom. The result of these investigations is now given to the scientific world under the auspices of the French Government. And whether we regard the work as affording a complete view of the natural history of the insect, in all its states, as well as that of its various enemies, as a minute detail of structural peculiarities, both internal and external of the insect in its different states, as a bibliographical notice of the insect, or a practical suggestion and application of remedies, this Memoir cannot be otherwise considered than as one of the most perfect entomological illustrations which has ever yet appeared. The plates are exquisitely engraved, the whole of the anatomical figures being from the pencil of the author himself. Those plates which represent the various modes and stages of the attacks of the insects upon the vine, are very beautifully drawn and coloured. The whole work, in fact, affords a specimen of what an entomological treatise ought to be.

VERHANDELINGEN OVER DE NATUURLYKE geschiedenis der Nederlandsche overzeesche Bezittingen, &c. Fol.

FAUNA JAPONICA, sive Descriptio Animalium quæ in Itinere per Japoniam suscepto ann. 1823—1830, collegit Ph. Fr. De Siebold conjunctis studiis—W. De Haan, pro invertebrata elaborata. Lugd. Batav. Fol. Livr. 1—5.

THESE noble works are as honourable to their distinguished author and royal patron as they are worthy of the national institution from which they proceed, and of the subjects therein represented. Well, indeed, may the Museum of Leyden have arrived at its present high fame, when those who contributed to its stores perceive in how fitting a manner their contributions to the national treasures are made available to the scientific world. The work first above mentioned has already been noticed in the 1st volume of the *ARCANA* (p. 47,) wherein the first part of the entomological portion, comprising the genus *Papilio*, was shortly mentioned. A second portion has since been published devoted to the Orthopterous insects. In the introductory observations upon each family its entire generic distribution and structural peculiarities are detailed, so that the work cannot in this respect be considered as confined to the Orthoptera of the East. The text of this *livraison* is occupied with the families *Blattidæ*, *Mantidæ*, and *Phasmidæ*, a complete list of the Eastern species known to the author being given, together with the descriptions and figures of a great number of new ones, some of the latter being of great singularity. The plates are beautifully executed, and afford a splendid specimen of the capabilities of drawing on stone. Nothing equal to them has yet appeared in this country.

The second work above mentioned is devoted to the Brachyurous and Macrourous Crustacea, which are described and illustrated in a manner which leaves nothing to be desired, (if we except the want of colouring in the plates). The generical and subgenerical details are very elaborate, and all the species are represented of the natural size, several requiring double folio plates.



PLATE LVII.

DESCRIPTION OF SOME HOMOPTEROUS INSECTS
FROM THE EAST INDIES.

In a former page (13) I gave a sketch of the arrangements of the species of the genus *Cicada*, proposed by Drs. Germar and Burmeister. Within the last few days has been published, M. Serville's volume on the Hemiptera, in the Suites à Buffon, in which, adopting the principle that every group of species logically constitutes a genus, we find the genus *Cicada* of modern authors broken up into the following genera:—

HOMOPTERA.

AUCHENORHYNCHI (Cicadariae Latr.).1 Fam. *Stridulantes*;

1 Tribe. Reticelli;

composed of the genera *POLYNEURA*, *CYSTOSOMA* and *HEMIDICTYA*. (See Arc. Ent. 1. pl. 24.)

2 Tribe Octicelli;

1 Group Tosenides (Div. 1, Hemipterae Burm.)

G. *TACUA*.—Type *Cicada speciosa* Wied. (*C. indica* Donov. Java)G. *TOSENA*.—Type *C. fasciata* Fab. (Java.)
? *C. Mearesiana*, Westw. Arc. E. pl. 25, fig. 1 (Himalaya.)G. *PYCNA*.—Type *C. Strix* Brullé. R. An. Ed. Crochard.
pl. 95. f. I. (Madagascar.)G. *GÆANA*.—Type *C. Maculata* Fabr. (China.)
? *C. Dives*, Westw. Arc. Ent. pl. 25, fig. 2. (Sylhet.)G. *HUFCHYS*.—Type *C. Sanguinea*, De G. (China.)
C. Philæmata, Fabr. Germ. (China.)
C. Incarnata, Germ. (*Sanguinolenta*, Brullé.) Java.G. *PLATYPLEURA*.—Type *C. Stridula* Linn. Fabr. (*Catenata*, Drury.) (*C. G. Hope.*)
Add *C. Capensis* L.—*C. decora* Germ.—*C. divisa*, Germ.—*C. hirtipennis* Germ.—*C. plumosa*, Germ.,—*C. semiclare*, Germ.—*C. nobilis*, Germ.G. *HEMISCIERA*.—Type *H. maculipennis*, Lap. (*versicolor*, Brullé; *sumptuosa*, Blanch.)
Brazil.G. *MOGANNIA*.—Type *M. illustrata** Serville, pl. 9, fig. 4. (Java.)

2 GROUP. CICADIDES.

With the base of the Elytra entirely membranous.

G. *ZAMMARA*.—Type *T. Tympanum*, F. (Brazil.)
Z. *Strepens* (*C. Tympanum*, Pal. B.)G. *OXYPLEURA*.—Type *O. Clara*, Serville. (Africa.)G. *TETTIGADES*.—Type *T. Chilensis*, Serv. (Chili.)G. *CYCLOCHILA*.—Type *C. Australasiae*, Donov. (N. Holl.)G. *DUNDUBIA*.—Type *C. Vaginata*, Fab. (Java.)Add *C. chlorogaster*, Bdv.; *C. doryca*, Bdv., *Tettig. spinosa*, Fabr.G. *THOPHA*.—Type *Tettig. saccata*, Fabr. (China.)C. *perulata* Guer. (Port Jackson.)

* This is the *Cicada rostellata* De Haan, in litt. M. Serville's figure incorrectly represents the fore wings with a dark spot at the tips.

G. FIDICINA.—Type T. Mannifera, Fahr. (Cayenne.)
C. Opalina, Germar. (Brazil.)

G. CICADA.—Type C. Fraxini, C. Ormi.

G. TIBICEN, *Latr.*—Type T. Sanguinea, F. (C. hæmatodes, Oliv.)

G. TETTIGOMYIA.—Type T. Vespiiformis, Stoll. pl. 29, f. 173. (Africa.)

G. CARINETTA.—Type C. Formosa Germ. (*Polychroa* Perty). Brazil.
Tettig. villosa Fabr. (C. G. Hope.)

These various genera are entirely established upon external characters, especially the relative size and form of the head, prothorax, and sonorous organs; and, as most of the types of these groups are well known species, I have not thought it necessary to detail their characters.

The two species of Cicada, represented in the accompanying plate, appear to enter into M. Serville's genus *Gæana*; the fore-wings being entirely opaque (Syn. art. 720), the sides of the prothorax not dilated (art. 726), and the front of the head rounded (art. 727.) There is, however, considerable diversity between these two species in the comparative breadth of the wings.

CICADA PULCHELLA, *Westw.* (PLATE 57, fig. 1. ♀)

(Royle's Himalaya, pl. 10, fig. 2.)

Nigra capite thoraceque sulphureo-maculatis, alarum dimidio basali sulphureo (in alis anticus fascia nigricanti obliqua diviso) apicibus flavidо-fuscis, venis in partibus obscuris nigris. Expans. alar. unc. $3\frac{3}{4}$.

Habitat in Himalaya, &c. Mus. nostr. &c. ♂, ♀.

The abdomen beneath and on each side at the extremity is spotted with yellow, the fore-wings are broadly wrinkled as in *C. maculata*, and the drum-covers of the male are small, leaving the striated internal membrane broadly exposed.

CICADA 8-NOTATA, *Westw.* (PLATE 57, fig. 2. ♀)

Nigra, capite fascia frontali et postica, fasciaque postica prothoracis metathoraceque flavidis, mesothorace lineis duabus irregularibus flavidis, abdome sanguineo segmentis basalibus supra in medio nigro maculatis; alis anticus fusco-nigricantibus, singula maculis 4 albidis venisque tenuissimis rubris; alis posticis sanguineis nigro-limbatis.

Long. corp. lin. $11\frac{1}{2}$. Expans. alar. unc. 2, lin. 7.

Habitat in Assam. Mus. Westw. ♂, ♀.

I am indebted to Mr. Robinson for this interesting novelty, which is closely allied to *C. dives* W. figured in pl. 25 of this work, from Sylhet. Like that species, the present has rather narrow fore-wings, which have the surface very closely wrinkled with transverse furrows.

GENUS.—CYRENE, *Westw.*

Corpus breve crassum abdomen compresso. Caput fronde conico longo, porrecto, apice acuto, supra ad latera carinatum, carinis ante apicem obliteratis, postice ad prothoracem extensis. Oculi magni laterales subtus emarginatae (fig. 3 a, 3 b). Ocelli nulli. Anteunae parvae sub oculos inserta. Promuscis unutilata. Prothorax mesothoracis longitudine, disco punctis duobus in medio impressus. Hemelytra coriacea opaca homogenea convexa lata, margine antico sinnato apice rotundato, angulo postico acuto; venis parum ramosis. Pedes breves robusti, tibiis posticis curvatis, intus versus apicem 3-spinosis (fig. 3 e). Abdomen apice truncato in lobos duos terminatum, appendiculo tenui erecto apice concavo instratum. (Fig. 3d.)

The entire surface of the hemelytra of this new Fulgorideous genus is covered with an immense number of minute circular elevated areas, visible only under a lens. I have observed nothing similar in any other Fulgorideous insect. When at rest, the wings are carried almost perpendicularly, as in fig. 3 a.

SPECIES UNICA.—CYRENE GUTTULATA, *Westw.* (Plate 57, fig. 3 & 3 a.)

Fusco-brunnea, proboscide picea, abdomen rufescens, hemelytris guttulis nonnullis minutis albidis alterisque duabus (in singulo) nigris, alis posticis fuscis. Long. corp. lin. 7. Expans. alar. lin. 14.

Habitat in Insula Sumatra. D. Raffles. In Mus. Soc. Zool. Lond.

LYSTRA TRICOLOR. (Plate 57, fig. 4.)

Sanguinea glaberrima, prothoracis lobo antico mesothoraceque antice nigris, hemelytrorum dimidio basali (basi ipso livido excepto) stramineo nigro maculato; apicali brunneo, macula costali straminea; posticis rubris dimidio apicali fusco, pedibus castaneo-sanguineis. Long. corp. lin. 8. Expans. alar. unc. $2\frac{1}{4}$.

Habitat in Assam.

I am likewise indebted to Mr. Robinson for specimens of this beautiful addition to the Fulgoridæ, from a country which appears to be extremely rich in the species of that family, judging from the splendid insects described and figured by the Rev. F. W. Hope in the new Part of the Transactions of the Linnaean Society.

The present species has the face (fig. 4 a) convex and very glossy, nearly square, with the sides rather deeply impressed; the eyes are rather slightly emarginate beneath, leaving a small space in which the ocelli are placed. The disc of the head is excavated and marked with two ocelli-like tubercles placed wide apart. The four fore-tibiae are slightly compressed, but are without any tendency to foliation.

The plant represented in the plate is Roseoea purpurea, from Upper Nepaul. (Smith, Exot. Bot.)

S U M M E R.

They may boast of the spring-time when flowers are the fairest.
 And birds sing by thousands on every green tree :
 They may call it the loveliest, the greenest, the rarest,—
 But the summer's the season that's dearest to me !

For the brightness of sunshine ; the depth of the shadows ;
 The crystal of waters : the fullness of green :
 And the rich flowery growth of the old pasture meadows
 In the glory of summer can only be seen.

Oh the joy of the greenwood ! I love to be in it,
 And list to the hum of the never-still bees ;
 And to hear the sweet voice of the old mother linnet.
 Calling unto her young 'mong the leaves of the trees !

To see the red squirrel frisk hither and thither,
 And the water-rat plunging about in his mirth,
 And the thousand small lives that the warm summer weather
 Calls forth to rejoice on the bountiful earth !

Then the mountains, how fair ! to the blue vault of heaven
 Towering up in the sunshine, and drinking the light,
 While adown their deep chasms, all splintered and riven,
 Fall the far-gleaming cataracts silvery white !

Oh the beautiful flowers, all colours combining,
 The larkspur, the pink, and the sweet mignonette,
 And the blue fleur-de-lis, in the warm sunlight shining.
 As if grains of gold in its petals were set !

Yes, the summer,—the radiant summer's the fairest,
 For greenwoods and mountains, for meadows and bowers,
 For waters, and fruits, and for flowers the rarest,
 And for bright shining butterflies, lovely as flowers !

MARY HOWITT.

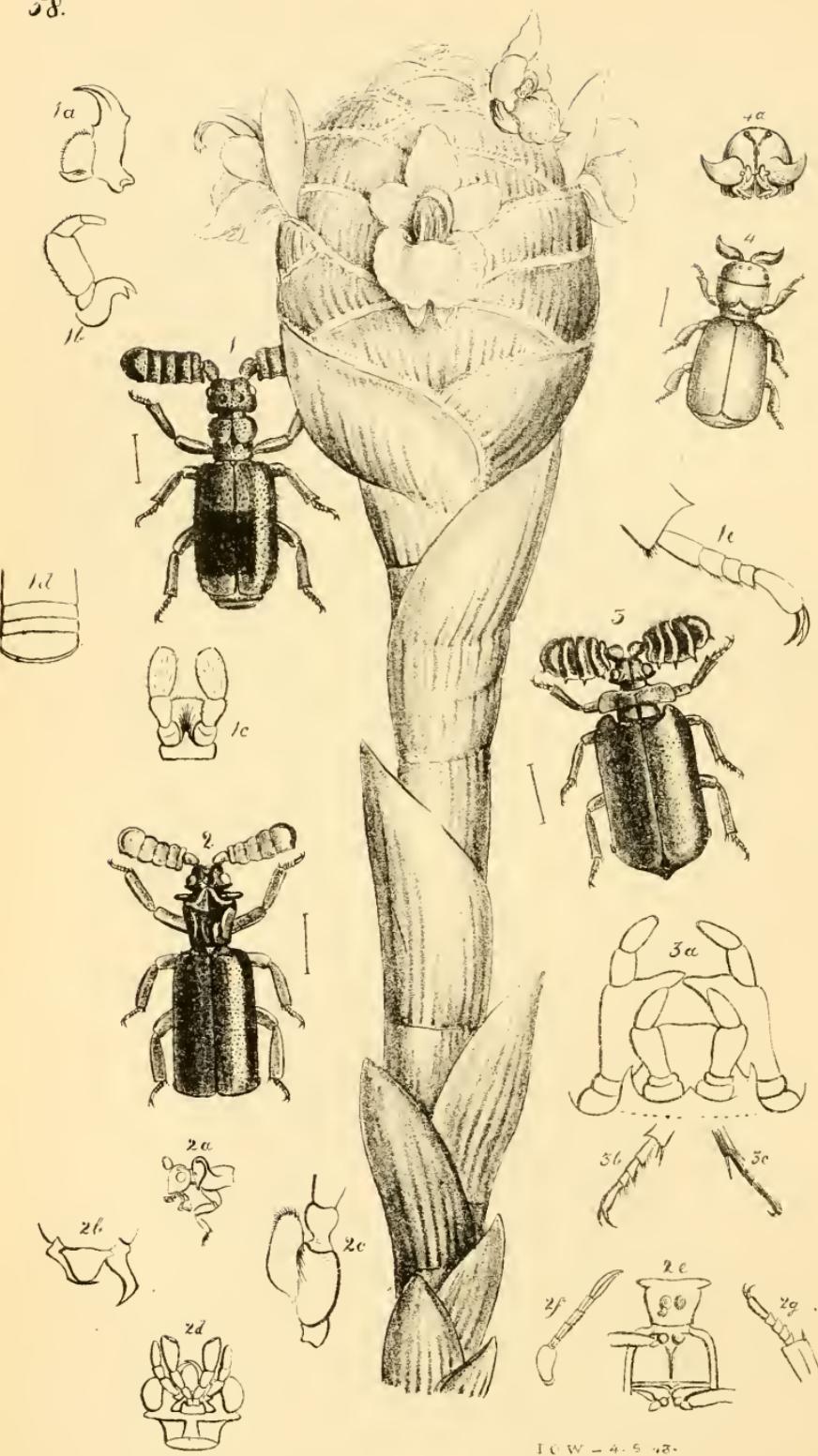


PLATE LVIII.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART II.

THE three following species, constituting the like number of genera, form a peculiar section in this singular family, possessing, in the number of joints in their antennæ, an intermediate character between the Cerapteri and more typical Paussi and Platyrhopali.

GENUS.—*CERATODERUS*, *Westwood*.

(PROCEEDINGS LINN. SOC., JUNE 1, 1841.)

(Plate 58, fig. 1.)

Corpus oblongum depresso-punctatum. Caput transverso-quadratum, angulis rotundatis, supra planiusculum, postice collo instructum, angulis pone oculos rotundatis, disco inter oculos bi-impressum; antennæ quasi 6-articulatae; articulo 1mo subcylindrico, 2—5 (intermediis) transversis planis, ultimo semiorbiculari. Mandibulæ (fig. 1 a) falcatae, apice acutæ, margine externo et interno in medio angulatis, basique intus lobo semipellucido coriaceo instructæ. Maxillæ minuta (fig. 1 b) planæ cornæ apice acutæ, curvatae, intus sub apicem dente acuto armatae. Palpi maxillares 4-articulati, articulo 1mo minuto, 2ndo magno ovato, 3to 4toque minoribus gracilioribus subcylindricis. Mentum brevissimum (fig. 1 c) medio acutè producto. Labium integrum corneum ad apicem articuli 2di palporum labialium protensum. Palpi labiales crassi articulo ultimo praecedente haud multo majori, ovato, apice truncato. Prothorax capite vix latior, cordato-truncatus, trans medium linea impressa notatus. Scutellum minutum. Elytra oblongo-ovata depressa, angulis externis apicalibus tuberculo ordinario munitis. Pedes breviuscui; femoribus tibiisque compressis, his ad apicem setigeris (fig. 1 e) haud calcaratis; tarsis distincte 5-articulatis, articulo basali sequenti longiore; 4to praecedenti parum miiori. Ungues magni acuti. Abdomen (fig. 1 d) e segmentis 4 constans, duobus intermediis brevibus.

SPECIES UNICA.—*Ceratoderus bifasciatus*. (Plate 58, fig. 1.) C. ferrugineus; capite, antennarum apice, fascia lata elytrorum, femoribus tibiisque nigris. Long. corp. liu. 3.
Habitat in India Orientali. In Mus. Imp. Vindob., et Hope.

SYN.—*Paussus bifasciatus*, Kollar in Ann. Wien. Mus., 1836, t. 31, fig. 7 a b; Westw. in Trans. Ent. Soc. ii. p. 91, pl. 10, fig. 3; Westw. in Proceed. Linn. Soc., ut supra. Caput nigrum, nitidum sat remote punctatum, impressionibus duabus lævioribus in medio lineaque tenui impressa longitudinali in verticem, oculi laterales vix prominenti rotundati nigro-obscuri; instrumenta cibaria ferruginea. Antennæ ferruginea punctatae articulis duobus apicalibus nigris. Prothorax ferrugineus nitidus, lineola transversa media profunde impressa, altera longitudinali minus profunda nec marginem anticum neque posticum attingente; haec lineola erucem in medio thoracis representant. Elytra thoracis parte antica latiora, oblongo-quadrangula, basi ipsa depressa, prothorace remota submarginata, lateribus inflexis immarginatis, apice truncata, et ad angulos tuberculo ferrugineo instructa; abdome breviora convexiuscula ferruginea nitida obsoletissime-punctata, fascia lata mediana nigra. Corpus subitus ferrugineum, nitidum punctatum. Pedes nigri omnes subaequales tibiis compressis femoribus basi tarsiisque totis ferrugineis.

This pretty species was described by Professor Kollar from a unique specimen in the Vienna Museum, brought from India by Fitchel many years ago, and which is, I apprehend, the identical insect mentioned by Donovan in his Insects of New Holland, as an undescribed species of Cerapterus. My drawing is made from a

second specimen, which has been recently added to the fine collection of the Rev. F. W. Hope, who, with his usual liberality, allowed me to dissect it for the purpose of illustration in this work.

GENUS PENTAPLATARTHUS, *Westw.* (Plate 58, Fig. 2.)

(Trans. Linn. Soc., Vol. 16.)

Corpus subdepressum capite parvo prothorace majori elytrisque latioribus oblongo-quadratis. Caput thorace angustius depresso, subquadratum angulis posticis pone oculos subacute prominulis; postice collo brevi instrunctum: oculi mediores laterales ovales. Antennae ad angulos anticos verticis insertae, capite cum prothorace paullo longiores, quasi 6-articulatae, articulo 1mo cylindrico brevi, postice submarginato, tunc articulus? parvus subglobosus in apicem prioris insertus, cui insidet articulus 2dus verus brevis transversus subpunctatus, 1mo fere duplo latior planus, apice truncato; articuli 3, 4, et 5 longitudine 1mi at illo triplo latiores, plani transversi, articulus ultimus planus, paullo major apice circulari marginaque externo vel postico in angulum parvum producto (fig. 2 f) antennae laterale visa). Os inferum (fig. 2 d). Labrum (fig. 2 f) parvum crustaceum subtriangulare margin'e antico rotundato basi utrinque oblique truncato. Mandibulae (fig. 2 b) parvae corneae elongate curvatae lobo basali externo, apice acute et externe angulum formantes. Maxillae, labium, et palpi ex cavitatis oralis margine infero et transverso parallelo produentia. Palpi elongati, labialibus clavatis maxillares longitudine aquantibus, his gracilioribus. Maxillae (fig. 2 c) parvae lobo apicali magno inermi apice subhirto. Palpi maxillares longi cylindrici articulis 2 et 4 longioribus, hoc cylindrico-conico. Mentum (fig. 2 d) transversum rigidum angulis anticus paullo productis. Labium internum mentoque longius et angustius subtriangulare apice transverso. Palpi labiales in scapos duos corneos inter mentum et labium inserti, articulis tribus, 1mo brevi, 2do illo duplo longiori, 3to magno clavato apice oblique subtruncato. Prothorax subquadratus et subcylindricus antice latior angulis porrectis. Scutellum parvum triangulare pedunculo abdominis immersum. Metasternum (fig. 2 e) magnum transversum medio linea longitudinali lineaque transversa subapicali impressum. Elytra oblongo-quadrata laevia, dorso plana, ad latera deflexa immarginata, postice truncata angulisque tuberculatis. Ala 2. (Abdomen in specimine nostro mutilatum). Pedes omnes similes breves valde compressi lati. Tibiae omnes spina minutissima terminali internè instructi (fig. 2 g). Tarsi breves subcylindrici, articulis 5 integris articulo 1mo brevissimo, tribus proximis brevibus apicalibus subtus paullo setosis, articulo ultimo longitudine quatuor praecedentium, cylindrico apice paullo crassiori, unguibus 2bus validiusculis acutis simplicibus.

In general appearance, and in the formation of the prothorax, this genus resembles the species of the first section of *Paussus*; whilst the formation of the antennae leads towards *Cerapterus*, with some of the species of which it also agrees in the incrassation of the labial palpi. Between the anterior part of the eyes there are two slightly raised tubercles, the centres of which appear excavated for the reception of a circular ball, probably capable of a rotary motion, upon the upper or exposed surface of which the lower part of the basal joint of the antennae is inserted.

SPECIES UNICA. PENTAPLATARTHUS PAUSSOIDES. (Plate 58, fig. 2.)

P. totus rufo-piceus, thoracis angulis anticis utrinque in spinam obtusam productis et in medio antice subcucullato (fig. 2 a) dorsoque in medio profunde excavato.

Long. corp. lin. $3\frac{1}{2}$. Lat. corp. ad bas. elytr. lin. $1\frac{1}{3}$.

Habitat in Africa Australi. In Mus. Hope aud. nostr.

Caput punctatum piceum, vertice paullo excavato. Antennae rufo-piceae articulo 1mo punctato, apicalibus laevissimis. Thorax laevis nitidus, rufo-piceus, angulis anticis utrinque in spinam brevem obtusam productis, antice subcucullatus, disco in medio profunde excavato, inde carina longitudinalis ad medium marginis postici et utrinque linea elevata cum margine lateral'i parallela. Elytra rufo-picea nitida tenuissime punctata, punctis in lineas perpaucas versus suturam dispositis.

GENUS LEBIODERUS, Westw. (Plate 58, fig. 3)

(Trans. Ent. Soc. vol. ii. p. 93.)

Corpus subdepressum latiusculum. Caput thorace multo angustius postice in collum breve contractum, subtriangulare, antice truncatum submarginatum : angulis posticis pone oculos subacute productis ; vertice linea impressa. Palpi maxillares (fig. 3 a) maximi 4-articulati, articulo 1mo. brevissimo ; 2do. maximo, interne sensim ad apicem in lobum magnum acutum producto, articulis duobus apicalibus multo minoribus subæqualibus, ultimo obovali apice in vesiculam parvam terminato. Mentum cum capite haud articulatum (3 a) transversum, angulis anticis lateralibus acute productis denteque parvo breviori centrali instructum, palpi labiales 4-articulati, articulo 1mo. parvo crasso, 2ndo. brevi annulariformi, 3tio. longiori apice latiori ; ultimo præcedentis longitudine graciliori oblongo-ovato. Antennæ maximæ, ut videtur 7-articulatæ, articulo 1mo brevi ovali, 2do. minutissimo, reliquis 5 latissionis massam ovatam subdepressam, disco marginibusque irregularibus, formantibus. Prothorax latus transversus, elytrorum fere latitudine, depresso, lateribus anticis rotundatis et in lobum utrinque productis, postice truncatis : portione postica prothoracis multo angustiori. Elytra lata oblongo-quadrata : humeris antice et oblique productis : angulis posticis tuberculo ordinario munitis. Ala 2. Pedes satis graciles compressi, tarsis ut videtur, 4-articulatis, articulis 3bus. basalibus subæqualibus ; (in certo situ rudimentum articuli fere ad basin articuli ultimi apparet). Abdomen elytris paullo longius apice acuminato, 4-annulatum.

This genus appears to be intermediate between *Platyrhopalus* (with which it agrees in the comparative shortness of the terminal joint of the labial palpi and in the structure of the maxillary palpi,) and *Pentaplatarthrus*, with which it might be associated, on account of the number of joints in its antennæ.

It is, however, abundantly distinct from these and the other genera of the family ; whence I proposed a new genus for its reception, with a name alluding to the structure of the prothorax, which bears some resemblance to that of *Lebia* and *Masoreus* in the narrowness of its posterior part, although it will be evident that here it is the anterior lateral angles, and not the posterior part of the prothorax (as in those genera) which are dilated into lobes. *Platyrhopalus aplustriifer* has the prothorax somewhat similar in form, but the antennæ have the club not articulated, although with evident traces of constrictions, and with the hind margin armed with spines.

SPECIES UNICA. LEBIODERUS GORII.

(Plate 58, fig. 3.)

Testaceus, tenuissime punctatus ; elytris paullo saturatoribus, antennarum clava margine postico 4-dentata.

Long. corp. lin. $3\frac{1}{2}$.

Habitat in Insula Java.

In Mus. Gory et Buquet, Parisiis, et nostr. Amicissime communicavit D. Westermanu.

Testaceus, supra subdepresso tenuissime punctatus nitidus. Caput porrectum subtriangulare, antice submarginatum, angulis posticis pone oculos acutis et paullo productis, vertice linea impressa notato. Antennæ pilosa, clava quasi 5-articulata, articulo 1mo. reliquis minori transverso, tribus sequentibus latioribus, supra et subtus carina elevata instructis, ultimo obtriangulari apice rotundato : articulis 4 ultimis ad marginem posticum dente parvo et gracili armatis. Prothorax rufo-testaceus nitidus punctatissimus, in medio disci paullo convexus, linea parum impressa centrali notatus. Scutellum parvum triangulare. Elytra rufo-testacea nitidissima punctatissima, prothorace latiora, humeris antice et fere ad marginem posticum lobarum prothoracis productis. Pedes teues compressi concolores.

This species is named in honour of M. Hippolyte Gory, one of the authors of the "Monographic des Cétoines," by whose kindness

in sending his unique specimen of it from Paris for my examination, I was first made acquainted with this interesting genus. My collection has subsequently been enriched, by the liberality of Mr. Westermann, of Copenhagen, with a specimen, from which the present figure is taken, and which may possibly be of a different sex to the specimen which I figured in the Transactions of the Entomological Society of London. (Vol. II. pl. ix. fig. 8.)

GENUS HYLOTORUS, *Dalman.* (Plate 58, fig. 4.)

Corpus subdepressum breve, capite lato in thoracem postice fere ad oculos immerso, elytris thorace paullo latioribus apice truncatis. Caput magnum convexum rotundatum collo nullo, fovea magna ovata, impressione profunda inter oculos et antennarum basin pro receptione clavae antennarum (fig. 4 a), ocellis vel tuberculis duobus verticalibus mammillatis. Trophi nondum descripti. Oculi parvi. Antennæ capite vix longiores articulo 1mo, brevi in lato medio emarginato, 2ndo, parvo subgloboso, emarginatæ prioris inserto, ultimo magno (magnitudine capitis dimidio) ovato lanceolato, compresso subtus vel posterius convexo, supra vel anterius concavo, apice acuto antrorsum flexo. Prothorax brevis, transversus antice multo latior, capiti æqualis et illud ambiens basi apiceque truncatus, supra inæqualis presertim pone medium. Scutellum mediocre triangulare. Elytra thoracis antico vix latiora oblongo-quadrata, basi ipsa transversim impressa, lateribus inflexo-sinuata apice truncata annum occultantia; supra convexa. Alæ amplæ. Abdomen breve retusum. Pedes breves validi femoribus tibiisque valde compressis dilatatis, tarsis brevibus cylindricis ut videtur 4-articulatis, primis tribus brevissimis coartatis pilosis, 4to longiore nudo, unguibus parvis arcuatis.

The detailed specific description of *Paussus bucephalus*, given by Gyllenhal in the Appendix to Schonherr's *Synonymia Insectorum* and the accompanying figure (copied in my plate), together with Dalman's observations on the species in the *Analecta Entomologica*, are the only materials which have hitherto been published, *ex visu*, of the type of this genus, which differs in several respects (such as the large size of the head immersed into the thoracic cavity, the small eyes, and existence of ocelli) from the other species of the family; indeed, Mr. MacLeay considers that it does not belong thereto. Its general habit appears to me, on the contrary, to be decidedly Paussideous, agreeing with several of the forms of the family in its antennæ, sub-bipartite thorax, short broad feet, colours, and truncated elytra.

SPECIES UNICA.—*Hylotorus Bucephalus*. (Plate 58, fig. 4.) Pallide testaceus glaber, oculis nigris, thorace postice transverse-sulcato.

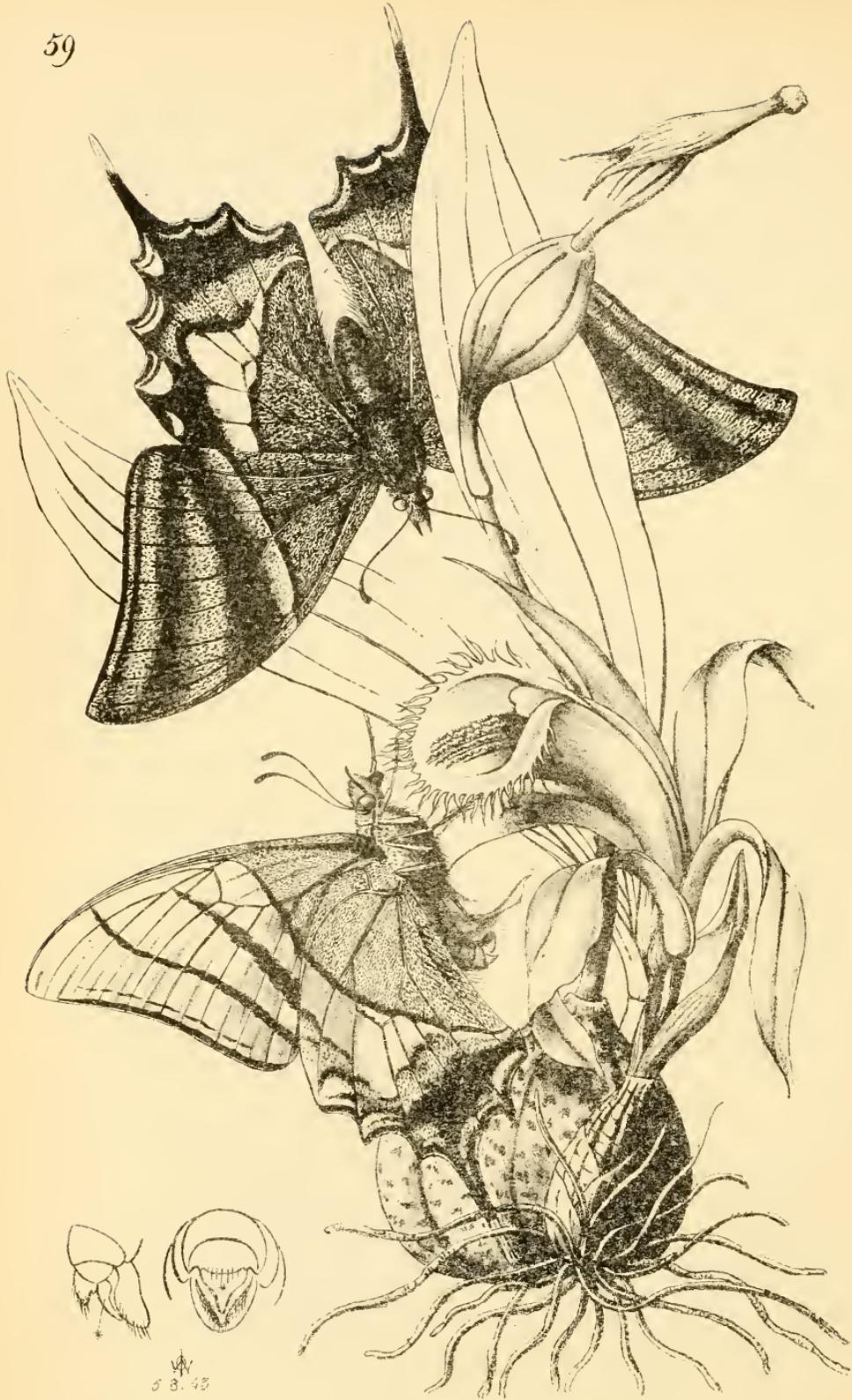
SYN.—*Pausus Bucephalus*, Gyll. in Sch. Syn. Ins. i. p. 3, App. p. 15, tab. 6, fig. 2 and 2 a; Dalman, Anal. Ent. p. 103 (*Hylotorus B.*) Latr. Règne An., 2d Edit., v. p. 93; Westw. Trans. Linn. Soc., vol. 16, p. 654.

Habitat in Sierra Leone, Africa. D. Afzelius. Mus. Schonherr.

Long. corp. (e fig. Schonh.) lin. 2½.

Magnitudine *Anobii mollis* et colore similis, pallide testaceus glaber, nitidus. Caput fronte linea impressa, postice bifida, ramulis in tuberculis duobus vel ocellis desincentibus. Oculi nigri; antennæ corpore concolores. Prothorax supra inæqualis paullo pone medium striga angulata valde profunda et antice posticeque aliis obsoletissimis transversim impressis. Scutellum concolor. Elytra testacea nitida, lævia. Alæ fusco hyalinæ. Corpus subtus testaceum punctulatum. Pedes pallide testacei.

The curious plant represented in the plate is the broad-leaved ginger of the East Indies, *Amomum Zerumbet* of Linnæus.



58.43

60.



58.43.

PLATES LIX AND LX.

DESCRIPTION OF A NEW GENUS OF PAPILIONIDÆ.



THE recent arrival in this country of specimens of a new and very decided genus in the family Papilionidæ (a group of comparatively small extent as to generic forms), is an event of too much interest, in respect to a work, of which so many plates have been devoted to the illustration of that family, to render any apology necessary for giving coloured figures of these new and splendid insects in the "Arcana Entomologica." I should not, however, have done this, had I not been informed that it was the intention of the Linnaean Society to publish uncoloured representations of them, accompanying Mr. Hope's Memoir, in which they have been described. In this Memoir Mr. Hope has proposed for them the generic name of

TEINOPALPUS,

in allusion to the porrected palpi, a character in which they differ from all the other Papilionidæ, and in which respect they resemble some of the Nymphalidæ. Not only are the palpi porrected, but the front of the head is conically produced and clothed with very delicate hairs. The eyes are large and lateral, the antennæ rather short, with the club gradually formed.

The thorax is very robust, evidently proving the insects to be more powerful on the wing than the other Papilionidæ; the fore-wings are large and triangular, with the tips acute; the apical margin in one sex more falcate than in the other. The hind-wings are deeply incised along the margin, the incisions becoming tails in one sex; besides which they are furnished with a long narrow tail common to both sexes in the ordinary position. The fore-wings have the discoidal cell closed at the tip, and emitting the four branches *which are the absolute character of the Papilionidæ*; whilst the posterior branch of the subcostal vein (which ordinarily branches off from the middle of the transverse vein which closes the cell at its extremity) here arises close to the emission of the subcostal vein itself from the anterior angle of this cell. In consequence of this arrangement, it is necessary that the fourth branch of the median vein should be more curved than in the other butterflies of this

family. In the hind-wings the veins are arranged as in *Papilio*. The fore-feet are perfect, the tibiae being calcarated at the middle on the inside. The two spines at the extremity of the four hind tibiae are short; indeed the legs are comparatively shorter than in most of the species of *Papilio*.

It is scarcely questionable that the two specimens represented in the accompanying plates, are not the sexes of one species for which the name of *T. imperialis* should be retained, as being that proposed for the male insect (plate 59). I regret that in consequence of Captain Parry (to whom these insects belong, and to whose kindness I am indebted for permission to figure them) possessing but single specimens of each sex, I have been prevented from determining the precise structure of the sexual organs, which differ from all those figured by M. De Haan. In one sex, however, they are furnished with a horny piece, broad at the base, received into a kind of anal pouch, (see outline figures at foot of pl. 59), whilst in the other they are composed externally of two flat oval pilose lobes, (see outline figures in pl. 60.)

TEINOPALPUS IMPERIALIS, *Hope.* (Plate 59.)

Alis supra viridi-pulverosissimis striga tenui communi, ante medium, in anticis nigra, extus flavo marginata nebulisque duabus obscurioribus subapicalibus; posticis macula magna flava nigro-cincta in lineam arcuatam albam desinente squamulis cinereis lunulisque marginalibus flavis viridibusque; omnibus subtus aurantiis nigro-striatis, portione basali viridi, posticarum apicibus nigro, griseo, viride variis.

Expans. alar. unc. 3, lin. 10.

Habitat in India Orientali. Sylhet. In Mus. D. Parry.

TEINOPALPUS PARRYÆ, *Hope.* (Plate 60.)

Affinis praecedentia major, alis obscurioribus, omnibus basi viridibus; anticis minus falcatis, nebulis cinereis nigrisque transversim strigatis; posticis bicaudatis, plaga magna mediana pallide Intea nigro pulverosa, strigaque undulata nigra extus griseo pulverosa, lunulisque marginalibus viridibus flavisque ornatis, angulo anali lâte flavo.

Expans. alar. unc. 4; lin. 7.

Habitat in India Orientali. Sylhet. In Mus. D. Parry.

This supposed species, if indeed it be not the female of the preceding, has been named by Mr. Hope, in honour of the lady of Captain Parry. Dr. Horsfield has shown me a specimen of it in the collection of the East India Company, and Mr. A. White informs me that there are specimens of it in a collection at Edinburgh.

The plant represented in pl. 59 is the Nepalese *Epidendrum præcox*, and that in pl. 60 is *Orchis gigantea*, from the same country, both first described in Smith's Exotic Botany.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

(No. XV.)

SUITES A BUFFON, FORMANT, AVEC LES ŒUVRES DE CET AUTEUR, UN COURS COMPLET D'HISTOIRE NATURELLE, 370, with Plates.

CRUSTACÉS. Par M. Milne-Edwards. Tom. 1, 1834; tom. 2, 1837; tom. 3, 1840, (completed).

APTÉRÉS. Par M. le Baron Walckenaer. Toms. 1 and 2, 1837, *Genus Aranea* Linn. completed in these two volumes.)

INTRODUCTION À L'ENTOMOLOGIE. Par M. Th. Lacordaire. Tom. 1, 1834; tom. 2, 1838 (completed.)

HYMÉNOPTÈRES. Par M. le Comte Amédée Lepelletier de Saint-Farzeau. Tom. 1, 1836, (*Social Formidæ, Vespidæ, and Apidæ.*) Tom. 2, 1841, (*Solitary Apidæ, Parasitic Apidæ, and Solitary Vespidæ.*)

ORTHOPTÈRES. Par M. Audinet Serville, 1839. 1 tom. (completed).

LÉPIDOPTÈRES. Par M. le Doct. Boisduval. Tom. I, 1836 (*Papilionides and Pierides only.*)

DIPTÈRES. Par M. Macquart. Tom. 1, 1834; tom. 2, 1835 (completed).

NÉUROPTÈRES. Par M. Rambur. 1 tom. 1842 (completed).

HEMIPTÈRES. Par Messrs. C. J. B. Amyot and Audinet Serville. 1 tom. 1843 (completed).

WHEN will the state of science in England allow of the publication of such a series of volumes, each averaging upwards of 600 pages, as are contained in the preceding list? And yet several portions of the series still remain incomplete; whilst of the great order Coleoptera, no part has yet appeared, and of the Lepidoptera only a very slight portion. It was surely a most excellent idea to unite the talents of so many excellent authors in one general work, whilst each was left so entirely uncontrolled, as to the manner in which the subject of his portion was to be worked out, that the series possesses all the advantages of separate treatises. How many excellent general works have been spoiled by the various contributors being tied down to some plan settled by an editor perhaps ignorant of the subject! Still, however, there are some points on which it would have been serviceable to have imposed uniformity, as, for instance, in the employment of short Latin characters prefixed to each species, the addition of generic tables at the head of each family, &c. As it is, we have the specific character sometimes at great length (which causes a terrible waste of time in ascertaining species) and this sometimes

in French and sometimes both in French and Latin (whole pages of Latin descriptions, followed by a verbal translation in French), whilst sometimes the description is confined to a few lines. The only author who has followed the good old Linnaean plan of giving a short Latin specific character at the head of the description of each species is M. Rambur, and even he has confined this to the first half of his volume, the remainder having only French descriptions.

The last published volume is that on the Hemiptera, by Messrs. Amyot and Serville, in which we find fresh cause for desiring more uniformity in these works. The latter author has been so long and advantageously known as an author devoted to the study of the mandibulated and haustellated Hemiptera of Linnaeus, and especially by the publication of his volume on the Orthoptera in this series, that when we perceive the alterations in the style exhibited by the present volume, as contrasted with that last mentioned, we can but lament that an association with another author has evidently led to such modifications.

The first matter treated upon in the introduction to the volume is the nature of Genera; and here we find the authors (perhaps unconsciously) adopting the argument made use of by Mr. Vigors in the Zoological Journal, namely, that “un genre n'est pas autre chose qu'une division méthodique venant immédiatement au-dessus du dernier degré de division, qui est l'espèce—tout ce qui est bon à faire une subdivision de genre, est bon à faire un genre; il convient de lui donner un nom appelé générique.” p. vii. Hence every section and sub-section proposed amongst the Haustellated Hemiptera is here raised to the rank of a genus—the Linnaean genus *Cimex* being cut up into 340 genera, upwards of 150 of which are now first proposed and named. The authors strongly insist that such a plan is absolutely logical, but in one respect the result of their arrangement is anything but uniform; for instance, the genera of Pentatomides or Reduviides are distinguished from each other by characters of very slight importance, whereas *Acanthia*, *Hebrus*, *Hydrometra* or *Leptopus*, notwithstanding the weight of their characters, are only regarded as groups of equal value, that (is as genera,) with these trivial groups. To maintain a series of gradational characters, and yet to deny it virtually by calling all these groups by one name, is not logical; thus *Hydrometra*, *Acanthia* or *Hebrus*, ought not, on this principle, to be called genera, but tribes,

and Leptopus a sub-tribe. I have elsewhere* so fully entered on the propriety of adopting subgeneric names, that I shall not here do more than thus refer to the plan.

This multiplicity of new genera has led to another inconvenience. In order to avoid the possibility of using generic names formed from the Greek, which had been used before, the authors have had recourse to the Arabic, Chinese, Sanscrit, and Hebrew, (in opposition to the Linnaean and Fabrician canons ; †) the characters of all which languages are scattered over the pages, it being the plan of the authors to give the derivations of each generic name adopted throughout the work : occasionally when this has not been given by the original proposer of a name, they have failed in attaching the correct signification to it. Thus my genus Deroploa, distinguished by having its prothorax armed with two very thick spines (from the Greek $\Delta\epsilon\rho\eta$ and $\sigma\pi\lambda\alpha$), is given with the derivation of the "neck" and "navigation," with a remark on its want of sense. So my name Metapodium, applied to a genus in which the metathoracic feet are very large, is said to be derived from the *toothed front* of the head (Metopodus), and it is added, that I have written "*Metapodium par erreur, sans doute,*" whilst the names which I have given to the genera established by me allied to Derbe, (and to which, following the plan set by Fabricius of giving to various Homopterous genera the names of towns in the Holy Land, *e. g.* Derbet‡ and Lystra, I had applied the names of Zeugma, Patara, Phenice, &c.), are set down by our authors as "*noms de fantaisie, formés sans règles grammaticales et purement au hasard.*"

In the last place, it is to be regretted that the various contributors to this series have not adopted a uniform plan in treating the species ; whilst some, as Messrs. Edwards and Boisduval, have made their works a complete descriptive "species insectorum," others have given only those species which they happen to have seen in nature, either entirely omitting all notice of the genera and species described by others, or giving only references to them.

* Ent. Text Book, p. 59. Trans. Ent. Soc. iii. p. 29.

† "Nomina generica quae ex græca vel latina lingua radicem non habent rejicienda sunt."—Linn. Phil. Bot., p. 163.

"Nomina barbara quae quidam in Entomologia in novissimis temporibus introduxerunt omnino rejicienda, quem nullo modo intelligantur et difficile pronuncientur."—Fabr. Phil. Ent., p. 109.

‡ The authors state that the etymology of the name Derbe is "inconnue." Had they been aware of its true signification, they would have possessed the clue to the etymology of my generic names allied to that genus.

The omissions in this respect are in many instances very important. As it is, however, we have here collected together a vast mass of materials, which if it be not absolutely a general "species insectorum," comes much nearer to it than could perhaps have been produced in any other country, and which, with the assistance of the numerous Bibliographical Notices collected together in Dr. Erichson's Annual Summaries, may ultimately be made the groundwork of a complete work.

OBSERVATIONS RELATIVES AUX SEXES DES COLÉOPTÈRES HYDROCANTHARES en général et spécialement de l'*Hydaticus verrucifer*. Par M. le Comte MANNERHEIM. (Extracted from the *Acta Societatis Scientiarum Fennicæ*. Tom. I. fasc. ii. Helsingforsiae, 1841. 4to.)

THE spirit of association for the diffusion of science is here manifested in the publication of the first parts of the Transactions of the Society of Sciences of Finland; and to which several papers have been contributed by the Count Mannerheim, one of the first of modern entomological authors. In the memoir, of which the title is given above, he has published a series of observations on the peculiar characters which distinguish certain individuals amongst the predaceous water-beetles (family Dyticidae), which have long perplexed entomologists. These specimens amongst the Dytici, while they possess the simple tarsi of the females, have the smooth elytra of the males. These were first described as varieties of the males with simple tarsi, by Gyllenhal. By Ahrens and Kunze, as well as subsequently by Gyllenhal, they were considered as distinct species, in which both sexes had smooth elytra; and no less than four new species were thus established in the genus *Dyticus*. This opinion has been adopted by many subsequent entomologists, and in our own country the genus *Leionotus* has been formed for the reception of these supposed species with smooth-backed females. Other opinions have, however, been entertained respecting the nature of these individuals which have not been noticed by Count Mannerheim, but which will be found detailed in my Mod. Class of Insects (vol. i. p. 105). The opinion of Dr. Erichson, that they are varieties of the females of species in which that sex has ordinarily the elytra sulcated,* is adopted by Count Mannerheim. Analogous, but less striking, variations also occur in the females of *Cybister*

* Dr. Erichson's 2nd group in the genus, proposed in the genera *Dyticeorum*, in which the females have elytra similar to those of the males (*D. circumflexus*), is disproved by the discovery of sulcated females, which form the species *D. perplexus* Dej. Such specimens, however, occur but very rarely in this species, Kaf. M. Br. I. 147.

Roeselii and *C. laevigatus*, the variety of the female of the former being known under the name of *Dyticus dispar*, Rossi. In *Aeilius*, as restricted by Eschscholtz, *A. semisulcatus* and *A. abbreviatus* are female varieties of the same species. In *Thermonectus* the females also vary in the smooth or punctate base of the elytra. The same remark also applies to various species of *Hydaticus*; and Dr. Erichson also considers that there are also dissimilar females in certain species of *Hydroporus*.

The *Hydaticus verrucifer*, Sahlb., however, is even more interesting in this respect than any of the before-mentioned species, and has formed the chief subject of Count Mannerheim's memoir. This species was formed by Aubé into a separate section of the genus, with the character of simple tarsi in both sexes, whilst Dr. Erichson regards it as the abnormal female of *Hydaticus zonatus*. Having received a number of living specimens of this supposed species, Count M. observed that some of those with smooth elytra possessed dilated tarsi, and others simple tarsi. The former, as well as some of the latter, of these individuals would therefore belong to *H. zonatus*, and the remainder of the latter would be males of the *verrucifer*. But, in respect to the punctuation and structure of the thorax and elytra, M. Mannerheim observed a complete gradation from the rugose *verrucifer* to the smooth *zonatus*; whilst a dissection of numerous individuals proved that every specimen with dilated anterior tarsi were males, and that every specimen with simple tarsi were females; and amongst these latter were found the specimens with simple tarsi and radiated impressions on the thorax, which M. Aubé regarded as the males of *verrucifer*. Count Mannerheim, in conclusion, endeavours to trace the analogy which in this respect exists between these water-beetles and other species of insects in which we find a marked diversity of structure; instancing, first, the neuters of social Hymenoptera; and, secondly, the variations in the size of the horns of the head and thorax and dilatation of the hind legs in certain beetles. But in neither of these tribes does the analogy hold good, because, first, the neuter Hymenoptera are but imperfect females, whereas, the smooth-backed female *Dytici* have been repeatedly captured *in copulâ* with the dilated-footed males; and, secondly, because, it is the males only amongst the beetles which offer such variations which, moreover, are gradual, whereas, no intermediate gradation has been observed between the smooth and sulcated female *Dytici*.

VERSUCH, einer systematischen Bestimmung und Auseinandersetzung der Gattungen und arten der CLERII, einer Insectenfamilie, aus der Ordnung der Coleopteren, von Dr. F. Klug. From the Transactions of the Academy of Berlin, 1842, 4to. 142 pp. 2 pl. containing 32 col. fig.

THE labours of Drs. Klug and Erichson are by degrees making us fully acquainted with the entomological riches of the National Museum of Prussia, over which they preside with so much honour to themselves and benefit to the scientific world.

The present Memoir is devoted to the Cleridæ, and surprises us at the vast number of species of which it furnishes descriptions. Dr. Klug has adopted only 12 genera in the family, regarding most of the numerous groups of Laporte, Spinola, Chevrolat, Newman, &c., as sections. The genera adopted, and the number of species in each respectively contained in the Berlin Cabinet, are as follows:—Cylidrus, 5 sp.; Tillus, 28 sp.; Priocera, 4 sp.; Clerus, 70 sp.; Ptychopterus Kl., (n. g.) 1 sp. from Caffraria; Axina, 1 sp.; Opilus, 19 species; Erymanthis Kl., (n. g.) 1 sp. from Caffraria; Trichodes, 20 sp.; Corynetes, 19 sp.; Cylistus, (n. g.) 1 n. sp. from Caffraria; and Enoplium, 50 sp.—Total, 219 species, of which more than half are new. A supplement contains short descriptions of 59 other species not seen by the author. The following is a short summary, which I have taken some pains to draw up, with reference to the geographical distribution of the species. Of the 219 species described from the Berlin collection—

120 are natives of the NEW WORLD.	
99 " " OLD WORLD.	

Of the Asiatic species	4 only are from INDIA.	
" " 	1 " CEYLON.	
" " 	6 " JAVA.	

Of the African species	2 only in the <i>Collection</i> are from CENTRAL AFRICA.	
" " 	but 8 are described in the <i>Supplement</i> , from SENEGAL.	
" " 	17 species are from MADAGASCAR.	
" " 	23 " SOUTH AFRICA.	
" " 	2 " ARABIA.	

Of the Australian species	8 only are contained in the Collection, but 14 others are given in the <i>Supplement</i> , described by other authors.	
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And of the New World species, 23 are from MEXICO.

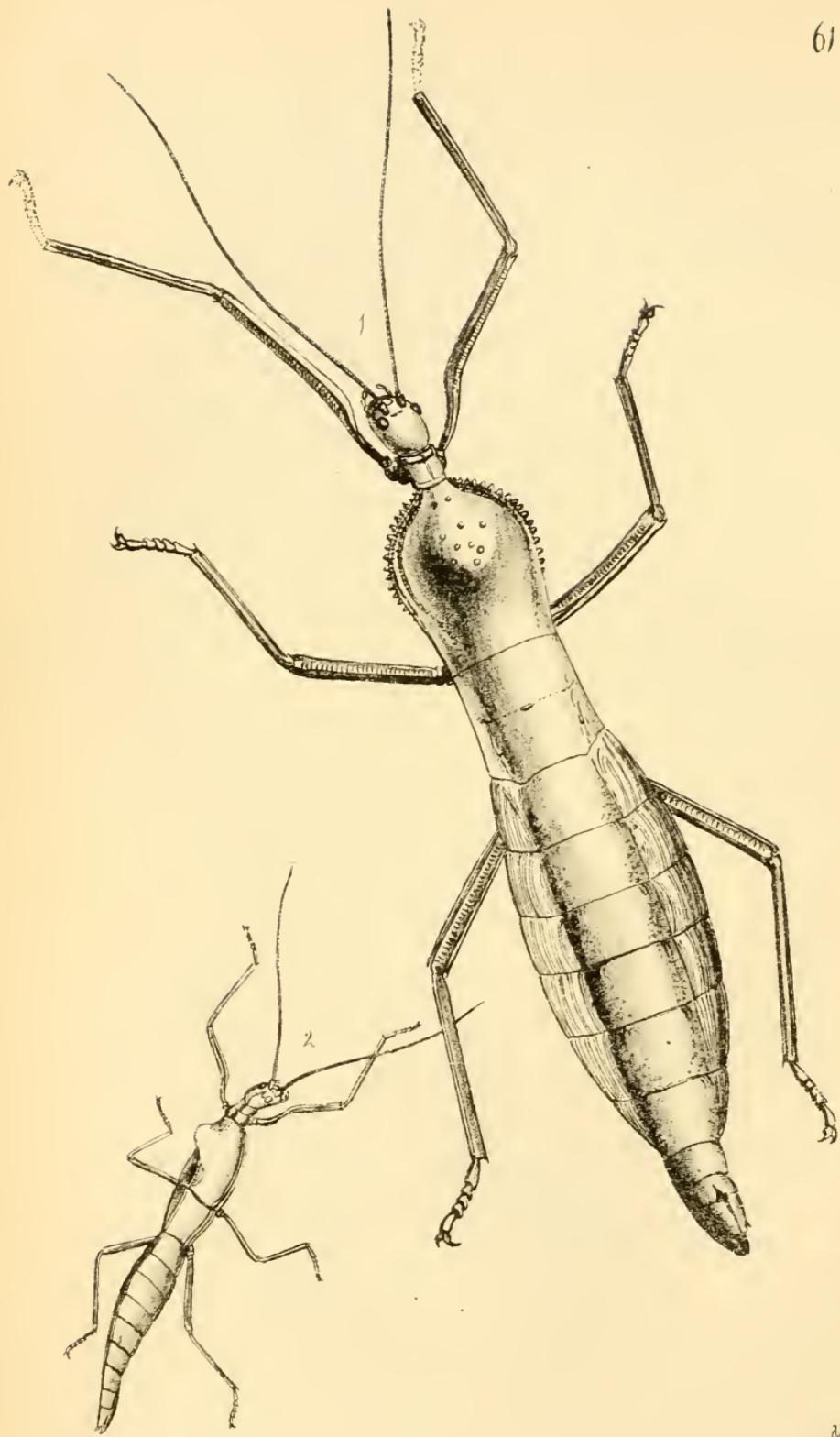


PLATE LXI.

ILLUSTRATIONS OF TWO SPECIES OF SPECTRE INSECTS.

In the first volume of this work (plate 8) a representation was given of an insect from my own collection, belonging to the family Phasmidæ, to which, upon the information of Dr. Burmeister, the name of *Phasma (Craspedonia) gibbosa** was given, with a reference to his Handb. d. Ent. 2, 575, and with the habitat of "Brasilia, teste Burmeistero."

It appears, however, from Dr. Erichson's Bericht for 1841, p. 72, that the insect figured by me is distinct from Burmeister's *D. gibbosa*, described from the Berlin Cabinet, and that, instead of being Brazilian, it is an African species. Dr. Erichson doubts the correctness of my description of the rudimental wing-covers and wings, as well as of the four-jointed anterior tarsi. My specimen is, however, fortunately, perfect (except in wanting a few of the terminal joints of one of the antennæ), and possesses only four joints to each of the fore-tarsi, and the rudimental tegmina are perfectly distinct, *and entirely free*, and capable of being elevated by introducing a pin beneath them, being about one-sixth part of an inch long; the winglet, although very much more minute, has the outer edge *free*.

It becomes, therefore, necessary to apply a new specific name to the insect figured in Vol. I., and for which, in allusion to the regularly-curved margins of the abdominal segments, the name of

DIAPTERODES (CRASPEDONIA) UNDULATA, *W.*, (Vol. I., Pl. viii.)

may be applied. It seems to approach the *Cyphocerana*? punctipes, Serville (Orthopt. p. 239), which is also a native of the coast of Africa, but differs in the spines of the thorax and feet, the under surface of the thoracic segments in my insect being perfectly smooth and free from spines.

DIAPTERODES (CRANIDIUM) SERRICOLLIS, *Westw.* (Plate 61, fig. 1.)

D. viridis, glabra, capite integro gibbo; mesothoracis dorso et lateribus mesosternoque longitudinaliter obtuse spinosis; abdomine dilatato, dilatatione tenui, continua, striata, pedibus omnibus gracilibus inermibus, tegminibus aliquse nullis.

♀ Long. corp. unc. 4 $\frac{3}{4}$. Latit. abdominis unc. 1.
Habitat —? In Mus. Hope.

* "D. gibbosa; capite integro gibbo; thoracis margine mesonotique dorso obtuse spinoso; (δ ?;) ♀ alis nullis abdomine dilatato distinctè marginato. Long. corp. 5" 6". Brasilia, 2 ♀ in Mus. reg. Berol."—Burm. l. c.

The large, oval, posteriorly truncate, and very gibbose mesonotum measures $\frac{5}{6}$ of an inch in length, and has the sides armed with a row of obtuse spines, which become obliterated towards the hind part; within this row there are also a few much smaller spines, forming a parallel series, towards the front part; the centre of the elevated part is armed with about a dozen raised tubercles, and there are also two smaller ones on the disc towards the fore margin; the underside of the mesothorax is armed with a double row of these tubercles; the metathorax is nearly square, of equal breadth with the hind part of the mesothorax; and the five basal segments of the abdomen are dilated into an elongate oval form, the middle portion of each being convex, but the sides forming a very thin margin, along which run five slender, longitudinal ribs, which I presume to be veins. The seventh segment beneath is formed into a boat-shaped appendage, extending beyond the ninth dorsal plate, longitudinally carinated, and divided by a slit into two parts, for a considerable distance along its apical half. The ninth dorsal segment is furnished at each side with a small conical appendage, and within the boat-shaped plate are enclosed two long and slender, flattened setæ, extending as far as the tip of the keel. The feet are all quite simple, and destitute of teeth or spines, and are comparatively slender. The general colour is pale green, but the head and pro- and meso-thorax, as well as the feet and anal apparatus, are changed to a pale brown.

Mr. Hope's unique specimen of this insect is unfortunately destitute of any indication of the habitat of the species. It appears to be closely allied to Dr. Burmeister's *D. gibbosa*, above-mentioned, but the marginal spines are confined to the mesothorax, not extending along the entire thorax, as described by Burmeister.

DIAPHERODES (CRANIDIUM) PUMILIO. (Plate 61, fig. 2.)

D. lutescens (viridis?) capite inermi mesothoracis lateribus sensim dilatatis, disco in carinam medianam valde elevato; abdomine elongato vix dilatato supra carinato, apice acuminato; pedibus gracilibus simplicibus, alis nullis; ♀.
Long. corp. unc. 2. Habitat in Africa tropicali? In Mus. Bristol Philos. Institution.

The singular, almost semicircularly elevated carina along the middle of the mesonotum, at once distinguishes this insect from all other Phasmidæ. It appears to be congeneric with the species last above described, although destitute of any lateral dilatation. From the development of the sexual apparatus, which is nearly similar to that of *D. serricollis*, I consider the specimen not to be in an immature state.

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PLATE LXII.

DESCRIPTIONS OF SOME NEW SPECIES OF SOOTHSAYERS.
(MANTIDÆ.)PHYLLOCRANIA INSIGNIS, *Westw.* (Plate 62, fig. 1.)

P. luteo-fusca, tegminibus olivaceo-fuscis, basi, vittaque obliqua media albidis, alarum angulo apicali punctato, hoc areaque anali fuscis reliqua parte alarum fulvescente fusco irrorata, foliolis prothoracis et pedum posticorum albido et olivaceo variis.

Long. corp. (cornu capitinis inclusu) unc. $2\frac{1}{3}$.

Habitat in Sierra Leone. In Mus. Britt. et D. Hope.

This insect appears to be specifically distinct from *Ph. paradoxa*, of Burmeister*; it agrees, however, with it in its remarkable structural peculiarities, namely, the singular, elongated, narrow, leaf-like appendage of the head, the dilated sides of the prothorax, and the leaflets of the four hind femora and tibiae. *Mantis Diana*, of Stoll (fig. 100), and the *Empusæ*, agree with *Phyllocrania* in the produced head, but the latter have pectinated antennæ in the males, whereas all the specimens of the species above described, which I have hitherto seen (one belonging to the Rev. F. W. Hope, and two discoloured ones in the British Museum collection), possess very slender, simple antennæ. Of these specimens two agree in having a shorter appendage to the head, one of which is represented in my plate, whereas the other has the head produced into a much longer, slenderer, and more curved horn (fig. 1 a). This last, I apprehend, is the male, and the other two females. In all other external characters, however, they agree together. *Mantis (Blepharis) Kuhlii* of De Haan (*Bijdragen, &c.*, plate 18, fig. 3), seems in general form, dilated abdomen, and foliated hind femora, to approach nearer to *Phyllocrania* than to *Blepharis mendica*.

MANTIS METALLICA, *Westw.* (Plate 62, fig. 3.)

M. chalybea, nitida, capitis plaga verticali, et pronoto antice et postice flavis, tegminibus fulvis venis viridibus, alis ad angulum analem late fuscis.

Long. corp. lin. 14. Expans. tegmin. unc. 2.

Inhabits Sylhet in the East Indies. In the collection of the Rev. F. W. Hope.

With the exception of *Metallyticus splendidus*†, and the present species, I am not acquainted with any metallic Mantideous insect. The body and legs are of a bright steel blue, except the middle of the disc of the head, a rounded patch near the fore-margin of the pronotum, and a larger posterior spot, which are of a rich yellow

* *Ph. fulvo-viridis*, elytris macula basali rhombæ, vittaque obliqua post medium pallide testaceis, roseo-micantibus; alis fusco tessellatis. Long. corp. $1\frac{1}{2}$ ". Habitat apud Cap. Bon. Spei. Handb. d. Ent. Orthoptera, p. 549.

† Westwood, in *Zoolog. Journ.*, vol. v., p. 442, pl. 22, fig. 1. I also figured a brilliant and rare variety of the same insect in the British Cyclopædia of Natural Hist., Orthopterous Insects, fig. med. dext.

Syn.—*Mantis chalybea*, Serville, H. n. Orth., p. 202.

colour, and the base of the first joint of the anterior tarsi, which is white. The prothorax is rather short, and dilated at the sides over the base of the fore-feet, as is also the hinder margin; the abdomen also has the sides dilated. The tegmina are destitute of the small horny patch, so conspicuous in some of the species of the genus; the hind wings are fulvous-brown, with the anal angle broadly brown, the veins in the latter part being yellow; the posterior femora and tibiae being simple. The entire body beneath is also blue-black.

STENOPHYLLA, Westw.

Corpus elongatum valde angustum. Caput cornu porrecto apice truncatum spinaque subbifida utrinque ante oculos armatum. Oculi ovales. Antennæ subgraciles. Prothorax vix meso- et meta-thorace longior, supra insertionem pedum anticorum dilatatus. Abdomen longum gracile parallelum segmentis apicalibus brevissimis parum latioribus, ultimo supra conico, subtus in spinis duabus brevibus divaricatis desinente; cerci anales valde elongati (prothorace paullo longiores), compressi ad basin articulatis, apicibus parum emarginatis. Pedes antici elongati, 4 postici breves femoribus foliatis tibiisque extus folio rudimentali instruetis. Tegmina et ala postica perfecta angusta.

The singular head and tails of the insect represented in figure 2 at once distinguish it from every other insect in the present family. Elongated tails are indeed found especially in *Tarachodes Perloides*, a new insect, described by Dr. Burmeister, from the Cape of Good Hope; but the head and feet in that genus are quite unlike those of the present species, and the tails themselves are described by Burmeister as threads, "Fäden," whereas they are flat and thin in the present insect, the basal portion alone being articulated. This divarication from the normal, small, conical, articulated form of these appendages is seen in but very few other species of the family, and in none to the extent here exhibited. The *Toxodera denticulata* of Serville, from Java*, has them broad and foliaceous, but comparatively short, and from this character M. Serville has assumed a relationship with the Phasmidæ. The species figured in my first volume, pl. 41, under the name of *Toxodera (Heterochaeta) tenuipes*, possesses similarly dilated, foliaceous appendages, as do also *Vates Ashmolianus*†, W., a native of the East Indies, of which the characters are given in a note below, and the Australian *Mantis latistylus* of Serville.

STENOPHYLLA CORNIGERA, Westw. (Plate 62, fig. 2.)

St. fusca, brunneo varia, tegminibus basi pallide lutei striga obliqua fusca, costa venisque longitudinalibus fusco-guttatis; alis basi fuscis violaceo micantibus, venis transversis, in dimidio basali alarum costaque fuscis.

Long. corp. unc. $1\frac{3}{4}$. Expans. tegminum unc. $2\frac{1}{2}$.

Habitat in Brasilia interiori. In Mus. D. Hope.

The plant represented in the plate is the elegant Brazilian *Manettia cordifolia* of Von Martius.

* Ann. Soc. Ent. de France, tom. vi., p. 25, pl. 2: and Hist. n. Orth., p. 169, pl. 5.

† *VATES ASHMOlianUS*, Westw. (Annals of Nat. Hist., Dec. 1841), fuscus capitis vertice

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PLATE LXIII.

DESCRIPTIONS OF SOME ORTHOPTEROUS INSECTS BELONGING
TO THE SECTION SALTATORIA.PROSCOPIA OCCIDENTALIS. *IWestw.*

(Plate 63, fig. 1.)

P. fulva, nigro fuscoque varia, rugoso-punctata, capite ante oculos conico, prothorace capitis longitudine margine antico dilatato, metathorace valde tumido. Long. corp. unc. 1 $\frac{3}{4}$. ♂,
unc. 2. ♀.

Habitat. Valparaiso, Chili. In Mus. Hope, and Mus. Britt.

THIS curious species is more robust than the generality of the insects of this singular genus. The head of the male has the sides rather curved and rugose, but in the female they are straight, forming with the part in front of the eyes an elongated cone; in the latter sex it is more rugose than in the male. The antennae of both sexes are 9-jointed *: they are slightly thickened in the middle, the tip being slenderest; they are inserted in the under-side of the head between the front part of the eyes. The prothorax is narrower than the head, its narrowest part being before the place of insertion of the fore-feet; it is transversely rugose, and has the hinder portion nearly quadrate. The meso- and meta-thorax are swollen into a rounded hump, much broader than the rest of the body in the male, the abdomen in that sex being narrowed. The specimens before me have, however, been taken out of spirits, and are shrunk in the base of the latter part, so that I cannot speak with certainty on its form, or as to the shape of the meso- and meta-thorax in the female. The feet are comparatively robust, and the unguis are very much dilated at the base, being furnished with an appendage almost as large as the pulvilli; the posterior femora are striated. I do not perceive in this species the difference in the number of the abdominal segments of the opposite sexes pointed out by M. Brullé; on the contrary, in both I find the same typical structure, namely, seven basal segments of equal size, both on the dorsal and ventral surface, followed by two very short arcs, cut off obliquely at the sides on the dorsal surface, representing the 8th and 9th dorsal segments, whilst the 8th ventral arc is dilated into

rotundato antennis gracillimis, prothorace longissimo (long. unc. 1 $\frac{2}{3}$) angusto lateribus seriatim; teguminibus et alis abdomen haud tegentibus, illis pallidis griseo et fuso parum variis nubila fusca versus basin, venisque nigro strigatis; alis hyalinis, costa maculisque nubilaque versus basin brunneis; cercis analibus latis foliaceis, pedibus 4 posticis brevibus femoribus fere ad apicem 3-foliatis tibiisque ante medium supra parum foliatis. Long. corp. unc. 4 $\frac{1}{2}$. Habitat in India orientali. In Mus. Ashmol. Oxon. et D. Hope.

* Drs. Klug and Burmeister described the antennæ of the males of *Proscopia* as 6-, and those of the females as 7-jointed. M. Brullé describes the antennæ of both sexes as 8-jointed. Hist. Nat. d. Ins. Orth. et Hem. p. 212.

a conical plate hollowed out above, and more elongated and entire in the male, whilst it is longitudinally divided in the female; the 9th ventral segment in both sexes being represented by the two small horny triangular plates, behind or beneath the small conical appendage common to Orthopterous insects. It is in the variation of form of these several pieces that the sexes are distinguished.* The general colour of the insect is fulvous-yellow, considerably spotted and marked with black and dark brown, especially on the thighs and back of the thoracic segments.

No species of this genus has hitherto been described as inhabiting any other part of South America than Brazil. The present species, therefore, presents us with an instance of a wider geographical range, being a native of the western portion of South America, whence it was brought, I believe, by Mr. Cuming: it is from this circumstance that I have given to it the specific name employed above.

Proscopia is one of those singular forms which exhibit a great resemblance to the species of a family different from that to which they in reality belong. Thus, we have here the long slender cylindric body of *Bacteria* amongst the *Phasmidæ*, as well as their apterous condition. M. Brullé also mentions two other characters possessed by these insects analogous to those of the *Phasmidæ*, namely, the plate terminating the abdomen of the males, and the compressed and angulated palpi. They appear to represent the old world genus *Truxalis*, in South America, and are evidently brought into relation with the more typical Locusts by that genus, and especially by the genus *Mastax*†, (illustrated in the first volume of this work, pl. 26), and by the *Astroma chloropterum* of Charpentier‡, a most interesting insect, also from Chili, (allied to *Proscopia*, and also to *Tetrix Latr.*,) which is described as destitute of all traces of the wing-covers, but having two small greenish wings arising from the first segment of the body (after the prothorax).

* I presume that M. Brullé's first ventral arc in the males is the hind part of the metasternum, separated from the anterior part by an impressed line, which, however, exists less distinctly in the females; and that his 9th ventral segment in the male is the undivided conical eighth ventral arc.

† Germar's Zeitsch. f. d. Ent. 3, 305.

‡ I take this opportunity of describing a new species of *Mastax*, recently forwarded to me from Assam, by Mr. Robinson, by way of supplement to the Memoir on this genus in the first volume of this work.

MASTAX AFFINIS. W. Fusca, facie et lateribus fulvescentibus, capite erecto vertice ad apicem truncato subbifido, prothorace carina elevata acuta, abdomine ♂ ad apicem valde inflato, tegminibus fuscis guttis duabus hyalinis, alis fulvis margine tenui fusco. M. guttatae valde affinis sed multo major. Long. corp. lin. 10. Expans. tegmin. lin. 22.

Habitat. Assam, Ind. Or. In Mus. nostr. amicissime communic. D. Robinson.

The species of the genus *Proscopia* are arranged by Dr. Burmeister* in the following manner:—

I. Those with the eyes placed near the middle of the sides of the head, the front part of which is obtuse, with the sides parallel, or diverging and quadrangular.

A. Those with the front part of the head dilated at the end. 1. *Pr. spinosa*, Kl.; and 2. *Pr. granulata*, Kl.

B. Those with the front of the head of equal breadth throughout.

a. The extremity being as broad as the space between the eyes.

α. Prothorax granulose. 3. *Pr. radula*, Kl. 4. *Pr. hospida*, Kl.

β Prothorax with impressed punctures. 5. *Pr. punctata*, Kl. 6. *Pr. brevicornis*, Kl.

b. Extremity of the head evidently narrower than the space between the eyes.

7. *Pr. scabra*, Kl., and *Pr. gigantea*, Kl.

II. Those with the eyes placed near the tip of the head, which is acuminate.

A. Extremity of the head as long as, or longer than, half the antennæ. 9. *Pr. striata*, Kl. 10. *Pr. acuminata*, Kl. 11. *Pr. ruficornis*, Kl. 12. *Pr. rostrata*, Kl.

B. Extremity of the head very small, much shorter than the half of the antennæ. 13. *Pr. brevirostris*, Kl. 14. *Pr. Ophiopsis*, Kl. 15. *Pr. oculata*, Kl.

M. Serville† divides the genus in the following manner:—

I. Head elevated into a kind of vertical pyramid, &c. (*PROSCOPIA* proper.)

A. Eyes of moderate size, oblong. *Pr. scabra*, Kl., and *Pr. granulata*, Kl.

B. Eyes large, and nearly rounded. *Pr. rostrata*, Kl.

2. Head not elevated into a vertical pyramid, but horizontally prolonged in front in the same line as the body, &c. (*CEPHALOCÆMA*) *Pr. (Ceph.) Sica*, Serv. n. sp. from the southern part of Campos-Geraes, in Brazil; described from the Collection of the Jardin des Plantes, where I examined and sketched the typical specimen described by M. Serville, and find it to be very closely allied to the insect next to be described.

**PROSCOPIA (CEPHALOCÆMA) SUBAPTERA, Westw. (Plate 63, fig. 2.)
(Long. lin. 7.)**

P. fusco-brunnea, capite horizontali sensim ad apicem attenuato, antennis vix dimidio rostri longioribus, thorace et abdomine longitudinaliter striatis, prothorace, antice et postice bispinosis; mesothorace spinis duabus paullo majoribus armato tegminibusque dnobus liberis minutis instructo, alis duabus minimis liberis nigro-metallicis nitidis sub tegmina reconditis, abdomine supra depresso. ♀ Long. corp. unc. $3\frac{1}{4}$.

Habitat. in Brasilia. Mus. nostr.

Obs.—Individuum alterum ♀ possideo $2\frac{1}{2}$ lin. longitudine, statura paullo angustiori rostro longiori (pro magnitudine insecti) coloreque cinereo: spinis thoracis ut et tegminibus et alis cum precedenti vero congruens, vix species distincta.

The insect represented in figure 4 in this plate is one of the most interesting Orthopterous insects hitherto discovered; and it is greatly to be regretted that the very mutilated state of the unique female specimen in the British Museum Collection prevents me from being able to give its whole character. Indeed, it is not surprising that from this circumstance it should have been arranged amongst the Phasmidæ in that collection, since its general appearance certainly bears a much closer resemblance to some of the wingless Phasmidæ than to one of the saltatorial Orthoptera. A slight examination, however, convinced me that, from the structure of the tarsi, and the relative size of the thoracic segments, the insect

* Haubd. d. Ent. 2, p. 603.

† Hist. Nat. Ins. Orth. p. 574.

belongs to the family of grasshoppers with long-antennæ (*Gryllidae*, Leach), although differing from all the known species of that family in several particulars, more especially in the entire want of the curious operculum near the base of the anterior tibiæ, and the large compressed form of the basal joint of the antennæ, which is all that remains of those organs in the specimen before us. From its analogical relations, it may be named—

PHASMOIDES RANATRIFORMIS, West. (PLATE 63, fig. 4.)

Char. Gen. ♀. Corpus valde elongatum depressum parallelum abdomine sensim in medio paullo latiori. Caput horizontale, clypeo labroque magnis discretis. Palpi elongati. Labium e lobis duobus membranaceis spinisque duabus intermediis formatum. Antennæ articulo basali longo compresso. Prothorax elongatus subdepressus subtus inermis : meso- et meta-thorax breves subtus etiam inermes linea longitudina mediana impressa (fig. 4 a). Abdomen thorace duplo longius ad apicem sensim attenuatum e segmentis novem distinctis formatum. Oviductus fere abdominis longitudine recta attenuata, e valvulis duobus cornuis constans, singulo valvulo e duabus partibus formato (fig. 4 b, apex segmenti noni subtus visus : fig. 4 c, apex segmenti noni abdominis lateraliter visus cum squama conica dorsali styloque laterali et basi oviductus : fig. 4 d, apex valvuli e duabus partibus constans, supera ad apicem emarginata, infera acuta et subtus tuberculo instructa). Pedes 4 antici longitudine æquales, graciles, tibiae anticæ operculo nullo instructæ. Tarsi 4-articulati pilosi articulo penultimo cordato. Tegmina nulla. Alæ nullæ. Mas latet.

Char. Spec. P. viridis, lævis lateribus corporis linea brunnea notatis, tibiis anticis versus basin macula parva fusca.

Long. corp. unc. 2 $\frac{1}{3}$. Oviductus, unc. 1 $\frac{1}{4}$.

Habitat. King George's Sound, Nov. Holl. In Mus. Brit.

The nearest approach to the last-described insect amongst the species of the family *Gryllidae*, Leach (Locustaires Serville,) is made by

PROCHILUS AUSTRALIS of Brullé,*

described more in detail by M. Serville.† As no figure of this insect has hitherto appeared,‡ and as the male alone has been described, I have represented the female in plate 63, fig. 3, and which agrees in general character with the male, which has the abdomen truncate at the tip. I have possessed this insect many years ; and Mr. Hope also possesses three specimens—one from the Haworthian Collection. Messrs. Brullé and Serville do not speak of the red base of the hind wings ; and the latter states that the head is longer than the prothorax, and that the stridulant organ of the males is transparent, which do not agree with the specimens before me ; although they correspond in every other respect with the description given by M. Serville.

The plant represented in the plate is *Physalis edulis*, a native of Peru and Chili, but cultivated at the Cape of Good Hope, and in the English Settlements in New South Wales, where it is known under the name of the Cape Gooseberry.

* Hist. Nat. des Ins., Orthopt. et Hemipt., p. 135.

† Hist. Nat. Orthopt., p. 384.

‡ Brullé and Serville refer to a figure of this insect, "Plate 11, fig. 1, Male," but no such has hitherto been published.

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PLATE LXIV.

DESCRIPTIONS OF SOME AFRICAN LONGICORN BEETLES.

PARISTEMIA. *Westw.*

Genus novum e familia Cerambycidarum, generibus Lophonocero et Pteracantha *Newm.** affine. Caput parvum facie obliqua. Oculi valde emarginati. Labrum transversum ciliatum. Mandibulæ parvæ. Maxillæ lobo apicali dense ad breviter penicillato. Labium ad apicem emarginatum. Antennæ breves (in femina vix ad medium elytrorum extensa), crassæ, articulis 1 et 3 longitudine subequalibus, reliquis parum brevioribus. Prothorax capite multo latior lateribus utrinque oblique prorectis vel in spinam latam productis, angulis posticis valde emarginatis; disco in medio elevato-carinato. Elytra ad basin vix prothorace latiora, sensim rotundato-dilatata, apicibus simplicibus, disco longitudinaliter costata. Pedes breves subæquales. Species Africæ tropicalis incolæ.

SPECIES I.—*PARISTEMIA PLATYPTERA*. (Plate 64, fig. 1).

P. nigra sericea prothorace rufo utrinque striga nigra e capite ad angulos posticos; elytris pone medium fascia latissima postice angulata et fere ad apicem extensa rufa; abdome obscure rufo.

Syn.—*Paristemia platyptera*, Westw. in Ann. Nat. Hist. October 1841. Long. corp. lin. $12\frac{1}{2}$. Lat. elytrorum, lin. $5\frac{1}{2}$.

Habitat in Africa tropicali. In Mus. nostr. Communic. D. Raddon. (Fig. 1 a. maxillary palpus; fig. 1 b. labial palpus; fig. 1 c. extremity of pro & meso-sterna; fig. 1 d. mesosternum, seen sideways.)

SPECIES II.—*PARISTEMIA APICALIS*, Westw. (Plate 64, fig. 2).

P. nigra sericea, capite linea media fulva, prothorace fulvo linea tenui media alterisque duabus lateralibus scutelloque nigris; elytris ad apicem nigris plaga antice in angulum acutum versus basin extensa, corpore subtus nigro, prosterno et mesosterni parte elevata fulvis.

Long. corp. lin. $9\frac{1}{2}$. Lat. elytrorum, lin. $4\frac{1}{2}$.

Habitat in Africa tropicali. In Mus. D. Turner.

Obs.—The antennæ are unfortunately broken off at the 7th joint; they are, however, evidently longer than in the former species, which is therefore to be regarded as a female, and this as a male.

SAPERDA CARISSIMA, *Westw.* (Plate 64, fig. 3).

Annals of Nat. Hist. October 1841.

S. brevis opaca, supra viridi-lactea, pronoto vittis tribus longitudinalibus brunneo-fulvis, elytris fascia lata irregulari (in medio interrupta) ex humeris fere ad suturam ducta maculaque magna communi discoidali brunneo-fulvis; his etiam guttis 10 nigris rotundatis ornatis.

Long. corp. lin. 5.

Habitat in Africa tropicali. In Mus. D. Raddon, Parry, Hope, &c.

NEMOTRAGUS. *Klug.*

I am not aware whether any characters have hitherto been published by Dr. Klug, of the genus instituted for the reception of the interesting insect represented in fig. 4. It is to the kindness of that distinguished entomologist that I am indebted for my specimen, which I received from him in 1835, since which period a considerable number of individuals have been obtained by one of the London dealers in objects of natural history. In this uncertainty I shall merely notice that its greatly elongated form, large

* The undescribed genus *Pteroplatys* of Dejean's Catalogue, composed of three Brazilian and Mexican species, is evidently also closely allied to these insects.

rounded eyes, having a very small emargination in front, elongated, slender, and simple antennæ, unarmed prothorax, pointed tips of the elytra and simple nearly equal sized-legs, with curved tibiæ, seem to constitute its chief characters.

NEMOTRAGUS HELVOLUS. *Klug.* (Plate 64, fig. 4).

N. brunneus punctatus, luteo squamosus, linea longitudinali laterali prothoracis humerisque undis, antennis pedibusque brunneis.

Long. corp. lin. 13, long. antenn. unc. $2\frac{1}{2}$.

Habitat in Africa meridionali. In Mus. nostr. &c.

LAMIA OBESA, *Westw.* (Plate 64, fig. 5.)

L. albida luteo-squamosa, fulvo fuscoque varia, prothorace tuberculis vittaque media utrinque furcata fuscis, lateribus utrinque spina brevi crassa armatis; clytris maculis duabus subovalibus obliquis ante medium pallidis alterisque duabus minoribus mediis fasciisque variis angulatis maculisque duabus subapicalibus fuscis ornatis, facie antennis pedibusque luteis.

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

Habitat in Africa meridionali.

This is one of the fine species of insects contained in the collection recently brought to England by Mr. Burke, from the hilly country, lying between 25° and 26° S. lat., and 27° and 28° E. long., and which, by the kindness of the Earl of Derby has been distributed to the Zoological Society and the British Museum. I am indebted to Mr. Melly for the opportunity of figuring the species, he having sent it to me on its first arrival in this country.

The plant represented in this plate is the *Iris viscosa* of Thunberg, found in the sandy spots of Saldanha Bay, near the Cape of Good Hope.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW WORKS. &c.

(No. XVI.)

CATALOG DER KÄFER-SAMMLUNG VON JACOB STURM. Nuremburg, 1843. With
6 coloured copper-plates. 8vo, 386 pages.

WE have here an imitation of the Catalogue of Dejean's Collection of Coleopterous insects, with, however, occasional references to figures and synomyms. There is, however, a vast difference in the amount of species of the two collections, and consequently in the comparative usefulness of the two catalogues. Dejean's last edition contained considerably more than 20,000 species, whereas Sturm gives but 13,266. In many of the more interesting groups, the poverty of the latter list is very striking: thus, there is only 1 species of Oxycheila, 1 Dromica, 2 Therates, 1 Casnonia, 4 Panagæi, 2 Rhipiceræ, 1 Callirhipis, 3 Goliathi (micans, japonicus, and Höpfneri), 2 Paussi. The catalogue is, as may be easily supposed, strongest in European and Brazilian species. An appendix contains descriptions and figures (beautifully drawn, engraved, and coloured) of the following insects:—Three new Brazilian species of Lia (a genus allied to Lebia); Axinidium africanum, St., a new genus, referred to the Scaritidae, but having more of the habit of Stomis and Miscodera, with long toothless mandibles, long slender maxillæ, with the hook not articulated (judging from the figure, for the description is silent as to this character), maxillary palpi strongly securiform, labial palpi slender and filiform, mentum conically produced in the centre, fore tibiæ not externally dentated (but with the deep notch and spur on the inside); the species is 4 lines long, black, smooth, with red antennæ, palpi, and feet, the elytra smooth, each having three deep punctures. Julodes Rothii, St., from Jerusalem; Lycus appendiculatus, St., from Senegal, allied to *L. foliaceus*, Sch.; Hydrophilus substriatus, St., from the neighbourhood of Cassel; 3 Mexican species of Phanaeus; Scarabæus Petiveri, Erichs. (Dejeanii Buq., Golofa Porteri Hope); 7 Mexican species of Pelidnota; Amphicoma Papaveris, from Jerusalem; Chiasognathus Grantii, ♂ and ♀ (two brilliant figures); Rysso-notus nebulosus, Kirby; Lucanus turcicus, from Constantinople; with 6 plates in the club of the antennæ; my Xyphodontus

Antilope, from Caffraria, under the name of *Corypticus capensis*, Dej.; Xopherus variolosus, from Mexico; Amycteres paradoxus, from New Holland, allied to *Cureulio mirabilis*, K.; Tachyopus (*Tachygonus*, Dej.) Lecontei, a curious little weevil from South Carolina; Purpuricenus Dalmatinus, St., from Dalmatia; Ozodes Mexicanus; Doreadion tomentosum, from Nauplia; Saperda Graeca; Mesophalacrus Spinolæ, from New Holland, an interesting genus, allied to *Sagra* and *Donacia*, already previously figured in Griffith's Animal Kingdom, Insects, pl. 67, fig. 2, under the incorrect name of *Carpophagus Banksii*; and also in the third part of Mr. Hope's Coleopterist's Manual, pl. 2, fig. 6; where the name of *Mecynodera picta* is given to it; and *Platyauchenia limbata*, a new genus from Brazil, allied to *Alurnus*.

These descriptions and figures constitute, in fact, the only valuable part of the work; for if the possessor of every second-rate collection of Coleoptera, like that of the author, were to undertake such a catalogue as this, giving names only, without descriptions, to hundreds of new species, already, perhaps, named in Dejean's Catalogue, what endless confusion in the nomenclature of the order! How much better would it be to undertake but a single family at a time, describing all the new species in it? Mr. Hope has set the example, in publishing such a catalogue of portions of the Hemiptera, and proposes, on his return from Italy, to follow the same plan in another very extensive tribe.

CONSIDERAZIONE SOPRA I COSTUMI DEGL' IMENOTTERI DEL G. SIREX, FAB., E
sopra il miglior posto dei Sirciti nel metodo razionale. Memoria del Marchese
MASSIMILIANO SPINOLA. Genova, 1843.

In this memoir, the Marquis of Spinola, after stating the general opinion amongst naturalists, that the Siricidæ in their larva-state are wood-feeders, and more especially mentioning the researches of Rosel von Rosenhoff, Jurine, Hartig, and Sells,* which supports that opinion, takes up the observation of Saint Fargeau, published in the *Encyclopédie Méthodique*†, in which the parasitism of that group was first asserted, and mentions, in support of it, that he received in 1841, from the Marquis Carlo Durazzo, a specimen of *Sirex Gigas*, inscribed, "Parasita in larva di Far-

* Proceedings of Entomological Society of London, May, 1838.

† Vol. x., p. 770, M. Saint Fargeau has again insisted on his view of the habits of the genus, in his *Hist. Nat. Hyménopt.*, i. p. 5, note 3.

falle"—parasitic in the larva of a butterfly—that Signor Franchi had informed him that he had reared another from the larva of *Papilio Machaon*; adding, in a supplementary note, that Signor G. B. Villa at Milan possessed a specimen of a *Sirex*, which he assured him, "era pure sortita dalla larva di un Papilio, sotto ai di lui occhi e nel di lui gabinetto." Upon these statements, the author proposes a fresh modification of the classification of the Hymenoptera, in order to make it accord with their supposed parasitic habits.

Having entered into the question of the habits of this family at considerable length, in the 2nd volume of my Introduction to the Modern Classification of Insects,* where I have represented the various parts of the mouth of the Larva, I shall only observe that the numberless instances on record of species of this genus making their appearance out of the wooden flooring of newly-built houses,† quite overturns the statements of their being parasitic in the bodies of the caterpillars of butterflies; whilst the structure of the mandibles of the larvae of *Sirex*, eminently fits them for gnawing through hard substances, and that the mandibles of Parasitic Hymenopterous larvae are entirely of a different construction. Comp. figures, 70, 3, 4, (vol. ii. p. 94), 72, 20, (p. 115), and 76 15 (p. 140 of the 2nd volume of my work abovementioned).

OSSERVAZIONI SOPRA I CARATTERI NATURALI, DI TRE FAMIGLIE D' INSETTI IMENOTTERI; cioè, le VESPARIE, le MASARIDE, e le CRISIDIDE. Memoria del Marchese MASSIMILIANO SPINOLA. Genova, 1843.

COMMENCING with the axiom, that "i migliori caratteri entomologici sono somministrati dalle forme esterne, e che le migliori forme sono quelle che mettono in evidenza la miglior legge organica," the author has in this memoir entered into a profound revision of the physiological peculiarities of the chief hymenopterous groups, of which it is impossible to give an abstract; but of which the summary is contained "nel quadro sinottico che segue":—

* Vol. ii. p. 117 and seq.

† The author gets over this difficulty by supposing that they are ordinarily parasitic upon wood-boring larvae of Coleoptera, and only occasionally so in Lepidopterous larvae; but, in those parts of England where the Siricidae occur, we have not any xylophagous larvae fitted for the Siricidae to exercise their parasitism upon.

IMENOTTERI PEDONCULIVENTRI.

Legge organica.	Carattere esterno.	Famiglie.
1. Aventi la facoltà di muovere a piacimento il loro abdome, senza avere da muovere previamente le loro ale.	Ale piegate longitudinalmente nel riposo, colla costa della piegatura parallela all'asse del corpo.	1. Vesparie.
2. Aventi la facoltà precedente e di più, quella di contrarsi, nel riposo, a segno che l'estremità posteriore del loro corpo arrivi al contatto dell'estremità anteriore.	1. Il carattere della famiglia precedente. 2. Il metatorace dilatato lateralmente ed iscavato inferiormente a segno che ogni cavità possa dar ricetto ai due piedi posteriori del medesimo lato.	2. Masaride.
3. Aventi la seconda facoltà ma sprovvisti della prima.	Il secondo soltanto dei due caratteri precedenti.	3. Crisidide.
4. Privi dell' una e dell' altra facoltà		{ Tutte le famiglie che non sono contemplate nel presente discorso.

MONOGRAPHIE DER FAMILIEN DER PFLANZENLÄUSE (PHYTOPHTHires). VON J. H. KALTENBACH. Aachen, 1843. 8vo. 222 pp., and one plate.

It is rather remarkable that, whilst the extraordinary physiological peculiarities exhibited by the Aphides, in respect to their modes of reproduction, have attracted the notice of every Naturalist, so few attempts have been made to describe the very numerous species of which the family consists. It is true, numerous species are indicated by Linnæus, Fabricius, and others, but, with scarcely any other description than that of the name of the plant on which they are found. In our own country, many species were well figured by Harris, long ago, in his "Exposition of English Insects," and a most extensive series of species, together with the plants which they attack, was formed by Mr. Haworth, who was induced to place them in Mr. Donovan's hands, with the view to their publication with figures; the latter author giving up to Mr. Haworth, in return, a unique specimen of the splendid Indian grasshopper, since published by Donovan, under the name of *Gryllus Donovanii*, in the Naturalist's Repository. Unfortunately, the latter never proceeded with the contemplated work: the collection, formed with so much care, was returned, half-eaten by mites, to Mr. Haworth, and at the sale of his collection, it fetched the price of *one shilling!*

On the Continent, the works of Hausmann,* Kyber,† Schrank,‡

* Illiger's Mag., vol. i.

† Germar's Mag., vol. i.

‡ Fauna Boica.

Burmeister,* Zetterstedt,† Van Heyden,‡ and especially of Dr. Th. Hartig,§ have, by degrees, contributed considerable materials towards the knowledge and classification of these insects, and we have now a volume upon the family, from the pen of M. Kaltenbach, of Aix-la-Chapelle.

An introduction of 40 pages gives a general account of the structure, physiology, and habits of these insects; which, according to their mode of generation, form three principal groups.

1. Vivi-oviparous (G. *Aphis* and *Lachnus*).
2. Oviparous (G. *Chermes*, *Phylloxera Vacuna*?)
3. Viviparous (G. *Tetraneura*, *Pemphigus*, *Schizoneura*, and probably the underground genera *Forda*, *Rhizobius*, *Paracletus*, and *Trama*).

These genera are characterised in the following tabular distribution:—

1. Abtheilung. Winged species, Blattlause.

Fore-wings with a biramos ecubitus:

Antennæ 7-jointed, long	1 G. <i>Aphis</i> .
" 6-jointed, short	2 G. <i>Lachnus</i> .

Fore-wings with a 1-ramose cubitus:

Antennæ 6-jointed, &c.	3 G. <i>Schizoneura</i> .
" 5-jointed, &c.	4 G. <i>Vacuna</i> .

Fore-wings with a simple cubitus.

Fore-wings with 4 oblique veins, antennæ 6-jointed.

Hind-wings with 2 oblique veins	5 <i>Pemphigus</i> .
" with 1 oblique vein	6 <i>Tetraneura</i> .

Fore-wings with 3 oblique veins, &c.:

Antennæ 5-jointed, &c.	7 G. <i>Chermes</i> .
" 3-jointed, &c.	8 <i>Phylloxera</i> .

2. Abtheilung. Wingless subterranean species, Hyponomeutes.

Antennæ 6-jointed.

Last joint of antennæ thick, longer than the preceding	9 G. <i>Rhizobius</i> .
" " slender, shorter "	10 G. <i>Forda</i> .

Antennæ 7-jointed, last joint very small:

Hind tarsi long and jointless	11 G. <i>Trama</i> .
" two-jointed	12 G. <i>Paracletus</i> .

Of the genus *Aphis* L. 119 Species are described:

" <i>Lachnus</i> , Ill. 13 species . . .	(<i>Aphis Quercus</i> , Linn., <i>A. Roboris</i> , Linn. &c. <i>G. Cinara</i> , Curtis).
" <i>Schizoneura</i> , Hart. 6 species . . .	(<i>Aphis lanigera</i> , Ulmi, &c.)
" <i>Vacuna</i> , Van Heyd. 2 species . . .	(<i>A. dryophila</i> , Schk. and a n. sp.)
" <i>Pemphigus</i> , Hart., 7 species . . .	(<i>A. bursarius</i> , L. &c.)
" <i>Tetraneura</i> , Hart., 1 species . . .	(<i>A. Ulmi</i> Degeer).
" <i>Chermes</i> ¶, Linn., 4 species . . .	(<i>Ch. Abictis</i> , Linn., &c.)

* Handb. d. Ent., vol. ii.

† Insecta Lapponica.

‡ In Museum Seckenb.

§ In Germar's Zeitschrift, vol. iii.

|| The name of *Brysocrypta* Haliday (Westw. Gen. Synopsis, Brit. Ins., p. 118), must be retained for this genus.

¶ I consider that the name, *Adelges* Vallot, ought to be given to this genus.

- Of the genus *Phylloxera*, B. de F., 1 species . (*Vac. coccinea*, Van Heyd. P. *Quercus*,
B. de F.)
 " *Rhizobius*, Burm., 3 species . (*Rh. Pilosellæ* Burm. &c.)
 " *Forda*, Van Heyd., 1 species . (*F. formicaria*).
 " *Trama*, Van H., 1 species . (*T. troglodytes*, Van H.)
 " *Paracletus*, Van H., 1 species . (*P. cimiciformis*, Van H.)

The genus *Atheroides* Haliday* appears to be unknown to the continental authors, whilst the generic name *Eriosoma*, Leach, (*Myzoxyle* Blot.) must take place of that of *Pemphigus*, and be restricted to such species as differ from *A. bursarius*. In like manner, my generic name *Thelaxes* is synonymous with *Vacuna*, as restricted by Kaltenbach, *Th. Quercicola*, W., being, most probably, *V. dryophila*, Van H.; *Vacuna coccinæa*, V. H. being removed to the genus *Phylloxera* Fonse.

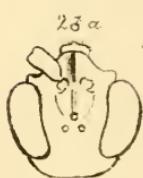
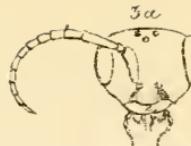
A double index, first of the insects, and second of the various plants attacked by them, terminates the work.

SPÉCIES ET ICONOGRAPHIE GÉNÉRIQUE DES ANIMAUX ARTICULÉS; ou Représentation des Genres avec leur description, et celles de toutes les Espèces de cette grande Division du Règne Animal : ouvrage formant une série de Monographies complètes. Par M. F. E. GUÉRIN-MÉNEVILLE. 8vo. Paris, 1843. Livraisons 1 et 2.

THE work of which I have given the title at full length above, promises to be of the greatest service to entomologists. The extensive collections in Paris opened to the author's researches, his own excellent cabinet, library, and folios of drawings, are all laid under contribution to perfect this work, which has been so long announced, and so much longer the object of the author's attention. Instead of commencing the Coleoptera with the Cicindelidæ and Carabidæ, the author has undertaken the illustration of the less known group of Cebriionidæ and allied genera; and we have, in the two livraisons now published, excellent illustrations and descriptions of the following genera and species:—*Rhipicera*, 11 sp.; *Sandalus*, 5 sp.; *Scirtes*, 16 sp.; *Eucinetus*, 2 sp.; *Ptyocerus*, 4 sp.; *Selasia*, 3 sp.; *Chamaeripis*, 1 sp.; and *Basodonta*, 1 sp. Each genus is represented with its details in a separate plate, drawn with all the skill of its excellent author.

* Westw. Gen. Syn., p. 118.

65



2i

4e

4f

4a

SC. W.
5.12.43

PLATE LXV.

ILLUSTRATIONS OF SOME GENERA OF FOSSORIAL HYMENOPTEROUS INSECTS, BELONGING TO THE FAMILY SPHEGIDÆ.



THE curious genus *Chlorion* of Latreille, (*Ampulex Jurine*) having been raised by Shuckard * and Dahlbom † to the rank of a family, distinct from the Sphegidæ, it becomes interesting to examine its precise structure, as well as that of some new forms closely allied to it; in order to discover the propriety of such a step. In the third volume of the Transactions of the Entomological Society, I established two new genera, bearing such a relationship; but, it happened, that at that period I was acquainted only with one sex of each of them. Having since become acquainted with the opposite sexes of each, and having likewise observed in the Collection of the British Museum another undescribed form, I have in the accompanying plate completed my illustrations of these groups, by figuring the sexes hitherto wanting, as well as numerous details of the genus *Chlorion* itself, together with a new and beautiful species of that genus from the Collection of W. Burchell, Esq.

GENUS.—CHLORION, *Latreille*.‡ (AMPULEX *Jurine*.)

CHLORION PURPUREUM, *Westw.*

(Plate 65, fig. 1.)

C. lète purpureum, valde punctatum, mesonoto obscuriore, metanoto transverse striato, carinique novem (2da et 3tia utrinque a medio discretis) antennis clypeo tibiis tarsisque nigris; alis anticis fuscis fascia lata pone medium aliquae posticis sub-hyalinis; abdomine postice minus compresso quam in *A. compressiventre* Guer.; collare postice tuberculo elevato instructo; mandibulis nigris apice piceis; tarsorum articulo penultimo minori quam in congeneribus, articulo basali antennarum subtus rufescenti. ♀

Long. corp. ♀ lin. 7. Expans. alar. lin. 8 $\frac{1}{2}$.

Habitat in Africa Australiori, D. Burchell.

In addition to this species and the original type of the genus *Chlorion compressum*, the following species have been recently described and figured.

SPECIES 3.—CHLORION CYANIPES, *Westw.* (In Trans. Ent. Soc. 3, p. 230.)
From the Cape of Good Hope.

* Cabinet Cyclop. Nat. Hist. Ins. p. 180. See my observations hereon in Trans. Ent. Soc. 3, p. 230, note *.

† Hymenoptera Europæa. Lund. 1843, p. 29: in which excellent work the genus *Dolichurus* is removed to the family Pompilidæ, whilst in his previous 'Dispositio methodica'. Part I, Lund. 1842, he has placed *Ampulex* and *Dolichurus* together as the first section A. of Pompilidæ.

‡ See Trans. Ent. Soc. vol. 3, p. 227, for the reasons which induce me to regard the *Sphex compressa* as the true type of the genus *Chlorion*.

SPECIES 4.—CHLORION (AMPULEX) ANGUSTICOLLE, *Spinola*. (In Ann. Soc. Ent. de France 1841, p. 108*.)
From Cayenne.

SPECIES 5.—CHLORION (AMPULEX) AENEUM, *Spinola*. (In Op. cit. p. 110.)
From the coast of Malabar.

SPECIES 6.—CHLORION (AMPULEX) COMPRESSIVENTRE, *Guérin*. (Icon. R. An. Ins., pl. 70, fig. 4.)

SPECIES 7.—CHLORION GUERINI, *Dahlbom*. (Hym. Europ. p. 29.)

The following is the description of the figures illustrating the structure of the insects of this genus, taken from *C. compressum*. Fig. 2 *a* is the head of the male, with the mandibles removed, showing its clypeus to be less porrected than in the female (fig. 2 *d*.) Fig. 2 *b* represents the labrum detached, and 2 *c* the mandible of the male, with a strong tooth on the inside below the apex. Fig. 2 *d* is the head of the female, with the mandibles and base of the antenna; the former with the inner edge slightly produced below the apex. Fig. 2 *e* is the maxilla; 2 *f* the mentum and labial palpus, seen from beneath; and 2 *g* the same seen laterally, this figure showing the inflected lobes of the labium. 2 *h* represents the apical portion of the tarsi, showing the lobed penultimate joint and bifid unguis.

GENUS TRIROGMA, *Westw.*

(Trans. Ent. Soc., vol. iii. p. 223.)

Hoc genus olim ex individuo unico maris conditum, nunc characteribus utriusque sexūs confirmatum.

Corpus subelongatum punctatum, abdomine ♀ tamen lèvissimo, cœruleo-nitidum, et pilis longis griseis undique villosum. Caput antice clypeo parum producto subdecliui (fig. 4 *a*) tuberculoque inter partem inferiorem oculorum armato, in quo insident antennæ. Oculi magni laterales margine antico parum emarginato. Ocelli 3, in triangulum dispositi. Antennæ in utroque sexu longæ graciles, ♂ filiformes, ♀ ad apicem attenuatæ, his subconvolutis. Labrum minutissimum exsertum obovatum depresso membranaceum. Mandibulae ♂ validæ curvate apice acutes intus dente latissimo (angulo basali valde prominenti et acuto) : ♀ multo angustiores, pone medium marginis interni denticulis tribus parvis instructæ. Palpi maxillares mediocres articulo Ima minuto 2bus proximis majoribus, ultimis tribus elongatis et gracilioribus. Palpi labiales 4-articulati articulo basali longiori, 2ndo breviori. Thorax oblongo-ovatus; collare mesothoracæ multo angustius antice angustum lateribus rotundatis, supra impressione longitudinali in lobos duos supra angulatos divisum ; metathorax subconicus lateribus subangulatis discoque carinis obliquis notato. Alæ antice cellula unica marginali, ad apicem haud appendiculata ; tribusque completis, cum quarta inchoata submarginalibus, harum cellula Ima elongata accipit versus apicem venam primam recurrentem, cellula 2da minori subtriangulari accipit pone medium venam 2m. recurrentem. Pedes graciles femoribus ad basin clavatis, tarsis longis gracilibus articulo 4to siuplici, unguibus bifidis terminato. Tibiae antice ♀ fere inermes, setis minutis instructæ, calcari majori intus lata bipartita instructæ (fig. 4 *b*). Tarsi antici ♀ spinulis ad apicem articulorum tantum (fig. 4 *c*) setisque rigidis minutis subtus instructis. Tibiae 4 postice etiam fere inermes, bicalcaratæ, tarsisque eodem modo armatis. Abdomen ♂ breviter petiolatum, 3-annu-

* This species is a native of Cayenne, being the only instance I am hitherto acquainted with, of the occurrence of any species of this or the allied genera, in South America ; if, indeed we except Perty's genus, *Trigonopsis*, which will, I think, be found to be closely allied to them.

latum, punctatum, segmentis postice parum coarctatis intermedio majori; ♀ 6 annulatum, 3bus ultimis minutis.

Obs.—Descriptionem fusiorem maris in opere citato invenies.

SPECIES UNICA.—*TRIROGMA CÆRULEA.* (Plate 65, fig. 4.) ?.

T. cœrulea punctata griseo-villosa, antennis tibiis tarsisque nigris, alis hyalinis stigmate venisque nigris, metathorace utrinque supra linea elevata areaque media basali notato.

Long. corp. lin. 6½—9. Expans. alar. lin. 9½—13.

Habitat in partibus medianis et septentrionalibus Indiae Orientalis. In Mus. Hearsey et Saunders.

SYN.—*Trirogma cœrulea*, Westw., Trans. Ent. Soc. iii., p. 225. Plate 12, fig. 3 ♂.

Several specimens of this interesting insect, which is intermediate between *Chlorion* (*Ampulex*) and *Dolichurus*, captured by my friend, Colonel Hearsey, in Central India, have enabled me to complete the characters of the genus which I established for its reception in the Transactions of the Entomological Society.

APHELOTOMA, Westw.

(Trans. Ent. Soc. Lond., Vol. iii. p. 225.)

Hoc genus olim ex individuis feminis tantum descriptum nunc characteribus utriusque sexus confirmatum.

Caput latum facie depresso antice parum producta, haud tuberculata (fig. 3 a). Mandibulæ ♂ curvatae, et interne ante apicem dente acuto armatae (fig. 3 b); ♀ crassæ versus basin subito constrictæ apice acentæ, dente interno parvo acuto armatae. Palpi maxillares 6-articulati articulis duobus basalibus brevibus fere æqualibus, 3tio paullo longiori et crassiori, reliquis 3bus fere æqualibus sensim gracilioribus. Palpi labiales 4-articulati fere filiformes articulo basali longiori, reliquis subæqualibus. Antennæ breviores subfiliformes, in tubculo haud incidentes; articulo 1mo longo; 3tio longissimo. Collare subconicum dorso in medio plano. Metathorax supra planiusculus carinis duabus elevatis lateralibus, dorsoque lineis circiter 10 irregularibus longitudinalibus, elevatis striis transversis connexis.

Abdomen ♂ thorace multo minus, quasi 6-annulatum, segmentis 3bus ultimis vero minutissimis; ♀ longius apice conico, segmentis 3bus basalibus magnis, 4to minori reliquis minutis; segmentis duobus basalibus in utroque sexu nitidis laevissimis, reliquis quasi sericeis et obscurioribus. Alæ breves, antice cellula unica marginali, apice haud appendiculata, cellulis quatuor submarginalibus; 1ma majori, (in medio ad apicem appendiculata) venam primam recurrentem excipiente; 2da parva antice attenuata; 3tia subquadrata venam recurrentem 2dam versus basin excipiente; 4ta ad apicem alæ currente. Pedes ♀ elongati omnino inermes et ciliis destituti. Tarsorum articulus penultimus simplex (fig. 3 c) unguis in medio subtus dente parvo instructi.

SPECIES UNICA.—*APHELOTOMA TASMANICA.* (Plate 65, fig. 3 ♂.)

A. nigra pedibus rufis alis fuscis, anticis fascia media alba. Long. corp. lin. 4—4¾. Expans. alar. lin. 6.

Habitat in Terra Van Diemenii.

♀ In Mus. nostr. Commun. Dom. Ewing, and ♂ in Mus. W. W. Saunders, F.L.S.

SYN.—*Aphelotoma Tasmanica*, Westw. Op. Cit. p. 226, pl. xii. fig. 4 ♀.

♂. Mandibulæ rufæ extremo apice nigro. Antennæ rufæ articulis 6 ultimis nigris; pedes rufi coxis trochanteribus, et basi femorum præsertim in anticis nigris.

♀ Mandibulae nigrae apice picæ, antennæ nigrae articuli 4ti apice, 5to toto, et 6to fere toto rufescensibus. Pedes cum coxis omnino rufis.

Obs.—Descriptionem fusiorem hujus sexus invenies in opere citato.

RHINOPSIS, *Westwood.*

Genus novum, e Georgia Americæ septentrionalis; Chloroni affine at venis alarum anticarum distinctum.

Caput depresso, clypeo attenuato. Mandibulæ ♀ integræ falcatae; antennæ sat longæ graciles, articulo 3to longo graciliori. Collare triangulare in lobos duos linea impressa longitudinali divisum. Metathorax costatus et transversaliter striatus. Petiolus abdominis longior quam in Chloronibus veris. Abdomen segmento 2ndo maximo. Pedes longi graciles simplices tarsorum articulo 4to brevissimo at subtus bilobo; unguis subtus in medio dente instructi. Alæ breves antice cellula unica marginali, ad apicem parum appendiculata; duabus completis 3tiaque inchoata submarginalibus harum prima longa accipit venam iam recurrentem, 2da subquadra accipit venam 2dam recurrentem, 3tia apicem alæ haud attingit.

SPECIES UNICA. RHINOPSIS ABBOTTII, *Westw.* (Plate 65, fig. 5 ♀.)

Rh. nigra pedibus piceis tarsis pallidioribus; mandibulis pallide piceis; alis hyalinis fascia lata fusca ante alteraque pone medium fuscis.

Long. corp. lin. 4. Expans alar. lin. 4.

Habitat in Georgia Americæ Sept. D. Abbott. In Mus. Britan. ♀.

Obs.—The unique specimen of this insect in the British Museum collection, is without any indication of locality. My authority for giving it as a native of Georgia, in America, is Abbott's collection of drawings in the British Museum; in the twelfth volume of which it is carefully figured, under the number xxx 95, and where it is stated to have been taken on the 20th April, in oak woods, but that it is very rare.

The plant represented in the plate is the Australian *Templetonia glauca*.



PLATE LXVI.

ILLUSTRATIONS OF TWO HITHERTO UNFIGURED SUPPOSED SPECIES
OF THE GENUS PAPILIO.

PAPILIO ASTORION.

(Plate 66, fig. sup.)

P. alis elongatis valde angustis, posticis subsinuatis caudatis; omnibus cyaneo-nigris immaculatis; anticarum dimidio apicali subitus obscurè griseo-nigricanti venis strigisque intermediis nigris, capite antice cum lateribus collaris, thoracis marginibusque posticis segmentorum ventralium abdominalium sanguineis ♂.

Expans. alar. unc. $4\frac{3}{4}$, 5.

Habitat. Sylhet Ind. Orient. In Mus. Soc. Ent. Lond. et Doubleday.

SYN.—*P. Astorion*, Westw. Ann. Nat. Hist. 1842, p. 37.

PAPILIO CHARA.

(Plate 66, fig. inf.)

P. alis anticis latis apice rotundatis, anticis basi nigris apice sensim infuscatis anguloque anali albido, venis strigisque intermediis nigris, alis posticis cyaneo-nigris margine sinuatis ecaudatis, capite antice et lateribus collaris thoracis et abdominis sanguineis nigro maculatis ♀. An femina precedentis.

Expans. alar. unc. $5\frac{1}{4}$.

Habitat Sylhet. Ind. Or. In Mus. Brit. et Doubleday.

SYN.—*Papilio Chara*, Westw. in Ann. Nat. Hist. 1842, p. 37.

Papilio Varuna, White in Entomol. p. 280.

IN assigning to this supposed species the name of *P. Chara*, I desired to show its possible relation as the opposite sex to *P. Astorion*.* Their specific identity can at present, however, be only conjectured. Should they ultimately prove to be so, it will be in accordance with the ordinary practice, to retain the name of the male as that of the species.

The plant represented in the plate, is the Nepalese *Hedychium coronarium Koen.*

“ Next to that Book which shows to guilty man
 How he through mercy infinite, may gain
 More than he lost in Eden, I do rank,
 And justly so, sweet NATURE’s varied lore,
 For well it records many a glorious truth
 Which in that better record stands revealed.
 The furious hurricane that rends the heavens
 And makes the scared and desolated earth

* These are the names of the hounds of Boötes.

Reel like a drunkard ; the restless flood,
The barren waste ; nay, e'en the very thorn
Which wounds our finger when we pluck the flower,
And noxious weed that mocks the hope of toil,
Do all attest one truth, man's foul revolt.
The changing seasons, winter's death-like reign
So soon succeeded by the bloom of Spring,
What are they but the types of man's decease,
And resurrection ? The blithe birds which perch
Beneath our cottage eaves, the smiling flowers
Which decorate the hedge-row and the mead,
Do they not mind us to repose our trust
On **HIM** who feeds and clothes them day by day ? ”
What says the lip of Wisdom ? “ Mark the fowls,
Which neither sow, nor reap, nor store in barns,
And yet your heavenly Father feedeth them.
Consider too, the lilies how they grow,
They neither toil, nor spin, and yet I say,
That Solomon in all his glorious pomp
Was not arrayed like these. Wherefore, if **GOD**
Thus clothes the grass, so soon to pass away,
And feed the fowls of Heaven : Shall **HE** not then
Much rather for your daily wants provide ?
O ye of little faith ! ”

RECOLLECTIONS OF THE LAKES.

67

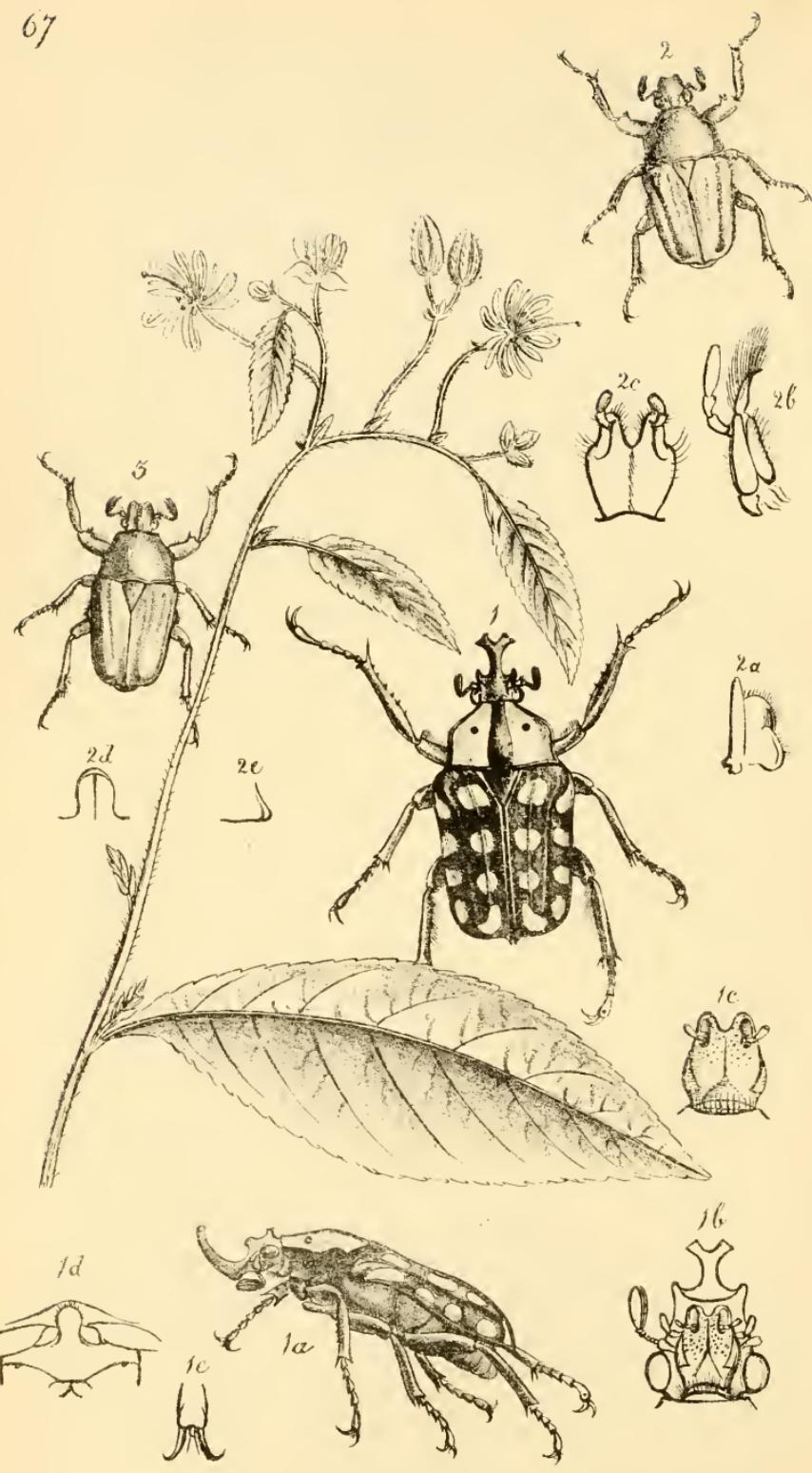
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PLATE LXVII.

ILLUSTRATIONS OF TWO NEW GOLIATH BEETLES.

FAMILY.—CETONIIDÆ.

SUB-FAMILY—GOLIATHIDÆ.

GENUS.—CERATORHINA.

SUB-GENUS Novum.—AMAURODES, *Westw.*

CERATORHINA (AMAURODES) PASSERINII (MELLY'S MSS.)

(Plate 67, fig. 1.)

THE insect here represented belongs to that section of the genus Ceratorhina, which has the anterior tibiae of the males denticulated only on the inner edge (see vol. i., p. 171). As it differs from the Diceronorrhinae in the form of the horn of the head, and from the Eudicellæ in its obscure colours, I have considered it as a distinct sub-genus, which evidently leads to Cheiroasia. I regret that I am able to give no account of the structure of the female, nor of the formation of the maxillæ, my figures being copied from a drawing by Signor Passerini, kindly forwarded to me by A. Melly, Esq., for publication in this work.

Char. Subgener. Tibiae ♂ anticae intus denticulatae extus inermes. Tibiae 4-posticæ extus inermes. Clypeus ♂ in cornu furcatum porrectus. Corpus obscurum, nec metallicum (sericeum ?); elytris maculis numerosis pallidis distinctum. Pedes antici longiores. Elytra ad apicem suturæ sub-bi-spinosa. Tibiae 2 posticæ intus ad basin setosæ. ♀ ignota.

Char. Specif. Nigra opaca, prothorace albido, linea tenui marginali, altera latiori mediana punctisque duobus rotundatis nigris; elytris tricostatis maculisque 16-fulvis forma et magnitudine subæqualibus ornatis; tarsorum articulis tribus ultimis in pedibus duobus posticis fulvis, unguibus apicibusque nigris.

Long. corp. lin. 17 ♂.

Habitat Mozambique.

Fig. 1, the insect of the natural size; 1 *a*, the same seen laterally; 1 *b*, the underside of the head; 1 *c*, the mentum and base of the head and maxillæ; 1 *d*, the sternum and base of the middle feet.

ASTHENORHINA, *Westw.*

Caput maris inerme clypeo parum emarginato. Mandibulae margine externo recto (fig. 2 *a*). Maxilla lobo apicali porrecto acuto apice curvato, dense penicillato, lobo interno inermi (fig. 2 *b*). Mentum apice latè et profunde incisum (fig. 2 *c*). Prothorax lateribus in medio valde angulatis, et pone medium fere rectis et parallelis. Elytra apice integra. Femora antica crassa, apice interne bidentata. Tibiae anticae intus inermes recte extus pone medium dente rudimentali instructæ. Tibiae 4-posticæ pone medium externe inermes interne ad apicem emarginatae et setosæ. Corpus supra opacum subtus nitidum. Sternum vix porrectum (fig. 2*d*, 2*e*).

The size of the fore-feet removes this genus from the Heterorhinæ, whilst it appears to make the nearest approach to Tmesorrhina and Aphelorrhina, vol. 1, p. 181.

The name which I proposed for this genus is derived from the Greek, and like those of most of the other groups in this tribe of beetles refers to the form of the clypeus, which in this group is unarmed.

SPECIES UNICA.—*Asthenorhina Turneri*. (Plate 67, fig. 2, 3.)

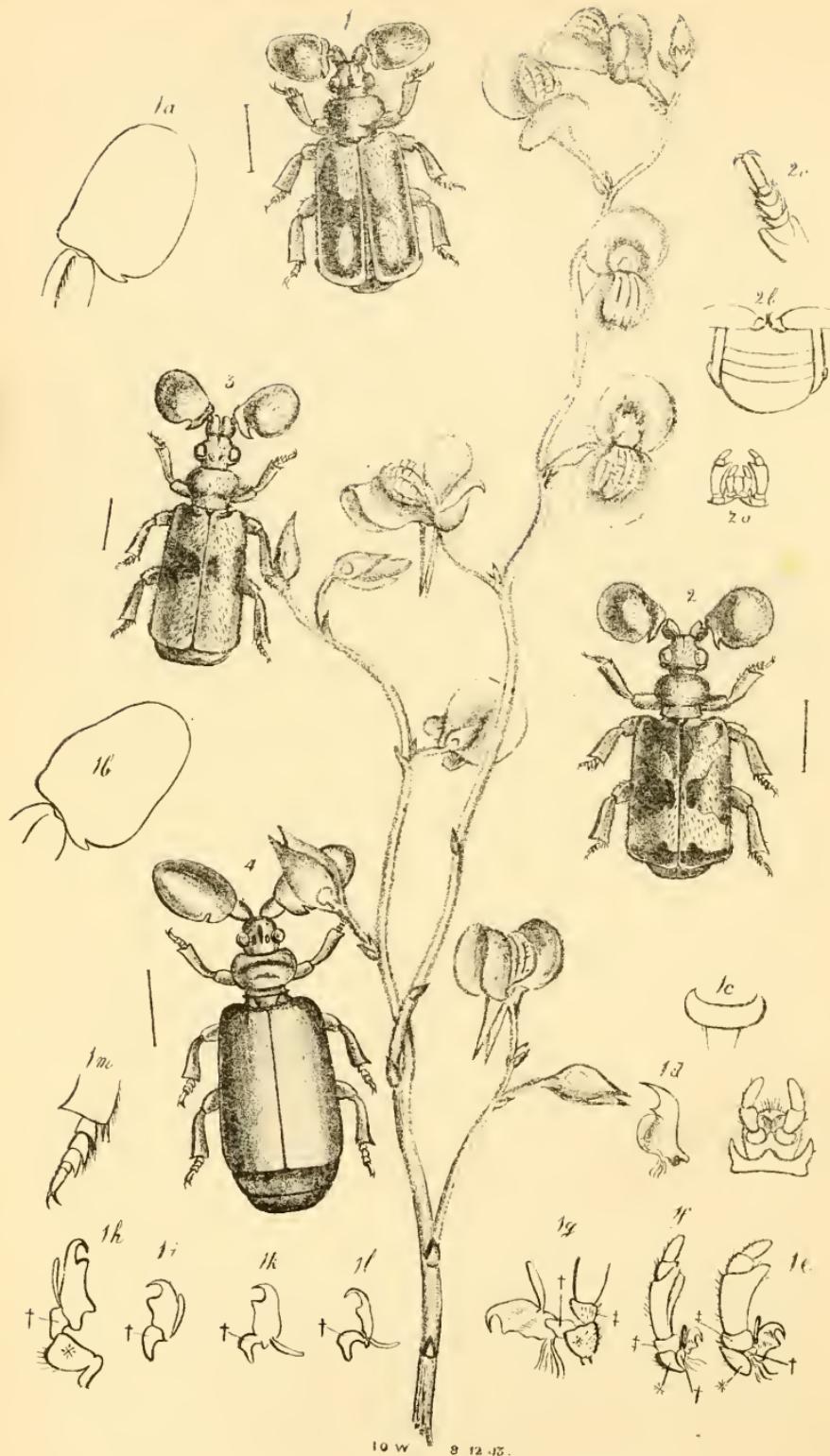
P. viridis supra opacus interdum fulvo tinctus, elytris parum costatis interdum luteis, fascia longitudinali ex humeris ad tuberculum subapicale extensa viride, sutura nitida, pedibus cupreis plus minusve tinctis, antenae tarsisque nigris; thorace subtus lateribus albido setosis.

Long. corp. lin. 10.

Habitat Africa Tropicali, Ashantee. In Mus. D. Turner.

I am indebted to J. A. Turner, Esq., of Manchester, for an opportunity of adding this interesting species to the list of African Goliath beetles. The kindness of this gentleman, in submitting a considerable number of his rarest insects to the examination of Dr. Burmeister and myself, amply merits the trifling compliment I offer to him in affixing his name to this species.

The plant represented in the plate is the *Grewia pubescens* of Palisot de Beauvois.



10 W 8 12 13.

PLATE LXVIII.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

(PART III.)

THE insects belonging to this curious family, which remain to be described in the present monograph, are distinguished from all those described in the two preceding papers (except *Hylotorus Buecephalus*) by apparently possessing only two distinct joints in the antennæ; the second of which is very large and irregular in its construction, occasionally exhibiting the appearance of constrictions, apparently indicating the situation of articulations. This is the case, for example, in a transverse impression near the base of the great joint, in the species figured in the upper part of the accompanying plate, as well as in *Platyrhopalus aplustrifer*; whilst the indentations along the hinder margin of the same joint, in some of the species of *Paussus*, may also, perhaps, be considered as indicating the same rudimentary articulation. From *Hylotorus*, the species remaining to be described are distinguished by the possession of a narrow contraction of the head behind the eyes, forming a kind of neck, and by the want of the two ocelli, or ocelli-like tubercles, on the crown of the head.

These species, from the construction of the labial palpi, form two generic groups: one (containing the old types of the genus, and therefore retaining the old generic name, *Paussus*) having the terminal joint of the labial palpi very long and slender, and the two basal joints small; and the other having the two terminal joints of equal length, and generally possessing a large, broad, and subdepressed club to the antennæ, whence, upon the separation of this group from the former, in my paper in the Linnaean Transactions, I applied to it the generic name of *Platyrhopalus*. It is to this genus that our attention is now to be directed.

PLATYRHOPALUS, Westw.

(Trans. Linn. Soc. Lond. vol. 16, p. 654.)

Corpus *depressum*. *Caput* *thorace* *minus*, *porrectum* *subquadratum*, *postice* *in collum* *breve contractum*. *Oculi* *magni* *prominuli* *laterales*. *Labrum* *sub-semicirculare* *tenuem* *setis* *duabus* *antice* *instructum* (fig. 1 e). *Mandibulae* *corneae* *tenuissimae* *valde* *arcuatae* *apice* *in dentem* *aenitissimum* *terminato*, *interne* *uni-* *vel* *bi-dentatae*; *membranaque* *tenui* *sub-*

rotundata instructæ (fig. 1 *a*). *Maxillæ* parvæ lobo basali crustaceo, processu terminali vel interno plano acuto corneo valde compresso mandibuliformi laterne interno uni- vel bi-dentato externoque stylo tenui exarticulato instructæ (fig. 1 *e—f*). *Palpi maxillares* magni 4-articulati articulo basali brevi, 2ndo maximo apicè interne oblique producto compresso, 3to subquadrato, 4to tenuiori subovato. *Mentum* breve transversum crustaceum, angulis anticis in spinam longam productis, medioque marginis antici sub-rotundè porrecto (fig. prox. 1 *d*). *Palpi labiales* breves 3-articulati porrecti vel reflexi articulo Imo brevi* duobus ultimis subæqualibus, Imo crassiori, 3to tenuiori apice acuto. *Labium* subquadratum basi in lobos duos interne connexos (palpos gerentes) constructum, † margine antico integro, angulis anticis rotundatis. Antennæ magnæ articulis quasi duobus, priori minori compresso, apice obliquè marginato, angulo interiori supra producto ferè conico; tunc articulus? parvus subglobosus emarginaturæ prioris immersus: cui insidet articulus ultimus maximus subplanus valde depresso et inferiori subtransversè impositus; margine omni compresso acuto basi truncatus et externe incisus vel dentatus: etiam juxta basin supernè transversim impressus (articulorum divisionem referens); nec basi uncinatus. Thorax planus brevis transversus latior, lateribus anticis rotundatis. Elytra thorace multo latiora, postice subtruncata oblongo-quadrata depressa angulis posticis externe tuberculo ordinario instructis. *Pedes* brevisculi crassi, *tibiæ* dilatatis, calcaribus duobus, ad apicem armatis, angulis externis apicalibus acutis. *Tarsi* breves, 5 articulati, articulis tribus basalibus compressis intus pilosis, 4to minuto‡; 5toque tenui longiori lœvi cylindrico, unguibus duobus acutis instructi. *Alæ* ut in Paussis. *Abdomen* elytris paullo longius, 4-articulatum articulis duobus intermediis brevissimis ||.

The insects of the present genus appear to be intermediate between those species of Paussus which have the prothorax not strongly constricted across the centre, and the Cerapteri. In their biarticulate antennæ and the formation of their maxillary palpi, they approach the former; and in the general habit of their bodies, as well as in the formation of the basal joints of their tarsi, and in the tendency to articulation exhibited in the clava of their antennæ, they approximate to Cerapterus, Platyrhopalus angustus, and the two species which, in the Linnaean Transactions, I described under the names of "Platyrhopalus? lœvifrons" and "Platyrhopalus? dentifrons," (but which I now find, by an examination of their trophi, to be species of Paussus,) serve to prove the former relationship, whilst Platyrhopalus Melleii sufficiently attests the latter.

In a preceding article (pp. 10—12) I have quoted some observations by Dr. Burmeister, upon the construction of the wings of

* In the Linnaean Transactions (xvi. 655), and *ante p. 5*, the joints of the labial palpi were described as of equal, or nearly equal, length. The present description is made from a very careful recent dissection of *P. denticornis* compared with the other species.

† In the specimen of *P. denticornis* which I dissected fourteen years ago, the basal portion of the labium seemed more regularly divided into two scapes, upon which the palpi are inserted, than in the specimen of the same insect recently examined.

‡ In my paper in the Linnaean Transactions, I overlooked this minute joint, which, however, I detected in *P. Mellii* and *Westwoodii*, Linn. Trans. xvi. p. 684. and Ent. Trans. ii. pl. 10, fig. 4 *g*, 5 *c*, 5 *d*.

|| Mr. W. W. Saunders' unique specimen of *P. Westwoodii* has the appearance of an additional basal articulation, which led me to figure the abdomen as 5-jointed in the Entomological Transactions. I find, however, the articulation is only apparent, and not real.

these insects and the relationship which was thereby supposed to be proved to exist between the Paussidæ and the Carabidæ, as well as the want of relation between the former family and those groups of beetles with which it has been associated by Latreille and other authors, as well as by myself. It is due, however, to Dr. Burmeister, to observe, that it was not upon this character alone that he was induced to affirm this relationship, having carefully reviewed the entire construction of the Paussidæ, and more especially investigated the structure of the maxillæ, considering that "le véritable caractère de la bouche d'un Coléoptère carnassier est la figure de la mâchoire et la construction du mando."

The following is Dr. Burmeister's description of the maxillæ of *Platyrhopalus denticornis* :—

" Les mâchoires ont un pédicule inarticulé cordiforme extérieurement corné, mais rempli de muscles charnus dans sa partie intérieure, muscles qui meuvent toute la mâchoire, et principalement le lobe interne de celle-ci, que j'ai nommé *mando* ou pièce manducanteuse, puisqu'elle est la plus broyeuse, si un insecte prend une nourriture dure et non pas fluide. Cette pièce est d'une grandeur fort remarquable dans les Paussidæ comme les figures de M. Westwood nous le montrent, et a en général la même configuration que chez le *Platyropalus denticornis*. J'ai examiné soigneusement la conjonction de ce mando avec la mâchoire, et j'ai trouvé qu'il est fixé à la seconde pièce de la mâchoire, qui forme un petit anneau sur la pièce basale ou *stipes*. Cet anneau, que l'on peut prendre pour le premier article du palpe maxillaire, a dans son côté interne un petit appendice capituliforme, qui est situé dans une excavation du mando, et fait avec lui une articulation sur laquelle il peut se mouvoir par ses muscles en haut et en bas comme le mouvement broyant l'exige. Tout près, dans l'excavation articulaire du mando, on observe une autre excavation, qui est longée dans toute sa partie interne et postérieure. Dans cette excavation se fixe un petit style claviforme, qui peut faire avec le mando tous les mouvements quand il est contenu dans le sillon de son côté intérieur. Quand le mando est redressé, ce petit style est caché entre lui et le palpe maxillaire, et c'est pourquoi nous ne voyons pas ce style dans les figures de M. Westwood, excepté dans celle de la mâchoire du *Platyrhopalus Melleii*, où ce style n'est pas seulement inarticulé mais forme un appendice filiforme biarticulé, et tout-à-fait sem-

blable au palpe maxillaire interne d'un Carabique ou Hydrocanthare. Les autres parties de la mâchoire forment le palpe maxillaire."

It is due to Dr. Burmeister to state, that the supposed articulation of this style in *Platyrhopalus Melleii*, as figured by me in the Entomological Transactions (vol. x. ii. pl. fig. 4 c) is apparent only and not real; my notes state it to have been a flat slender appendage "which was twisted in the middle, but not articulated. In the other maxilla, I did not discover it in this position, but after removing the maxilla, I found it lying loose upon one of the mandibles." It is the more necessary to make this statement, because Dr. Burmeister, in his comparison of the structure of the Paussidæ and Carabidæ, has more especially considered this supposed biarticulated structure, as well as the equally supposed dilated hood-like form of the labial palpi in *Pentaplatarthrus*, as precisely analogous to the Carabideous and Cychrideous structure. "On m'objectera," he observes, "que le palpe intérieur de Paussides est inarticulé, et le palpe des Carabiques biarticulé; mais j'ai déjà montré que quelques genres des Paussides, comme le *Platyrhopalus Melleii*, Westw. (qui forme un genre particulier et n'est pas un vrai *Platyrhopalus*) ont des palpes maxillaires internes tri-[bi]-articulés; et l'on voit que ce même palpe chez le *Pentaplatarthrus Paussoides*, d'après la figure de M. Westwood, (Linn. Trans. xvi. pl. xxxiii., fig. 7 c) est dilaté en forme de capuchon, et couvre le mando,* comme dans le genre *Cyehrus*, et les congénères chez les Carabiques."

The interest excited by these singular details led me to reinvestigate the structure of the trophi of *Platyrhopalus denticornis*, the result of which is before the student in the lower series of figures in the accompanying Plate; and which differ in several respects from Dr. Burmeister's descriptions. Without attempting to refer the basal portions of the maxilla marked in this and the other plates of the Paussidæ with the marks * and † to the typical structure of the Coleopterous maxilla, I shall merely observe

* The part which in *Pentaplatarthrus* Dr. Burmeister has regarded as a dilated labial palpus, is in fact the real mando; since there is nothing in my figure to which he refers, to indicate a separation between the part which he considers to be the mando, and the basal portion or stipes. Hence two of his proofs of affinity between the Paussidæ and Carabidæ are shown to be untenable.

that the external outer horny piece in *Platyrhopalus*, 1_e, 1_f, 1_g, and 1_h *, is hollowed out within, being filled with muscle below, and having on its inner face above, a small curved horny piece †, which is Dr. Burmeister's *petit appendice caputiliforme*, which is, however, shown in my fig. 1_g, to have no connexion with the basal joint of the maxillary palpi (‡) as Dr. Burmeister describes it; its use also as a socket or fulerum for the alternate elevation and depression of the hooked mando, appears to me to be altogether gratuitous; as, although I endeavoured to move it in all directions (see figures 1_h, 1_i, 1_k, 1_l,) I could not find that it even possessed an independent movement. Indeed, I believe Dr. Burmeister's figure 10 is composed of this small corneous piece †, and the true mando; and that his fig. 8_a, and the left-hand portion of his figure 10, are the same organs seen in different positions, and that they have no distinct existence in nature. This small piece †, varies in size in the genera of the present family. I find it in *Paussus* to agree in minuteness with *Platyrhopalus*. In *Cerapterus Hoppii* (ante, pl. 50, fig. 5_d †) it is much enlarged, and becomes external; and in *Pentaplatarthrus* (pl. 58, fig. 2_c) it is very large, assuming the place of the basal part *. The minute exarticulated style appears to be restricted to this genus, it having been only found in *P. denticornis* and *Melleii*. It is to Dr. Burmeister that we are indebted for pointing out its analogy with the labial palpi of the Carabideous insects.

The four species represented in the accompanying plate are more especially typical of the group; *P. Melleii* and *aplustrifer* receding from its general habit, but yet they are not sufficiently distinct to warrant me in separating them generically. *P. laevifrons* and *dentifrons*, as mentioned above, must now be removed to the genus *Paussus*.

SPECIES I.—PLATYRHOPALUS DENTICORNIS. (Plate 68, fig. 1.)

P. sublatus, rufo-castaneus, elytris dorso fusco; sutura late ad basin, maculaque utrinque postica rufo-castancis, antennarum clava magna latere omni acuto continuo at juxta basin externe incisione parva distineto; thorace antice utrinque rotundato-dilatato.

Long. corp. lin. 3 $\frac{7}{8}$, ad lin. 5.

Habitat in India Orientali (Bengalia, &c.) In Museo nostro, &c.

SYN.—*Pausus denticornis*, Donov. Epit. Ins. Ind. *Pausus*, No. 1, tab. 5, fig. 1; Rees Entomol. pl. 8, fig. 10*; sinc. descript. (nec Gyllenhal).

Platyrhopalus denticornis, Westwood, in Trans. Linn. Soc. vol. xvi. p. 657, tab. 33, fig. 43—48, vol. xix. p. 50; Burmeister, in Guer. Mag. Zool. 1841, Ins. pl. 76, fig. 2, &c.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

DESCR.—Rufo-castaneus, supra subdepressus undique luteo tenuiter pubescens, nitidus sub lente tenuissime punctatus. Caput antice depresso margine antico parum elevato et in medio subemarginato, inter oculos subcanaliculatum canali in parte elevata postica in impressione profundiori terminato. Palpi rufescentes. Antennæ rufo-castaneæ articulo apicali (clavâ) maximo, prothorace majori fere ovato, basi tamen subemarginata truncata, supra in disco parum convexo, subtus magis gibboso, margine omni compresso acuto superne juxta basin (et cum eo parallela) impressione transversâ, qua ad marginem posticum in incisionem parvam et angustum desinit, angulo basali (dentem formante), externe subrotundata; incisione interne tamen fere recta, inde apex dentis subrotundatus apparat. Prothorax brevis transversus basi apiceque truncatus antice multo latior et elevatior, lateribus rotundato-dilatatis juxta vel paulo ante basin, subemarginatis, ibique depresso, et utrinque foveâ transversa brevi parva. Elytra prothoracis parte antica latiora et illo quadruplo longiora, oblongo-quadrata, basi transversim impresso, rufo-castanea, disco nigro plaga magna subtriangulari basali, sutura maculisque duabus posticis ovalibus relictis rufo-castaneis. Tibiae dilatatae compressæ, angulo externo apicali presertim in posticis, acutis, 2-calcaratis. Corpus totum infra rufo-castaneum, segmento anali abdominis margine postico rotundato.

Obs.—Fig. 1 represents the insect magnified; 1 *a*, the antennæ of the usual form; 1 *b*, the antennæ of another specimen, in the collection of M. Dupont, where it is incorrectly named by him *Pl. Melleii?* and which is rather darker than the ordinary specimens, but not otherwise distinct, either in structure or markings. I presume this difference in the form of the clava of the antennæ may be sexual; at all events, I cannot regard it as a specific distinction, unaccompanied by other characters.

Fig. 1 *c* represents the labrum, 1 *d* the mandible, the figure not numbered, to the right of which is the mentum, labial palpi and labium; 1 *e* the maxilla seen from below; 1 *f* the same seen more from within the mouth; 1 *g* the basal portions separated, and basal joints of the palpi; 1 *h* the maxilla with the palpi entirely removed; 1 *i*, 1 *k*, and 1 *l*, the mando, and its basal piece, and the maxillary palpus seen in different positions; 1 *m* the extremity of the posterior tibia and tarsus.

SPECIES II.—*PLATYRHOPALUS WESTWOODII.* (Plate 68, fig. 2.)

P. latus, rufo-castaneus, elytris plaga magna triangulare ad basin alterisque duabus lateralibus, fascia que tenui irregulari ad apicem nigris; antennarum clava magna subrotundata margine postico parum undulata, et versus basin late incisa angulo externo acuto. Long. corp. lin. 4.

Habitat in India Orientali. Mus. D. W. W. Saunders, F.L.S., etc.

Syn.—*Platyrhopalus Westwoodii*, Saunders in Trans. Ent. Soc. Vol. ii. p. 84, pl. x., fig. 5. Westwood in Linn. Trans. xix. pl. 51.

Præcedenti latior: rufo-castaneus, nitidus sub lente tenuissime luteo setosus et punctatus. Caput antice planum vix emarginatum linea tenuissima impressa e margine antico versus verticem extensa, impressionibus que duabus vix distinctis ad marginem internum oculorum; antennarum clava magna fere rotundata, supra et infra fere æquæ convexa margine postico parum undulata, et versus basin incisione profundiori et latiori denteque multo acutiori armata. Prothorax postice angustior lineisque tribus transversis vix distinguendis Elytra lata, rufo-castanea ad basin plaga magna communi dilatato-cordata, maculaque magna subtriangulari utrinque, fasciaque tenui irregulari apicali, nigris. Tibiae ad apicem emarginatis in dentem externum acutum terminatae. Podex niger nitidus.

Obs.—Fig. 2 *a* represents the lower parts of the mouth in situ (more correctly than in Trans. Ent. Soc. ii. pl. x., fig. 5 *a*.) 2 *b* the abdomen seen from beneath; and 2 *c* the tarsus with the emargination of the apex of the tibia.

SPECIES III.—*PLATYRHOPALUS ANGUSTUS.* (Plate 68, fig. 3.)

P. brunneo-castaneus; elytris angustioribus, singulo macula magna lateralí triangulari nigra, antennarum clava magna rotundata, subconvexa margine postico continuo at versus basin late incisa, dente acuto armato. Long. corp. lin. 3.

Habitat in India Orientali. Neemuck, D. E. T. Downes.

Corpus totum nitidum parce pubescens, rufo-castaneum : caput antice vix emarginatum, linea longitudinali vix impressa verticem fere attingente. Antennarum clava prothoracis magnitudine margine omni acuto ; externo vero prope basin incisione lata et profunda dente basali acuto. Prothorax capite paullo latior, lateribus antice rotundatis postice paullo angustior (sc. cordato-truncatus) impressione tenui transversa pone medium. Elytra thorace vix dimidio latiora angulis humeralibus prominentibus rotundatis, singulo cum tuberculo ordinario ad angulum posticum externum instructo, rufo-castanea, singulo macula magna triangulari nigra versus medium suturam fere attingente. Abdomen apice nigro, subtus 4-articulatum. Pedes castanei tibiis mediocriter dilatatis, apice oblique truncatis.

This species was collected in the interior of India, at Neemuck, by Assistant-Surgeon E. T. Downes, who informs me that he caught a single specimen in his room by lamplight, having observed it crawling on his table.

SPECIES IV.—*PLATYRHOPALUS ACUTIDENS.*

SYN.—*Platyrhopalus acutidens*, Westw. In Lin. Trans. xvi., p. 661, pl. xxxiii., fig. 50. Ditto xix., p. 51.

This species was proposed by me upon an incomplete specimen, preserved amongst the insects brought from Nepaul by Maj.-Gen. Hardwicke, and now in the British Museum, of which the elytra, legs, and abdomen are wanting. The head and prothorax are smaller and darker-coloured than in *P. denticornis*; the prothorax is proportionably rather longer; the eyes are black; the head rounded and subdepressed in front, and not emarginate; the internal margin of the clava of the antenna exhibits a stronger contraction at the base than in that species, and the incision on the outer edge is much wider; and the basal tooth very acute. In some of these respects it approaches *P. angustus*; but, until a more complete specimen is obtained, it is impossible to determine whether it be identical therewith or not. The regular hind margin of the clava of the antenna, separates it from *P. Westwoodii*.

SPECIES V.—*PLATYRHOPALUS UNICOLOR*. (Plate 68, fig. 4.) (Copied from Schöuherr.)

P. latus brunneo-castaneus, antennarum clava magna ovata compressa juxta basin externe incisa ; deute obtuso, prothorace antice utrinque rotundato dilatato. Long. corp. (see fig. Schöuherr), lin. 4 $\frac{1}{3}$.

Habitat in India Orientali. Dom. Pro. Schumacher.

SYN.—*Platyrhopalus unicolor*, Westw. In Linn. Trans., xvi., p. 659, tab. xxxiii., fig. 49. Ditto, vol. xix. p. 50.

Pausus denticornis. Megerle, Illig. Mag. 3, 113, not. (absque descr.) Gyllenhal in Schöuh. Syn. Ins. tom. I pars iii. Appendix p. 14. tab. 6, fig. 1. Schöuh. id. p. 19, no. 5. Dalman, Aaval. Ent. p. 103, sub *Hylotoro Bucephalo*.

In Mus. Schöuherr, Gyllenhal et Dejean.

Totus brunneo-castaneus ; supra subdepressus tenue pubescens, nitidus obsolete punctatus ; caput subquadratum nitidum supra obsolete canaliculatum et e figura Schönerri, vix antice emarginatum ; antennarum clava maxima fere ovata disco parum convexo, subtus magis gibbosa, in margine externo profunde incisa. Prothorax brevis transversus antice multo latior lateribus rotundat dilatatis, pone medium cito coarctatus, anterius convexus posterius depressus et striga media transversa abbreviata impressus. Elytra bumeris antrorum prominentibus castanea sub-nitida. Corpus subtus brunneo-castaneum nitidum. Pedes breviusculi pallidius castanei, valde compressi tibiis dilatatis.

In consequence of the priority of Donovan's specific name, denticornis, I have considered it necessary to give this another denomination, and which has reference to the uniformity of its colour, by which it is distinguished from the preceding species.

The curious leafless plant represented in the plate, is the Indian Utricularia reticulata.

Want of space, in a preceding page, prevented me from giving the following summary of Dr. Burmeister's views of the relations of the Paussidæ with the other carnivorous families, which I now add ; there will be occasion to refer to it in my observations on the genus Paussus in a future number.

“ Les Carnassiers sont Déterminés et Partagés de cette Manière.

Coleoptera carnívora seu adephaga.

Mandibulæ arcuatae, cornæ, maxillarumque mandones cornæ, elongati, sèpissime uncinati, setosi vel ciliati, rarius nudi. Maxillarum galea, sive palpæ maxillares internæ, sèpissime filiformes, biarticulatae, rarius uniarticulatae vel nullæ. Mentum transversum in apice bisinuatum, extus dilatatum ; ligula libera, mobilis, extus stipite corneo suffulta. Femora pedum posteriorum connata cum pectore extus acuminatae ; trochanteres pedum fulcrantes. Alæ pilosæ, vena radialis cellula transversa in apice terminata.

I. Geolestes. Pedibus ambulatoriis; capite exerto, collo plus minusve elongato.

1. Antennæ 11-articulatae, filiformes, rarius moniliformes vel depressæ versus apicem. Maxillarum galea semper biarticulata elongata, interdum cucullata, sèpissime filiformis 1 Carabidæ.
2. Antennæ 2-10-articulatae, vel omnino depressæ, latae ellipticæ, vel lentiformes, vel irregulariter clavatae. Maxillarum galea sèpissime styliformis uniarticulata, interdum obsoleta rarius cucullata 2 Pausidæ.

II. Hydrocanthari. Pedibus natatoriis sèpissime compressis ciliatis.

1. Antennæ filiformes, rarius medio paululum incrassatae vel in apice depressæ. Oculi duo. Maxillarum galea semper biarticulata, filiformis, interdum minuta 3 Dyticidæ.
2. Antennæ clavatae, primo articulo dilatato, auriculato; maxillarum galea obsoleta vel nulla. Oculi quatnor 4 Gyrinidæ.”



PLATE LXVIII.

ILLUSTRATIONS OF A NEW SPECIES OF PAPILIO FROM MELVILLE ISLAND.

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PAPILIO CANOPUS, *Westwood.*

Annals of Nat. Hist., April, 1842.

(Plate 68, fig. 1, and 1*, male; fig. 2, female.)

P. alis latis; posticis sinuatis et breviter caudatis; incisuris albis, omnibus supra fuscis; anticis fascia sub-apicali e maculis novem albidis; posticis fascia pone medium e maculis septem, lunulâ tenui cœruleâ (puneto fulvo in fœminâ adjecto), ad angulum ani; alis subtus concoloribus, posticis vero maculis transversis ex atomis cœruleis pone fasciam macularem, maculisque vel arcibus pallidis (in fœmina fulvo-tinetis), ante incisuras albidas apicales.

Expans. alar. unc. $3\frac{1}{2}$, 4.

Inhabits Melville Island, on the north coast of New Holland. In the Collection of the Rev. F. W. Hope, and the British Museum.

This species is most nearly allied to Papilio Pammon, from which it however differs in its considerably broader wings, the fore pair of which are further distinguished by the fascia of large white, or pale buff spots, separated from each other by the dark veins of the wings and by the analogous fascia in the hind wings which runs more regularly parallel with the apical margin of these wings, whereas in P. Pammon, the anterior edge of this row of spots forms nearly a straight line. The disc of the wings, both above and below, is also much less glossed with the minute fulvous scales than in P. Pammon.

The male has the fascia on the fore-wings much more strongly defined than the female, and of a more buff colour. In the hind wings of this sex above, the fascia is followed next the anal angle by a very slender blue lunule, and there are some blue scales forming very nearly obsolete patches behind the next two inner pale spots; on the under side, however, these blue patches are of large size, and distinct behind each of the large cream-coloured spots forming the fascia, the one next the anal angle having a scarcely visible orange lunule behind it. On this side also between the blue patches and the white incisions is a row of dirty buff spots,

each resting upon a patch darker than the disc of the wing. The female has the fascia of the fore-wings nearly interrupted beyond the middle of the wing, especially on the upper side, the slender blue lunule next the anal margin is succeeded on the upper side by a small orange transverse spot, and some orange scales resting on a darker brown patch are seen between the fascia and pale marginal incisions. The extremity of the hind wings is much more varied beneath than above, the white fascia being followed by blue lunules (not so large as in the male), and these by transverse black patches, bearing buff-coloured lunules: the white incisions are also of larger size than in the males.

The species is named in allusion to Canopus, one of the Southern constellations.

The plant represented in this Plate is the Australian Persoonia ferruginea.

TO A BUTTERFLY SEEN IN MID-WINTER.

[At the last meeting of the Entomological Society, February 5, 1844, a beautiful specimen of *Pontia Rapæ*, evidently just disclosed from the chrysalis, was exhibited by F. Bond, Esq., which he had captured during the preceding month.]

Child of the Summer! what dost thou here,
 In the sorrow and gloom of the weeping year;
 When the roses have withered that bloom'd on thy birth,
 And the sunbeam that nurs'd thee has passed from the earth?
 The flowers that fed thee are frozen and gone—
 Thy kindred are perished, and thou art alone—
 No one to welcome—no one to cheer—
 Child of the Summer! what dost thou here?
 Yet 'tis sweet thy gossamer wing to view,
 Revelling wild in the troubled blue—
 Heeding nor rain, nor snow, nor storm—
 Buffeting all with thy tiny form.
 Even thus the hope of our summer days,
 In the heart's lone winter gaily plays—
 Thou art the type of that hope so dear:
 Child of the Summer! thou 'rt welcome here!
 Welcome 'mid sorrow, and gloom, and showers,
 Emblem of gladness that once was ours—
 Emblem of gladness that yet will come,
 When the sun-bright ether will be thy home;
 And myriads of others, as bright as thou,
 Will revel around us—all absent now:
 Emblem of hope to the mourner dear,
 Child of the Summer! thou 'rt welcome here!

Dublin Penny Journal.

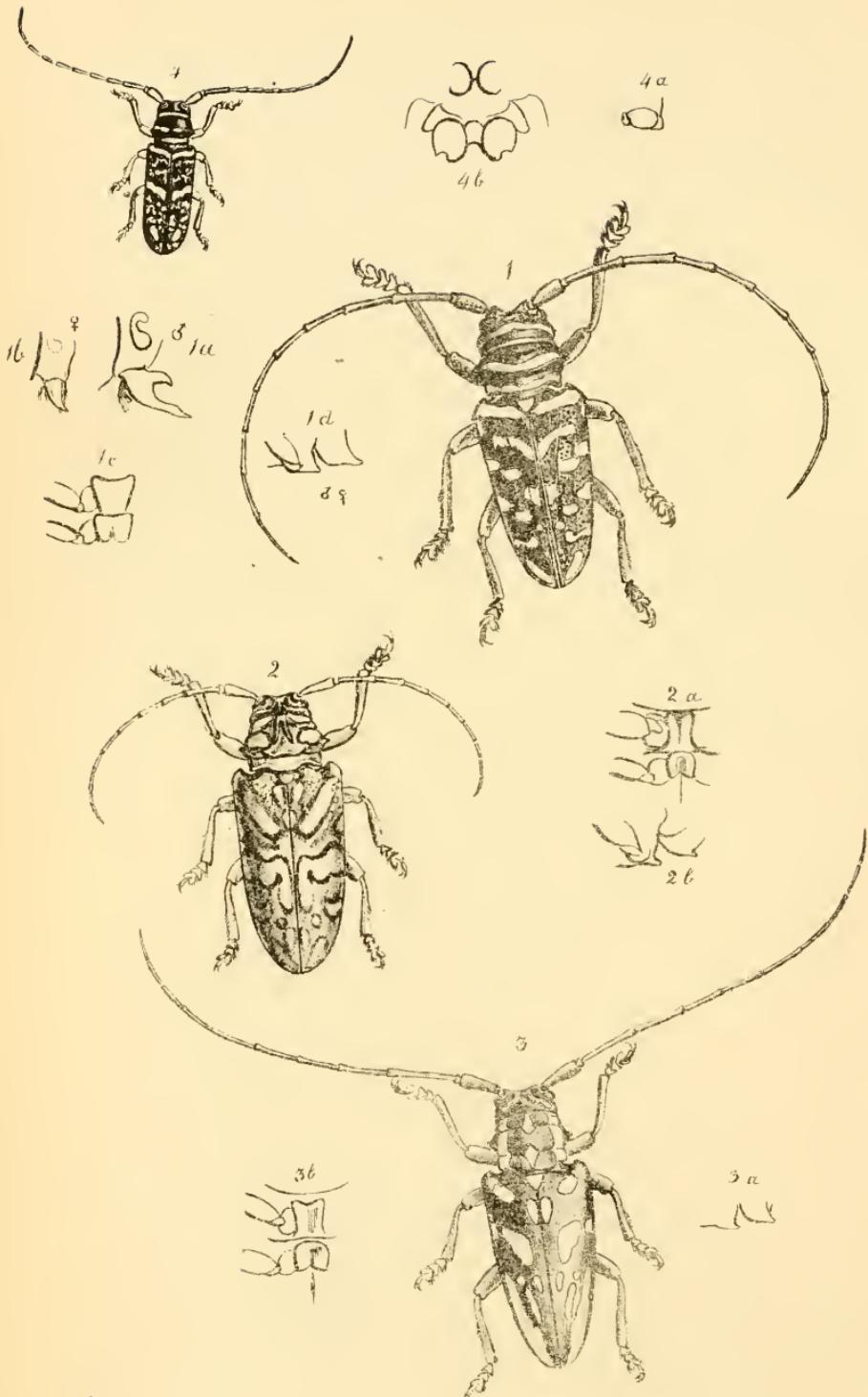


PLATE LXIX.

ILLUSTRATIONS OF SOME SPECIES OF LONGICORN BEETLES FROM
TROPICAL WESTERN AFRICA.

THE African Longicorn beetles belonging to the section, of which *Lamia regalis* may be considered as the type, are amongst the most beautiful species of the entire group ; and as our collections are particularly rich in them, I propose to devote a few Plates in the present volume of this work to their illustration. In the present Plate four new species are represented from the cabinets of the Rev. F. W. Hope, A. Melly, Esq., and my own collection.

The species represented in Nos. 1, 2, and 3, belong to the genus *Sternodonta* of De Jean. This group was first pointed out and characterised by me ten years ago, in a paper published in the first volume of the Transactions of the Entomological Society of London, having been omitted by Serville in his revision of the Longicorn beetles. I forbore, however, to propose a separate name for the group, which was subsequently adopted by M. Perchéron, in the "Genera des Insectes," where the name of *Sternotomis* was given to it, which name must be adopted in preference to that proposed by De Jean, the characters of which were only for the first time published in the "Histoire Naturelle des Animaux Articulés," Vol. III., p. 474.

The species represented in No. 4, belongs to the genus *Tra-gocephala* of De Jean and Serville.

SPECIES I.—*LAMIA (STERNOTOMIS), VIRESSENS*, Hope MS.

(Plate 69, fig. 1, and details.)

L. nigra, zeno-pulverulosa, capite, pronoto et elytrorum basi albo-virescenti fasciatiss, his etiam maculis variis albo-virescentibus ornatis.

Long. corp. lin. 16.

Habitat apud Sierram Leonam.

The head is deeply notched in front, with a streak down the middle of the face dilated towards the mouth, the labrum, some patches beneath the eyes, and a fascia which runs behind them entirely across the head, of a pale silvery green colour. The man-

dibles of the male are large, and each has a strong elevated tooth on the upper side near the base (fig. 1 *a*, head of the male; 1 *b*, head of the female); the pronotum is traversed by three slender fasciæ of the same colour as the scutellum, and a fascia next the base of the elytra is also of the same colour, as well as a number of spots which are so arranged as to form a successive series of much interrupted angulated strigæ, the points of the angles being directed backwards. All these marks are produced by a fine silky pubescence; the remainder of the disc of the elytra being black and punctured, the sutural edges, and two slender costæ on each rather elevated, and the sides finely clothed with an æneous powder. On the under side the body is black, and varied with silvery green markings, which mostly form angulated fasciæ, the angles being directed towards the head. The pro- and mesosternums are large, flat, prominent, and truncated in front, in both sexes (fig. 1 *c*, 1 *d*). The antennæ of the male are longer than those of the female.

SPECIES II.—*LAMIA (STERNOTOMIS) PALINII*, Hope MS.

(Plate 69, fig. 2, and details.)

*L. supra omnino pulverosa nigro, glauco, viridi fulvoque varia, pronoti maeula utrinque et
margini postico, elytris striga obliqua ex humeris ad medium fere dueta fasciæque
media, fulvis.*

Long. corp. lvi. 12—15.

Habitat apud Sieriam Leonam. In mus. D. Hope, Dr. Savage.

The face is prettily variegated with pale green and orange, separated by black lines. The hind part of the head has a black triangular spot (extending on each side behind the eyes), and divided into two parts by a very slender pale line. The pronotum is opaque dull green, with two short black diverging lines extending from the front margin to the middle of the disc; the front margin on each side is orange-coloured, and near each of the lateral spines is a large transverse oval patch of the same colour, edged with a black line; the hind margin is also fulvous; the elytra are dull opaque green, with brighter silvery patches, especially beyond the middle; from each humeral angle nearly to the middle of the suture runs an oblique fulvous bar edged with black, and across the middle is a broad waved bar, also edged with black; terminating next the suture is a reflexed pale green patch. The body

beneath is fulvous, with the middle of the abdominal segments black and shining.

The sternums (figs. 2 *a*, 2 *b*) although porrected, are not near so large as in the last-described species.

SPECIES III.—*LAMIA (STERNOTOMIS) AMENA*. *Westw.* (In Annals of Nat. Hist. October, 1841.)

(Plate 69, fig. 3, and details.)

L. nigra, opaca, pronoto maculis duabus conoideis, lateribusque ; maculis circiter 10 (magnitudine variis), lateribusque elytrorum viridi-lacteis ; duabus in medio elytrorum maximis alterisque duabus posticis elongatis et valde angustis.

Long. corp. lin. 11—16.

Habitat in Africa tropicali (Gold Coast), D. Raddon. In mus. Melly et nostro.

This very distinct species has the face black, with a silvery green line running from the inner margin of each eye nearly to the mouth, where it meets an angulated slender line of the same colour, extending across the lower part of the face ; there is also a small spot of the same colour behind, and another beneath each eye. The entire sides of the prothorax, except the spines, are cream-coloured ; the two spots on the elytra near the base of the suture are nearly connected. The thoracic segments beneath are pale buff, and the abdominal segments black and glossy, with four pairs of round spots of pale silvery green, and two other oblong patches of the same colour on the terminal segment. The sternums (figs. 3 *a*, 3 *b*), are less prominent than in either of the preceding species, although resembling those of *L. Palinii* in form.

I am indebted to W. Raddon, Esq., for this and other interesting insects from the Gold Coast.

SPECIES IV.—*LAMIA (TRAGOCEPHALA) PULCHELLA*. *Westw.*

(Plate 69, fig. 4, and details.)

L. supra nigra opaca pronoti marginibus antico et postico guttulisque numerosis elytrorum late viridibus, fascia media pronoti, basi et medio elytrorum maculisque duabus apicalibus fulvis.

Long. corp. lin. 8.

Habitat apud Sierram Leonam. In mus. D. Hope.

This lovely insect in its cylindric form agrees with the other *Tragocephalæ* of De Jean ; but from all of these it differs in its colours, which in their contrasts and arrangement resemble those

of some of the Sternotomes. The face is green with a slender line of black down the middle; the labrum is fulvous; the upper part of the head black, with a green margin to the eyes. The antennæ and pronotum jet black, except the basal joint of the former and the front and hind margins of the latter, which are splendid green; across the middle of the pronotum runs an irregular slender fulvous fascia. The body beneath is splendid green with the sides of the metasternum fulvous, and a triangular patch in the middle of the hind margin of each segment, which is black and glossy. The mesosternal process is small and scarcely prominent (figs. 4 *a*, 4 *b*).

70

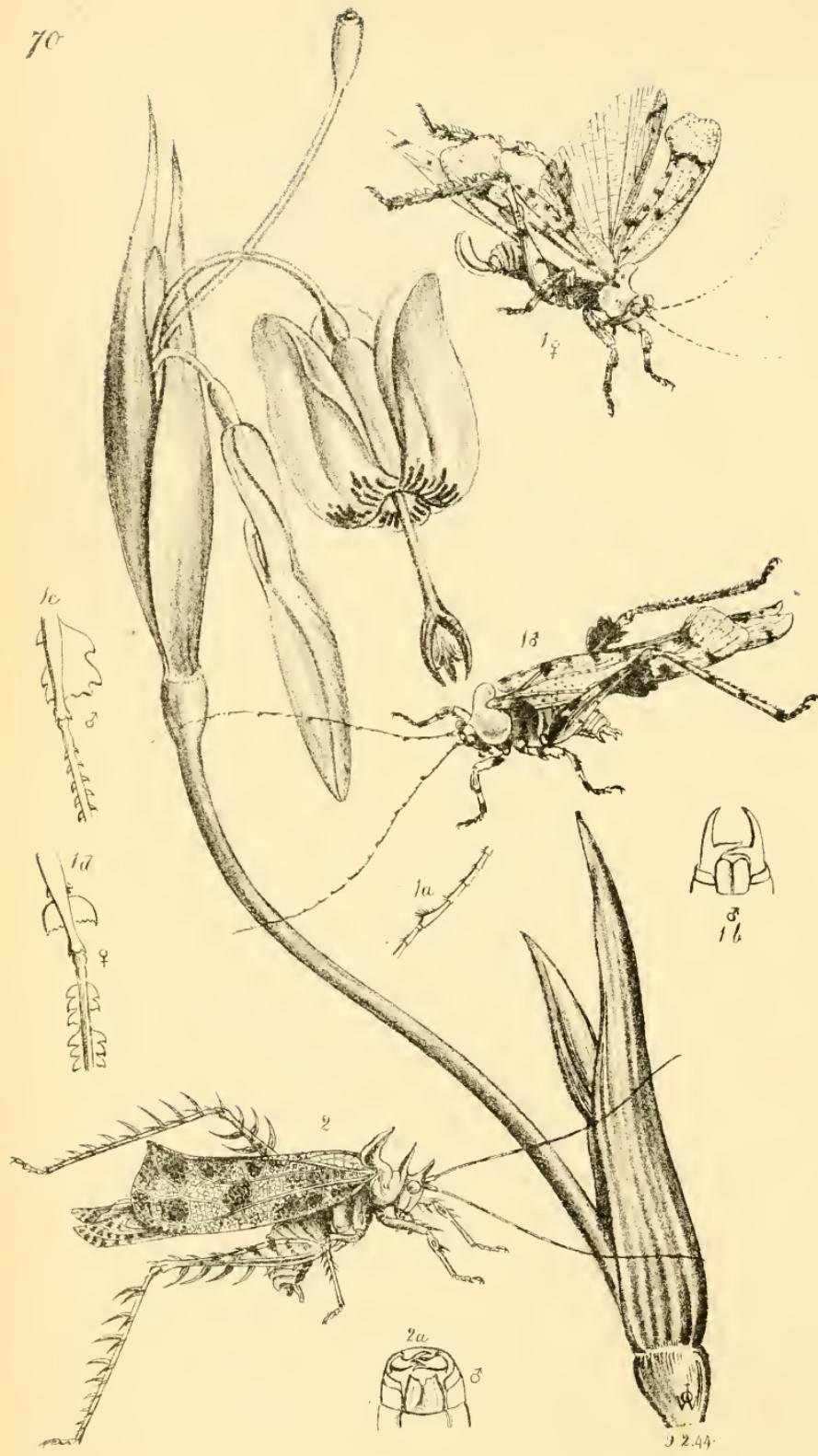


PLATE LXX.

ILLUSTRATIONS OF TWO NEW SPECIES OF GRASSHOPPERS FROM COLOMBIA AND MEXICO.

THE insects represented in the accompanying Plate are here referred to the genus *Phaneroptera* of Latreille, with the general structure of which they best agree; they possess, however, such singular characters in the spinose and foliaceous appendages with which they are armed, and the antennae in the males of one of them are so curious, that I presume that they will by some writers be regarded as proper subjects, requiring the establishment of distinct sub-genera for their reception.

SPECIES I.—*PHANEROPTERA ALIPES. Westw.*

(Plate 70, fig. 1 ♂ and 1 ♀, and details.)

P. pallide albo-virescens, tegminibus angustis apice intus dilatatis; margine interno nigro maculato fasciata obliqua paulo ante apicem, capite inter oculos mucronato, antennis, in mare saltem, fasciculato-nodosis, femoribus posticis foliis latis subapicalibus instructis.
Long. corp. lin. 8. Expans. alar. post. ♂ lin. 32. ♀ lin. 29.
Habitat in Colombia, Mus. D. Illope, ♂; et in Mexico. Mus. nostr. ♀. Communic. D. Parry, F.L.S., &c.

The eyes are very prominent and globose in this species, and between them is an acute point, more prominent in the female. The antennae of the males are very slender, and appear to consist of portions measuring about two lines each, which are not continuous as in the other species, the extremity of each portion terminating in a little dilatation which is setose * (fig. 1 a). From what remains of the antennae of my female specimen, they appear to have been destitute of these nodosities. The face of the female is considerably wider than that of the male, which occasions a corresponding dilatation of the lateral margins of the pronotum, which in this sex have a small lobe or extension over the fore feet, which does not exist in the male. The pronotum is strongly saddle-shaped, the lateral angles of the raised part in the female being more elevated than in the male. The wing-covers are considerably more elongated in the males than in the females; in both sexes they are similarly marked with black spots. The wings are colourless, except the small apical portion which extends when at rest beyond the wing-covers. The sternums are simple. The feet are most slender and elongated in the males; they are of the colour of the body, but fasciated or annulated with black; the four

* Dr. Burmeister describes a species from Bahia, with apparently similar antennæ, *Ph. nodicornis* (Handb. der Ent., 2, p. 689); but the specimen he described (from the collection of his father-in-law, my excellent correspondent, M. C. Sommer, Esq., of Altona), was a female.

anterior femora and tibiæ, are slightly foliaceous, especially in the female; but the hind femora in the males are furnished near the tips with a large thick black leaflet on the outside, the hind tibiæ having two rows of serratures (fig. 1 c), whilst in the female the femora have two nearly equal-sized leaflets*, and the tibiæ are furnished with dilated, dentated portions, which give them a very curious appearance (fig. 1 d.) The terminal ventral segment of the male is emarginate at the tip, and the anal appendages elongated, acute, slightly recurved, and furnished within with a strong tooth (fig. 1 b.) The ovipositor of the female is broad and bent upwards from the base.

SPECIES II.—*PHANEROPTERA HYSTRIX.* *Westw.*

(Plate 70, fig. 2.)

P. lutescens capite spina erecta pronotoque duabus armatis; tegminibus quasi punctatis, apice interno acuto, viridi albido nigroque variis, alis haud coloratis nisi in apicibus; pedibus posticis spinis acutissimis et longis armatis.

Long. corp. lin. 10. Expans. alar. posticar. lin. 31.

Habitat in Colombia. In mus. D. Hope.

This extraordinary insect has the tubercle between the eyes developed into a strong acute compressed spine, which with two others rising from the pronotum serve to defend the front of the body; these horns have a black line extending along them. The tegmina are varied with pale and darker green with black patches, the veins being elevated and pale-coloured, giving them the appearance of being throughout deeply punctured; the same appearance is also presented by the exterior apical portion of the wings; the anterior femora and tibiæ have a few short spines, but the hind feet are armed, both within and without, with long and acute spines, placed at the distance of about a line apart, which decrease in length towards the extremity of the tibiæ; these feet are marked with bars of green and black, and the spines of the femora (which are curved) are black along their front edge. The terminal ventral segment is emarginate, and extends beyond the two anal appendages, which are incurved, pointed, horny, and bifid (fig. 2 a.)

This fine insect is unique, in the collection of the Rev. F. W. . Hope, F.R.S., &c.

The plant represented in this Plate is the charming *Rigidella flammea* of Lindley, from Mexico.

* Dr. Burmeister, op. cit., p. 691, describes another species of *Phaneroptera* from Rio Janeiro, with foliaceous black spines on the hind femora (*P. cruenta*), also from the collection of M. C. Sommer, Esq.

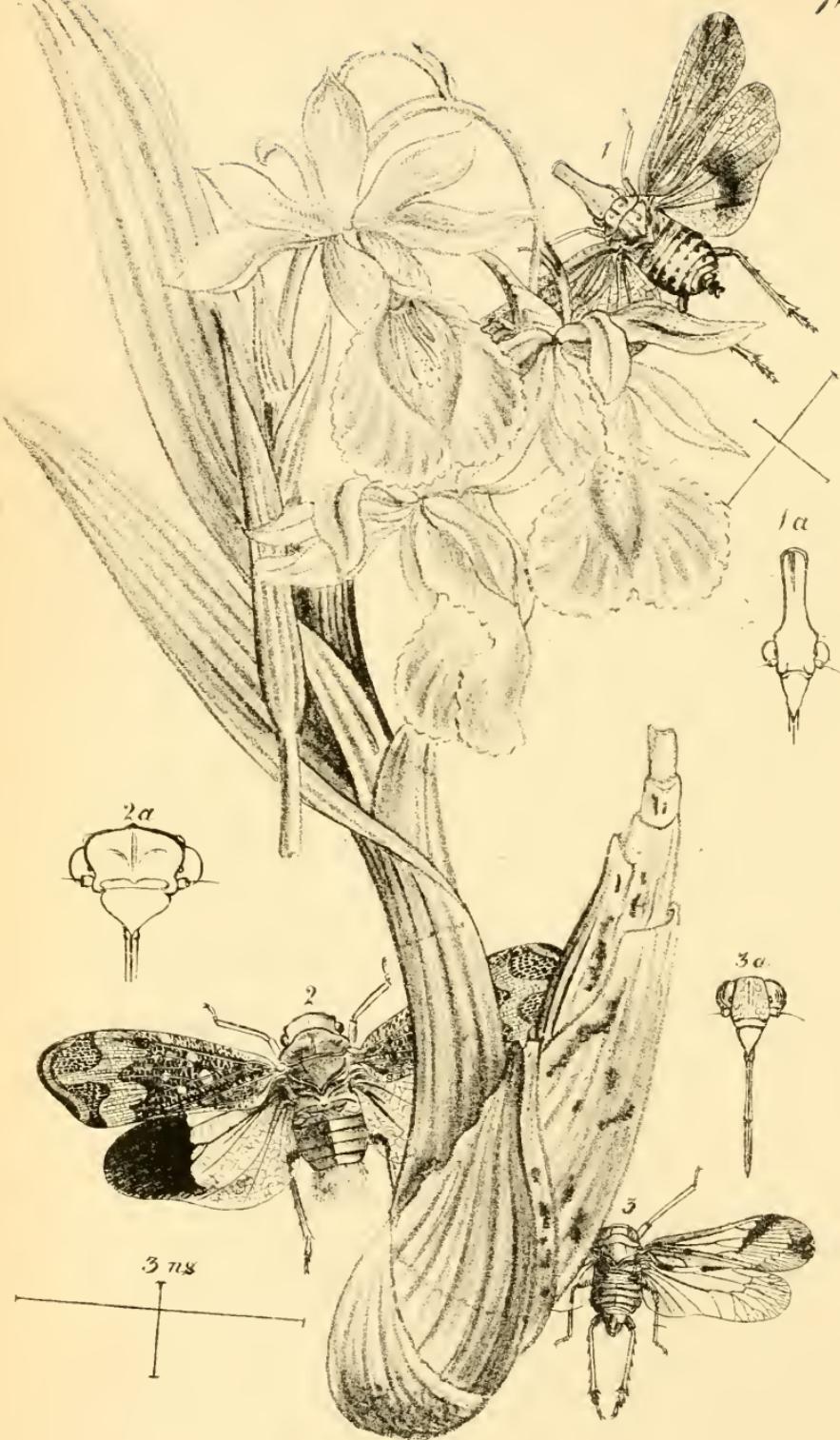


PLATE LXXI.

ILLUSTRATIONS OF SOME NEW FULGORIDÆ FROM COLOMBIA AND MEXICO.

FULGORA (EPISCUS?) AMABILIS, *Westw.*

(Annals of Nat. Hist., April, 1842.)

(Plate 71, fig. 1.)

F. rostro (thoracis longitudine, supra plano, subconico apice subtruncato) capite pro- et meso-notis griseo-fuscis, metanoti et abdominis dorso testaceo maculis nigris; alis anticis brunneo-fuscis apice pallidioribus, fusco-nebulosis; posticis basi fulvis medio fuscis apice byalinis.

Long. corp. lin. $5\frac{1}{2}$. Expans. alar. lin. $10\frac{1}{2}$.

Habitat Mexico. In Mus. Hope et nostr.

THIS elegant little insect, in its elongated flattened rostrum, agrees with the *Fulgora platyrhina* of Germar and my monograph published in the Linnaean Transactions, vol. xviii., (which the Marquis Spinola* and M. Serville† have separated as a distinct genus, under the name of *Episcius Spinolæ*). It differs from it, however, in its rostrum being more elongated, with both the upper and under surfaces more entire, and especially in the narrow, ordinary form of the fore wings. The structure of the anal appendages is also different. These differences are, probably, in this group, of not higher than specific value; and hence possibly the *Aphana corticina* of Burmeister (a Brazilian insect, measuring nearly $2\frac{1}{2}$ inches in the expanse of the fore wings, quite distinct from the *Dilobura corticina* of Spinola, which measures only 22 lines in expanse), as well as Spinola's species (which M. Serville has named *D. Spinolæ*), and another closely-allied Brazilian insect in my own collection,‡ ought, probably, to be reduced into one group, distinguished by the elongated and flattened rostrum.§ This group is peculiar to the New World, for *Homalocephala*, the Old World type, (consisting of African and East Indian species,) the only other group with a flattened poireted forehead, can scarcely be said to have the

* Ann. Soc. Ent. de France, 1839, p. 252.

† Hist. Nat. Ins. Hemipt., 1843, p. 494.

‡ *Dilobura subocellata*, Westw. Albido-lutescens fronte subtus subtricarinato et nigromarginato, capite et thorace supra rugosis, abdomine nitido segmentis basi utrinque nigromaculatis, alis anticis albido-lutescentibus fusco subreticulatis maculisque rotundatis luteis, versus apicem alarum magis indistinctis, alis posticis albis, pedibus supra nigro-maculatis tibiis posticis extus 6-spinosis, spinis apicalibus haud inclusis.

Long. corp. lin. $9\frac{1}{2}$. Expans. alar. antic. lin. 30. (unc. $2\frac{1}{2}$).

Habitat in Brasilia interiori. Mus. Westw.

§ *Fulgora planirostris* of Donovan (Ins. N. Holl.), which Serville refers to the genus *Homalocephala*, belongs to the Cieadellideous, not to the Fulgorideous section of the family.

rostrum elongated, and it is also distinguished by having the costal portion of the fore wings not homogeneous, and shorter feet.

LYSTRA COMBUSTA, Westw.

(Plate 71, fig. 2.)

L. capite supra obscure carnosus margin'e antico parum elevato; pronoto obscure virescenti margin'e postico tenui fulvescenti, mesothoracis scutello metanotoque et basi abdominis nigris his sanguineo maculatis et abdomine sanguineo apice albo floccoso; pedibus castaneo-rufis obscuris, alarum anticarum dimidio basali rufescens-fulvo, nigro reticulato maculis rotundatis concoloribus, pone medium fascia lata valde undulata et in medio postice angulato lutea; spatio apicali relicto nigro venis viridibus strigaque tenui submarginali lutea, alis posticis fulvis basi sanguineis dimidio apicali fuscis.

Long. corp. lin. 10. Expans. alar. anticar. lin 30 (unc. 2½).

Habitat in Colombia. In Mus. Hope.

CLADOPTERYX OBLIQUATA, Westw.

(Plate 71, fig. 3.)

C. luteo-fusca pronoto et abdomine albido irroratis, apice scutelli et metathoracis albidis, carina mediana abdominis virescenti, alis omnibus hyalinis, anticis fascia abbreviata triangulare substigmatical, macula apicali, alterisque tribus versus basin alarm' ad marginem internum fuscis; tibiis posticis extus 5-dentatis: fronte subtus albido-irrorato fascia tenui ad basin labri ad latera mesosterni utrinque extensa, albida.

Long. corp. lin. 5½. Expans alar. anticar. lin. 16.

Habitat in Colombia. In Mus. D. Hope.

The name Cladodiptera, proposed by the Marquis Spinola (Ann. Soc. Ent. de France, 1839, p. 316), being grammatically incorrect, was altered by Serville and Amyot (Hist. Nat. Ins. Hémipt. p. 503), to Cladypha, with the remark that they would have employed the more correct name of Cladoptera, had it not been already employed by the former of them for a genus of Orthoptera. Such, however, is not the case, as there is no such genus of Orthoptera. I presume that the name Cladoxerus (Serv.) was the one here intended. I have, therefore, retained the name originally proposed, but altering its termination, in order to distinguish it from the ordinary names of the orders of insects.

This species differs from the type of the genus Cl. macrophthalma of Spinola, in being larger, that measuring only 11 lines in expanse, and in the broad continuous sub-stigmatical spot, the apical cloud, and the position of the spots on the inner margin, towards the base of the fore wings. That species is a native of Brazil.

The plant represented in the Plate is the Orchidaceous Galeandra Baueri, (Batem.) a native of Mexico.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW BOOKS, &c.

(No. XVIII.)

ON THE LARVÆ OF INSECTS WHICH CONSTRUCT A COMMON ENVELOPE, WITHIN WHICH THEY UNDERGO THEIR TRANSFORMATIONS IN SOCIETY.—At the meeting of the Linnaean Society, on the 6th February, 1844, a paper was read by J. Curtis, Esq., F.L.S., containing the descriptions of the nests of two species of Brazilian Hymenoptera. One of these insects belonged to the family Tenthredinidæ, and to one of the divisions of the genus *Hylotoma*, having furcate antennæ in the males like *Schizocerus*, and which Mr. Curtis considered necessary to separate from the rest under the name of *Deiloceras*. The sexes in this species varied greatly from each other in colour, but the chief interest of the communication consisted in the description of the nest formed by the larvæ previous to their assuming the pupa state, and to the close juxtaposition of the hard cocoons which, in a section of the nest, had very much the appearance of a piece of honeycomb. The outer covering of the mass of cocoons was composed of a thick tissue of threads, spun close together, having very nearly the appearance of the large coverings of the eggs of the Mantidæ.

This instinct of larvæ congregating together, and spinning a thick general covering previous to assuming the pupa state and forming their cocoons, is of very rare occurrence; and hitherto no instance has occurred in which the cocoons were so systematically arranged side by side, so as, when cut through, to afford the appearance of hexagonal cells. In the family to which the species described by Mr. Curtis belongs, are found some of the species of the genus *Lophyrus* social in the larva state, living under a common web, which they quit, however, previous to becoming pupæ. The *Nematus* of the gooseberry, however, undergoes its transformations in society, the end of the cocoon of one specimen being attached to another; * and Messrs. Kirby and Spence mention a still more analogous circumstance occurring in the same family. † Some of the little parasitic Ichneumonidæ, belonging to the genus *Microgaster*, construct their cocoons in close contact together, so as in

* Mod. Classif. of Ins. II., p. 104.

† Introd. I., p. 405, 6th Edit.

fact to resemble the cells in a miniature bee-hive.* In other orders I am only aware of this social instinct in the following instances. Reaumur states of the caterpillars of the processionary Moths, which reside in large common tents or nests, "C'est dans leur nid que ces chenilles doivent perdre leur forme et devenir chrysalides;" and that those of the destructive Yponomeuta Evonymella, which reside in a similar web, construct their cocoons "à un des bouts de leur dernier nid." In the first part of the Transactions of the Entomological Society, I published an account of a gregarious species of Butterfly from Mexico, in which the chrysalides are arranged within the nest formed by the caterpillars, and which very nearly resembles that of some wasps; and in my memoir upon the Pomegranate Butterfly of the East Indies, also published in the same Transactions, I described the social peculiarities of that insect, the chrysalides of which are placed in society within the fruit, previous to arriving at which state the caterpillars must have made their way to the outside of the fruit, and spun the web (probably in common) which supports the fruit to the stem and prevents its falling, and then returned into the fruit. But a much more analogous instance of this socialism was described by me in the ninth volume of the "Magazine of Natural History," in which a mass of the cocoons of the *Ilithyia sociella* (between two and three hundred in number, if not indeed considerably more) was found in the hollow stump of an acacia-tree. The mass measured about 5 inches in length and $2\frac{1}{2}$ inches in diameter, the outer covering consisting of a thin layer of floss-silk. I have also seen a nearly similar compact congregation of the cocoons of the honey-moth, *Galleria cereana*, which feeds in the hive of the honey-bee.

The other insect described by Mr. Curtis was a Brazilian wasp, which forms a long truncated conical nest, similar to those figured by Reaumur, but having the outside of the nest coated with a fine earth or sand. Hitherto those wasps which construct their nests of sand have been found to be only solitary in their habits, not forming regular combs; all the social species which build combs on the contrary being card-makers. Unfortunately Mr. Curtis had not cut his nest open, so that it is impossible to determine the condition of the interior. Such a difference of habits must, however, most probably involve a difference of structure in the man-

* Reaumur Mem., tom. ii. pl. xxxv. figs. 7 and 8; Mod. Class. of Ins. ii. p. 149, fig. lxxvi. 17.

dibles, maxillæ, and labium, of which, however, Mr. Curtis gave no account. He also added a summary of the genera of wasps, with which he was acquainted ; but all those described by St. Fargeau, in the " *Histoire Naturelle des Ins. Hym.*" were unnoticed.

WINGS OF INSECTS.—“The isolated study of the more important and typical organs of animated beings, though not to be recommended, if regarded only in an organographical point of view, is of no small importance when made the means of illustrating the general principles of natural history, or its more philosophical inquiries, which can be alluded to but briefly in articles on tribes, genera, and species. In this way a value may be given to the driest technicalities of the science, which, when philosophically understood, render the strictest descriptive diagnosis suggestive of important and interesting views. Such a subject is that of the wings of insects.

“The air is the appointed habitation of the insect tribes, and flight their chief means of motion. The mechanism by which it is effected is not, as in birds, dependent on the modification of certain of the extremities, but on a transformation of the machinery of that organism which has most relation with the air itself—the respiratory system. The wings are metamorphosed gills. The branchiæ of the Nereids are their prototypes. These again are processes of the integument. The tegumentary system is characteristic of articulate animals. Among their highest genera it becomes their skeleton—an exo-skeleton—which contrasts with the endo-skeleton of the vertebrata. The former is the skeleton of the respiratory system ; the latter of the nervous system. The former in its most perfect form appertains to creatures which present the highest development of intelligence ; whilst the latter perfects itself in motion and the accompanying instincts. According to the relation of their organization to one or the other of these points, animals are arranged in two parallel series, which in themselves are not simple, but again subdivided into similar and representative groups. The two great series themselves may be regarded as representing the two kingdoms of organised nature—the animal and vegetative spheres, as they have been designated ; in the former of which the forms of beings are mainly determined by the influence of their organs of sensation and intelligence ; in the latter, by those of respiration and reproduction. If such analogy be true, we should see evidences of its truth on a comparison of the characteristic

structure in analogous groups. Such evidence we perceive on comparing the characteristic organs of the members of the vegetable kingdom with those of the members of the vegetative (or articulate) sphere in the animal kingdom, of the leaf with the wing. There is no finer illustration of the relation of analogy in natural history, than that between the leaf of a plant and the wing of an insect. In both we have a double sheet of cells held together and strengthened by a frame-work of vessels, the structures of the respiratory system and the processes of the dermato-skeleton supplying the materials in each. Hence, Oken has well applied to the wings of insects the name of aerial gills."—*Penny Cyclopædia*.

MONOGRAPHIE DES E'ROTYLIENS, Famille de l'Ordre des Coléoptères. Par M. Th. LACORDAIRE. Paris, 1842. 8vo, pp. 543.

THIS is another of the excellent monographs with which the science of Entomology has lately been enriched by the labours of Continental entomologists. A monograph, illustrated with figures (of which, unfortunately, the present work is entirely deficient), upon this group, was published by M. Duponchel, in 1825, in which 92 species were described. M. Lacordaire, in his monograph, describes 570. In an Introduction of 32 pages, the author has given a general account of the characters, habits, affinities, &c., of the group; admitting that the tarsi are pentamerous, or rather pseudotetramerous, the fourth joint being "très-petit nodiforme chez la plupart" (by which character Encaustes, Episcapha, Triplax, and Tritoma, are united to the family); and describing the maxillary palpi as having the last joint "triangulaire, ou en segment de cercle, ou fortement transversal, rarement ovoïde et tronqué à son extrémité" (as in Triplatoma, Dacne). The inner maxillary lobe, in at least half the species, is simple; in a few, it is 1-spinose (Encaustes); and in others, bispinose; the teeth long and acute, as in Erotylus and Aulacocheilus, or very short and obtuse (*Ægithus*).

The variations which exist in the lower part of the mouth are very carefully described. The antennæ either consist of a compressed club, suddenly formed, of three joints, or of four joints, gradually dilated. The wings are described as agreeing throughout the group, the difference between those of Encaustes, Triplatoma, Dacne, and Erotylus, being insignificant. The Chrysomelidæ have

wings of a different type, so that the Erotylidæ cannot be associated with them. Of the habits and metamorphosis of these insects, but little is known. The larva of *Ægithus Surinamensis*, described by M. Lacordaire, and that of *Triplax russica*, figured by me,* being the only species hitherto noticed in their early states. The perfect insects reside in boleti, where they undergo their transformations; and, although sometimes found on the trunks of trees, they are never met with beneath the bark.

The geographical distribution of these insects is peculiar. Of the 570 species, only 65 are natives of the Old World; 505 inhabiting the New World. Can it be doubted, that the immense forests of South America, teeming, as they must do, with the vegetable productions which are the natural element of these insects, are the primary cause of this vast difference? Only three of these insects are, in fact, found in Asia; 28 inhabit Java; and only two have been received from New Holland (both belonging to the genus *Episepha*). Sixteen species have occurred in Africa, and thirteen in Europe. The New World species are thus distributed:—Brazil, 150 species; Guiana, 130; Bolivia, 37; Columbia, 128; Mexico, 34; the United States, 15; the Antilles, 7.

After detailing the reasons which have led the author to unite *Erotylus* with insects heretofore placed with Engis, he reviews the recent arrangements which have been proposed, especially in this country, for a breaking up of the Latreillian group of Xylophaga, and the proposal of the section Rypophaga; and concludes that the Erotyliens ought to be “tout-à-fait séparées des Chrysoméliens avec qui elle n'a que des analogies très éloignées, et que sa place est dans la section des Rypophaga de MM. Stephens et Westwood”† (probably next Engis or Scaphidium).

The family is divided into two tribes—First, the Engidiformes, consisting of 14 genera, including *Triplatoma*, *Daene*, *Triplax*, *Tritoma*, &c.; and secondly, the Genuini, also consisting of 14 genera. All these, with their species, are then carefully described; and at the end of the volume is a “Concordance Synonymique,” in which each of the species described by the chief previous writers on the group is given, with the name and reference by which it is described in the present monograph. This is a very useful addition: it is

* *Introduct. to Mod. Class. of Insects*, t. I., p. 393, fig. 49—6.

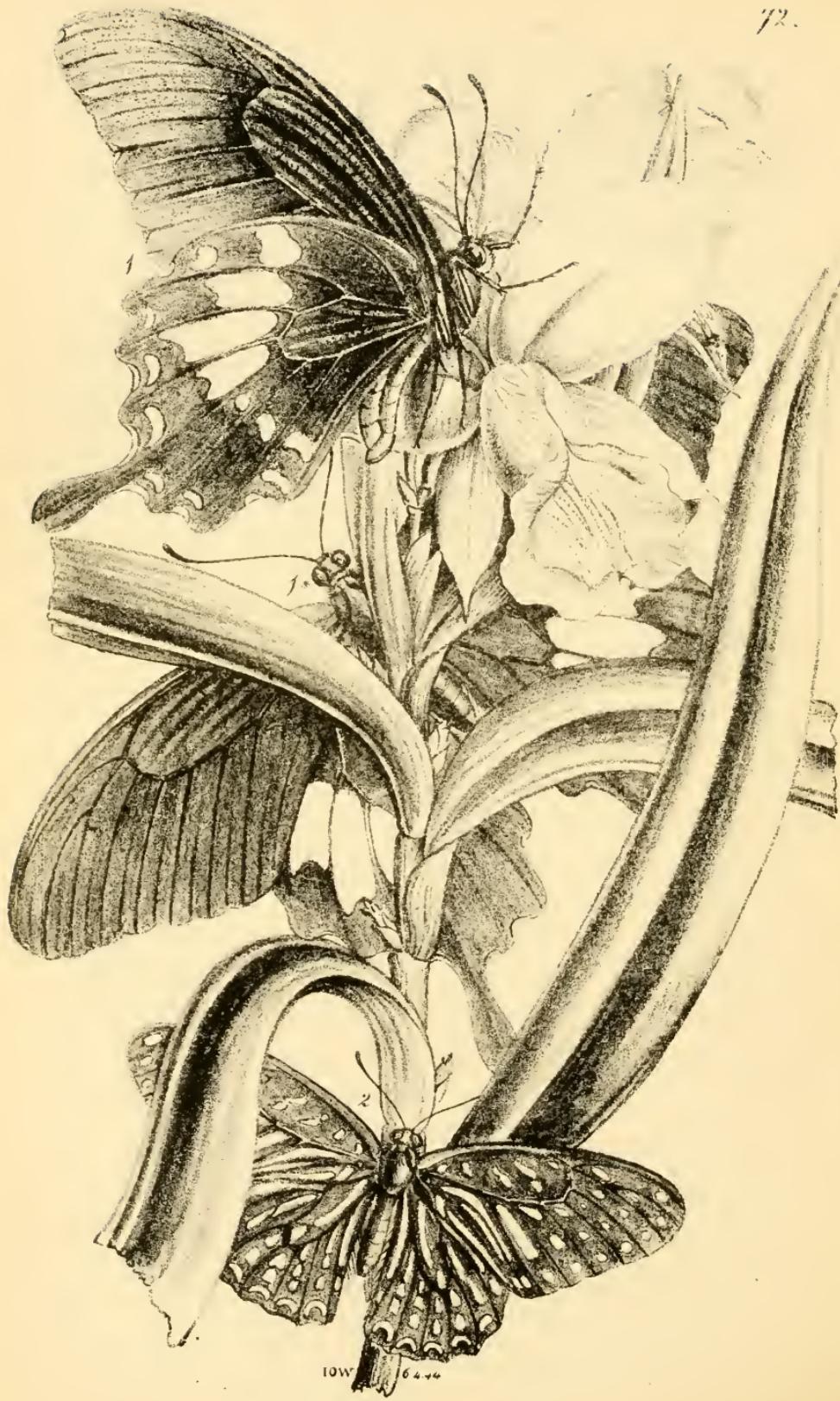
† In my Modern Classification of Insects, I suggested that “the Erotylidæ ought perhaps to be regarded as more strictly Necrophagous; in which case, the Endomychidae would, I apprehend, be equally liable to removal” (Vol. i., p. 391).

not, however, entirely new, as the author suggests in the Preface; having been adopted by Serville, in his volumes of the Suites à Buffon.

UPON THE ANATOMY OF PHALANGIUM OPILIO LATR. By ALFRED TULK, M.R.C.S., &c.
(From the "Annals of Natural History.") London, 1843. pp. 38. With 3 Plates.

THE attention bestowed by many of the more recent writers on Entomology, upon the hitherto neglected tribes of the Linnæan Aptera, is a circumstance of much interest, the different orders of that class having been at length acknowledged to afford the most valuable assistance in determining the natural classification of the Annulose Subkingdom. It is, therefore, with pleasure that I announce the memoir, of which the title is given at the head of this notice, in which Mr. Tulk has investigated the anatomy, both external and internal, of a very curious group of Arachnidous animals; with which, notwithstanding the extreme abundance of some of the species, our knowledge hitherto has been very superficial. The genus Phalangium, indeed, in their tracheal mode of respiration, subarticulated bodies, and exposed didactyle chelicerae, constitute one of the primary types of the great class Arachnida, being in these respects intimately allied to the two other equally anomalous groups, Chelifer and Solpuga;* neither of which have hitherto been satisfactorily investigated. Of the great care bestowed upon this memoir, I am able to speak from personal knowledge, although I am not sufficiently acquainted with the minute details of the internal anatomy of these tribes to offer an opinion on some of the results at which the author has arrived. I trust that he will not consider the subject as exhausted, especially as he has not given any account of the early states of these insects.

* These three types constitute the order which I have termed Adelarthrosomata.—Ent. Text Book, pp. 131, 145.



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PLATE LXXII.

DESCRIPTIONS OF TWO NEW ASSAMESE SPECIES OF PAPILIO, RECEIVED FROM MAJOR JENKINS.

THE two interesting additions to the genus Papilio represented in the annexed Plate, form part of a collection of insects with which I have been favoured by Major Jenkins, and to whom I beg leave to present the best thanks both of my subscribers and myself, feeling convinced that they will consider that every addition made to our knowledge of the beautiful productions of our distant territories by the zeal of gentlemen resident in such districts, is a subject of congratulation.

PAPILIO CHAON, *Westw.* Plate 72, fig. 1 & 1*.

P. alis posticis caudatis ; omnibus supra nigriposticis plaga magnâ irregulari 4-partita lactea, anticus subtus ad apicem fuscous, posticis plaga 4-partita alba (ut in pagina supra) maculisque tribus minoribus ad marginem analiem extensis, lunulisque submarginalibus luteis incisurisque albis.

Expans. alar. antic. circ. unc. 5. Habitat in Assam. D. Jenkins. In Mus. nostr.

This species is very nearly allied to *P. Helenus* ^a, but differs not only in the form of the pale patch on the disc of the hind wings, but also in the markings of the underside of the same wings. The upper surface of the wings is entirely black, a slightly brown appearance being produced by a few luteous scales arranged in rows in the discoidal cell, and beyond the middle of the fore wings. The hind ones have a large cream-white patch on the disc towards the outer angle, formed of four confluent spots (the outer one generally hidden by the hind margin of the fore wings); the one nearest the body being oval, the next oblong with the extremity obliquely emarginate, as it is also in the third spot, which is much smaller than the second, and the fourth is still smaller. The fore wings on the under side have a brown appearance, produced by a greater quantity of the luteous scales; the incisures are slightly marked with white; the hind wings on this side are similarly marked with four white spots as above, but in addition to these, there extend three pale luteous lunules towards the anal margin; and there is also a narrow row of the same coloured lunules parallel with the white incisions, which are here more distinct than above.

^a It is accordingly named after his unfortunate brother, Chaon.

PAPILIO MEGARUS, *Westw.* Plate 72, fig. 2.

P. alis rotundatis, posticis ecaudatis, fusco-nigris; albido-strigatis et maculatis lunulisque submarginalibus in alis posticis, alis subtus griseo-fuscis, eodem modo strigatis et maculatis. Expans. alar. antic. unc. 3 $\frac{1}{4}$. Habitat in Assam. D. Jenkins. In Mus. nostr.

This insect has so little the appearance of a true Papilio, as to cause it to be easily mistaken for one of the Danaides. The arrangement of the wing-veins, however, proves that this is only a relation of analogy, of which several other species also furnish us with examples; especially the Papilio paradoxus, which is a true species of this genus. The present species is most nearly allied to P. Macareus, of the Encyclop. Méthod. (P. striatus. Z. Somm.) The upper surface of the wings is blackish-brown, the basal portions of the wings striated, and the apical portion maculated with whitish marks, the latter forming two rows parallel with the apical margin of the fore wings and the hind wings with a submarginal row of lunules, and without pale incisions; the hind wings are much more maculated beyond the middle than in P. Macareus. The under side is similar to the upper in markings, except that the marks in the discoidal cell of the fore wings are much fainter, and the ground colour of all the wings is a golden greyish brown.

The beautiful plant represented in the Plate is the Orchidaceous *Arundina densa* of Lindley, from Singapore.

THE FIRST BUTTERFLY.

One of the superstitions prevailing in Devonshire is, that any individual neglecting to kill the first butterfly he may see for the season, will have ill-luck throughout the year. The following recent example is given by a young lady:—"The other Sunday, as we were walking to church, we met a man running at full speed, with his hat in one hand, and a stick in the other. As he passed us, he exclaimed, 'I sha'n't hat 'em now, I b'lieve.' He did not give us time to inquire what he was so eagerly pursuing; but we presently overtook an old man, whom we knew to be his father, and who being very infirm, at upwards of seventy, generally hobbled about by the aid of two sticks. Addressing me, he observed, 'My zin a took away wan a' my sticks, miss, wan't be ebble to kill 'n now though, I believe.' 'Kill what?' said I. 'Why, 'tis a butterfly, miss, the *furst* hee'th a zeed for the year; and they zay that a body will have cruel bad luck if a ditn' 'en kill a *furst* a zeeth.'"—*Dorset Chronicle.*

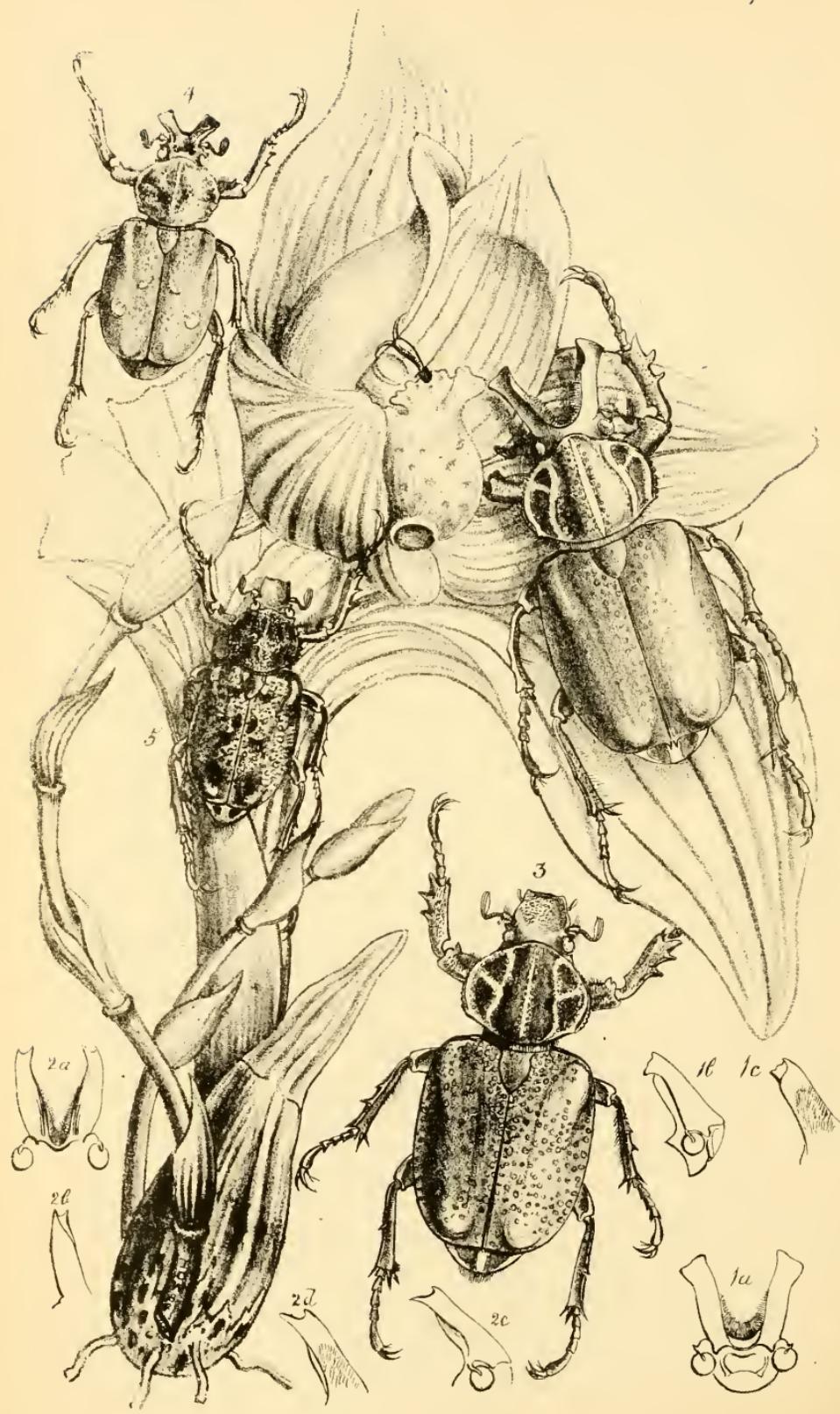


PLATE LXXIII.

ON TWO SPECIES OF INCA FROM TROPICAL AMERICA.

THE Goliathideous Cetoniidæ being (with a single anomalous exception) natives of Africa and India, we may, perhaps, be justified in regarding the species of Inca which are natives of tropical America * as their natural geographical representatives, although they do not belong to the same portion of the family. In respect to their maxillæ, indeed, they form a decided group, having an elongated, cylindrical, toothless galea and simple mando; thus differing from the Trichiides, which have an obtuse coriaceous galea, and from the Euchiridæ of Burmeister, which have a dentated galea. This author has very carefully illustrated the structure of the trophi in Germar's excellent 'Zeitschrift fur die Entomologie' (ii. tab. 2, f. 5—8, 18).

INCA SOMMERI, *Westw.*

Plate 73, fig. 1 ♂, 3 ♀.

I. chalybœo-niger, supra opacus, pronoto albido vittato et limbato, elytris obscure rufis, albido irroratis; cornubus capitis ♂ oblique porrecto, apicibus latis oblique truncatis.

Habitat in Mexico—Villa alta prope Oaxaca.

An varietas geographicæ I. Weberi?

Long. corp. ♂ (cornub. capitis inclus.) ; unc. 2 ; ♀ unc. 1 $\frac{1}{2}$. In Mus. D. Sommer.

The two insects represented in Nos. 1 and 3 have been very obligingly forwarded to me by M. C. Sommer, Esq., of Altona (the father-in-law of Professor Burmeister), with the view of their being figured in this work, if considered distinct from the Cetonia Inca of Weber (*Inca Weberi* *Eneycl. Méth.*, and *Burm.*, *I. Fabricii Perty.*) The principal difference between the male of the last-named insect and that sent by Mr. Sommer, consists in the form of the horns of the head; and as I have found a second specimen, agreeing with Mr. Sommer's, in the British Museum Collection (arranged with *I. Weberi*), I have thought it most advisable to give it as distinct from that species, especially as its geographical station is widely different from that of *I. Weberi*, and as the distinctions between the other species of the genus is but slight.

The head and thorax of the male, on the upper side, are obscure blue-black. The former has two prismatical horns,

* The curious occurrence of a species of this group in Africa must not be overlooked. See *Arc. Ent.* 1, pl. 46, f. 6.

obliquely truncate at the tip, the upper ridge running off to the fore angle. (Fig. 1 b represents the head of the male, seen from beneath; 1 b the same seen sideways; 1 c one of the horns, seen within, to show the thick brush of fulvous hairs.*.) The antennæ, except the basal joint, are dark fulvous; the prothorax is similar to *I. Weberi*. The elytra of the male are very dark purplish-brown, with the scutellum and suture greenish, and they are slightly irrorated, especially towards the suture, with luteous scales. The underside of the body is shining æneous, with short fulvous pile upon the hind edge of the thighs, and down the middle of the abdomen. The middle tibiæ are curved, and slightly bidentate in the middle, and the hind tibiæ have a single tooth near the middle. The female is darker-coloured than the male, and has the clypeus slightly concave; or rather, the lateral and front edges are elevated: the elytra are much more thickly irrorated with luteous scales. The middle tibiæ are straight and bidentate in the middle, and the hind tibiæ have a single tooth in the middle.† The teeth in the anterior tibiæ are not so acute as in the female of *I. Weberi*.

Note. Perty's figure represents the male of *I. Weberi* with the horns of the head emarginate at the tip. The figure of the male in Gory and Perchéron's Mon. Cét., pl. 13, f. 1, is unlike any specimen I have yet seen in the form of the horns.

INCA BESKII. Plate 73, fig. 4 ♂, 5 ♀.

"*I. fusco-niger, subitus ænescens fulvo-hirtus supra fulvo guttatus; elytris atro-purpureis; fascia media obsoleta notatis.*"

Syn. *I. Beskii*, Dejean; Burmeister.

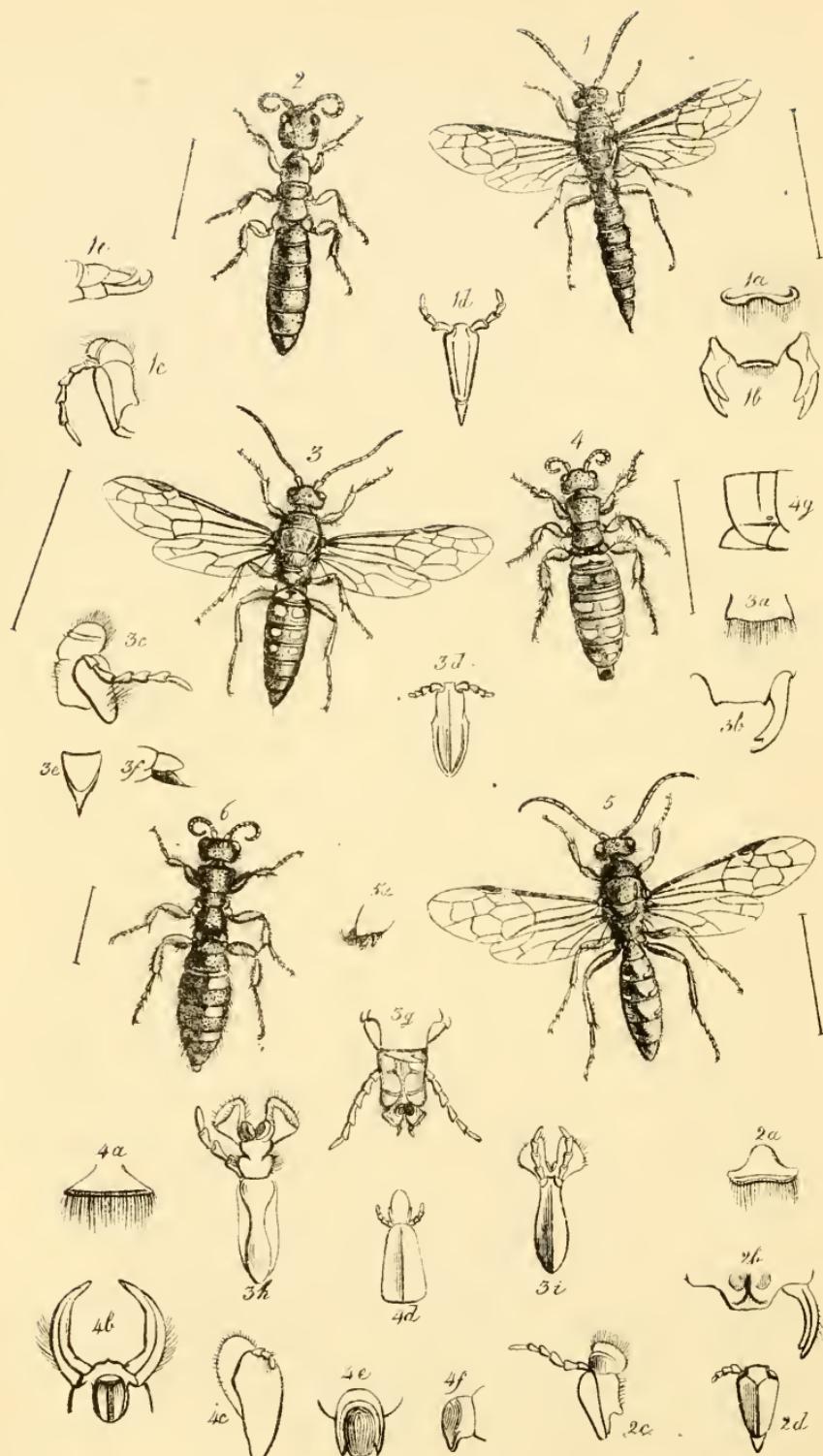
Habitat "Novo Friborgo;" Brasiliæ inter. In Mus. D. Sommer, &c.

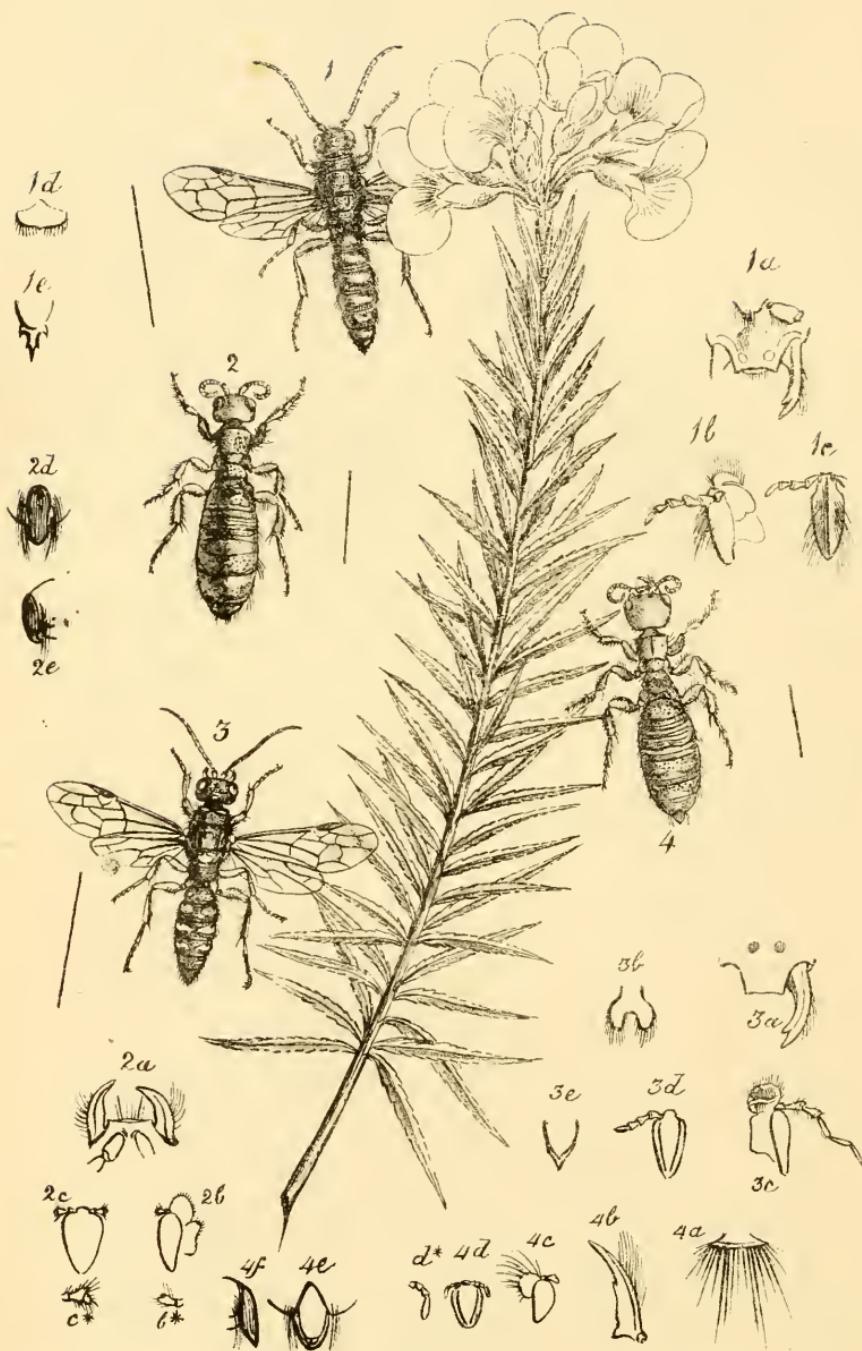
No figure of this species having hitherto been published, I am happy to be able to give a representation of both the sexes, by the kindness of Mr. Sommer. There is a specimen, agreeing with the male in the British Museum Collection, with the MS. name *biguttata* attached to it.

The plant represented in the Plate is the splendid Orchidaceous *Maxillaria cruenta* of Lindley, from Guatemala.

* Fig. 2 a represents the head of the male of *I. Weberi*, seen from beneath; 2 b one of the horns of the head, seen from above; 2 c the head, seen from the side; and 2 d one of the horns seen within.

† The hind tibiæ in the female (in the British Museum Collection) have two acute teeth in the middle.





PLATES LXXIV AND LXXV.

ILLUSTRATIONS OF SOME SPECIES OF AUSTRALIAN THYNNIDEOUS INSECTS.

THE recent monographs of Dr. Klug and M. Guérin-Meneville upon the Genus *Thynnus* of Fabricius, and the different results at which these distinguished Hymenopterologists have arrived respecting the generic arrangement of these insects, render the observation of every fact, tending to determine the question at issue, absolutely necessary; and no one circumstance has hitherto been shown to be more important than the exact discrimination of the sexes of the different species, since by this means not only are we prevented from forming separate genera for the reception of the two sexes of the same species, but we are thereby enabled to trace the value of the modifications of structure which may have been already, or which ought hereafter to be adopted as the characteristics of the several groups into which these insects have been or are divided.

As a group, these insects possess an interesting geographical distribution, being only found in Australasia and South America. The species from the latter country are rare in our English cabinets, whilst Dr. Klug describes not fewer than 40 species; whereas our cabinets are very rich in the New Holland species, which are equally rare in the continental collections.

By the kindness of several friends I am enabled to give representations of both the sexes of five Australian species.

In order, however, to enable such of my subscribers as do not possess the "Voyage de la Coquille," (in the Zoological portion of which M. Guérin published his chief memoir on these insects) to enter more effectually upon the consideration of the question of the generic distribution of these insects, I here copy from that work such portion of the tabular synopsis of the genera of the Hymenoptera Heterogyna, as relates to the insects in question.

1. Abdomen des mâles cylindrique, terminé inférieurement par une grande épine recourbée en haut. (Genera *Methoca*, *Myzine* et) *Rhagigaster*, Guér.
2. Abdomen des mâles aplati, n'ayant point à l'extrémité d'épine recourbée vers le haut.
 - a Mandibules tridentées.
 - * Les deux nervures récurrentes aboutissant aux 2me et 3me cellules cubitales.
G. *Telephoromyia*, Guér.
 - ** Les deux nervures récurrentes aboutissant à la seconde cellule cubitale. G. *Tachypterus*, Guér.

b Mandibules bidentées, chapéron très-avancé entre les mandibules.

* Labre découvert et saillant.

† Labre bilobé

G. *Agriomyia*, Guér.

‡‡ Labre arrondi.

o Machoires non ciliées à leur base.

G. *Thynnus*, F.

oo Machoires très-ciliées à leur base.

G. *Thynnoides*, Guér.

**[†] Labre recouvert par le chapérou.

† Premier cellule cubitale sans appendice.

G. *Anthobosca*, Guér.

‡‡ Premier cellule cubitale ayant un appendice.

G. *Elaphroptera*, Guér.*

Rhagigaster, Guér., composed of a single species from Port Jackson. Rh. *unicolor*.

Telephoromyia, Guér., composed of a Patagonian species.

Tachypterus, Guér., consists of a single species, *T. fasciatus*, from Kangaroo Island, on the coast of New Holland. The genus is evidently identical with *Psamatha* (See *ante*, p. 20), which name must accordingly sink into a synonyme. *Tachypterus chalybeus* (*ante*, pl. 54, fig. 5), forms a second species in the genus.

Agriomyia, Guér., consists of a single species, *A. maculata*, from New Holland.

Thynnus, Fabricius. M. Guérin describes or notices 18 species of this Australian group.

1. *T. dentatus*, Fab. 2. *T. zonatus*, Guér., n. sp. 3. *T. variabilis*, Kirby. 4. *T. affinis*, Guér. n. sp. 5. *T. obscuripennis*, Guér. n. sp. 6. *T. rufiventris*, Guér. n. sp. 7. *T. annulatus*, K. 8. *T. Australis*, Bd. Voy. Astrol. 9. *T. flaviventris*, Guér. n. sp. 10. *T. emarginatus*, Fab. 11. *T. abdominalis*, Fab. † 12. *T. integer*, Fab. ‡ 13. *Scolia 7-cincta*, Fab. ?? 14. *Tiphia radula*, Fab. ?? 15. *Myrmecodes flavo-guttatus*, Latr. (♀ of *T. variabilis*?) 16. *T. apterus*. ♀ Enc. Méth. 17. *T. pedestris*, Fab. ? 18. *T. Grayii*, Guér., (*Myrmecodes australis*, Leach, Gray, Griff. An. K.)

Thynnoides, Guér.—Three new species, *T. fulvipes*, Guér.; *T. rubripes*, Guér.; and *T. pugionatus*, all from Australasia.

Diamma, Westw., (see *ante*, pl. 54, fig. 6.) In addition to *D. bicolor*, the true type of the genus, M. Guérin describes a second species, *D. ephippiger*, from Kangaroo Island, but it is not congenerous with the former, being in fact a female of the genus *Rhagigaster*. He also suggests that *B. apterus*, Fab., also belongs to the genus.

Anthobosca, Guér.—A single species from Port Jackson. (*Myzene Australasiæ*, Guér. Atlas, pl. 8, fig. 10.)

Anodontyra, Westw.—A single species from Chili.

Ornepetes Guér.—Also a single species from Chili.

Elaphroptera, Guér.—Composed of South American species.

Ammodromus, Guér.—Composed of the female of South American species.

In the "Magasin de Zoologie" for 1842, M. Guérin has made numerous additions to our knowledge, both of the species and structural characters of these insects, adding the following new species:—

Rhagigaster haemorrhoidalis (Swan River.)

Agriomyia marginilabris, affinis, Westwoodii, abdominalis, and Spinolæ, all from Australasia.

* "Nous n'avons pas fait entrer dans ce tableau les deux genres provisoires, *Diamma* et *Ammodromus*; ils se composent de femelles qui entreront probablement dans les genres déjà connus, quand on les aura mieux observées, et qu'on aura surpris leur accouplement."

† This species belongs to the family of the bees, and is allied to *Crocisa*.

‡ The cylindric abdomen with a recurved apical spine, unites this species with the genus *Rhagigaster* of Guér.

Thynnus Shuckardi, and *flavilabris*, from New Holland.

Thynnoïdes nigripes, from Swan River.

He likewise adds the descriptions of two new Australian genera.

Catocheilus, Guér., allied to *Thynnus* and *Agriomyia*, but having a membranaceous concealed labrum, and the terminal joint of the maxillary palpi very minute, and the maxillæ much ciliated within. *C. Klugii*, Guér., ♂ ♀. (Swan River.)

Lophocheilus, Guér.—Allied to *Thynnoïdes*, but having the labrum truncated and villose in front, slightly prominent and emarginate, the maxillæ slightly hairy, short; lower lip short, with the paraglossæ folded back. 3 Species: *L. villosus*, *L. distinctus*, and *L. collaris*,—all from New Holland.

Such, with the addition of the genera—

Psamatha Shuckard, mentioned above,

Oncorhinus, Shk., in Gray's Australia Append., Vol. ii., founded upon a fine species from Swan River, and

Amblysoma, Westw. in Guér. Mag. de Zool., founded upon a Brazilian species, and the figure of *Anodotyra tricolor*, W. published in the same work, constitute the whole of the generic groups hitherto proposed in the sub-family.

Dr. Klug, rejecting all these generic names, in his Monograph on the genus, recently published in the "Transactions of the Berlin Academy," and uniting the whole under the generic name of *Thynnus*, has divided the Australian species into three sections,

- A. *Th. dentatus*, &c.
- B. (*Agriomyia*, Guér.)
- C. (*Rhagigaster*, *Thynnoïdes*, and *Anthobosca*, Guér.);

describing two new Australian species of the section B. (*T. variegatus* and *pulchellus*), and also two new species of the section C. (*T. obscurus*, and *labiatus*, Kl.)

At present it is premature to decide upon the propriety of the rejecting of all these generic groups, although I cannot but think that some of them rest upon characters which will be found to be of too trivial an importance, especially when the general and greatly variable habit of the species is considered; the apparent differences in the formations of the divisions of the lower lip is certainly not to be depended upon in our dried specimens, since in some individuals of a species they are retracted, in others prorected.*

The dissections which I now, however, offer to the student, in connection with those in the 54th plate, enables us to estimate the value of one of M. Guérin's genera, namely *RHAGIGASTER*, whilst at the same time it will serve to show that the females of the Myzine, when discovered, will almost certainly be apterous; the

* Compare pl. 74, fig. 3d, 3g, 3h, 3i.

female of *Rhagigaster* differing from those of all the four other species now represented by possessing ordinary-shaped 6-jointed maxillary palpi, like *Diamma* and *Methoca*; from the first of which it is at once distinguished by its depressed (not compressed) form, and by its nearly simple (not multidentate) mandibles. Notwithstanding these very evident distinctions, M. Guérin has described a female of *Rhagigaster* as a second species of *Diamma*, as above noticed, and has further increased the confusion by asserting that *D. bicolor* is the female of *Rhagigaster*; whereas, there is great reason for considering that it is the female of *Tachypterus* (*Psamatha*, Shk.), which has the mandibles more toothed than in the majority of the family, although the female possesses one more tooth than the male, which is not the case in the other species, of which the sexes have been determined: indeed the contrary occurs in the majority.

The discovery of the female of *Myzine* will moreover determine whether the small rudimental vein inclosed within the first submarginal cell of *Rhagigaster* (which is the only character by which it is distinguished from *Myzine* ♂), does not indicate a much more marked difference in the opposite sex than might at first be supposed to be the case, or whether it is sufficient to bind it, as it now does, to the other Thynnideous insects.

The following are the characters of the genus *Rhagigaster*, as modified and extended by the examination of several species, and by the discovery of the female sex, together also with a synopsis of the species which belong to it.

RHAGIGASTER, GUÉRIN.

- ♂ Abdomen elongatum apice spina recurva armatum, segmento primo subtus tuberculo conico instructo; segmentis 2ndo et reliquis ad * basin constrictione subarticuliformi instructis.
Frons inter partem superiorem oculorum subcarinatus.
Mandibulae intus versus apicem dente armatae.
Alæ antice cellulis 4submarginalibus, prima appendiculata.
Palpi omnes formæ ordinariae.
Clypeus antice fere recto truncatus.
Labrum margine antico vix emarginato clypeo fere abscondito.
- ♀ Caput magnum subquadratum planum impressione longitudinali utrinque pone oculos.
Mandibulae et palpi mari conformes. Thorax 3-annulatus, apterus.
Abdomen elongatum depresso segmentis ad basin linea tenui transversa impressis.

* M. Guérin erroneously describes the abdominal segments as having '*en arrière, ainsi que le premier* une impression transverse.' The lateral examination of the abdomen at once shows that the first segment is not constricted, and that it is the base and not the extremity of the other segments which is thus circumstanced.

SPECIES I.—*Rhagigaster unicolor*, Guérin. Voy. Coq. Ins. p. 214.

Niger punctatus pilis albidis indutus, alis anticus hyalinis apice subinfuscatis; mandibulis simplicibus apicem versus 1-dentatis, abdominis apice utrinque dente parvo alteroque medio recurvo armato. Long. corp. 19 mill. Expans. alar. 30 mill. Habitat, Port Jackson. Terra Van Diem. Mus. nostr. communic. D. Jos. Hooker.

SPECIES II.—*Rhagigaster ephippiger*.

SYN.—*Diamma ephippiger*, Guérin. Voy. de l'Astrolabe, p. 235. Mag. Zool., 1842, pl. 103, fig. 1—6.

♀ Niger nitidus antennis, mandibularum apicibus, mesothorace metathorace et pedibus rufis anōquo fulvo.

Long. corp. 13 mill.

Habitat. "Kanguroo" insul. In Mus. Reg. Paris. {

Obs.—Hæc est ♀. *Rh. unicoloris*, teste D. Shuckard.

SPECIES III.—*Rhagigaster mandibularis*, Westw. (Plate 74, fig. 1, ♂, fig. 2, ♀.)

♂ Niger punctatus pilis griseis parum indutus, alis anticus hyalinis fusco tinctis, mandibulis supra in medio tuberculo conico armatis, abdominis apice spina unica recurva armata. Long. corp. lin. 8½. Expans. alar. lin. 12½.

Obs.—Carina frontalis fere indistincta. Spatium constrictum ad basin segmentorum abdominalium subtilissime punctatissimum.

♀ Niger nitidus, capite maculis duabus frontalibus fulvis, mesothorace metathorace coxisque omnibus ferrugineis, pedibus autennisque nigris. Long. corp. lin. 5½.

Habitat, Port Philip. In Mus. Saunders et Nostr.

SPECIES IV.—*Rhagigaster Morio*, Westw. Niger nitidus, punctatus; capite tuberculo transverso supra basin antennarum valde, alteroque supero minus prominenti, mandibulis simplicibus intus apicem versus dente armatis, metathorace supra transverse carinato angulis posticis quadratis, abdominis apice spina unica armata; pedibus rufis, alis nigricantibus. ♂.

Long. corp. lin. 9½. Expans. alar. lin. 14.

Habitat, in Australasia. In Mus. Brit. et Nostr.

SPECIES V.—*Rhagigaster haemorrhoidalis*, Guérin. Mag. de Zool. 1842, p. 2.* Niger rugosus, griseo pilosus, segmentis duobus apicalibus abdominis fulvis spina anali recurva nigra ♂.

Long. corp. 15 mill.

Habitat, Swan River. In Mus. Guérin.

SPECIES VI.—*Rhagigaster integer*.

SYN.—*Thynnus integer*, Fabricius. Ent. Syst. 2, 245, Kirby, Mon. Ap. Ang. 1, p. 223. Donovan. Ins. N. Holl.

Ater, abdominis segmentis margine villoso cinereis, capitis fronte cinereo pubescente scutelло truncato obtuso, ano integro aculeo brevi recurvo. ♂.

Habitat. in Nov. Holl. In Mus. Banks. (Soc. Linn. Lond.)

SPECIES VII.—*Rhagigaster binotatus*, Westw.

♀ Niger nitidus, parum punctatus, capite maculis duabus frontalibus fulvis pone insertio nem antennarum.

Long. corp. lin. 5½.

Habitat in Terra Van Diemenii. In Mus. Nostr. communic. D. Hooker. Statura *Rh. mandibularis*, ♀, cui valde affinis coloribus tamen distincta.

* I possess two specimens agreeing with Guérin's description as to colour, but only measuring 5 lines long (instead of 15 mill.), and having no tooth in the basal segment to the abdomen beneath, no carina between the upper part of the eyes, but having five teeth at the extremity of the abdomen, the middle one not being recurved at all. I therefore do not consider this insect (which I name *Thynnus decipiens*), as belonging to the genus *Rhagigaster*.

SPECIES VIII.—*Rhagigaster analis*, Westw.

♀ Niger nitidus, parum punctatus mandibulis antennisque piccis pedibus segmentoque apicali abdominis fulvis; capite pone insertionem antennarum linea transversa in medio interrupta fulva.

Long. corp. lin. $4\frac{1}{2}$.

Habitat, apud "King George's Sound." In Mus. Nostr.

Obs.—Mandibulae dente interno latiori at magis oblique-truncato nec acuto. Caput minus quadratum, abdomen ad basin paullo angustius longius, segmento ultimo oblongo-ovato.

SPECIES? IX.—*Bethylus apterus*, Fabricius. Syst. Piez., 238.

♀ B. apterus niger pedibus rufis abdomine piloso nigro segmentorum marginibus ferrugineis nitidulis.

Habitat in Nova Cambria. D. Billardiere.

Obs.—My notes made upon the Fabrician collection at Kiel, in which the typical specimen is preserved, state that this insect is a Myrmecodes. Its colours seem to indicate it as a female of this group.

SPECIES? X.—*Myzine ruficornis*, Guérin. Prodrome d'une Monogr. des Myzines, p. 11, (Ext. Dict. Pittoresq. d'Hist. Nat. t. v.)

♂ "Tête noire avec le chaperon et les antennes fauves, thorax noir, ponctué avec le prothorax, trois taches sur le mésothorax et deux grandes taches de chaque côté orangées. Ailes incolores, pattes orangées, abdomen orangé, avec la base des segments noire."

Long. 12 mill.

Habitat, in Arabia!

Obs.—Cellula lma. submarginalis appendiculata.

THYNNUS HYALINATUS, Westw.

(Plate 74, fig. 3 ♂; fig. 4 ♀.)

♂ T. capite thoraceque fusco-æneis fulvo dense tomentosis metathorace flavo-vario, abdome nigro nitido segmentis quatuor prioribus flavo-maculatis, alis fere hyalinis, pedibus testaceis.

Long. corp. lin. $9\frac{1}{2}$. Expans. alar. lin. $18\frac{1}{2}$.

♀ Ferruginea albido-pilosa, abdomine magis piceo, segmento 1mo fascia integra flava, reliquis interrupte flavo-fasciatis.

Long. corp. lin. 8.

Habitat in Terra Van Diemenii, D. Lewis. In Mus. nostro, D. Lewisio amicissime communicatus.

This species is very nearly allied to *T. variabilis*, but it is at once distinguished from that species by its uniform smaller size, the almost uniform colour of the thorax, and the nearly hyaline wings of the male. The head in this sex is æneous black, closely and finely punctured, and clothed with short close fulvous pubescence; the clypeus is yellow, which colour is extended along the anterior and posterior margin of the eyes, higher than the insertion of the antennæ; it forms also a slender branch behind the eyes. The mandibles are fulvous with black tips, the antennæ black and slender. The thorax is slightly æneous black, finely punctured, and tomentose like the head, with a slender transverse yellow line behind the scutellum and the metathorax, with a large patch above

and one on each side. The abdomen is black and shining, the first segment with a large irregular yellow spot nearly divided in two by a black clavate line; each of the three following segments has two round yellow spots on the back and an oblong one on each side, as have also the fifth and sixth segments; but in them they much diminish in size; the five anterior segments on the under side are varied with yellow spots, which become gradually smaller beyond the 2nd joint. The legs are castaneous red, the coxae alone black, the posterior coxae with a yellow spot in front. The anal appendage terminates in an acute point, without any lateral spines.

The female is dark chesnut red on the head and thorax, which are slightly and widely punctured and pilose, the punctures being larger and closer near the insertion of the antennæ. The clypeus is irregular with a central point (fig. 4 b), the mandibles are pitchy and entire, the antennæ pitchy, the legs chesnut red, the abdomen pitchy red, with five yellow fasciæ interrupted down the middle and at each side; the intermediate segments on each side beneath have a small yellow spot. The first segment has a slight transverse carinated line near the extremity, the second segment with one near the base and another near the extremity, the intermediate space transversely multi-striolated; each of the following segments has a transverse carinated line nearly across the middle. The terminal segment of the abdomen is thick, truncate, with longitudinal striae, and a notch on each side beneath (fig. 4 e, 4 f.)

Figure 3 a, labrum ♂ ; 3 b, clypeus and mandible ; 3 c, maxilla ; 3 d, labium ; 3 e and 3 f, extremity of the abdomen. 3 g, mouth of another specimen with the trophi porrected ; 3 h, the labium as seen within the mouth ; 3 i, the same seen beneath.

Fig. 4 a, the labrum of the female ; 4 b, the front of the head, with the trophi and mandibles seen from beneath ; 4 c, the maxillæ ; 4 d, labium ; 4 e, 4 f, terminal segment of abdomen ; 4 g, middle segment of the abdomen, seen laterally, to show the position of the spiracle.

THYNNUS (AGRIOMYIA) DEPRESSUS. *Westw.*

(Plate 74. fig. 5 ♂, fig. 6 ♀.)

♂ *T. niger nitidus punctatus griseo pilosus abdomine depresso oblongo-ovato, segmentis 2, 3, et 4to utrinque lunula tenui albida, pedibus anticis rufis, posticis 4 picco-rufis femoribus nigricantibus.*

Long. corp. lin. 7. Expans. alar. lin. 12.

♀ *Capite thorace et basi segmenti 1mi abdominis punctatissimis nigris; abdomino nitido punctato hujus segmento 2do et dimidio basali 3tii rufis. Autenris picco-rufis, basi nigris pedibusque rufis.*

Long. corp. lin. 4 $\frac{1}{2}$.

Habitat, King George's Sound. In Mus. Brit.

The male is black, with gray hairs; head and thorax punctured

and immaculate; antennæ, black and slender; the abdomen is glossy black, depressed, and slightly punctured, with gray pubescence; the second, third, and fourth segments have on each side a small, slender, whitish lunule, diminishing in size. The second and third segments have also a whitish lunule on each side beneath, and the fourth and fifth a whitish dot. The abdomen is entire at its extremity, not pointed, but on each side, near the tip, is a small pointed, and another clavate setose exserted appendage, with a thin pencil of recurved hairs (fig. 5 a). The fore legs are red, and the four hind ones pitchy-red; the middle femora with a black streak behind, and the hind femora black. The fore wings are yellowish-smoky, with black veins; and the hind wings hyaline.

The female has the head, thorax, and base of the first segment of the abdomen black; and very much punctured; the abdomen is shining and setose at the sides; the extremity of the first segment, the whole of the second, the basal half of the third, and the extreme base of the fourth segments, as well as the apical appendage, are red; the remainder of the abdomen is black. The second segment has a carinated transverse line at a short distance from the hinder margin, the preceding portion being rudely punctured, and beyond it the segment is glossy and impunctate. The basal half of the third, fourth, and fifth segments are also glossy and impunctate, and the apical portion of these segments punctured. The antennæ are pitchy-red, with the basal joint black; and the legs are red.

THYNNUS (THYNNOIDES) FUMIPENNIS, Westw.

(Plate 75, fig. 1. ♂ 2. ♀)

♂ T. subæneo niger luteo-setosus et sublente tenuissime punctatus clypeo fulvo, maeula mediana alterisque duabus lateralibus obscuris; alis fumosis, pedibus obscure piceo-rufis. Long. corp. lin. 8. Expans. alar. lin. 14.

♀ nigra subnitida capite pedibusque fulvis. Long. corp. lin. 5.

Habitat, Port Philip. In Mus. Saunders et nostr.

The male of this species is very closely allied to *T. obscurus*, Klug, and *T. rufipes*, Guer. (from both of which it differs in its smaller size), and also to *T. rubripes*, from which it differs in the yellow markings of the clypeus, the colour of the wings and legs, and the pilosity of the abdomen, and from *Th. labiatus*, Klug, it differs in the colour of its wings and legs. It is black, with an æneous tinge, which seems rather produced by the very short close luteous pubescence; and under a lens it is thickly and finely punctured;

the head is black, with the clypeus convex, its extremity emarginate-truncate, yellow, which colour does not quite extend upwards to the insertion of the antennæ; it also forms a short branch on each side, which does not, however, quite reach the eyes. Down the middle runs a dark mark, which is dilated in the middle into an oval ring, and on each side is a dark spot. The mandibles are yellow, with the tips black; the antennæ and thorax are black and without spots, as is also the abdomen; the latter has also the intermediate segments constricted across near the base and apex, and margined with slender luteous hairs; it terminates in a flattened point, which is slightly emarginate on each side near the extremity, and accompanied on each side near the base by a short spur. The wings are smoky yellowish, and the legs pitchy red. The female is black, with the exception of the head, antennæ, and legs, which are fulvous red. The abdomen is very large and gibbose; the first segment has a transverse carinated line near its extremity, the second segment has a carinated line across near the base, and another near the extremity, the intervening space with about three elevated finer carinated lines; the third segment has a transverse impressed line, at a short distance from the base, the intervening space being excessively minutely and closely punctured, and with another impressed line, which runs close to the apical margin in the middle, but at the sides obliquely extends into the disc of the segment. The fourth segment has a similar line near the apex, but none at the base.

Fig. 1 *a*, represents the clypeus and mandibles of the male; 1 *b*, the maxilla; 1 *c*, the labium; 1 *d*, the labrum; 1 *e*, the extremity of the body.

Fig. 2, the front of the head of the female; 2 *b*, the maxilla, with the very minute palpus *b**; 2 *c*, the labium, with the very minute labial palpus *c**; 2 *d* and 2 *e*, the deflexed entire striolated extremity of the body.

THYNNUS (AGRIOMYIA) ODYNEROIDES, Westw.

(Plate 75, fig. 3, ♂ fig. 4, ♀)

♂ Niger flavo-varius pronoto carina antica flava metathorace immaculato; pedibus fulvo-rufis, alis limpidis stigmate rufo. Long. corp. lin. 7. Expans. alar. lin. 12.

♀ fulvo-rufescens thorace, abdominis basi fasciaque lata mediana nigris. Long. corp. lin. 4.

This species is closely allied to *Agriomyia maculata*. Guér., but differs in several respects. The head and thorax are black, and very closely and finely punctured; the clypeus is narrowly produced and truncated; it is yellow, with a black transverse mark, and

terminates above (beneath the insertion of the antennæ) in three red points; in the middle, near the front margin, is a deep impressed dot; the mandibles are black, with the outsides yellow; the two tubercles on which the antennæ are placed are red on the inside; the head has a small yellow dot behind, in the middle. The collar has a yellow elevated carina in front, and a small yellow dot at each lateral angle, behind; the metathorax has a large yellow spot in the middle, a smaller one on the scutellum, a short yellow line behind the latter, and a yellow dot on each side, above the insertion of the hind wings; the tegulae are also yellow; there is also a yellow spot on each side, beneath each wing; the abdomen is black, the first segment above with two minute yellow dots, the four following with a yellow, elongated, transverse patch on each side, having a notch in front, near the side, and having the inner extremity produced into a reflexed, yellow tooth; the basal segment of the abdomen beneath is produced into a very prominent, yellow, conical point; the three following segments bear a large transverse yellow spot (inclosing a black mark), and the fifth segment two minute oblique yellow dots. The legs are fulvous red, and the wings hyaline, slightly tinged with yellowish, with a chesnut-coloured stigma; the abdomen is terminated by an oval, flattened plate, with the tip acute.

The female has the head fulvous red, considerably dilated in front, impunctate, with dark fulvous antennæ and mandibles, the latter black at the tips; the thorax is black and punctured, the anterior division longitudinally channelled; the abdomen is fulvous red, with the base and middle black. The second segment has three strongly carinated lines across the middle; the third and fourth have respectively an impressed line across, near the base, and another (bi-emarginate) towards the apex. The legs are fulvous, very much ciliated, and the coxae are darker coloured.

Fig. 3 *a* represents the front of the head of the male; 3 *b*, the bilobed labrum; 3 *c*, the maxilla; 3 *d*, the labium; and 3 *e*, the extremity of the abdomen of the male.

Fig. 4 *a*, the very deeply ciliated labrum of the female; 4 *b*, the mandible; 4 *c*, the maxilla, with its very minute palpus; 4 *d*, the labium, with its palpus *d* *.

The plant represented in Plate 75 is the Australian *Dillwynia ericifolia*.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF
NEW BOOKS, &c.

(No. XIX.)

MONOGRAPHIA GENERIS RHAPHIDÆ, Linnæi. *Dissertatio Entomologica.* Anct. G. Th.
SCHNEIDER. Vratislav, 1843, 4to, 99 pages, 7 plates, coloured and plain.

THIS is one of the most elaborate monographs which has hitherto been published upon a single genus of small extent, containing only seven species; the author having given in great detail the bibliographical history and minute external anatomy and natural history of the species in all their stages, as well as very long descriptions of each of the species. In the first of these particulars he has carefully noticed all the works which have appeared upon this genus up to the present time. In the second respect, he has made great use of the arrangement and modification of the veins of the wings, and has elucidated several questions not previously determined with precision—such as the existence of the six or seven eyelets on each side of the head of the larvæ; the five-jointed tarsi of the imago; the curious mode in which the head of the pupa is detached from the skin of the larva. He has, however, omitted to trace the precise structure of the divisions of the lower lip of the imago; neither in his magnified figures of the maxillæ are the parts of which they are composed attempted to be traced. The peculiarity in the metamorphoses of these insects which I pointed out in my *Mod. Class. of Ins.* (vol. ii. p. 58), that the hind feet of the pupa, during its inactive state, are partially covered by the wings, is not represented amongst the figures which he gives of the pupa, in all of which (although represented in the quiescent state) all the legs are figured as free. The appendages at the extremity of the body of the male, hitherto undescribed, have not been represented in the necessary detail. The predaceous habits of the genus have long been known; the following is Schneider's account of the mode of attack:—" *Rhaphidia quum vivum insectum prope se conspicit, prothorace sursum flexo, capite deflexo; statim mandibulis impetum facit. Quum insectum se movet subito Rhaphidia regreditur; insecto autem debili vel jam mortuo rapide mandibulas corpori immittit idque perforat aride partium mollium humorem sugens,*" p. 42. Of the habits of the larvæ he states, " *Larvæ in fissuris corticis arborum sœpius etiam sub cortice vetusta atque inter*

truncum ipsum et corticem habitant. Totam per aestatem et initio auctumni in corticis arborum fissuris ambulantes adscendunt et descendunt ut victum querant idque præcipue quod Stern observavit hora meridiana cæloque sereno." In this state they are very pugnacious, destroying and devouring each other, but appearing to prefer the Diptera for food on account of the greater softness of their bodies. The following observations on the reproduction of the limbs in these insects are of great interest, as the genus from the subquiescent state of the pupæ may be deemed to hold an intermediate station between the insects which undergo an incomplete and a complete metamorphoses—*no instance, so far as I am yet aware, having hitherto been observed in which insects having a complete metamorphosis have been found to possess the power of reproducing their limbs.*

"Interdum in exuviis corporis læsæ partes restituuntur sic larvam cuius pes anterior et antenna morsu alias larvæ in una eademque arcula asservatae articulo ultimo spoliata erant, ante ultimas exuvias has partes recipere vidi. Læsiones vero post ultimas exuvias præsertim graves, et quæ breve tempus ante evolutionem in nympham accipiuntur plerumque mortiferae sunt et unicum tantum animadvertisi casum in quo larva licet amissa post ultimas exuvias dimidia antenna in nympha et imaginis statum transit *sed antenna illa læsa dimidiata permansit et in nympha et in imagine.*" p. 49. These larvæ both for hybernation and pupation "in arborum cortice cava ovata erodunt—Procul dubio hac re in errorem induitus est Waterhouse (Trans. Ent. Soc. vi. p. 1.), larvam xylophagam esse opinatus est scobes ligni cohærentes vel conglutinatas pro excrementis habens quæ vero quod satis expertus sum, speciem habent granularum minutarum forma oblonga colore nigro."

Adopting my family Mantispidæ as distinct from Rhaphididæ, the author gives the following distribution of the two groups:—

Fam. RHAPHIDEODEA, prosterno postico, pedibus omnibus homonomis, &c.

Capite obovato, ocellis 3, prosterno triangulari alarum costis (pilosis), radialibus cubitalibusque in ramulos dichotomos exentes.

Gen. *Rhaphidia*, Linn.

Capito quadrato, ocellis 0, prosterno libero elongato, alarum ramulo unico radiali in furcam exeunte pedibus abbreviatis.

Sub-Gen. *Inocellia*, Mihi.

Mantispa crassicornis, Schum.

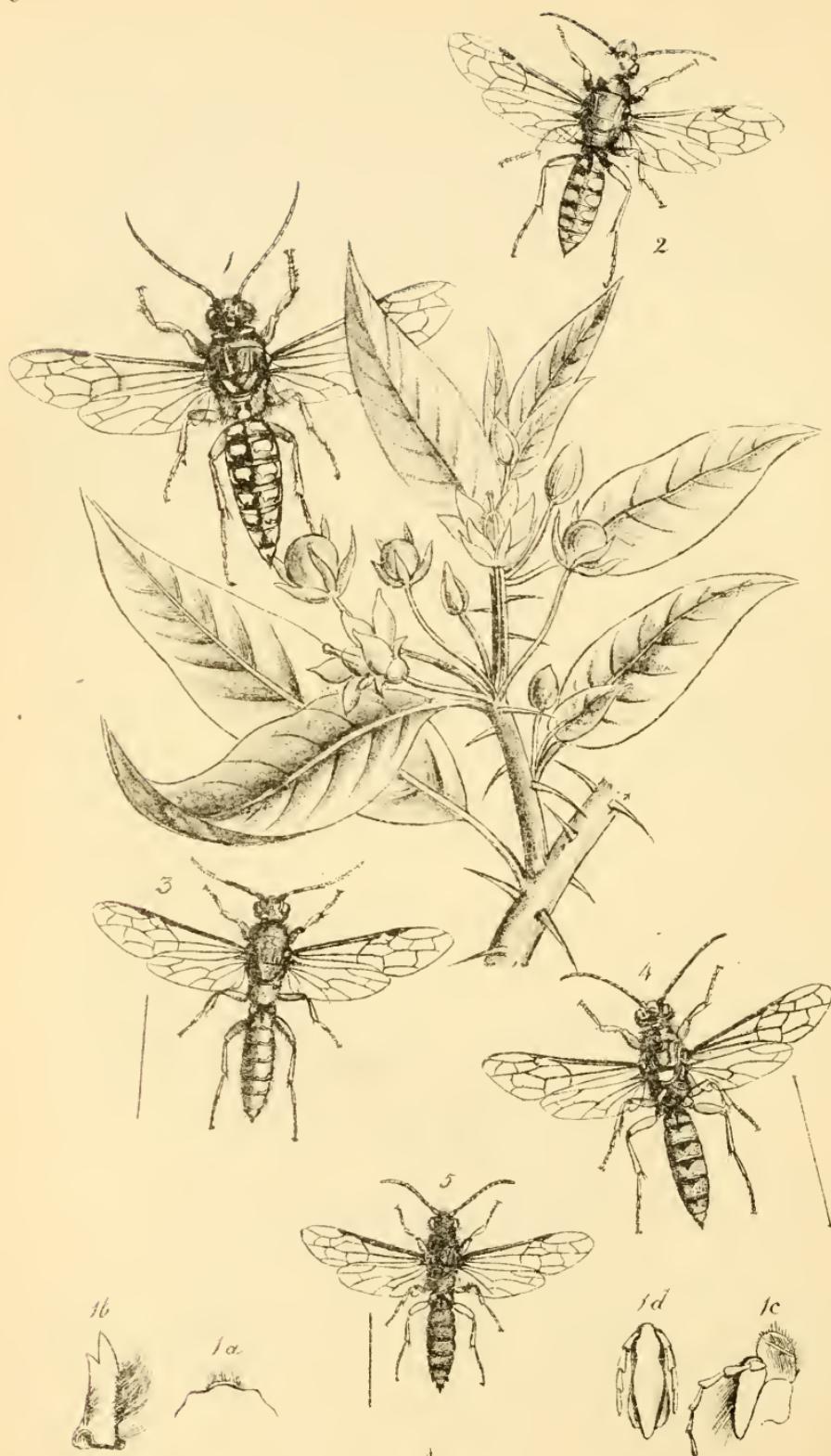
Fam. MANTISPIODEA, prosterno antico, pedibus anterioribus raptoriis, &c.

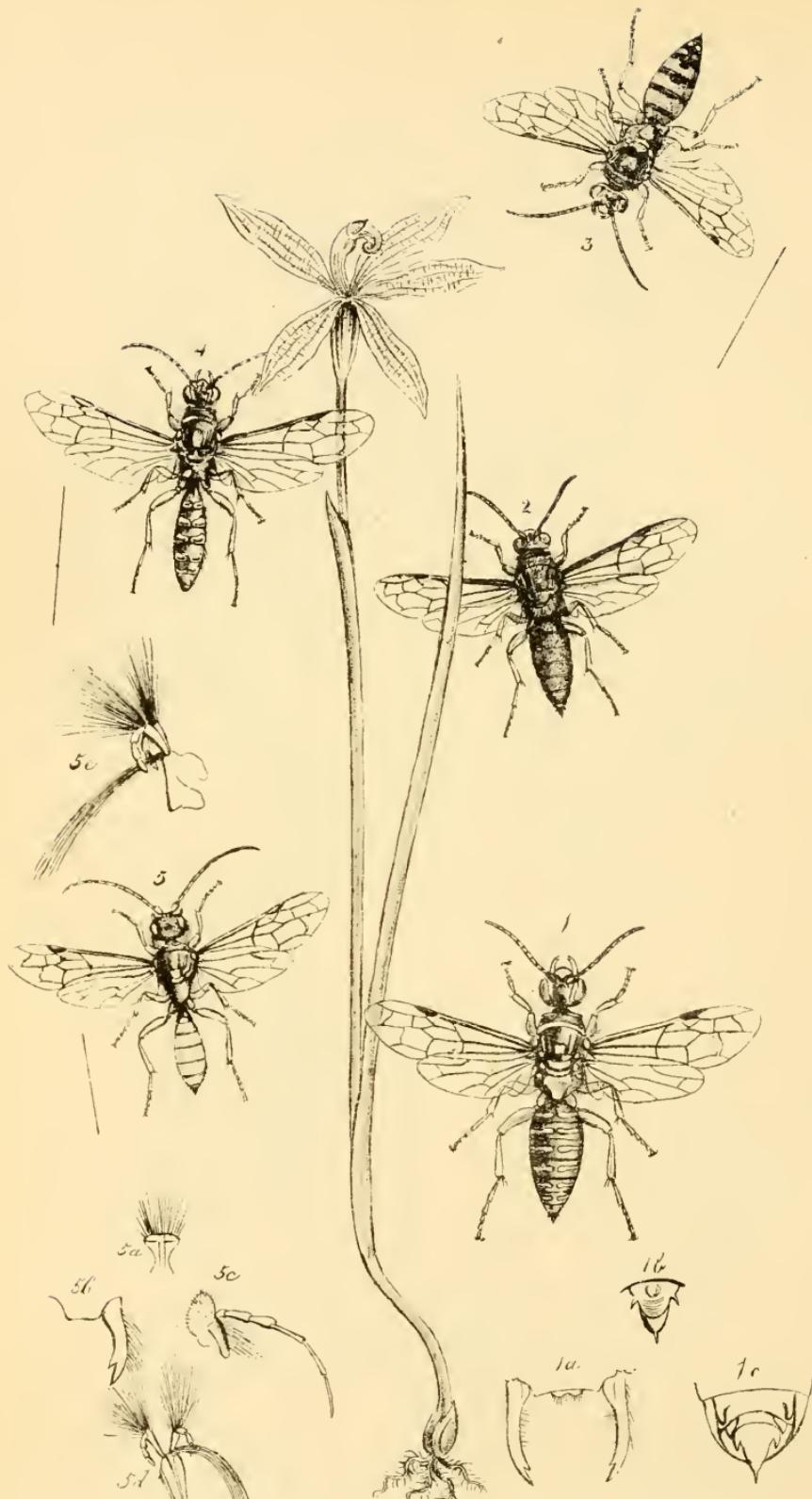
Ocellis 0, &c., Gen. *Mantispa*.

Vertice ocellis instructo, &c.,

Sub-Gen. *Anisoptera*, Mihi;

scu *Mantispa notha*, Erichs.





PLATES LXXVI AND LXXVII.

A DECADE OF AUSTRALIAN THYNNIDEOUS INSECTS.



HAVING obtained, since the publication of the preceding number of this work, a considerable number of new species of Thynnideous insects from Australia, I hasten to illustrate some of the more conspicuous, confining myself here to those of the male sex, not deeming it advisable to describe the females as distinct species, which may probably prove to be the opposite sexes of individuals now illustrated.

THYNNUS BROWNII.

(Plate 76, fig. 1 and details.)

T. niger capite et thorace opacis, fulvo tomentosis et maculatis; abdomine flavo maculato, segmento ultimo omnino flavo, antennis longis apice gracillimis, pedibus castaneo-rufis ♂. Long. corp. lin. $14\frac{1}{2}$; Expans. alar. lin. 27.

The head is black above, finely punctured, and clothed with fulvous pubescence, with a slender yellow streak behind each eye, and two small triangular yellow dots behind the ocelli; the clypeus is prominent, convex, and yellow, the extremity terminating in a semicircular curve, not entirely concealing the ciliated labrum. It is yellow, which colour ascends in an oval patch as high as the base of the antennæ, where it is marked with a black line, which terminates in a conical chesnut-coloured central spot. The margins of the eyes and the tubercles on which the antennæ arise are also yellow. The mandibles are yellow, with the tips of the two teeth brown; beneath they are clothed with a very thick brush of black hairs; the sides of the basal part of the maxillæ are also clothed with numerous long hairs. The maxillæ and mentum (except at the base), as well as the palpi, are fulvous. The antennæ are long (measuring rather more than eight lines in length), and gradually attenuated from the middle to the apex, where they are very slender; they are entirely black. The thorax is obscure black, and very finely punctured, and also very thickly clothed with short fulvescent pubescence, which becomes longer and greyer upon the metathorax. The collar has the anterior margin forming a slender raised edge, which is yellow, but slightly interrupted in the middle: the hind margin is broadly fulvous; the dorsum is marked with four impressed longitudinal lines

between the middle ones, being marked with two posteriorly convergent fulvous conical spots; the scutellum has two large obliquely oval fulvous spots, one on each side, behind which are two slender fulvous transverse strigæ, and the metathorax is marked near the insertion of the abdomen with a yellow spot. The scutellum is not conspicuously elevated, and the metathorax is deflexed; the sides of the metathorax are marked beneath the insertion of the wings with two yellow spots, united below by a very slender curved yellow line, and the sides of the metathorax are also marked with yellow. The abdomen is considerably elongated and ovate, being rounded in front, very convex above, and with the apex deflexed or incurved; it is black and shining; the first segment marked above with two small yellow spots at the base, followed by two rather broad transverse yellow spots, which nearly meet in the middle, each spot emitting a minute tooth behind; each of the five following segments is marked above with two transverse subquadrate yellow spots (each emitting a little tooth behind), and with a yellow spot on each side, the posterior edge of which extends a little distance along the hind edge of the segment: the seventh segment above is longitudinally striated and yellow, with a small black dot in the middle; the abdomen is yellow beneath: each segment, except the first and last, marked with a brown spot in the middle, and a black curved line on each side. The anal segment beneath terminates in an acute black point, the sides at the base being dilated. The legs are castaneous; the coxae yellow, marked with a small black spot at the base. The wings are stained yellowish-brown, with the costa darker; the hind wings paler coloured.

From King George's Sound. In Mus. Brit. et Westw.

I have adopted the MS. name applied to this species in the British Museum collection, in which a single specimen is contained.

Figure 1 *a* represents the front of the clypeus and labrum; 1 *b*, one of the mandibles; 1 *c*, a maxilla; and 1 *d*, the mentum and labial palpi.

THYNNUS PICIPES, Westw.

(Plate 77, fig. 2.)

T. niger capite et thorace griseo pubescentibus, clypeo mandibulisquo flavis, pedibus nigris, tibis et tarsis brunneo-fuscis, alis flavido-fuscis, costa nigra.

Long. corp. lin. 10 $\frac{1}{2}$. Expans. alar. lin. 19 ♂.

An varietas T. flavilabris, Guérin Mag. de Zool. 1842, p. 8?

The head is black, slightly shining, finely punctured, and clothed with short grey pubescence. It has a bifid tubercle in the middle

of the face, at the sides of which the antennæ are affixed; these are short (four lines long), filiform, and black. The clypeus is rather prominent, oval, convex, and yellow, with the lower margin truncate, and nearly concealing the labrum; the mandibles are slender, yellow, with the tips brown, the underside sparingly furnished with long hairs. The maxillæ, mentum, and palpi, are pitchy-black; these do not differ in structure from the details of fig. 1, except that the maxillæ are more slightly furnished with hairs at the sides. The thorax is entirely black, and finely punctured; it is clothed with short gray pubescence, both above and beneath, the metathorax being more thickly covered with longer white woolly hairs; the wing-scales are black, as is also the abdomen, which is long, oboconical-ovate, and finely punctured, each segment having a stronger row of punctures near its posterior margin; the terminal joint beneath is prominent, deflexed, transversely striated, and produced into an acute point at the tip, each side at the base being dilated into a small conical tooth; the basal segment beneath is carinated down the middle. The legs are black, with the tibiae and basal joints of the tarsi pitchy-brown, clothed with fine grey pubescence, the tibiae being slightly rugose, the tarsal unguis are fulvous at the base. The wings are stained with yellowish brown, which is deepest coloured in the marginal and first submarginal cells. The costa is black.

Inhabits King George's Sound. In Mus. Westw.

I should have considered this to be *Thynnus flavilabris*, were not that species described as having the pubescence of the head and prothorax "d'un jaune fauve," the legs as entirely black, except the calcaria and tarsal unguis, and the size much exceeding that of my insect, being twenty-six millemetres, or thirteen lines, in length.

THYNNUS INTERRUPTUS.

(Plate 77, fig. 1, and details.)

T. niger lœvis, capite thoraceque flavo-variis, abdomine fasciis sex tenuissimis flavis, medio interruptis, pedibus fulvis ♂.

Long. corp. lin. 13½. Expans. alar. lin. 22.

The head is very finely punctured, and black, with a small yellow V like mark in the middle of the face, beneath which, on each side, is a deep black excavation, within which the antennæ are affixed; the clypeus is large, prominent, yellow, and shining, produced into a conical point above, and with the anterior margin straightly truncate, nearly concealing the labrum (fig. 1 a), which

appears to be bilobed. The eyes are margined with yellow. The mandibles are long, slender, and yellow, with the tips brown, the inner edge very slightly setose. The maxillary palpi are broken in my specimen. The antennae are short, filiform, and black. The thorax is robust, black, polished, and very finely punctured. The prothorax has a very slender yellow raised anterior margin, interrupted with black in the middle; the posterior margin is more broadly margined with yellow, which extends only to the wing-scales, which are also yellow. The metathorax is marked with four deeply-impressed lines, having a yellow spot in the middle. The scutellum is black at the base, with a broad yellow lunule, with a separate yellow spot at each side; near its anterior angles, behind the scutellum, is another slender yellow lunule, and two lateral yellow spots, and the metathorax is nearly occupied by a large angulated yellow spot, which is narrowed behind; its lateral edges, which are very prominent, being also yellow; each side of the mesothorax is marked with two yellow spots beneath the base of the wings. The abdomen is elongate-ovate, convex, black, very finely punctured; each of the six anterior segments with a slender transverse yellow fascia across the middle, interrupted down the centre of the abdomen; the penultimate joint beneath is armed with two prominent tubercles (fig. 1 c), and the terminal joint is elongate, lanceolate, the tip acutely pointed, and the base on each side produced into a short point (fig. 1 b). The intermediate segments of the abdomen beneath are fulvous, with a slender interrupted transverse fascia on the hind margin. The legs are fulvous; the anterior coxae large, flat and yellow; the inner edge produced into a narrow piece, which at first sight appears distinct; the mesosternum is also produced behind into two yellow points, which appear like a pair of supplemental coxae. The basal segment of the abdomen beneath is conically carinated.

Inhabits New Holland. In Mus. Brit. et Westw.

I have adopted the MS. name attached to this species in the British Museum cabinet.

THYNNUS TROCHANTERINUS, *Westw.*

(Plate 77, fig. 3.)

T. capite et thorace nigro et pallide flavo-variis, abdomine pallide flavo, nigro cingulato, femoribus flavis basi et apice nigris tibiis tarsisque castaneis ♂.

Long. corp. lin. 8 $\frac{1}{2}$. Expans. alar. lin. 14.

This species is nearly allied to *Th. variegatus*, *Klug*, but much larger, and with different coloured scutellum and feet. The

head is of moderate size, black, and finely punctured; the hind margin with a slender yellow line, which extends behind the eyes, where it is dilated on each side; there is also a small yellow patch extending from the upper angle of each eye towards the ocelli; there is also a yellow patch between the antennae at the base, these being rather wide apart. The clypeus is oval and yellow; the apex narrow and rather rounded; the space between its sides and the inner margins of the eyes is depressed and yellow, with a small black dot. The mandibles are yellow, with the tips black; the basal piece of the maxillæ and the mentum are black; the former scarcely hairy. The terminal sixth joint of the palpi appears to have been broken off in both the palpi in my specimen; the terminal joint of the labial palpi is slenderer and longer than the preceding joint. The antennæ are rather slender and filiform, being four lines long; they are entirely black, whereas *T. variegatus* has the basal joint yellow. The pronotum is margined entirely with a rather narrow edge of yellow; the disc of the mesonotum is black, with four impressed lines and a yellow patch behind, and a slender lateral line; the wing-covers are also yellow; the scutellum is black, with a yellow lunule across the middle, pointed in front; behind this is a slender yellow curved line, united with two lateral yellow spots; and the metathorax has three yellow spots, the central one largest and dilated in front. The surface of the thorax is finely punctured, and slightly pilose; the prosternum bears two yellow spots, and the sides of the mesosternum two fulvous ones beneath the insertion of the fore wings; this part is also clothed with fulvous pubescence. The abdomen is elongate, ovate, with the tip acute; it is pale-yellow coloured, the basal joint above with a small conical spot, two minute dots, and the hinder margin of black. The three following segments are marked with black transverse bars, the extremity of one and the base of the next being narrowly marked with this colour; the middle of the inner edge of these bars is rather produced in front; the following segments are black; the fifth and sixth marked with yellow lateral lunules; the basal segment of the abdomen beneath is conically elevated, and the other segments are coloured as above, the black margin of the second and third joints being very narrow; the anal segment is entire, but terminated by a minute slender acute point. The coxæ are yellow, with black marks; the trochanters black, the femora yellow, with the disc and apex black, the fore edge of the anterior and middle pairs being more chesnut, which

is also the colour of the tibiae and tarsi: the wings are slightly stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS TUBERCULIVENTRIS, *Westw.*

(Plate 76, fig. 2.)

Niger, griseo-pilosus clypeo flavo-vario, abdomine elongato nitido nigro, segmentis uniuersitate fulvo maculatis, segmento 2ndo subtus tuberculis duobus parvis conicis instructo. ♂
Long. corp. lin. 12. Expans. alar. lin. 20.

The head is small and black, closely and finely punctured; the clypeus is slightly prominent, and convex: yellow, with a slender curved dark line on each side, and a dark central spot: the apex is truncate, nearly concealing the ciliated labrum: the yellow margin of the clypeus is extended to the eyes, which have an abbreviated yellow margin to the lower part, both in front and behind; the head has also two minute yellow dots behind the eyes: the antennæ are black, with two minute yellow frontal dots; the mandibles are yellow, with the tips brown: the maxillæ and mentum are black, the former, as well as the maxillæ, strongly fringed with pale hairs. In other respects, the trophi agree with *T. Brownii*. The thorax is entirely black, and clothed with gray pubescence: it is of an oval form: the abdomen is of an elongate oval form, broadest across the middle; it is black and shining, each segment with a large fulvous lateral spot, which becomes confluent on the sixth segment, the terminal joint being entirely fulvous; the basal segment is conically elevated in front above, and beneath it is not carinated: the second segment is, however, armed beneath with two small conical tubercles: this and the following segments are dark yellow, with black margins: the terminal segment is armed at the tip with a short acute black spine, the sides of which, at the base, are slightly dilated. The legs are chesnut-coloured, with the coxæ and base of the femora black: and the wings are very slightly stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) MELLEUS, *Westw.*

(Plate 76, fig. 4.)

T. capite thoraceoque nigris flavo varis, pronoto flavo, puncto parvo nigro, abdomine elongato fulvo, nigro-cingulato, pedibus fulvis, aliis flavis. ♂
Long. corp. lin. 9½. Expans. alar. lin. 16.

The head is rather small, black, and punctured: the eyes are margined with yellow, except on the crown of the head, the pale

marginal line running across the back of the head; between the antennæ is a yellow V like mark. The clypeus is large, prominent, convex, and yellow, truncated at the tip, exposing the porrected semicircular and ciliated yellow labrum; the mandibles are slender and yellow, with the tips brown; the maxillæ and mentum are pale yellow—the former scarcely ciliated; the maxillary palpi are rather short; the antennæ are slender and filiform, measuring rather more than 4 lines in length. The collar is fulvous, with a small black spot in the middle of the anterior margin. The mesonotum has the lateral margins rather elevated, and the middle marked with a yellow spot; the scutellum also bears a yellow spot of like size, followed by a curved yellow lunule; and the metathorax, which is broad with the lateral angles rounded, is marked with two oblique yellow lines; the wing-scales are yellow, and the space between the scutellum and postscutellum is marked with yellow. The abdomen is oblong, rounded before and behind, and sub-depressed, of a rich orange colour, with the base and the incisions black; the anterior segment is channelled down the middle, and the terminal ventral segment is armed with a short acute deflexed spine, the sides of which, at the base, are dilated: the thorax beneath is black, clothed with silvery gray pile: and each side of the mesothorax and metathorax bears a yellow spot beneath the base of the fore-wings. The abdomen beneath is fulvous, fasciated with black; the legs are fulvous, with black coxæ; the posterior pair streaked with yellow. The wings are golden yellow, with the stigma fulvous.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) TRIFIDUS, *Westw.*
(Plate 77, fig. 4.)

T. gracilis, elongatus niger, capite thoraceque opacis flavo varis, abdomine nitido segmentis singulis 5 basilibus lunulis duabus flavis fasciolam nigram includentibus, pedibus obscure castaneis. ♂
Long. corp. lin. 8½. Expans. alar. lin. 13½.

This species seems nearly allied to *Agriomyia affinis*, *Guér.* (*Mag. de Zool.*, 1842. p. 4), but that species is too concisely described, and the original specimen too mutilated to allow me to determine its specific identity therewith. The head is obscure and black, and finely punctured; the eyes margined with yellow, except on the crown of the head: the middle of the face with a yellow V like mark; and the front of the head narrow, yellow, and with a black, trifid divergent mark. The clypeus is rather

emarginate at its anterior margin, exposing the labrum, which is yellow, and with its anterior edge slightly bilobed; the mandibles are yellow, with the tips black. The antennæ are short and black (scarcely measuring 3 lines in length); the outer edge of the maxillæ is clothed with long white hairs. The collar is black, with an entire rather narrow yellow margin. The mesonotum is black with a yellow spot in the middle, and a small one on each side behind the wing-scales, which are also yellow; the scutellum bears a yellow conical spot; the apex directed towards the head: behind this is a narrow transverse yellow lunule, and two lateral yellow dashes; and the metathorax bears two oblique yellow lines, extending to the outer posterior angles; the sides of the thorax, beneath the insertion of the wings, are also spotted with yellow. The abdomen is elongate-ovate and depressed, broadest across the middle, black and shining; the five anterior segments bearing a large lunular yellow spot on each side, inclosing a short black transverse line which, in the fifth segment, unites with the black-ground colour of the segment; the sixth segment bears two minute and slender yellow lunules. The body beneath is clothed with gray pubescence; the coxæ black, with yellow stripes; and the abdomen black, each of the intermediate segments with two slender yellow lunules; the terminal segment is entire, and rounded at the tip; the legs are entirely chesnut red, and the wings stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) MARGINALIS, *Westw.*

(Plate 76, fig. 3.)

T. niger griseo subpubescens, clypeo oculisque (in parte inferiori) albido tenuissimo marginatis; abdominis segmentis quinque basalibus luuula tenuissima albida utrinque in margine postico notatis, pedibus duobus anticus castaneis, posticis duobus nigris. ♂

Long. corp. lin. 7½. Expans. alar. lin. 12.

The head and thorax of this species are black, thickly but finely punctured, and not shining; the latter elongate, with the scutellum rather elevated, convex, and less strongly punctured; the clypeus is rather short, convex, black, slightly carinated down the middle and truncate at the tip, with a slender white margin extending as far as the eyes, to which it also forms a slender margin about as high as the insertion of the antennæ. The back part of the head is marked with two obscure red spots. The antennæ are black, the tips being, however, broken off in my

unique specimen. The mandibles are black on the inside and yellow on the outside, the tips and inner margin being, however, black; the maxillæ have a long row of slender hairs on the outside, and the palpi are rather elongated. The thorax is black, the wing-scales and a very slender transverse line behind the scutellum being dirty white; the abdomen is black, depressed, narrower than the thorax, its broadest part being in the middle; the five anterior segments marked on each side, at the posterior margin, with a very slender dirty white lunule; the basal segment has a deep longitudinal channel down the middle; the body beneath is black, with slight gray pubescence, the intermediate segments of the abdomen with extremely slender white lunules behind; the apical segment is entire and rounded. The anterior feet are castaneous, with the tips of the tarsi black; the middle feet are castaneous before, but black behind, and the hind feet are entirely black. The wings are slightly tinged with grayish, and the stigma is black. Inhabits King George's Sound. In Mus. Westw.

THYNNUS DIMIDIATUS, *Westw.*

(Plate 76, fig. 5.)

T. niger punctatus abdomine (segmento basali excepto) tibiis tarsisque ferrugineis, ano 5-dentato. ♂

Long. corp. lin. 6. Expans. alar. lin. 9 $\frac{3}{4}$.

This curious species has the head and thorax entirely black, finely punctured, and clothed with slight gray pubescence; the elypterus is porrected between the mandibles, which are dark castaneous, with the tips black. The antennæ are rather short (about two lines long), and black; the trophi are black; the outside of the maxillæ clothed with long whitish hairs; the disc of the mesothorax is scarcely marked by the four impressed lines, and the metathorax is far more delicately punctured than the scutellum. The dorsal segment of the abdomen is black; the remainder dark-brick red. The segments are much constricted at the articulations, where in each is a transverse impressed line running across the joint, finely serrated; the penultimate segment is armed at each side with a short ferruginous spine, and the terminal segment with a deflexed acute black point, the base of which, on each side, is armed with a shorter black diverging curved spine; the legs are black, with the tips of the femora and the tibiae and tarsi dark ferruginous. The wings are rather tinged with gray, and the stigma is black.

GENUS AELURUS, KLUG.

In my sketch of the generic arrangements proposed in this group of insects, given in pp. 102 and 103, I accidentally omitted to mention that Dr. Klug, in his Memoir in the Berlin Transactions for 1840, had described a new genus, founded upon two Brazilian species, which appeared to possess characters of higher value than those of the majority of the groups proposed by M. Guérin Meneville.

Dr. Klug chiefly relied upon the structure of the trophi of the male for the characters of his genus, not describing the parts of the mouth of the other sex, nor noticing a character which at once distinguishes the genus from all the other Thynnideous insects which I have yet examined (except as mentioned below), namely, the homogeneous structure of the upper maxillary lobe, which, in the typical Thynnides, has the horny portion divided into two parts by a narrow transverse leathery connexion; a peculiarity, doubtless, connected with the structure of the parts of the lower lip, to which this lobe forms a defending sheath. That this division does not exist in Aelurus, I infer from Dr. Klug's figure 16 *a*, compared with the same organ in the Australian insect, next to be described, which, notwithstanding some variation in the general form of the body, must, I conceive, be assigned to Dr. Klug's new genus, which is thus shown to inhabit the Australian as well as the South American Continent, a peculiarity in nowise surprising, when it is remembered that these are the two geographical seats of the whole group.

AELURUS ABDOMINALIS.

(Plate 77, fig. 5, and details.)

SYN.—*Agriomyia abdominalis*, Guérin, Mag. de Zool., 1842, p. 5.

A. niger aureo-setosus, collari punctis duobus transversis, scutello macula flava notato, abdomine (basi segmenti primi excepto) pedibusque fulvo-rufescensibus. ♂

Long. corp. lin. 6½. Expans. alar. lin. 11.

The head is black, transverse, and flat on the crown, and finely punctured, the face is furnished in the middle with two small tubercles, at the sides of which the antennæ are affixed; the clypeus is slightly protracted, with its extremity truncate and yellow; the mandibles (fig. 5 *b*,) are fulvous, with the tips brown; they are clothed beneath with long hairs; the labrum is small, entire, and strongly ciliated. (Fig. 5 *a*.) The antennæ are long, slender, black, and filiform, with the tips acute, (measuring nearly

4 lines long); the maxillæ are small, with the apical lobe rounded and homogeneous (fig. 5 c,) with the sides clothed with long hairs, and the palpi very long and slender, the basal joint being the shortest and the third the broadest. The mentum (fig. 5 d, 5 c,) is narrow (with the labium inflexed), the extremity furnished with a very long curved pencil of hairs (scarcely shorter than the maxillary palpi), and the labial palpi are bowed at the tip of the first long joint, which is also furnished with a long diverging bush of hairs; the sides of the head are furnished with long fulvous hairs directed backwards. The collar is but slightly developed, with two minute transverse yellow spots in front; the mesothorax has its upper surface marked with four longitudinal channels; the scutellum bears a yellow spot, followed by a transverse yellow lunate spot; the metathorax is oval, attenuated behind, nearly polished, slightly setose; the abdomen is rather long, depressed, and narrowed in front, the basal joint triangular, convex above, channelled down the middle; the base black, the extremity of the remainder of the abdomen of a fulvous castaneous colour, slightly clothed with fulvous hairs, the terminal segment is carinated beneath, tridentate at the tip, the middle tooth being the longest and black at the tip. The coxæ and trochanters are black, and the legs fulvous castaneous. Wings almost hyaline, with black veins and stigma.

Inhabits Van Diemen's Land. In Mus. Westw.

I am indebted to R. H. Lewis, Esq., for this interesting insect.

M. Guérin has described another Australian species, allied to the preceding, under the name of *Agriomyia spinolæ*, with the observation that they differ from the rest of the genus, in their longer antennæ, and the long hairs at the sides of the head, so that they "pourraient bien devenir types d'un nouveau genre," for which he proposes the name of *Tachynomyia*, which, both on account of its want of priority in date and its insufficient characters must be rejected in favour of the name *Aelurus*.

The plant represented in plate 76 is *Solanum stelligerum*, and that in plate 77 is the Orchidaceous *Arethusa catenata*.

Obs.—The curious structure of the anterior coxæ of *T. interrumpens* having induced me to examine the same part in other species, I have found that the male of *T. (Thynnooides) fumipennis*, (ante, p. 108), possesses a singularity of structure which

I have hitherto observed in no other insect, having the coxae dilated, and together forming a broad nearly circular cup, with the margins elevated, large enough to allow the under-side of the head to rest within it when deflexed.

Obs. 2.—*Thynnus decipiens* (ante, p. 105), is closely allied to *T. dimidiatus* above described ; it may be thus characterized :—

T. decipiens ; niger punctatissimus, abdomine elongato, segmentis constrictis, ultimis duobus ferrugineis, anodentato dentibus duobus primis minoribus segmentoque penultimo etiam tridentato, pedibus nigris.

Long. corp. lin. 5. Expans. alar. lin. $9\frac{1}{2}$.

Habitat in Terra Van Diemenii, Mus. Westw. Communic. Dom. J. Hooker.

Obs. 3.—I have detected (June 14, 1844,) a third Australian species of *Aelurus* in the collection of my friend G. H. K. Thwaites, Esq., of Bristol, of which the following are the characters :—

Aelurus mœrens ; niger, capite et thorace obscuris cinereo paullo setosis, abdomine elongato-ovato, segmento ultimo lateribus rotundatis apice in spinam parvam producto ; capite setis longis griseis postice marginato, maxillis et labio ut in congeneribus, alis fusco-tinctis.

Long. corp. lin. 7. Expans. alarum lin. $13\frac{1}{2}$.

Habitat apud Melbourne (Nov. Holl.) Mus. Thwaites.

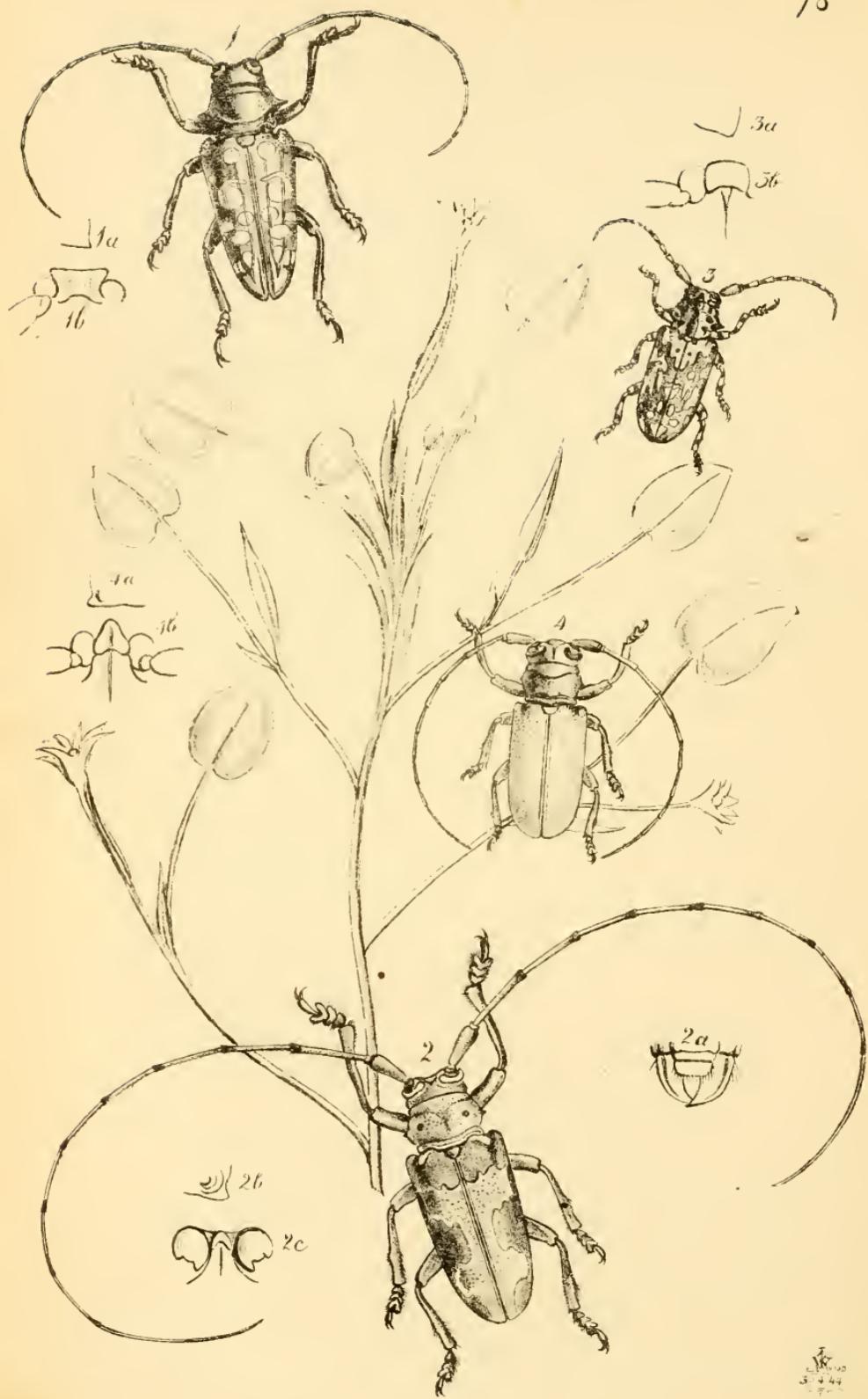


PLATE LXXVIII.

ILLUSTRATIONS OF SOME SPECIES OF LONGICORN BEETLES FROM
TROPICAL WESTERN AFRICA.— • —
LAMIA (STERNOTOMIS) COMES, *Westw.*

(Plate 78, fig. I.)

L. nigra nitida, elytris punctatis, maculis numerosis rotundatis, magnitudine diversis, albidis et fulvis, apicibusque fulvis nigro-striatis.

Long. corp. lin. 15. In Mus. Dupont, Parisiis.

BLACK, pronotum strongly angulated in the middle of each side, from which runs a curved raised space; elytra much punetured; the humeral angles acute, and porrected; the disc of each with two longitudinal raised lines; near the suture are two round pale buff spots, edged with greenish, followed by two large round fulvous ones, rather before the middle, attached to the anterior edge of each is a slender pale line, and a small lateral dot; near the middle of each elytron are three smaller roundish spots of pale buff, arranged in a triangle, the outer one being the smallest; extremity fulvous, divided by the elevated black lines above mentioned: mesosternal process broadly truncate, but not very prominent (fig. 1 *a*, 1 *b*.).

LAMIA (STERNOTOMIS ?) PRINCEPS, *Dupont's MSS.*

(Plate 78, fig. 2.)

L. luteo-fulva, elytris glauco-albidis; basi, lateribus (versus apicem dilatatis), et fascia lata media (in medio interrupta), brunneis, antennis longis, sterno parvo conico.

Long. corp. lin. 16.

Habitat in Guinea. In Mus. Dupont.

Head and thorax clothed with very short brownish luteo-fulvous pile, having a greenish tinge at the sides of the latter; the eyes margined with whitish. Antennæ long, 11-jointed; the terminal joint very long and slender; they are setose beneath for about one-third of their length, and are dark gray, with a brown tinge, the joints being black at the tips. Mandibles simple (fig. 2 *a*); the sides of the prothorax are armed with a small spine; the elytra have a broad brown base, with the posterior edge irregular; the sides of the elytra are also brown, which colour extends into a large patch on each side, running more than half across the middle of the elytra; near the extremity, also, it is dilated into a broader patch of this colour; the remaining space is of a pale dull greenish colour, separated from the brown by a whitish line, following the irregularities of the latter; legs gray-brown; body beneath entirely

brownish luteous-fulvous; mesosternal process small and conical (fig. 2 b, 2 c), and but slightly prominent.

LAMIA (STERNOTOMIS) EREMITA, *Chevrolat's MSS.*

(Plate 78, fig. 3.)

L. luteo-albida punctata, supra capite et thorace nigro-maculatis, hoc striga media longitudinali nigra ante medium constricta, elytris albido et nigro variis, plaga magna irregulariter trianguli pallida basali relieta.

Long. corp. lin. 10.

Habitat in Senegallia. In Mus. D. Chevrolat.

Upper side of the body pale luteous-buff, varied with black. The head has a patch in the middle of the hind margin, and two small spots on each side; the face has four minute oblique black spots; antennae short, 11-jointed, black, each joint, after the second, having a broad gray ring at the base: the pronotum has a rather broad black stripe down the centre, and several irregular-shaped smaller black lateral spots, the sides being produced in the middle into an acute black point; the elytra have a large pale irregular triangular-shaped patch at the base, with two minute black dots at the sides of the scutellum, and two at a little distance below it; the remainder of the elytra are black and punctured, with numerous pale markings of irregular shape, and with pale irrorations upon the black parts; legs pale, with black rings; beneath buff-stone coloured, with a pinkish tinge; the middle of the body black and shining, a minute black spot on each side of the prosternum, and also near the outer hind angle of the mesosternum, and a spot on each side of the abdominal segments united with the black middle patch in the terminal segment. Mesosternal process broadly quadrate, and not porrected (fig. 3 a, 3 b).

LAMIA (STERNOTOMIS?) BICOLOR, *Westw.*

(Plate 78, fig. 4.)

L. obscure fusca tomentosa, elytris pallide virescenti-sulphureis.

Long. corp. lin. 12 $\frac{1}{2}$.

Habitat. Gold Coast, Guinea. In Mus. D. Carter.

Nearly allied to *L. angulator* Olivier, from which it differs in the form of the mesosternal process. Entirely covered with a dull brown silky pubescence, except the elytra, which are of a pale yellowish-green, with an opaline gloss. Eyes and mandibles black; antennae 12-jointed; prothorax with the sides armed with a small pointed tubercle; mandibles simple, mesosternal process small, conical, channelled, and rather porrected (fig. 4 a, 4 b).

The plant represented in the plate is *Pontederia natans*, Pal. d. B., a native of tropical Western Africa.

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PLATE LXXIX.

DESCRIPTIONS OF THREE NEW ASIATIC SPECIES OF PAPILIO.

PAPILIO PALEPHATES, *Boisduval's MSS.*

(Plate 79, fig. 1.)

P. alis anticis oblongis sub-ovalibus, brunneo-nigris, serie duplii macularum albarum, versus apicem in plagam magnam dilatata, posticis ecaudatis maculis 5 cuneatis lunulisque sex submarginalibus incisurisque fulvis.

Expans. alar. unc. $4\frac{1}{6}$.

Habitat in Manilla. In Mus. reg. Paris.

Closely allied to P. Panope, Linn., of which it will probably prove only a geographical variety, differing from the typical Continental individuals in the large pale patch near the tip of the fore wings, and in the hind wings beneath having the veins margined with pale buff. In the disposition of the markings it otherwise accords with P. Panope, but its fore wings are more ovate, the apical margin being a little rounded; they are of a rich brown colour, with a large whitish patch, formed of three confluent oblong spots near the apex of the wing, followed by a single small oval spot close to the apex; and beneath these are several small conical spots, which become united with the marginal spots, of which there are only six, the apical portion of the wing not possessing them; besides these there are three oval or round spots preceding them, towards the anal angle. The hind wings are brown, with five cuneated pale patches, extending from the anal margin, succeeded by six lunate pale spots extending from the outer angle, and with five fulvous incisural spots, the anal angle bearing a larger oval fulvous spot, in which is a black dot. The fore wings on the under-side are of a paler brown colour, but similarly marked beyond the middle; the base also with several pale dashes. The hind wings have the veins from the base to beyond the middle edged with pale buff; half way between the discoidal cell and the hind margin of the wing is a row of five white crescents, shaded off into the ground colour of the wing, and separated by brown arches from a row of white horse-shoe marks, within which are six large fulvous incisural marks; the base of all the wings with small round white spots; the body and abdomen are also spotted with black.

PAPILIO XENOCLES.

(Plate 79, fig. 2.)

SYN.—*Papilio Xenocles*, Doubleday, in Gray's Zool. Misc., p. 74.

P. alis sub-ovalibus ecaudatis, fuscis albido-virescenti striatis et maculatis, posticis macula fulva ad angulum ani notatis.

Expans. alar. unc. $3\frac{1}{2}$.

Habitat in Assam. In Mus. H. Doubleday.

Nearly allied to P. Macareus, from which it differs at once in the fulvous patch at the anal angle, in which respect it agrees with

P. Laodocus, De H. (P. Delessertii, *Guér.*). The upper side differs from the under only in having the ground colour of all the wings dark brown. The species is described in the work above quoted.

PAPILIO LEUCOTHOE, *Westw.*

(Plate 79, fig. 3.)

P. alis sub-ovalibus, nigro-fuscis, anticis pone medium seriebus duabus macularum lactearum, internis majoribus, cuneatis (intermediis minoribus); alis posticis ecaudatis, lacteo-albidis venis margineque postico fuscis, hoc lunulis sex punctisque anali albidis.

Expans. alar. unc. 4.

Habitat in India Orientali (circa Pulo Penang?*) In Mus. Britann.

Closely allied to P. Clytia † and Laodocus in the form of its wings and arrangement of the wing-veins (especially in the narrowness and length of the discoidal cell of the hind wings), but differs, especially from P. Laodocus, in its markings and colour, so that it cannot be supposed to be a suffused variety of that insect. Fore wings above dark brown, with cream-white spots; in the discoidal cell are two minute white dots, just preceding the insertion of the second and third branches of the median vein; just beyond the extremity of the discoidal cell also marked with three small white spots, followed by a curved row of nine cuneated marks of unequal size, those towards the inner margin being the largest, the one nearest the costa is round; the seventh and eighth are confluent through more than half their length, and the ninth or innermost one is long and lanceolate; these are followed by a submarginal row of eight round spots, increasing in size to the inner margin, the last being confluent with the patches preceding it. Hind wings brown, with the veins edged with, and the outer margin brown, the latter with six pale submarginal spots; those towards the anal margin being lunate, the anal angle itself with a small pale dot. Under surface similar, but the brown colour is paler, and the base of all the wings is marked with several small round white spots. Head and thorax black, with white spots; abdomen black, with a broad white longitudinal stripe on each side; body beneath spotted with black.

The orchidaceous plant represented in the plate is the *Trichosma suavis*, Lindl., from the Khoseea district of India.

* This species was obtained in a collection recently sold by auction by Mess. Stevens, of King Street, Covent Garden, containing specimens of Pap. Laodocus, Fulgora Delessertii, and F. Lathburii K. &c.; so that it is most probable that it was from the southern part of the eastern peninsula of India.

† It is accordingly named after her favoured rival, Leucothoe.

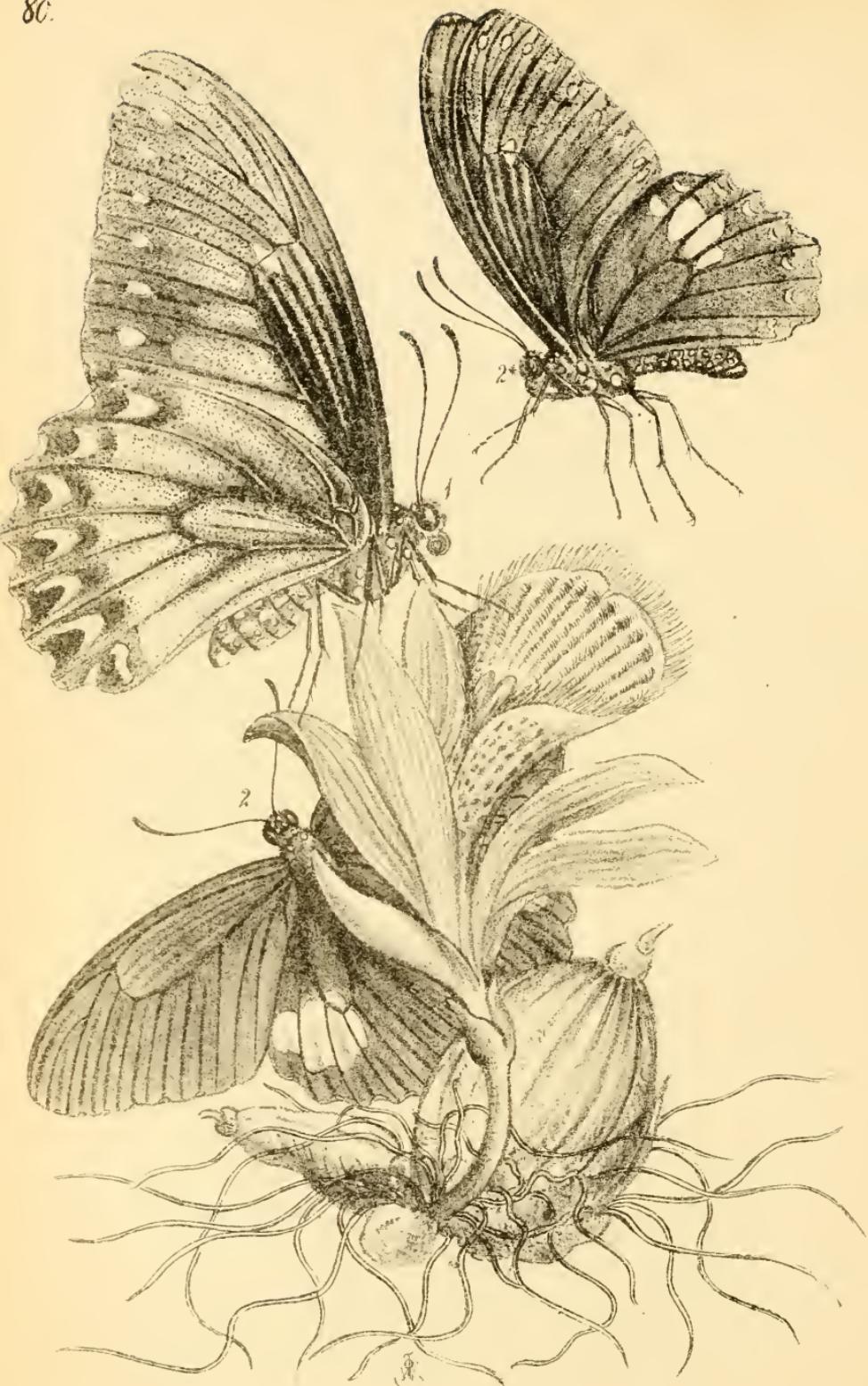


PLATE LXXX.

ILLUSTRATIONS OF TWO ADDITIONAL SPECIES OF PAPILIO, SENT FROM ASSAM BY MAJOR JENKINS.

SINCE the publication of the 19th number of this work, in which two new species of Papilio, kindly communicated from Assam by Major F. Jenkins, were figured, I have received two cases of insects from the same gentleman, in which were contained specimens of the two species represented, for the first time, in the accompanying plate. They had previously, however, been described by myself in the Annals of Natural History, from specimens received from Sylhet by the Rev. J. Stainforth, now in the collection of H. Doubleday, Esq. In respect, therefore, to their geographical range, this circumstance becomes of importance. It is also rather remarkable, that all these new Assamese species should be so little striking in their colours.

PAPILIO POLLUX. *Westw.*

(Plate 80, fig. 1.)

P. alis latis posticis sinuatis ecaudatis, omnibus supra fuscis; anticis supra puncto ad apicem areæ discoidalis, serie submarginali et marginali punctorum ad apicem extensis, albidis plagiisque duabus plus minusve oblitteratis versus angulum internum; posticis fascia latissima albida seu virescenti (venis divisa) pone medium; serie lunularum submarginali sinibusque albo marginatis: alis subtus similiiter coloratis at fulvo pulverosis in partibus fuscis lunulisque submarginalibus posticarum majoribus, corpore albo punctato. Expans. alar. unc. $4\frac{3}{4}$ — $5\frac{1}{2}$. Variat magnitudine macularum coloreque fasciæ posticarum quæ subinde fere oblitterata est.

Habitat Sylhet et Assam. Mus. Doubleday et nostr.

The under side of a fine light coloured specimen is here represented, the upper side differing in having the cream-white colour rather less diffused, especially towards the inner angle of the fore wings; sometimes, also, the marginal spots of the fore wings are entirely, and the submarginal ones nearly, obliterated towards the tip of the wings, except the large one next the tip; the large discoidal spots near the inner angle of the fore wings on the upper side are more or less obsolete, and occasionally confluent with the adjacent submarginal patches.

PAPILIO CASTOR. *Westw.*(Plate 80, fig. 2 and 2^a.)

P. alis latis anticis apice subacutis, posticis sinuatis ecaudatis, omnibus supra fuscis, anticis venis strigisque intermediis nigris, margine punctis minutis albis; posticis macula magna discoidalii (versus angulum externum extensa) albâ in 4 vel 5 partes irregulares venis divisa; sinibus albo marginatis, anticis subtus macula parva ad apicem areæ discoidalis,

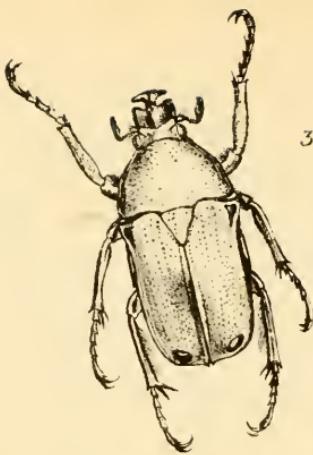
serie submarginali punctorum (apicalibus interdum obsoletis) punctisque marginalibus albis, posticis maculis 4 albis discoidalibus versus angulum externum alterisque tribus minoribus ad marginem analem interdum adjectis, serie submarginali lunularum albarum sinibusque albo-marginatis; corpore nigro, albo-punctato.

Expans. alar. unc. $3\frac{3}{4}$ — $4\frac{2}{4}$.

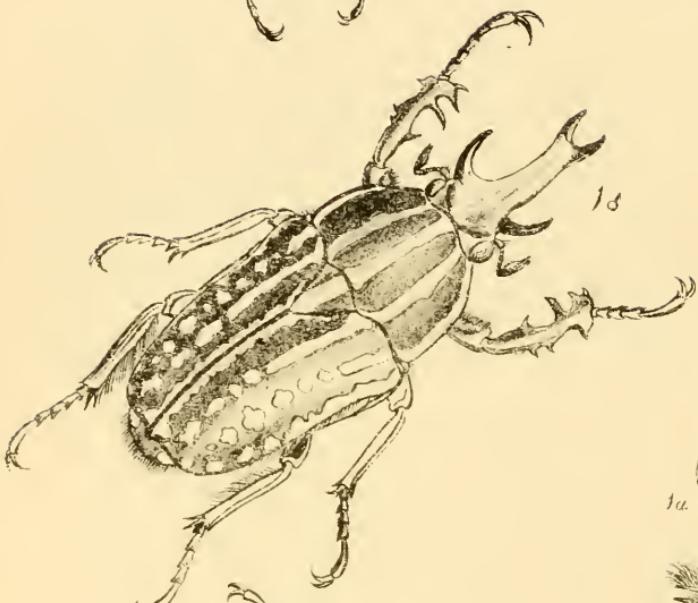
Habitat Sylhet et Assam. Mus. Doubleday et nostr.

The plant represented in the plate is the *Epidendrum humile*, from Nepal.

3♂



1♂



2♀



PLATE LXXXI.

DESCRIPTIONS OF TWO SPECIES OF GOLIATH BEETLES, FROM
TROPICAL WESTERN AFRICA.MECYNORHINA SAVAGII, *Harris.*

(Journal of Boston Soc. of Nat. Hist. vol. iv. pl. 21.)

M. pronoto obscurè viridi opaco lineis 5 flavis, elytris nigris velutinis sutura utrinque striisque tribus (in singulo) e maculis flavis plus minusve confluentibus notatis, tarsis posticis fulvis ♂ ♀.

Long. corp. ♂ (cornu capitis inclusu) unc. $2\frac{1}{2}$; ♀ unc. $1\frac{3}{4}$.

Habitat Cape Palmas Africæ occid. tropic. D. Savage. In Mus. D. Hope.

(Plate 81, figs. 1, 2.)

The splendid addition to the family of the Goliath Beetles, represented in the annexed Plate, has been recently discovered in tropical Western Africa, by Dr. Savage, and at his request I have added coloured figures of both sexes of it to my former articles on this tribe of insects, although a previous description has appeared from the pen of the talented Dr. T. W. Harris, of Harvard University, Boston, U. S. It is closely allied to the two other species of *Mecynorrhina*, but differs from *M. torquatus* in its striped thorax, maculated elytra, and furcate horn of the clypeus, in all which respects it is nearer to *M. Polyphemus*, which is at once known from it by the dark green ground colour of the elytra, anterior tibiae of the males multidentate on the inner edge, and especially by the black colour of the posterior tarsi and the emarginate clypeus of the female of the *Polyphemus*.

The male has the head in front of the eyes armed with two porrected black horns, bent outwardly, and the front of the head is produced into a horizontally porrected broad horn, furcate at the tips; the head and upper surface of the frontal horn are entirely clothed with a very fine grayish plush or slight velvety knap, the underside of the latter dark chesnut black; the two other horns are black. The disc of the head is considerably excavated. The thorax is dark opaque velvety green above, with five broad yellowish stripes, the two intermediate ones rather dilated in the middle, and the lateral ones having only a very slender black margin. The scutellum is dark green, with a broad yellow stripe along the middle. The elytra are velvet black, each with three longitudinal rows of fulvous spots, and an irregular stripe of the same colour on each side of the suture, the marginal and sub-sutural spots confluent from the base to the middle. Each elytron

is pointed at the extremity of the suture, being most conspicuous in the female. The podex is black, with two conspicuous square whitish spots. The fore legs are robust, the femora green, variegated beneath with pale whitish plush; the tibiae black, with three unequal sized strong teeth on each side, exclusive of the apical spur, those on the outer edge being abruptly bent downwards; the tarsi of the four fore-feet black, middle tibiae with the outer edge entire, the apical spur bent, hind tibiae simple on the outer edge, and with a thick coating of golden brown hairs along the inner margin; posterior tibiae pale fulvous, with the tips of the joints and claws black. The under side of the prothorax is thickly coated with whitish plush, as are also the sides of the meso- and metathorax; the middle of the mesosternum and thighs are dark opaline green, highly polished.

The mesosternal process is broad, porrected and rounded in front, with a thick coating of fulvous pile on its upper side; the abdomen is dark chesnut, with the centre much depressed, and the podex is fringed with fulvous hairs.

The female agrees with the male in general characters, but has the head entire and unarmed, the clypeus broad, square, and entire, with the front margin reflexed; the disc of the head is marked with two oblong whitish patches of plush. The anterior tibiae are entire along the inner margin, but armed with three extremely acute teeth on the outside; the middle tibiae are armed with two teeth on the outside, near the middle, and the posterior ones with a single tooth in the middle; the underside of the abdomen is convex and green, and the sides of the breast are covered with a yellowish gray plush, intermixed with coarse hairs.

Dr. Savage informed Dr. Harris that this species and *M. Polyphemus* feed upon a vine that climbs upon very lofty trees, and that they wound the bark of the vine and extract the juice, the vine being full of a fluid as tasteless and limpid as water; and the natives when travelling in the wood, cut it off and drink the juices when no water can be easily obtained.

The males of these as well as of the other gigantic Goliath beetles are found by Dr. Savage to be much more numerous than the females. Every practical collector knows that this is the case with the common *Melolonthæ* and other species, which, like the Goliath beetles, are chiefly taken on the wing. With respect to the geographical distribution of these fine insects, Dr. Savage observed

that "the black shouldered *G. cacicus* abounds on the grain and ivory coasts, and many specimens have been procured at Cape Palmas. When in good condition the black patch is always more or less conspicuous on the shoulder of each elytron in this species, and is never replaced by the pearly white colour which appears on that part in Voet's figure and description; hence it still remains uncertain whether Voet's *Cacicus ingens* be a distinct species, or merely an accidental variety of the black shouldered species. The latter inhabits a tree that grows to the height of thirty or forty feet, with a diameter of six or eight inches, and can be taken in great numbers in the months of December, January and February, when the tree renews its blossoms and leaves. The insects are roasted and eaten by the natives, who say that they are very fat and sweet. Dr. Savage thinks that the Gold Coast, or rather the interior of Guinea, will be found to be the proper locality for *Hegemon* Drurii*. It is probable that *Hegemon Goliatus* may be obtained nearer the line, and particularly back of the Gaboon. *Mecynorhina torquata* is found at Cape Palmas, where many have been obtained within a few years. The tree upon which they live is supposed by Dr. Harris to be a species of *Acacia*. *Dicronorhina micans* has been taken at Cape Palmas also, but seems to be rare on that part of the coast.

It appears from the observations of Dr. Harris that "the food of the Goliath Beetles is fluid, like that of the *Trichiæ* and *Cetoniæ*, insects belonging to the same natural family, but the latter live chiefly on the nectar of flowers, and the former on the sap of plants. The long brushes on their jaws (maxillæ), and the diverging rows of hairs that line their lower lips, are admirably fitted for absorbing liquid food, while their horny teeth afford these beetles additional means of obtaining it from the leaves and juicy stems of plants, when the blossoms have disappeared. Thus every new discovery in natural history, even when least expected, serves to increase the evidence of skilful contrivance and perfect adaptation of structure in all organized beings."[†]

* Dr. Harris proposes to restore the name *Goliatus*, as originally proposed by Linnaeus to designate the *species*, and to replace it, for the *genus*, by the name of *Hegemon*.

† Harris in op. cit. supra. It would be interesting to learn whether any and what distinction of natural habits exist between those Goliath Beetles which possess corneous dentated mandibles, and those which have them formed of a slender horny blade.

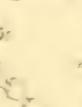
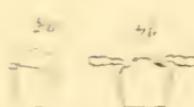
CERATORHINA (CŒLORHINA) AURATA ♂, *Westw.*

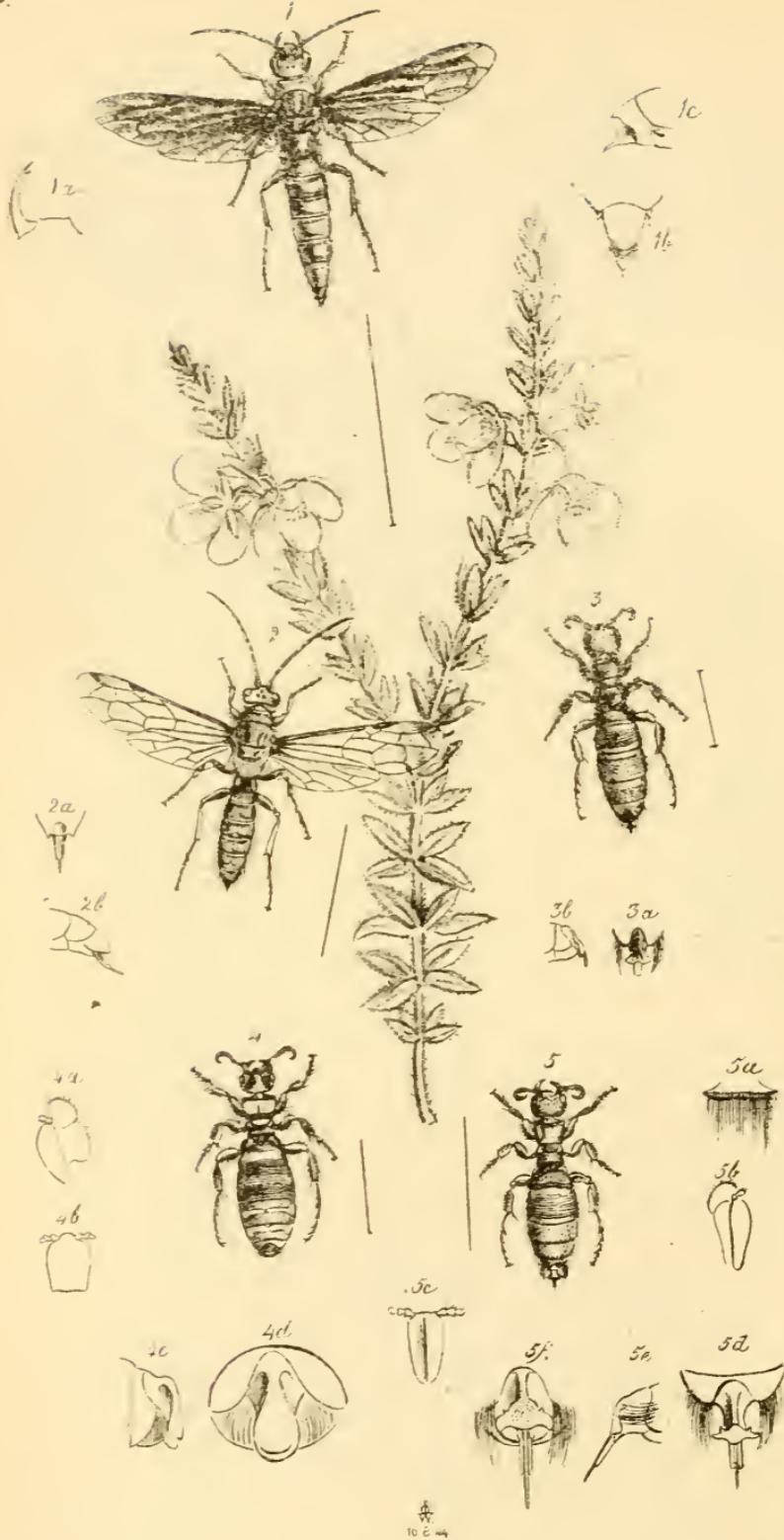
(Plate 81, fig. 3.)

In the former volume of this work (i. p. 180) I described an insect from the collection of J. Turner, Esq., of Manchester, under this name, being at the time acquainted only with the female. Recently I have observed the male of this insect in the collection of A. Melly, Esq., and Dr. Savage has forwarded specimens of both sexes to the Rev. F. W. Hope from Cape Palmas. The male is accordingly now represented, in order to render the illustrations of the species complete. It measures (including the frontal horn) 14 lines in length, and agrees in colour and general character with the female. The front of the head is, however, produced and square, with the sides and middle rather elevated, and furnished with a rather short horn in the middle of the anterior margin, the extremity of which is greatly dilated and pointed at the sides. The disc of the head is hollowed out, its basal portion extending over the impression, and deeply emarginate, the lateral angles forming two points in advance of the eyes. The fore legs are rather long, with the tibiæ unarmed on the outer edge, but the inner edge is very finely serrated (although not perceptibly so unless seen under a lens); the middle and hind tibiæ are also unarmed, and the abdomen is longitudinally channelled down the middle. The mando of the male is simple, and that of the female armed with a horny spine.



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PLATES LXXXII AND LXXXIII.

FURTHER ILLUSTRATIONS OF THE THYNNIDEOUS INSECTS OF
AUSTRALIA.

THE Rev. F. W. Hope having, since his return from Italy, placed at my disposal his collection of Thynnidæ, containing several species, of which he had acquired both sexes from W. S. MacLeay and C. D. E. Fortnum, Esqrs., I am induced to add figures of these and some other allied insects to my previous illustrations, our knowledge of the true arrangement of this family depending so greatly upon the determination of the sexes of the different species.

THYNNUS LEACHIELLUS. *Westw.*

Plate 77, fig. 1 ♂. (*T. interruptus*.) Plate 83, fig. 4 ♀.

Both sexes of this species having been received by Mr. Hope from Mr. MacLeay, the female is now represented. In several respects it differs from the females of the more typical species; but as these differences appear to be of no higher than specific value, it is unnecessary at present to establish a separate subgenus for its reception. The female is black varied with yellow, the head black and shining, of nearly equal breadth with the prothorax: it has on each side a deep longitudinal impression, extending from the base of the antennæ to the back part of the head, leaving the middle of the face much elevated. These impressions are smooth, but the rest of the head is punctured. The antennæ are black, the mandibles pitchy and entire, with the tips black. The lower parts of the mouth are minute, the palpi of the maxillæ almost obsolete and apparently two-jointed (fig. 4 *a*), and those of the labium rather larger and three-jointed (fig. 4 *b*). The prothorax is smooth, polished, and nearly flat on its upper side, being almost entirely, except along its posterior margin, occupied by a broad yellow fascia, bearing a short brown line in the middle: the mesothorax is short, narrow, and yellow, and the metathorax black, nearly as broad as the prothorax, angulated at the sides, and with the posterior extremity transversely deflexed. The legs are black, with the articulations pitchy and the tarsi paler. The fore tarsi are densely spinose, the middle tibiæ thick and also setose, the setæ mixed with short spines, and the hind tarsi long, slender, and very setose. The

abdomen is large and convex, the basal segment with a yellow fascia before the extremity, and behind the fascia marked with two slender elevated carinated striæ. The second segment is large, with a yellow fascia, and with the entire surface marked with fourteen or fifteen transverse elevated carinated striæ. The third and fourth segments are black and polished, the third with a slender pale yellow fascia, dilated into a round yellow spot at each side, and the fourth with a rather broader fascia, interrupted in the middle, and also dilated at the sides; the fifth segment is very deeply emarginate above for the reception of the sixth segment, which is very delicately transversely streaked at the base and sides, the extremity forming a thick truncated anal appendage (fig. 4 c, 4 d), rounded beneath, where it is marked by a semicircular impression. The abdomen beneath is entire, with the fifth segment longitudinally striated. The length of the female is nearly six lines. The specimen of the male sent by Mr. MacLeay with this female is smaller than my individual, measuring only $10\frac{1}{2}$ lines in length, and having the head and thorax more coated with fine short hairs, my specimen having been injured by the attacks of insects.

Mr. MacLeay has forwarded this species under the name of *T. interruptus*, Leach, being the same name as is applied to the male in the British Museum collection, and which was thence adopted by me in p. 115. As, however, Dr. Klug has described a species from Southern Brazil with the same name, I have been compelled to give it a new specific denomination.

THYNNUS SHUCKARDI, Guérin.

(Matér. s. l. Thynnides, Mag. de Zool. 1842, pl. 100, fig. 13 ♂. *T. ferrugineus*, Leach MSS.)

The male of this insect having been described and figured by M. Guérin Méneville, in the Magasin de Zoologie for 1842, I have not thought it necessary to refigure it; but as Mr. Hope has received both sexes from Mr. MacLeay, I have figured the female, and added M. Guérin's description of the male, which is as follows:—

Male.—“Noir chaperon et base des mandibules jaunes, tête et abdomen [thorax*] couverts d'un duvet jaune très-dense et à reflets dorés soyeux. Dessus de l'abdomen d'un jaune ferrugineux, plus pâle à la base avec la plaque inférieure du dernier segment très-saillante en arrière lancéolée, striée transversalement et terminée

* I presume that M. Guérin has made a mistake, by describing the abdomen instead of the thorax as covered with down, the abdomen being naked in the section of the genus to which *T. Shuckardi* belongs.

par une épine aiguë et un peu arquée en haut. Ailes jaunes transparentes à base, et nervures brunes. Antennes, pattes et dessous du corps noirs, avec un faible duvet gris-jaunâtre. Long. 26 mill. [13 lin.] Hab. la Nouvelle Hollande.”*

Female.—(Pl. 83, fig. 5.) The specimen of this sex sent by Mr. MacLeay in company with the male, is seven lines long, and of a chesnut colour. The head is convex and punctured, slightly broader than the prothorax; the antennæ chesnut-brown, the clypeus truncate in front, the labrum short and strongly ciliated (fig. 5 a), the mandibles are large, sickle-shaped, and entire, chesnut coloured, with the tips black and furnished with long hairs on the outer margin of the under side; the maxillæ (fig. 5 b) are small and the maxillary palpi almost rudimental, the mentum also small and furnished with minute 3-jointed palpi (fig. 5 c). The prothorax is almost flat above, and nearly transversely quadrate, with a row of strong punctures along its fore margin; the meso and metathorax are more punctured, the latter with the sides obtusely angulated, and its hind part not so suddenly and transversely deflexed as in the preceding species; the femora are black, the tibiæ (especially the fore pair) more pitchy, and the tarsi pitchy and very setose; in their structure they agree with the preceding species. The abdomen is large, oval, and convex, the basal segment rugose, with a carinated transverse stria near the apical margin; the following segment is large, with seven or eight carinated transverse striæ across it, the posterior ones being wider apart; the third segment is irregularly punctured, as is also the 4th on its posterior margin, where it is furnished with irregular gray hairs; the fifth segment is deeply emarginate for the reception of the anal segment, which is contracted at its base and dilated into a flattened truncated terminal plate, with a minute tooth on each side above and a waved slit below, whence the exserted aculeus and its appendages are emitted; the sides of the preceding segment are furnished with long golden-coloured setæ; the entire body is black beneath, the abdomen entire, and punctate, and the fifth segment irregularly but transversely rugose.

* The following are the characters of a species in my collection closely allied to *T. Shuckardi*:—

THYNNUS GUERINII, Westw. Niger, capite et pro- et mesothorace aurotomentosis, metathorace griseo piloso, clypeo et mandibulis flavis; abdomine lœvi nitido supra fulvo-brunneo basi pallidiori, subtus nigro, brunneo vario, spina apicali lanceolata, basi utriusque aequalata apiceque acuto instructo, alis flavidis anticus basi fuscis venis stigmatisque nigricantibus, femoribus nigris tibiis tarsisque piceo-brunneis. Long. Corp. lin. 12. Expans. alar. lin. 23. Habitat King George's Sound. Mus. Westw.

THYNNUS (THYNNOIDES) OBSCURUS, *Klug.*

(Ueber Thynnus F. p. 22, Pl. annex. fig. 4 ♂.)

The male of this species having been described and figured by Dr. Klug, the opposite sex only is here represented; both sexes having been forwarded to Mr. Hope by Mr. MacLeay, under the name of *T. nasutus* Mc. L.

The male is described as follows by Dr. Klug:—

Th. fusco-niger albido villosus, pedibus brunneis. Mas. Long. lin. 10.

Ubique dense punctatus. Clypeus porrectus dorso convexus, carinatus apice truncatus, flavo marginatus. Mandibulae flavæ marginibus apicque nigris. Antennæ abdomine vis breviores. Prothorax apice membranaceus pallidus, tegulæ apice testaceæ. Caput antice, genæ, pectus, metathorax, latera abdominis dense albo villosa. Alæ infuscatae, nervis stigmatisque nigris. Pedes brunnei, coxis, tarsis, anticorum femoribus basi nigris; abdominis segmentum dorsale ultimum dorso impressum; spina in abdominis apice porrecta lanceolata acuta incurva, basi utrinque obsolete tuberculata.

This sex, which I have received from Mr. Curtis, differs from the males of the other *Thynnoides* in not having the anterior coxae dilated and cup-shaped.

The female (Plate 82, fig. 2,) partakes of the obscure and sericeous appearance of the male, being black, with a slight pitchy tinge, the head convex and extremely delicately punctured, the punctation being visible only with a lens, the clypeus short and truncate at the tip, the mandibles reddish, with the tips black, the antennæ pitchy, the maxillary palpi (fig. 2 *a*) almost obsolete, the labial palpi (fig. 2 *b*) longer and 3-jointed. The thorax is black and finely punctured, the hind margin of the prothorax membranous and pitchy, the legs pitchy brown and thickly setose; the abdomen is large and convex, the first segment widely punctured, with a single carinated stria near the hinder margin, the second segment large and transversely marked with about seven carinated striae, the third segment is very finely punctured, and divided transversely into two parts by an impressed line; the hind part of this and the following segments clothed with very fine gray down. The anal segment (fig. 2 *c*, 2 *d*) is deflexed, oval-truncate, and longitudinally striated, with the aculeus exserted and directed downwards; the basal segment beneath is angulated. The body beneath is black, with a gray sericeous coating, and with the fifth segment very thickly punctate. The specimen of the female sent by Mr. MacLeay is six lines long.

THYNNUS (THYNNOIDES) GRACILIS, *Westw.*

(Plate 83, fig. 2, 3.)

♂ Th. elongatus, totus niger, albo-setosus, alis hyalinis apicibus obscurioribus, coxis anticis sub-cochleatis.

Long. corp. lin. 8. Expans. alar. lin. 14.

♀ piceo-nigra, griseo-setosa, abdomine nigricanti, segmentis posticis postice punctatis.

Long. corp. lin. 5.

Habitat prope Portum Adelaidæ. D. Fortnum. Mus. D. Hope.

The male of this species (fig. 2) is of a more attenuated form than in the other Thynnoides. It is uniformly of a black colour, and clothed with silvery white hairs on the under-side of the body and legs. The head is transverse, black, and punctured with a tubercle between the eyes, at the sides of which the antennæ are placed, a slender, straight, polished line running down it and the clypeus, which is considerably produced, convex, punctured, with the extreme lateral edges whitish; the mandibles and palpi are black, the antennæ rather slender, and about the length of the abdomen; the thorax is black and punctured, the anterior lateral angles of the prothoracic collar are angularly prominent. The mesothorax is marked on each side with two impressed lines near the tegulae, and within these are two abbreviated impressions, not extending to the anterior margin; the tegulae are black. The abdomen is black, with the segments slightly constricted, each with a strong transverse impression across the base, and with a semicircular prominence on each side beyond the middle. The seventh segment is furnished with a small, circular, and rather deep impression near its extremity above, and with a minute tubercle on each side (fig. 2 *a*, 2 *b*), and the extremity of the abdomen is armed with a slender spine, the tip of which is suddenly attenuated. The legs are slender, black, and clothed with grayish white hairs; the anterior coxae are dilated and slightly excavated. The abdomen beneath is strongly punctured; the anterior and second segment not angulated nor tuberculated in the middle, but the second and three following segments have on each side, towards the posterior margin, a very slight conical protuberance, with a slightly elevated line extending between them. The wings are hyaline, with the tips dusky, more especially at the extremity of the marginal cell.

The female (pl. 83, fig. 3) is also rather more slender than those of the preceding species; it is of a pitchy black colour, the abdomen being blacker than the rest of the body. The head is broader

than the prothorax, and nearly rounded, convex, remotely punctated, and sparingly furnished with gray hairs; the mandibles pitchy, with the tips black; the antennæ obscure pitchy. The prothorax is smooth and polished, with a row of setigerous punctures in front. The meso and metathorax are punctured, the latter with the hind part obliquely truncate. The abdomen is elongate cylindric, with the ends rounded, the basal segment deeply but remotely punctured with a transverse carinated stria, at a little distance preceding the hind margin, the space between these being delicately rugose; the second segment has one of these carinated striae at a little distance from the base, and another at the like distance from the hind margin, the intervening space occupied by five curved striae; the third segment has also one of these striae near its base, the space between it and the hinder margin thickly punctate; the basal half of the two next segments is smooth, and the hind half punctured; the fifth segment is thickly setose, and the sixth forms a porrected deflexed anal appendage, dilated in the middle (fig. 3 a, 3 b). The legs are pitchy and setose; the middle and hind tibiae also armed with minute spines on the outer edge. The body beneath is pitchy; the abdomen entire beneath, with the first and second and the posterior half of the following segments thickly punctured.

THYNNUS KLUGII, *Hope MS.*

(Plate 82, fig. 1.)

T. niger subitus argenteo-sericeus, clypeo et collare fulvis, scutello elevato pedibusque brunneis, metathorace et abdominis basi griseo lanato; alis fulvis venis brunneis ♂.

Long. corp. lin. 18. Expans. alar. lin. 32.

Habitat Swan River. D. Roe. Mus. Hope et Brit.

This fine species, by far the largest in the family, has been appropriately named by the Rev. F. W. Hope, in honour of Dr. Klug.

The head is black and delicately punctured, rather depressed on each side, between the ocelli and eyes, the front of the head furnished with a broad tubercle, at the sides of which the antennæ are affixed; these have the basal-joint pitchy and the remainder black, and with the apical joints attenuated to a point; the clypeus is prominent and convex, nearly truncate at its extremity, and concealing the labrum, and is fulvous; the sides of the face above the mandibles (fig. 1 a) are thickly coated with fine silvery hairs, the mandibles are robust and fulvous brown, with the tips and

inner margin black : they are furnished near the base beneath with a strong brush of fulvous hairs, the inferior parts of the mouth and the palpi are fulvous, the head beneath is black and thickly setose. The prothorax is dark fulvous, with the anterior margin prominent on each side, the tegulae are fulvous, the mesonotum is black, with the lateral margins rather elevated and two impressed longitudinal lines coated with short fulvous down ; the scutellum is brunneous and elevated in the middle into two slightly conical tubercles, the metanotum is black, minutely punctured and densely clothed with fine gray hairs. The abdomen is nearly as long as, but narrower than, the head and thorax, it is elongate-ovate, convex above, black, shining, and scarcely punctate, the basal joint rather abruptly deflexed to the place of its insertion, and with a brush of gray hairs on each side ; the seventh segment is abruptly deflexed, striated and truncated, the last ventral segment terminated in an obtuse deflexed and curved point (fig. 1 b, 1 c). The femora and tibiae are dark chesnut, the posterior pair of the former angulated in the middle of the hind margin and terminated below in a spine ; the tarsi are paler, the posterior pair being twice as long as the tibiae, the basal joint of the anterior tarsi is coated with short silver gray hair on its outer edge. The wings are large and stained deep yellow, with brown veins and stigmata ; the supplemental vein in the first submarginal cell is very slender ; the body beneath is black, finely punctured and thickly pubescent ; the anterior coxae and the bifid point of the mesosternum brunneous ; the latter is marked with three longitudinal impressed lines, which do not reach the anterior margin.

THYNNUS GRAVIDUS, *Westw.*

(Plate 82, fig. 3.)

♀ Th. niger, antennis mandibulis prothorace scutello pedibusque rufo-castaneis, abdomine maximo flavo fasciato. Long. Corp. liu. 14.

Habitat in Nova Hollandia. Mus. Hope.

The large size of this insect, together with its peculiar colouring and the structure of its hind femora, induce me to think it probable that it may be the female of *Th. Klugii*.

The head is small, black, and convex above, the sides and hind margin being nearly straight, with the angles rounded off: it is thickly punctated, especially in front where it is produced into a bifid tubercle, at the sides of which the antennae are inserted; these, judging from the two basal joints, are fulvous brown, as is also the

very short clypeus, and the broad but entire mandibles, of which the tips are black, and the under-side furnished with long hairs (fig. 3 *a*) ; the labrum is short, exposed and setose ; the maxillary palpi are very small, but they consist of six joints (fig. 3 *b*, 3 *c*) ; the labial palpi are also minute, but they are four-jointed (fig. 3 *d*, 3 *e*) ; the prothorax is large and quadrate, being broader than the head, with the posterior portion rather narrowed ; it is finely punctured and has a circular impression on each side, which may, however, possibly be accidental ; the mesothorax is small and chesnut-red, and the metathorax black and punctated, with the lateral angles rounded off. The abdomen is very large, and semi-cylindrical, the first and second segments being destitute of gloss and very finely rugose, and the remaining segments glossy and impunctate ; the anterior segment is yellow above, with several black dots on the deflexed basal part, and the hind margin is also black ; the second segment has the anterior and posterior margin black, and of equal breadth ; the following joints are also similarly coloured, but the black basal part is much broader than the posterior margin ; the sides of the intermediate segments are also dotted with black ; the fifth segment is nearly as large as the preceding and not emarginate at its hinder edge ; the terminal segment is entirely black, thick, convex above, truncated at the extremity, with the sides slightly striated (3 *f*, 3 *g*). The abdomen beneath is pitchy, varied with obscure red, the fourth segment having two transverse marks of this colour ; the first segment is angulated at its base. The legs are chesnut-red ; the anterior short, with the spur at the extremity of the tibiae half as long as the tarsi ; the basal joint of the tarsi, on the outer edge, spinose ; the posterior femora are emarginate on the hinder edge, beyond the middle, and the posterior tarsi are twice as long as the tibiae.

The six-jointed maxillary and four-jointed labial palpi, together with the strong spur of the fore-feet, the character of the second segment of the abdomen, and the notched posterior femora, are characters which do not occur in the females of the typical *Thynni*. I cannot, however, regard them as of higher value than specific, considering that the true character of the females of the genus *Thynnus* consists in the rudimental size of the palpi, and which is not overbalanced by their possessing the typical number of joints.

THYNNUS PURPURIPENNIS, Westw.

(Plate 83, fig. 1.)

Th. niger nitidus griseo parum setosus, abdomine elongato subdepresso, alis nigricantibus purpureo-nitidis.

Long. corp. lin. 12. Expans. alar. lin. 20.

Habitat in Nova Holland. Mus. D. Turner.

This very distinct species is entirely of a black colour, more or less clothed with fine silvery pubescence, especially on the under side of the body and face. It is of a long and narrow form, almost approaching that of the males of *Rhagigaster*. The head is strongly punctured with a wide but slight tubercle in front, at the sides of which the antennæ are placed; the clypeus is long and truncate, concealing the labrum; and the mandibles are curved, rather slender, and with a tooth within near the tip, clothed on the under-side with long slender hairs; the antennæ are slender, pointed at the tips, and scarcely longer than the thorax; the maxillary palpi are six- and the labial four-jointed. The thorax is finely punctate; the scutellum convex and slightly elevated, and the metathorax elongated. The abdomen is long and sub-depressed, each segment (except the first and last) with a rather deep transverse impression across the base, and with the lateral portion of each towards the hind margin more convex, so as to render each segment more convex just preceding the posterior margin. The sixth segment is armed with a small tooth on each side at the extremity, and the anal segment is terminated by an oboconical, flattened horn, finely pointed at its tip (fig. 1 b, 1 c); the wings are black, with a fine purple gloss, and the tips rather lighter coloured. The legs are black; the intermediate segments of the abdomen beneath are marked with a transverse slender impressed line near the base.

ENTELES, Westw.

Subgenus novum characteribus framineis adhuc tantum distinguendum, *Thynnus typicalibus* valde affine sed palpis perfectis gaudens.

Caput mediocre subquadratum convexum; mandibulae integræ curvatae imberbes. Labrum clypeo haud absconditum (fig. 4 a). Maxillæ (fig. 4 b) perfectæ palpis formæ ordinariæ 6-articulatis. Mentum elongatum (fig. 4 c) basi attenuatum supra longitudinaliter carinatum, labio omnino retracto, palpis labialibus perfectis 4-articulatis. Thorax tripartitus apterus. Abdomen magnum convexum, segmento secundo supra striolato apicali obtuse truncato (figs. 4 d, 4 e). Pedes robusti setosi fôssorii unguibus apice bifidis.

SPECIES UNICA. ENTELES BICOLOR, *Westw.*

(Plate 82, fig. 1.)

Th. (Ent.) niger, mandibulis thorace et pedibus rufis ♀. Long. corp. fere lin. 4.
Habitat King George's Sound. Mus. Westwood.

The head is black and punctured; the mandibles red, and not bearded beneath: they are entire along the inner margin. The antennæ are short and black; the thorax is strongly punctured above, as is also the abdomen, which is entirely black, except the terminal deflexed segment, which is pitchy-red at its extremity. All the segments have a carinated stria across, near the hinder margin, and the second segment is also marked with five or six similar striæ across its disc. The apical segment is obtusely truncate, deflexed, and longitudinally striated, emitting the aculeus from its lower extremity. The legs are red, robust, and apparently formed for burrowing.

EIRONE, *Westw.*

Mas, alatus. Labrum ciliatum clypeo haud absconditum. Mandibulæ intus dente subapicali instructæ (pl. 82, fig. 5 a). Maxillæ, lobo apicali in duas partes haud diviso, palpi perfecti 6-articulati (fig. 5 b). Palpi labiales, 4-articulati articulis sensim decrescentibus (fig. 5 c) abdomen elongato-ovatum apice integrum haud spinosum (fig. 5 e). Alarum venæ ut in Thynnus disposita vena spuria in cellula 1ma submarginali fere oblitterata. Pedes graciles unguibus apice bifidis (fig. 5 d).

Fœmina, aptera. Caput oblongum planum; oculi laterales, fere ad angulos anticos positi. Ocelli O. Antennæ fere in margine antico capitis affixæ (fig. 6 a) convoluteæ. Labrum clypeo haud absconditum setosum. Mandibulæ (fig. 6 a) dente interne fere ad apicem instructæ, parum curvatae et vix setosæ. Maxillæ parva palpis gracilibus 4-articulatis articulo 1mo minimo (fig. 6 b). Mentum ovale compressum. Labium omnino retractum, palpi labiales 4-articulati (fig. 6 c) articulo ultimo longiori. Thorax depresso oblongus 3-partitus, mesothorace parvo; abdomen elongatum depresso apice aculeo exerto instructum (figs. 6 f, 6 g). Pedes ut videtur fossorii, tibiis anticis crassis bicalcaratis tarsi antici articulo basali curvato curvatura serie spinularum depressarum instructa (fig. 6 d). Ungues basi dilatati (fig. 6 e).

SPECIES UNICA. EIRONE DISPAR, *Westw.*

(Plate 82, figs. 5 ♂, 6 ♀.)

Mas. E. Niger nitidus punctatus alis limpidis. Long. corp. lin. $4\frac{3}{4}$. Expans. alar. lin. 7.
Fœmina. Fulvescens tenuissime punctata. Long. corp. lin. $2\frac{1}{2}$.

The great diversity between the two insects represented in Plate 82, figures 5 and 6, and the similarity of the winged individual to the male *Thynni*, and of the apterous one to the genus *Scleroderma*, would have made me hesitate in publishing them as the sexes of one species, were I not convinced that entire reliance might be placed on the observations of Mr. Fortnum, by whom they were collected at Adelaide, in Southern Australia, and forwarded to Mr. Hope, during the present year.

The male (pl. 82, f. 5) is entirely black and slightly clothed with grey hairs, the head is nearly round and strongly punctured; the clypeus but slightly porrected; the labrum pitchy and setose; the mandibles are pitchy red, with the base and apex black; the thorax is oblong, truncated in front and rounded at the metathorax; the pro- and mesothorax are regularly punctured, but the metathorax is very delicately rugose. The abdomen is sub-depressed, fusiform and thickly punctured, especially at the base of the segments, the basal segment with a deep longitudinal impressed line: the three following segments are marked with a rather deep transverse impression across the base, and have a slightly raised space on each side, near the hind margin; the extremity is destitute of spines or tubercles, the under side is also simple and thickly punctured; the legs and antennæ are slender and black, and the hyaline wings, nearly colourless, but strongly iridescent, with the veins and stigma black.

The female (pl. 82, f. 6) is entirely fulvous, the fifth segment of the abdomen alone being of a darker colour; the whole surface of the body is remotely punctured, the punctures being oblong, but minute; the head is oblong and depressed, with a slight longitudinal impression in front, extending to the bifid projection at the sides of which the antennæ are placed; the mandibles, unlike those of *Scleroderma*, are curved and acutely pointed at the tips, with a small tooth on each side, near the extremity; the thorax is rather longer than the head, the mesothorax being the widest part, the sides of which are swollen; the metathorax is narrowest at the base, and rather slanting. The abdomen is long, entire and uniform, the second segment exhibiting none of the peculiarities of the true *Thynni*: the legs are short, the posterior femora and tibiae dilated, the latter furnished on the outer margin with short strong setæ, thus differing entirely from the feet of the *Sclerodermae*, which are not fossorial.

The plant represented in Plate 83 is the Australian *Tetratheca Thymifolia* of Smith.

In addition to the various memoirs upon the Thynnides noticed in the previous pages of this work, I have to add that Dr. Erichson, in his Memoir on the Insects of Van Diemen's Land, published in the Archiv. fur Naturgeschichte for 1842, has described four additional species of *Thynnus*, together with a new genus named *Ariphron*, founded upon an apterous female closely allied to

Thynnus, but having the head twice as broad as the thorax (which is tripartite), the sides of the mesothorax furnished "processu alæformi"; the maxillary palpi 6-jointed, with the joints subæqual, and the tarsal unguis simple. The type *A. bicolor* is 5 lines long.

The following is its specific character given by Dr. Erichson, together also with those of his four species of *Thynnus* :—

Ariphron bicolor.—Rufus, capite piceo, abdomine nigro apice rufo. Long. 5 lin.

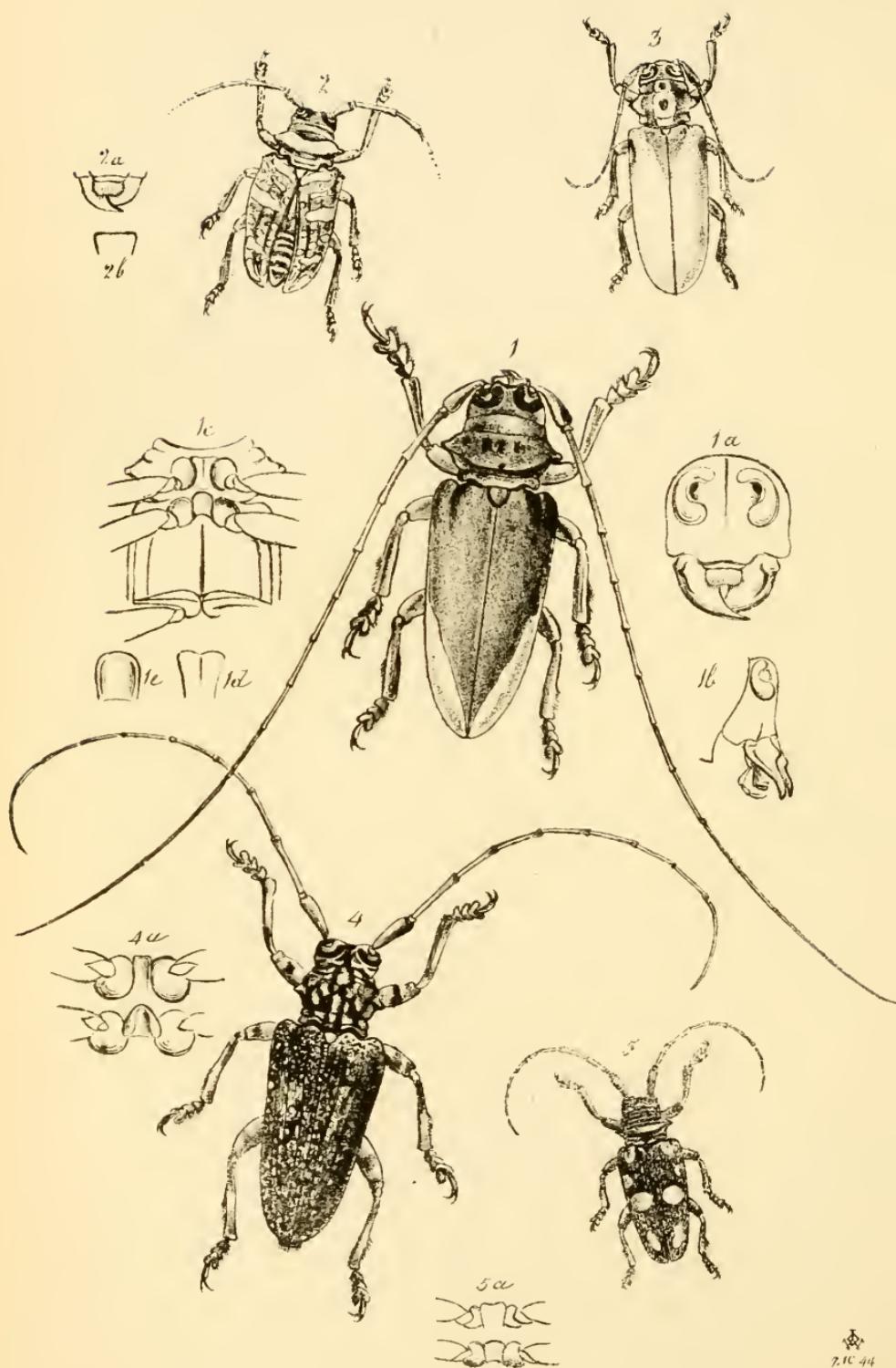
Thynnus Olivierii.—Mas.; niger, pedibus rufis, thorace supra fulvo villoso, abdomine supra 4—, infra bifarium flavo-maculato.

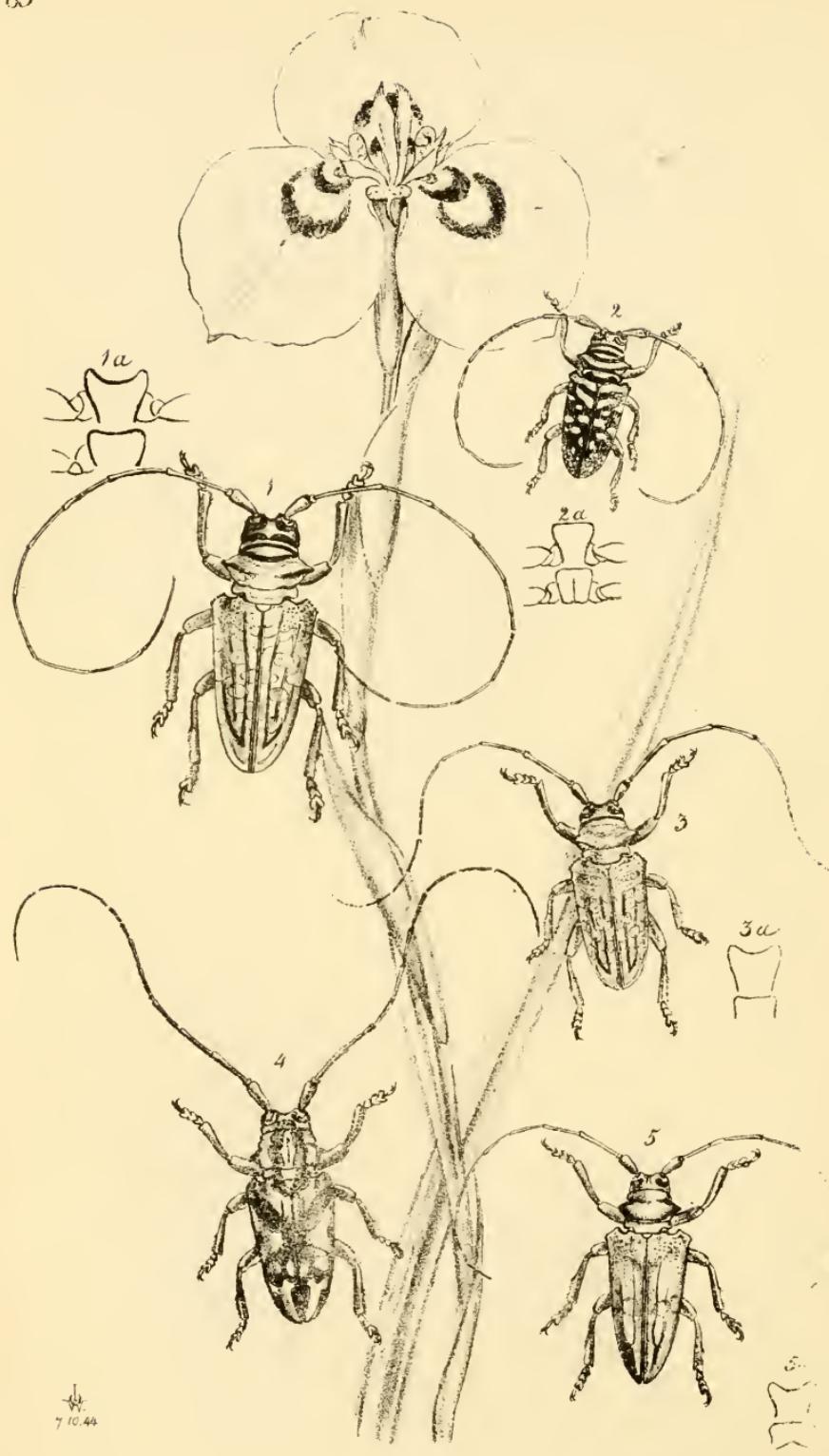
Fem.—Rufa, capite subgloboso thoraceque immaculatis abdomine piceo, segmentis 1—5. 4-farium flavo-maculatis, 1. lœvissimo. Long. $7\frac{1}{2}$ lin.

Thynnus senilis.—Niger, albido-villosus pedibus concoloribus, clypeo flavo. (Mas.) Long. $5\frac{1}{2}$ — $7\frac{1}{2}$ lin.

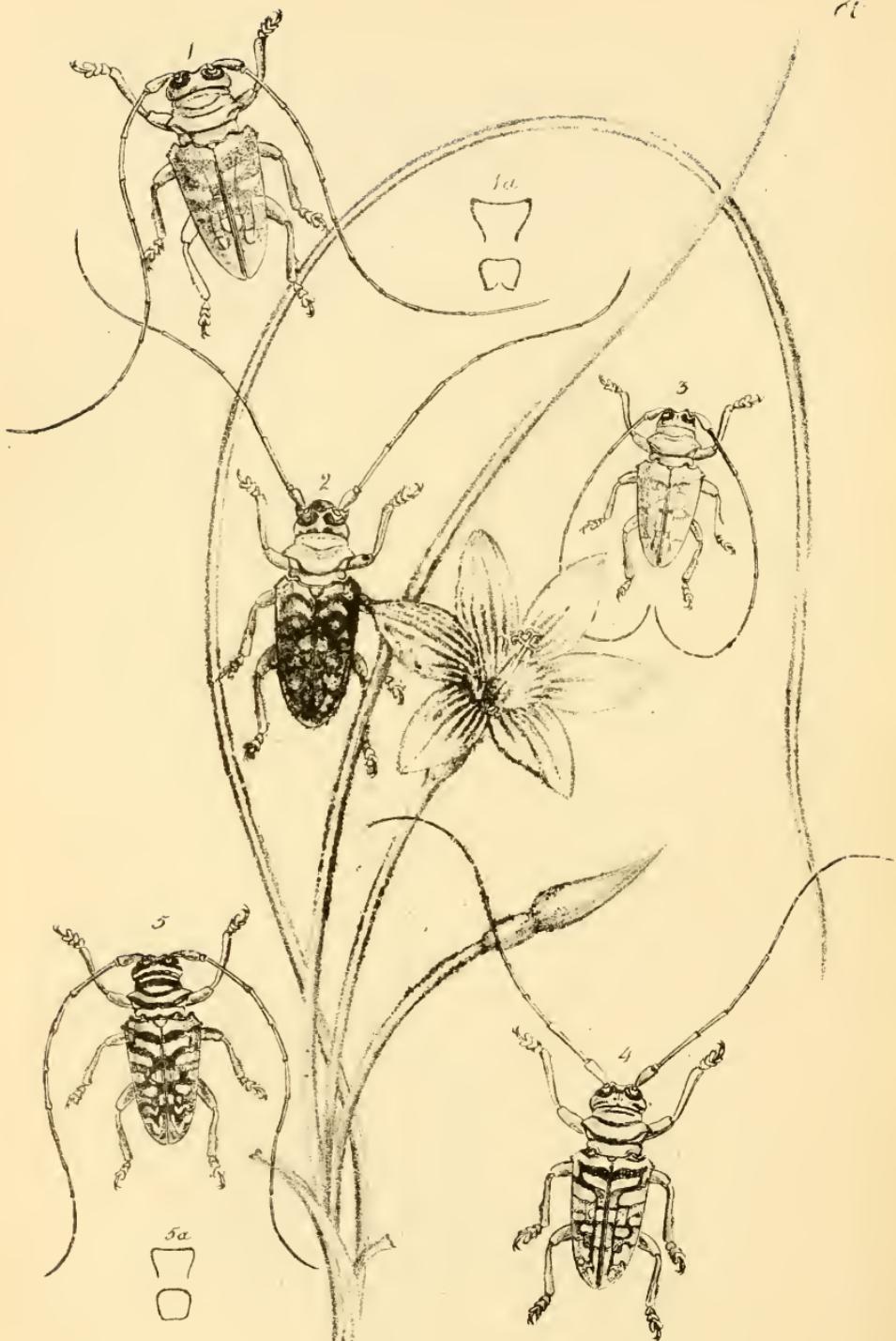
Thynnus fervidus.—Niger, clypeo, mandibulis scutelloque flavis, thorace rufo-vario, abdomine pedibusque rufis. (Mas.) Long. $6\frac{1}{2}$ lin.

Thynnus humilis.—Niger, cinereo-hirtellus mandibulis testaceis abdominis segmentis exolete flavo-marginatis, secundo transversim bicarinato. (Fem.) Long. $3\frac{1}{3}$ lin.





7.10.44



3.10.44

PLATES LXXXIV, LXXXV, AND LXXXVI.
ILLUSTRATIONS OF SOME AFRICAN SPECIES OF LONGICORN BEETLES.

PREVIOUS to entering upon the descriptions of the species of Longicorn beetles, represented in the accompanying plates, it is proper to make the following observations, with reference to some of the other Longicorns figured in the three plates already devoted to that family in the present volume.

LAMIA OBESA.

(Plate 64, fig. 5.)

This insect, I am informed by M. C. Sommer, Esq., of Altona, is known in the continental collections under the name of *Phrynetia Dregei*.—Klug MISS. As, however, no description of the insect had been published, it was impossible for me to have the least idea of its identity with my species, especially as it is given in Dejean's Catalogue as a native of the Cape of Good Hope. The characters of the genus *Phrynetia* are given in the *Histoire Natnrelle des Insectes Coléoptères* of the Count de Castelnau, vol. 2, p. 477.

LAMIA PALINII.

(Plate 74, fig. 2.)

This species appears to me to be identical with the *Lamia principalis* of Dalmau. Schonh. Syn. Ins. 1, pt. 3, App. p. 162. Mr. Hope has recently received a specimen of it from Cape Palmas.

LAMIA COMES.

(Plate 78, fig. 1.)

Is identical with *Lamia cornutor* Fabr., the typical specimen of which, described by Fabricius, is still preserved in the Cabinet of the British Museum. It is a male—that represented in my plate being a female. The locality given by Fabricius of "America" is evidently erroneous, the group to which it belongs being confined to the African continent. M. Dupont is unfortunately unacquainted with the locality of his specimen, it being marked in his collection, Madagascar, with a point of doubt.

Syn. *Lamia cornutor*, Fabricius. S. Ent. p. 178. Ent. Syst. 1, pt. 2, p. 292. Olivier Entomol. 4. Ceramb. pl. 17, p. 132.

LAMIA PRINCEPS.

(Plate 78, fig. 2.)

Is referred by M. Dupont to the genus *Zoographus* Dejean, described by Laporte de Castelnau in the Hist. Nat. Ins. Col. 2, p. 473, but without any notice of the structure of the sterna, which forms the chief character of the group.

LAMIA (STERNOTOMIS) NORRISII. *Westw.*

(Trans. Ent. Soc., vol. 1, p. 148, pl. xv. A. Plate 84, fig. 1, and details.)

L. supra opaca nigro-fuliginosa, elytris postice flavo-cinctis, antennis subtus pedibusque hirsutie opalina indutis.

Long. corp. unc. $1\frac{3}{4}$. Long. antenn. unc. $3\frac{3}{4}$ (art. ult. unc. $1\frac{1}{2}$).

Habitat apud Sierram Leonam. In Mus. D. Norris.

The head is black, with the sides behind the eyes of an opaline green colour; the antennæ are very long, 11-jointed, and black,

with the underside tinged with opaline green. The mandibles are large, and furnished with an angular tubercle near the base on the outside; they are black, with the disc opaline green, which is also the colour of the upper lip and palpi. The prothorax is black, with the disk irregular, being marked with two transverse impressions. The scutellum and elytra are black; the latter with the shoulders rather rounded (not obliquely truncate), and the outer margins beyond the middle coloured yellow, dilated towards the apex. The abdomen is golden-coloured above, and black beneath, except the two basal segments, which are yellow. The prosternum is rather prominent and dilated, sub-truncated, (fig. 1 *d.*) and the mesosternal process is also slightly prominent and rounded in front. The underside of the whole of the thorax is yellow; the legs are black, the upper side of an opaline green, and the under side of the coxae and femora yellow.

Notwithstanding the great length of the antennæ, and especially of the last joint of those organs, in the unique specimen hitherto known of this species, indicating the male sex, the slight tothing of the mandibles, and moderate size of the sternal processes, are remarkable. (Fig. 1 *a.*, the head, seen in front; 1 *b.*, the same, sideways; 1 *c.*, the thorax beneath.)

LAMIA (STERNOTOMIS) CRUX NIGRA. Hope.

(Trans. Zool. Soc. 1, p. 104, pl. xv. fig. 2. Plate 85, fig. 4.)

L. straminea; thorace nigro, vittis tribus luteis; elytris macula cruciformi nigra alterisque duabus rotundatis aurantiis.

Long. corp. lin. 11. Lat. 4.

Habitat in Sierra Leone, D. Palin. In Mus. D. Hope.

This lovely species has the antennæ very long, and 11-jointed, the terminal joint being but moderately elongated; they are black above, and light greenish grey beneath. The head is black, varied with luteous, and with two golden-coloured spots beneath the eyes. The thorax is black, with a golden-coloured spot on each side, and a central and two lateral luteous vittæ, the dorsal one being interrupted in front, and ending before the scutellum, which is concolorous. The elytra are pale straw-coloured, variegated with lemon and dark and light orange tints, and marked with a large black (St. Andrew's) cross, having two red and two pale buff spots. The body beneath is unicolorous; and the feet are black above, and grey beneath.

LAMIA (STERNOTOMIS) IMPERIALIS. *Fab.*

(Plate 86, fig. 3.)

L. thorace spinoso, ferrugineo villosa, viridi-fasciata : antennis longis atris, capite villoso ferrugineo obscure lineato, orbita oculorum viridi, thorace striga media impressa fasciaque postica viridi ; elytris villosa ferruginea fasciis duabus, anteriore recta, media e maculis tribus quadratis concatenatis, punctoque postico, viridibus ; pedibus ferruginea.

SYN. *Lamia imperialis*, Fabricius ; Syst. Eleuth. 2, p. 286.

Cerambyx luteo-obscurus, Voet, Col. Ed. Panz. iii, p. 20. 19. tab. 7. f. 19.

Cerambyx ornatus, Olivier Entomol. Ceraub. pl. 4, fig. 24 c.

Lamia bifasciana, Fabr. Ent. Syst. I, p. 281.

Fabricius suggests that this insect may be a possible variety (*nuper declaratum*) of his *L. regalis*; but that species is abundantly distinct, not only in its markings, but also in its longitudinally multi-striated elytra and the rounded humeral angles.

The Fabrician description abstracted above accords exactly with a specimen from Guinea, received by the Rev. F. W. Hope from Mr. Westermann, whose residence at Copenhagen enables him to determine the identity of those Fabrician species which were described, (as was the case with the one before us,) from the collection of M. Schestedt. This specimen is represented in my pl. 86, fig. 3. It is a male, and has the mandibles armed with a strong, rather deflexed spine in front near the base, the outside of the mandibles being green, and the remainder black. The middle of the face and labrum are fulvous, the former with two rather broad green bars extending from the base of the antennæ to the mouth; the sides of the head behind the eyes are also green; there is a diamond-shaped fulvous patch on the middle of the crown, the hind part of the head being green; the prothorax is fulvous, with a slender green transverse fascia across the anterior part, and the hind part of the prothorax, including the spaces behind the lateral teeth, are also green. The humeral angles of the elytra are very prominent, and angularly truncate; the anterior green fascia is, as it were, divided into two parts by a slaty-green stripe, and the three green spots forming the central curved fascia are margined with dark slaty green; besides the spot in the middle of each elytron towards the extremity, there is a little green patch next the suture, which is itself also green. The feet are green, with the undersides more golden.

I possess two beautiful varieties of this species, one in which the green markings are of a bluer hue, and separated from each other by, or margined with, black lines; and the other in which the ground colour of the insect is of a browner fulvous colour, and the

green markings of a golden hue, destitute of the black or slate-coloured edges. The feet are also of a more golden fulvous colour. Both are females. The latter of these specimens was presented to me by J. A. Turner, Esq., of Manchester.

The Fabrician *L. bifasciata*, described from the British Museum cabinet, is identical with *L. imperialis*. The locality of Jamaica must therefore be considered as erroneous.

LAMIA (STERNOTOMIS) MIRABILIS.

(Plate 86, fig. 5.)

L. thorace spinoso, nigra, elytris antice fasciis duabus, postice punctis, (8 vel 9 in singulo) viridibus, elytris basi mucronatis.

Long. corp. lin. 9—11.

Habitat the Gold Coast, Afr. tropic occident.

SYN. *Cerambyx mirabilis*, Drury Ill. vol. 2, pl. 31, fig. 1. and Append. vol. 2.

Cerambyx pulcher, Fabr. Ent. Syst. 1, pt. 2, p. 269. Syst. Eleuth. 2 p. 285. Schonherr. Syn. Ins. I, part 3, p. 372. Olivier Entomol. Ceramb. pl. 22, fig. 167.

Sternodonta prasina, Hope MSS.

This handsome species is variegated with black and sericeous green or golden green colours, the latter forming very distinct marks. The face is green, marked on each side with an oblique black line from the base of the antennæ to the base of the mandibles; there is also a black line extending from the under side of the eyes to the sides of the mouth; and also a narrow green fascia across the crown of the head. The thorax is marked with three green transverse fasciæ, the middle one being the broadest and curved, there being an additional slender abbreviated green fascia within the open space formed by this curve; there are also two green spots behind the lateral teeth of the prothorax. The elytra are marked at the base with a transverse green fascia, behind which is a rather broader and more oblique one, slightly interrupted near the lateral margins, and followed by about nine equi-distant and nearly equal sized green patches, of which the two anterior and lateral, and the two apical ones are sometimes more or less confluent; the hinder ones being more or less irregular. The male (represented in the plate) differs from the female, in having a much broader head, large dentated mandibles, and longer antennæ, the tips of the joints being more nodose.

LAMIA (STERNOTOMIS) PULCHRA.

L. nigra thorace transverse fulvo trifasciata; elytris fulvo maculatis et variegatis maculis interdum viridi cinctis.

SYN. *Cerambyx pulcher*, Drury Ill. vol. 1, pl. 32, f. 6, App. C., vol. 2; nec *Lamia pulchra*, Fabr.

Lamia blanda, Schonh. Syn. Ins. I, iii., p. 373.

Although Drury gives Jamaica as the habitat of this species, there can, I apprehend, be very little doubt of its being a native of Tropical Africa. He describes it thus:—

“ Head orange-coloured, encircled with black stripes; antennæ black, being a little longer than the insect; thorax orange-coloured, encircled with black rings, having a single spine on each side; elytra with orange-coloured clouds and spots on them separated by black partitions, some being margined with green; abdomen orange-coloured, the middle being dirty green; femora simple, dark green; tibiæ the same.” From Drury’s figure it appears very closely allied to *L. mirabilis* and *ornata*, if, indeed, it be not a local variety of those insects.

LAMIA (STERNOTOMIS) ORNATA.

L. nigra fasciis maculisque fulvo-aureis; capitis thoracis et elytrorum margine posteriori, parteque femorum superiore, viridi nitentibus.

Syn. *L. ornata*, Olivier Entomol. Ceramb., pl. 4, f. 24 a; Pal. Beauv., pl. 37, f. 1.
An Ceramb. pulcher, Drury?

The description given by Olivier of his *L. ornata* from Africa, is as follows, and very nearly accords with the figure given by Drury of the preceding insect:—

“ Cer. regalis affinis. Corpus nigrum pulvere fulvo-aurato, fere omnino tectum. Mandibulæ magnæ exsertæ, basi et anterius dente valido armatæ, apice nigræ basi rufæ medio virides. Lineis duabus nigris ab oculis ad mandibulas. Oculi viridè circumscripti præcipue postice. Thorax rufus, postice ad latera viridis fasciis duabus nigris. Elytra rufa fasciis nigris numerosis anastomosantibus viridi marginatis. Apex elytrorum et sutura postice viridia. Corpus infra rufum carina abdominalis et pars superior femorum virides, apophysis trapezoidalis (prosternum) inter pedes anteriores.”

The Rev. F. W. Hope possesses an old faded specimen from Lee’s Cabinet, labelled *L. pulchra*, which agrees with Olivier’s description and figure 24 a, and which might be regarded as a specimen of *L. mirabilis*, in which nearly the whole of the green markings had assumed a fulvous hue.

The insect represented in Plate 84, fig. 2 (not being in a fully developed state), from the collection of M. Chevrolat, of Paris, is regarded by that entomologist as a variety of *L. ornata*, in which the fulvous colour of the type is replaced by pale buff, or straw colour, and the black interstices are tinged with blue instead of green. The body beneath is greatly varied with pale and dark

buff, and with blue and black colours. The markings of the elytra may be traced to those of *L. ornata* and its immediate allies, the second fascia being more attenuated and interrupted than usual, and the intermediate patches rather smaller than ordinary. It was brought from Pauz Oasis by M. Cailleaux.

The insect represented in Plate 86, fig. 2, from the collection of the late A. H. Haworth, Esq., appears to me to be another fine variety of *L. ornata*, having the thorax and markings on the elytra very pale buff; and the sides of the former, behind the lateral spines, and the ground colour of the latter, of a bluish-green colour; the dark stripes separating the fasciae at the base of the elytra being much reduced in breadth. The specimen is a male, having the mandibles dentated at the base, as in the other allied insects.

It appears also probable that the *Cerambyx marmoratus* of Voet Coleopt. Ed. Panz. 3, p. 21, 20, pl. 7, fig. 20 (*Lamia venditaria*, Sch. Syn. Ins. 1, pt. 3, p. 373), the locality of which was unknown, is another variety of *L. ornata*. It is represented as of a fulvous colour; the thorax banded with black, and varied with greenish at the sides, behind the lateral spines, and with the elytra varied with numerous irregular black markings.

LAMIA (STERNOTOMIS) AMABILIS, Hope MS.

(Plate 86, fig. 4.)

L. humeris elytrorum angulato-truncatis, nigra viridi fulvoque tomentoso ornata; thorace rufo-fulvo, postice viridi; elytris fasciis maculisque rufo-fulvis argenteo-viridibusque notatis.
Long corp. lin. 11.

Habitat Ashantee. In Mus. D. Hope.

This highly beautiful insect is most probably but one of the varieties of the type of the genus which is distinguished by the angulated shoulders of the elytra, all of which (including several of the following insects) will ultimately, in all probability, be determined to constitute one extremely variable species, the local varieties of which preserve an uniformity in the distribution of their colours. Thus, *L. chrysopras*, from Aquapim, has the general colour dark fulvous, with a single green patch on the elytra, and the other dark markings almost obliterated; *L. ornata*, in like manner, has but very little green colour visible; whilst *L. mirabilis* is entirely green and black. The chief characteristic of all these varieties seems to be the three spots on the middle of each elytron, arranged somewhat in a triangle; and

these we find also in *L. imperialis* and even in *L. aper*, in which the basal fasciae are but indistinctly marked.

The male of the insect now before us has the face fulvous-red in the middle, with the lateral and hind parts, and the labrum, green; the prothorax is fulvous-red in front, and silvery-green behind, the former part with three black, slender, transverse fasciae, the third being curved. The basal fascia of the elytra is green; the next one (interrupted near the sides) is also green, but varied with fulvous; the third is broad, lateral, and fulvous; the three central oval patches are distinct, the inner one green, and the two outside ones fulvous; the suture beyond these is also marked with two silver-green patches, placed consecutively, the second communicating with a small subapical angulated fulvous-green spot, which is preceded by a large fulvous patch; the spaces between the fulvous lateral patches are also tinged with green; the femora and underside of the body are also green; the middle of the abdomen with a row of black spots.

The female is much more strongly marked with fulvous-red colour, especially at the sides of the elytra, which are almost concolorous, the green being here restricted to the base and middle portion of the suture; but all the markings are in their ordinary position.

LAMIA (STERNOTOMIS) FERRETI, Reiche MS.

(Plate 85, fig. 1.)

L. grisea, thorace et elytrorum basi luteo fasciatiss., his postice luteo-maculatis. Long. corp. lin. 14. ♂—11 ♀.

Habitat. in Abyssinia. In Mus. Reiche et Hope.

This insect entirely agrees in its general characters with *L. ornata* and its allies, but is distinguished by its Eastern locality and peculiar coloration. The face is black with a dirty fulvous stripe down the middle, and an oblique one on each side, extending to the base of the mandibles, which are armed with a large obtuse tooth at the base in front. The labrum is fulvous, as is also the crown of the head, the hind part of which is black. The thorax is of an ashy leaden colour, with the anterior margin, transverse curved fascia across the middle, and a subapical fascia, of a dirty fulvous colour. The elytra are of the same ashy leaden colour, rough at the base, where they are marked with a rather broad dirty fulvous fascia, followed by a narrower one (interrupted near the sides), and behind this are about nine patches of the same fulvous colour. The

mesosternum is also fulvous, with a broad oblique greenish blue stripe on each side, and the abdomen is black, with a fulvous patch on each side.

LAMIA (STERNOTOMIS) TARGAVEI, *Reiche MS.*

(Plate 85, fig. 2.)

L. nigra prothorace fulvo nigroque fasciato, postice viridi, elytris basi fulvo bifasciatis, postice maculis 7 fulvis alterisque duabus subapicalibus viridibus. Long. corp. lin. 8½.
Habitat in Guinea. In Mus. D. Reiche, D. Targeau.

In all important respects this insect agrees with *L. mirabilis*, except that the thorax (except the hind part) and the major part of the markings of the elytra are fulvous. The face is black, with an elongate conical fulvous patch down the middle, extending upwards and between the antennæ at the base, the labrum and extremity of the clypeus being green. The eyes are margined before and behind with green, the front margin dilated below into an orange green oblique patch extending to the base of the mandibles, which are slightly cornuted near the base in front, and orange green at the sides of the base. The head above is marked with a fulvous patch in the middle of the crown, and the hind part is dark green. The prothorax is fulvous in front with three black stripes, and the hind part is silvery green. The elytra are black, the humeral angles and apical part irrorated with green, which is also the colour of the two subapical spots; the two basal fasciæ and the other spots, seven or eight in number, being dark fulvous. The mesosternum is marked with an orange patch at the side, and the metasternum is green in the middle, changing to fulvous at the sides, each side marked with a black streak; the abdomen is black, each segment with a large transverse orange green patch on each side.

LAMIA (STERNOTOMIS) BOHEMANNI, *Chevrolat MS.*

(Plate 85, fig. 3.)

L. humeris elytrorum angulato-truncatis; supra viridis maculis fasciisque ferrugineis (marginibus pallidioribus) notata. Long. corp. lin. 11.
Habitat Port Natal, Africa Austral. In Mus. D. Chevrolat et Parry.

This insect is most remarkable for its locality, showing that this group of insects enjoys a very wide geographical range in the African continent. The upper surface of the body is of a dark opaque green colour, varied with ferruginous fasciæ, and spots arranged as in the allied species; the edges of which being of a rather lighter testaceous colour, give a varied appearance to the

insect. The face is black, except a conical slender fulvous line down the centre, broadest next the labrum, which has the front also fulvous. The mandibles are large, with a moderate sized deflexed acute spine in front at the side of the base. The head above has a ferruginous streak behind the eyes. The front margin of the prothorax, a broader central fascia, and a slender subapical one interrupted in the centre, are of a ferruginous colour, as are also the two basal fasciae, and about nine spots on each elytra occasionally partially confluent, the apical one acutely angulated. The metasternum is fulvous, with two green spots at each side, and the abdomen is fulvous, with the sides green and centre black.

LAMIA (STERNOTOMIS) CHRYSOPRAS.

(Plate 86, fig. 1.)

L. fulva, lateribus prothoracis (pone medium) scutello femoribus guttisque duabus suturalibus elytrorum argenteo-viridibus, his obscurius fasciatis. Long. corp. lin. 12.

Habitat. Aquapim, Guinea. In Mus. Hope, &c.

Syn. *Cerambyx chrysopras*, Voet Coleopt. Ed. Panz. 3, p. 21, 22, tab. 9, fig. 22. Schonh. Syn. 1, pt. 3, p. 373.

Sternodonta Robillardii, Dupont MSS.—Dej. Catal. 2nd Ed. p. 342.

Although this insect appears at first sight so entirely distinct from the preceding species, I must confess it is with doubt that I retain it as distinct, for although the prevailing colour is fulvous, yet in various parts we see little touches of silvery green, indicating the more ordinary dispositions of that colour. The elytra also, when examined, are found to have the black or green markings of the preceding species clearly distinguishable, although so thickly irrorated with fulvous as at first sight to appear merely as indistinct cloudings over the elytra. The body beneath is elegantly varied with fulvous and silvery green.

LAMIA (STERNOTOMIS) DUCALIS.

(Plate 85, fig. 5.)

L. nigra thorace virescentibus, posticeque subluteis; elytris postice attenuatis lutescentibus, nebulis virescentibus apicibusque nigris. Long. corp. lin. 12.

Habitat in Gambia. In Mus. Dupont.

Syn. *Lamia ducalis*, Klug, in Erman's Reise, tab. xvi., f. 4.

Sternotomis aper, Percheron Gen. des Insectes Col., pl. 16.

The face is black, and both the labrum and base of the mandibles, and a triangular patch on the clypeus (bearing an interrupted, slender, black, median line), fulvous, and with two fine short green lines between the eyes. The head above is dirty buff, with the hind part black; the prothorax is black and shining in front, with a green tinge at the sides, behind the lateral spines,

and the hind part dirty buff. The elytra are considerably attenuated towards the apex; they are of a dirty fulvous colour, slightly varied with greenish, which colour forms an oblique fascia towards the base, and two or three obscure ocellated markings across the middle, placed obliquely, the apex of the elytra being black. The legs are greenish-black, with the tibiae and tarsi dirty buff and green; the sides of the metasternum are marked with a large patch of bright fulvous scales, extending in front to the hind edge of the sternal process; the sides of the abdomen are also marked beneath with a sericeous-green patch.

LAMIA (STERNOTOMIS?) NIVEISPARSA, *Chevr. MS.*

(Plate 84, fig. 5.)

L. nigra, albo farinosa; thorace fasciis 6 transversis niveis; elytris niveo-punctato-striatis maculisque quatuor niveis, tercia majori.

Long corp. lin. 10.

Habita: Port Natal. D. Bohemann. In Mus. Chevrolat.

The head is of moderate size, with the mandibles small, and not crossing each other at the tip; the face is white, with slender black lines, which extend upwards between the antennæ; the hind part of the head above is black. The prothorax is black, with six slender, white, powdery, transverse fasciæ, the fifth of which is abbreviated, in consequence of the curved raised part of the prothorax extending between the lateral spines; the elytra are rounded at the humeral angles, and the disc is covered with a number of longitudinal striæ, formed of small oblong white dots, in addition to which each is marked with four white spots: the first is round, and at the base in the middle; the second is also round, and at the side about one-third of the length of the elytra from the base; the third is large and round, being placed nearly in the middle of the elytra; and the fourth is subtrilobed, and placed near the extremity. The legs are black, covered with white powder; the thighs black at the tips; the body beneath is covered with white powder; the sternal processes are of comparatively small size (fig. 5 a).

This species agrees with *Lamia regalis*, Fabr., in the simple humeral angles and punctate-striate disc of the elytra, as well as in the comparative smallness of the sternal processes, and the spots of the elytra. In several of these respects, indeed, it approaches the sub-genus *Zoographus*, with which it appears to form the connecting link.

LAMIA (ZOOGRAPHA) IRRORATA.

(Plate 84, fig. 4.)

L. thorace spinoso fusco ferrugineoqué vario: elytris nigris ferrugineo irroratis: antennis cinerascentibus, pedibus griseo luteo nigroque variegatis. Long. corp. ♂ lin. 18.

Habitat in Sierra Leone. Mus. Hope et Reg. Paris.

Syns. *Lamia irrorata*, Fabricius, Ent. Syst. 1, pt. 2, p. 270; *S. Eleuth.*, 2, p. 286; Schonh. Syn. Ins. 1, pt. 3, p. 373.

Cerambyx nebulosus, Voet Coleopt. Ed. Pazz., 3, p. 29, 18, tab. 7, f. 18.

This species is black, clothed with a greyish powder, and thickly irrorated with dirty fulvous dots. On the crown of the head are two small triangular dark patches, and the hind margin of the head is black: the mandibles of the male are small, black, and unarmed; the disc of the prothorax is rugose and grey, with numerous small dirty fulvous marks; the elytra are closely covered with minute punctures, and numerous irregular small fulvous dots, in addition to which each is marked with the three ordinary, slightly elevated, polished, black, longitudinal lineolæ: the legs and underside of the thorax are variegated with luteous black and grey; and the abdomen is grey, with the centre black, each segment, except the last, being marked on each side with a small fulvous patch.

LAMIA (TRAGOCEPHALA?) GLAUCINA, Dej.

L. obscure fusca opaca: thorace striga lata media maculisque duabus lateralibus; elytrisque (plaga magna basali triangulari excepta) pallide flavescentibus. Long. corp. lin. 13 $\frac{1}{2}$.

Habitat —? In Mus. Chevrolat (olim Olivierii).

This pretty species is nearly allied to *Lamia angulata* of Olivier, and *L. bicolor* (W. ante, pl. 78, fig. 4). It is on this account that I presume it to be an African species, differing chiefly from the last-named insect in its less robust form and shorter antennæ, which might indicate it to be the female of that species; but the pale markings on the thorax, and the large triangular dark patch on the base of the elytra, must, I conceive, be regarded as indicating a distinct species. The general colour is opaque dark blackish-brown: the markings on the thorax and the elytra (except the basal patch and the small lateral streaks) are of a very pale yellow colour, having a greenish tinge.

Obs. *Lamia humeralis*, Fabricius. Ent. Syst., 1, part 2, p. 281, appears also to belong to the sub-genus *Sternotomis*.

The plant represented in Plate 85 is *Iris pavonia*, and that in Plate 86 is *Trichonema roseum*, both from Southern Africa.

I take the opportunity of a spare page to mention a work now in course of publication in France, especially worthy of the attention of English Coleopterists, the title of which is as follows :—

HISTOIRE NATURELLE DES COLÉOPTÈRES DE FRANCE. Par M. E. MULSANT. 8vo.
1839—1844, with Plates.

- Livraison 1. LONGICORNES (1839), pp. 304, 3 pl.
" 2. LAMELLICORNES (1842), pp. 623, 3 pl.
" 3. PALPICORNES (1844), pp. 196, 1 pl.

This work is one of the most carefully executed productions hitherto published in France upon the insect tribes. Unlike the majority of entomologists, the author has not confined himself to giving very detailed descriptions of the insects in their perfect state, and to the difficult unravelling of their synonymy, but has investigated their structure with great minuteness and precision, and has especially studied their preparatory state, sexual distinctions, and specific variations, whereby he has considerably reduced the number of supposed species. Such a work, from an author residing far from the French metropolis, and accordingly free from those incitements to increase the number of species (which it is to be feared is one of the results of rivalry in Natural History), and exercising his talents upon the insects of his locality, may be well conceived to be a production of real zeal for the science—a true labour of love. The plates are drawn and engraved with great delicacy, although it may be objected that the anatomical details are too small. It will be sufficient, in order to afford an idea of this work, to give the following abstract of the last *livraison*. After an introduction of 23 pages, the author divides the Palpicornes into two groups—the Hydrophilides and Geophilides :—

1. HYDROPHILIDES.

- FAM. 1. Sperchéens. 1 G. *Spercheus*. 1 Sp.
FAM. 2. Helophoriens. 2 G. *Helophorus*. 8 Sp. 3 G. *Hydrochus*.
5 Sp. 4 G. *Ochthebius*. 11 Sp. (including the *Enicoceri*.)
5 G. *Hydræna*. 7 Sp.
FAM. 3. Hydrophiliens. 6 G. *Limnebius*. 4 Sp. 7 G. *Berosus*. 4 Sp. 8 G.
Hydrophilus. 1 Sp. 9 G. *Hydrous*. 2 Sp. 10 G. *Hydrobius*.
3 Sp. 11 G. *Laccobius*. 1 Sp. 12 G. *Helophilus*, n. g. 1 Sp.
(*H. lividus*.) 13 G. *Philhydrus*. 2 Sp. 14 G. *Cyllidium*.
Erichs. 1 Sp.

2. GEOPHILIDES.

- FAM. UNICA. Spheridiens. 1 G. *Cyclonotum*. 1 Sp. 2 G. *Sphaeridium*.
2 Sp. 3 G. *Cercyon*. 15 Sp. 4 G. *Pelosoma*, n. g. 1 n. Sp.
5 G. *Megasternum*, n. g. 1 Sp. *C. boletophagum*, Steph. 6 G.
Cryptopleurum, n. g. 1 Sp. *Sph. atomarium*, F.

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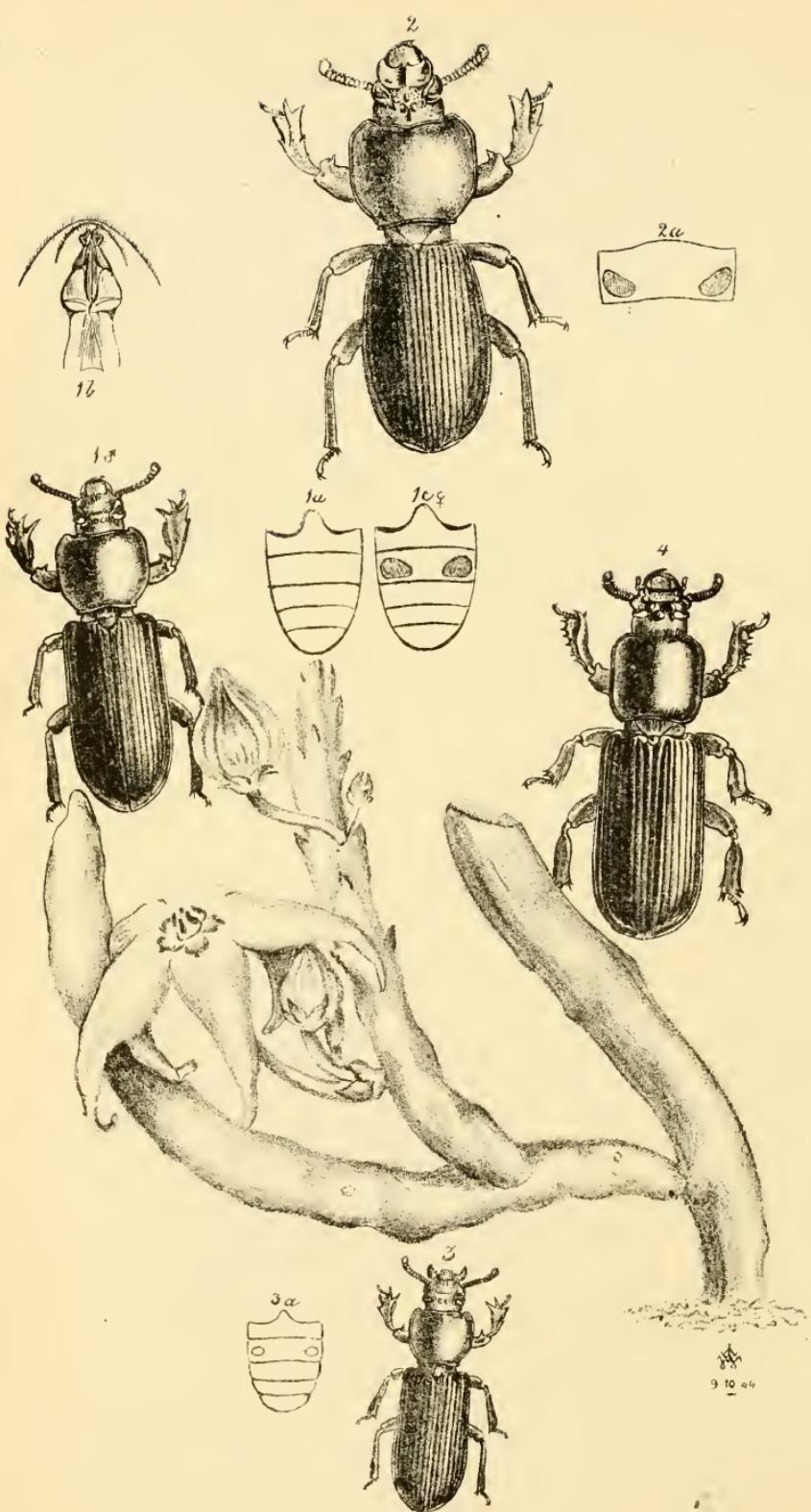


PLATE LXXXVII.

ILLUSTRATIONS OF FOUR SPECIES OF THE GENUS CHIROSCELIS.

CHIROSCELIS, LAMARCK, ANN. D. MUS. III., p. 260.

THIS genus was established for the reception of an insect respecting whose native country there is some doubt, Lamarek stating, "Ce coléoptère habite vraisemblablement dans la Nouvelle Hollande, car il se trouvait parmi ceux de cette contrée que le Capitaine Baudin a envoyés par le vaisseau le Naturaliste;" and Latreille states of it, "Habitat in Australasia; insula Sta. Maria, Dom. Peron, Lesueur," adding (Gen. Cr. ii. 144), "Speciem alteram priori fere similem at paulo minorem et maculis abdominalibus nullis ex Africa attulit Peron." Lamarek's insect is stated by him to have been "un peu plus de 4 centimètres (un pouce et demi) de longueur," and his figure "de la grandeur naturelle," represents an insect 20 lines long. On this account, and especially as a species of the genus has now been detected in the south-east part of Africa, it is probable that Lamarek's species is distinct from the following:—

CHIROSCELIS DIGITATA, *Fabr.*

(Plate 87, fig. 1. ♂.)

C. nigra nitida elytris parallelis, tibiis posticis inermibus, maculis abdominalibus subovatis.
Long. corp. lin. 18.

Habitat in Guinea, Sierra Leone, &c. Mns. Westw., &c.

SYN. *Tenebrio digitatus*, *Fabr.*, Syst. Eleuth. 1, p. 145. (Excl. *Syn. T. fossor*. in Mus. Banks, quod ad genus *Zabrum* revocandum.)

Klug in Erman's Reise, t. 15, fig. 11. (Long. corp. lin. 15 $\frac{1}{4}$.) Guérin Icon. R. An. Ins. Pl. 30, t. 5.

Ample details of the structure of this species are given in my paper on the African Tenebrionidæ, published in the third volume of the Transactions of the Zoological Society; in addition to which, it is to be observed that a dissection of both kinds of individuals of this species—namely, those possessing and those destitute of the luteous sericeous patches on the underside of the second segment of the abdomen, has proved that the suggestions which I made in my Introduction to the Modern Classification of Insects, vol. i. p. 320, 322, as to the sexual distinctions of these individuals (founded on their analogy with other Melasomata) were correct, the specimens destitute of the patches being males; one of these individuals is represented in fig. 1; fig. 1 *a*, being the figure of the underside of the abdomen; and fig. 1 *b*, the male sexual

organs *in situ*; whilst fig. 1 c, represents the underside of the abdomen of the female.

CHIROSCELIS BIFENESTRELLA, *Westw.*

Transactions of the Zoological Society, vol. iii. p. 209, Plate xiv. figure 2.

(Plate 87, fig. 3, 3 a.)

C. nigra nitida capite parum rugoso, mandibulis minus dentatis quam in praecedenti, elytris parallelis, abdominis maculis duabus minutis rotundatis, margineque antice pronoti haud puncto notato, tibiis 4-posticis fere rectis, apicibus intermediarum subdilatatis. Long. corp. lin. 14.

Habitat in Guinea. Mus. Nost. D. Raddon.

CHIROSCELIS AUSTRALIS, *Westw.*

(Plate 87, fig. 2, 2 a.)

C. nigra nitida; capite supra rugoso (vertice sub-trituberculato) prothorace lato postice punctis duobus fere ad angulos posticos impresso, elytris elongato-ovatis punctato-striatis, tibiis anticis palmatis, posticis 4-subrectis simplicibus, abdominis maculis duabus ventralibus fere semicircularibus, femoribus anticis spina basali alterisque duabus subapicalibus. Long. corp. fere unc. 2.

Habitat in Africæ Orient-Australis partibus interioribus. In Mus. D. Melly.

This fine addition to the genus is unique in the collection of A. Melly, Esq., to whom I am indebted for an opportunity of presenting a figure and description of it to the entomologist.

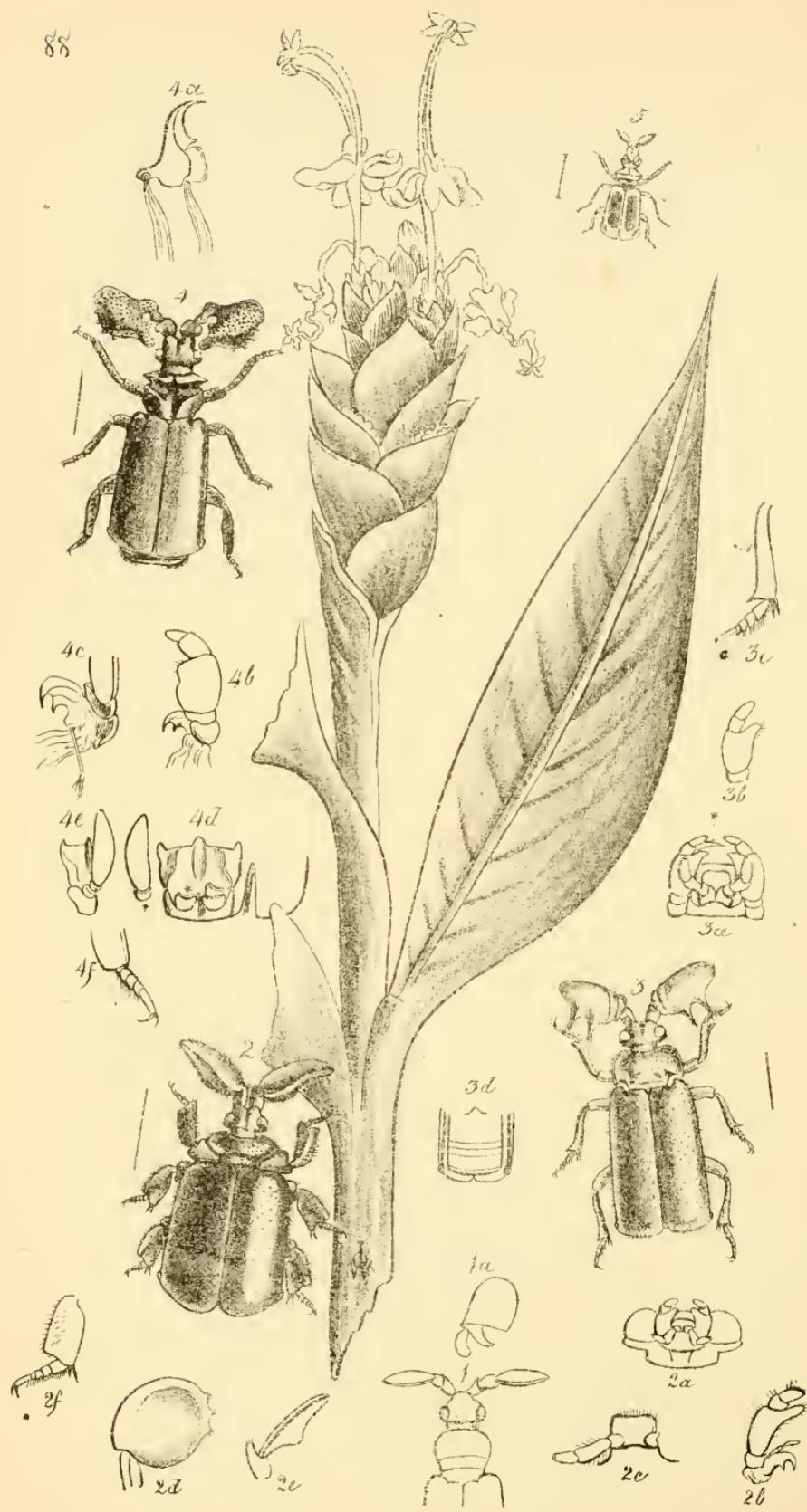
CHIROSCELIS PASSALOIDES, *Westw.*

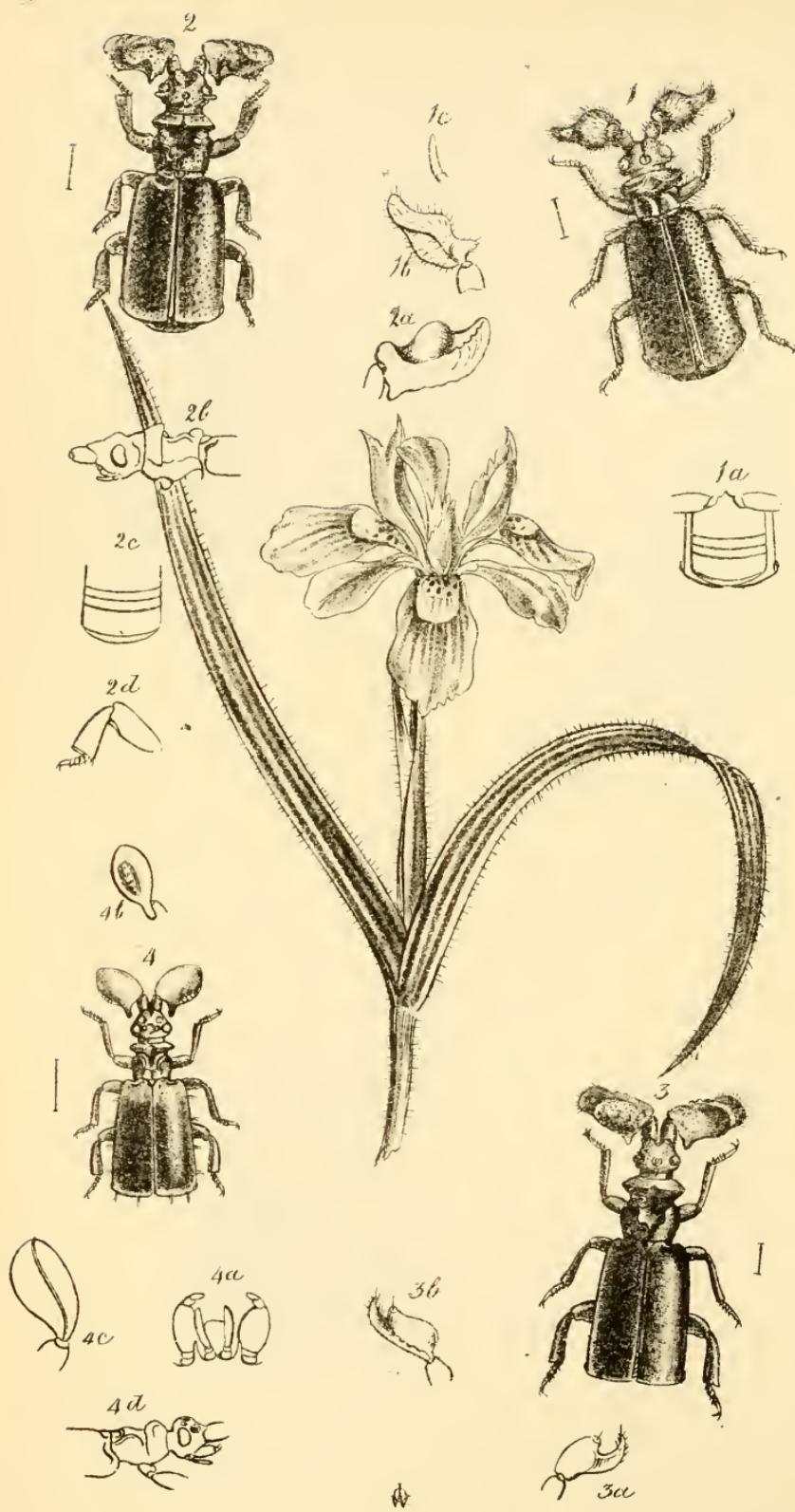
Transactions of the Zoological Society, vol. iii. p. 210, Plate 14, figure 3.

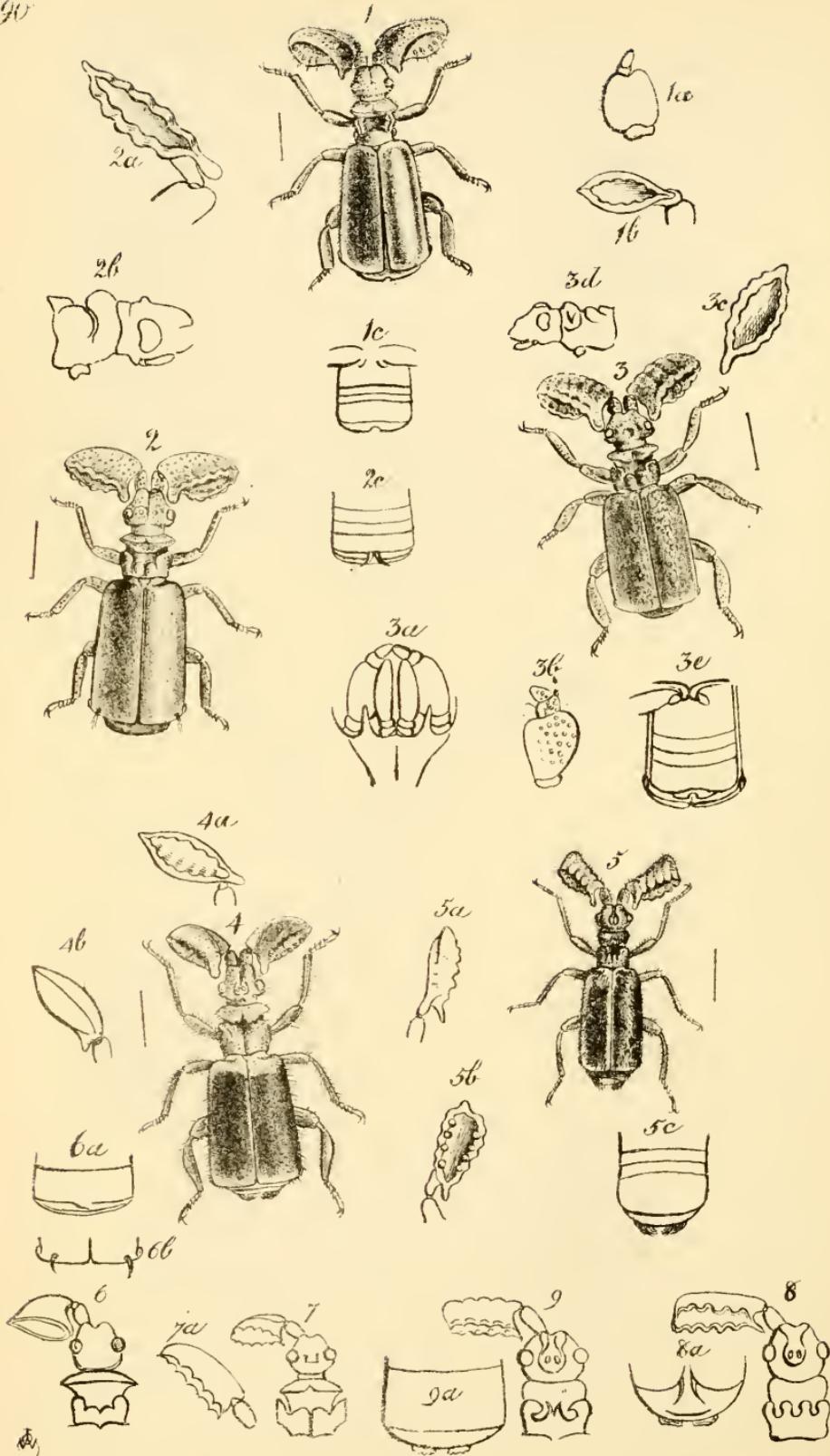
C. nigra nitida; vertice trituberculato, tuberculo postico majori, antennis crassis, pronoto subquadrato angulis rotundatis; elytris parallelis striatis; tibiis latissimis planis anticis extus serratis, posticis intus versus apicem dente armatis; abdomine subtus macula nulla instructo. Long. corp. lin. $19\frac{1}{2}$ — $20\frac{3}{4}$.

Habitat in Guinea. Mus. Nost. &c. D. Raddon et Savage.

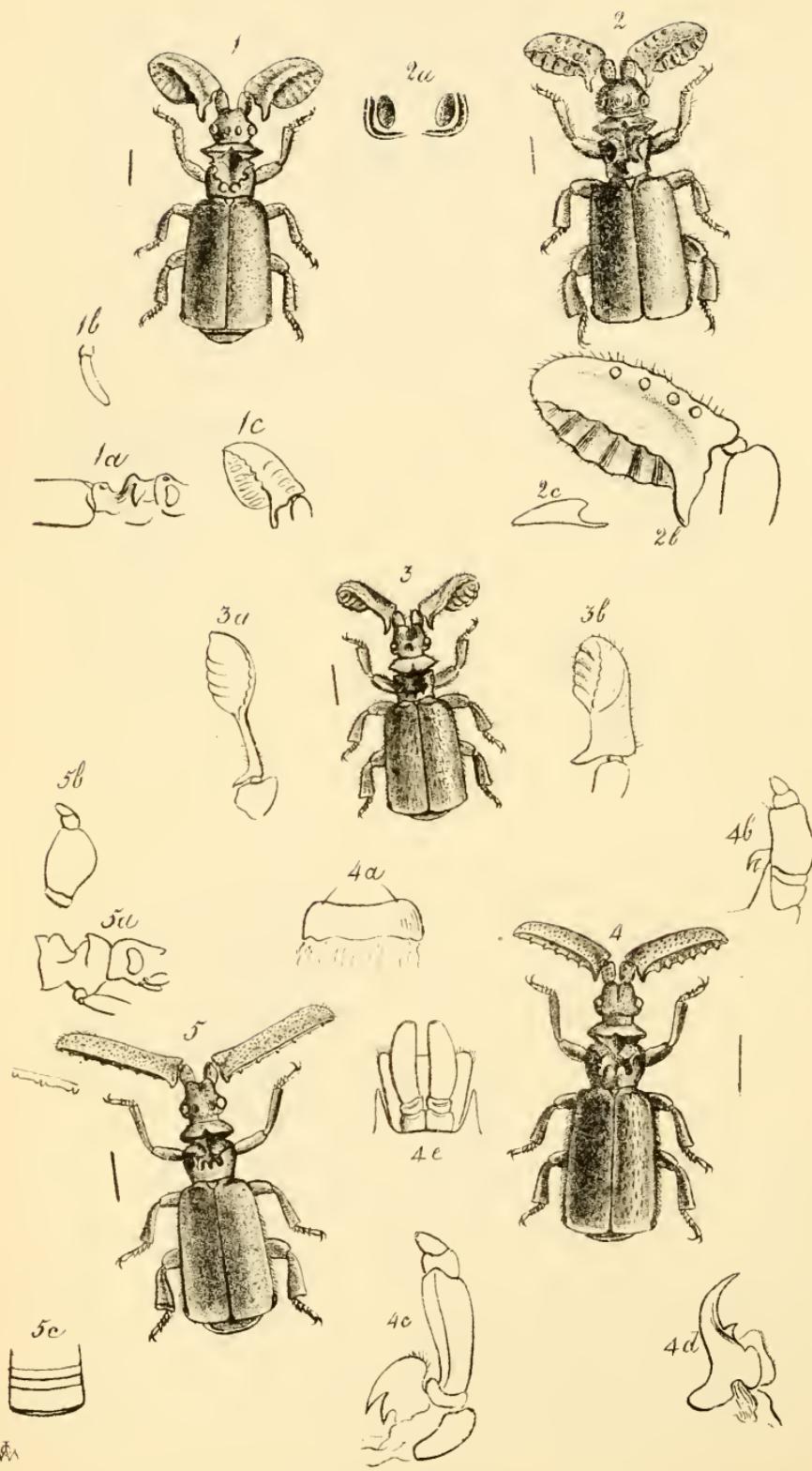
The plant represented in the plate is the *Stapelia divaricata* from Southern Africa.

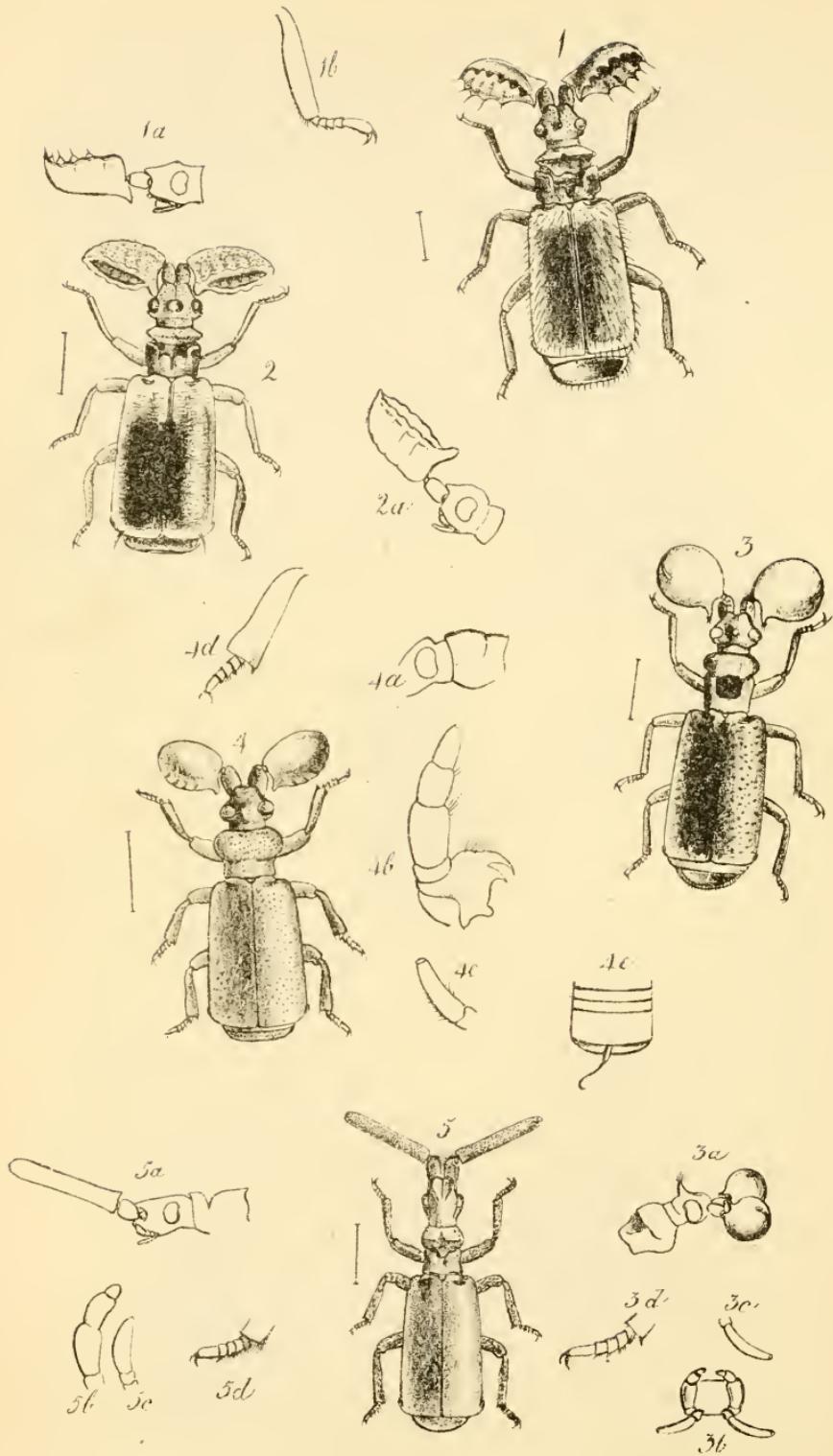


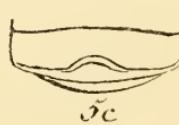
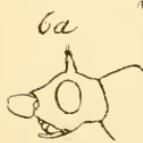
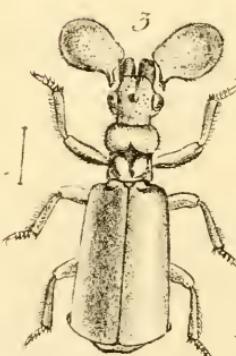
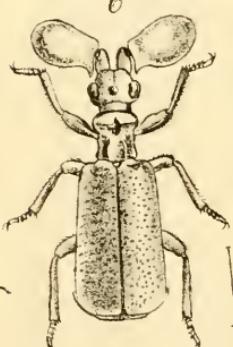
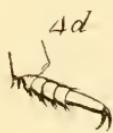
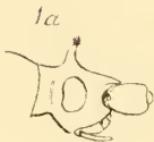
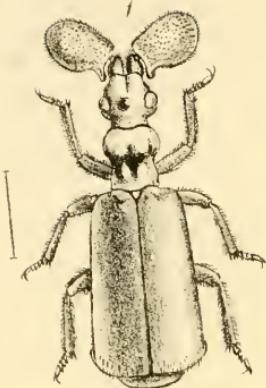
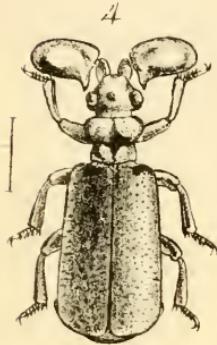
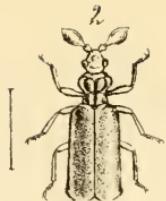
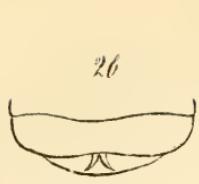


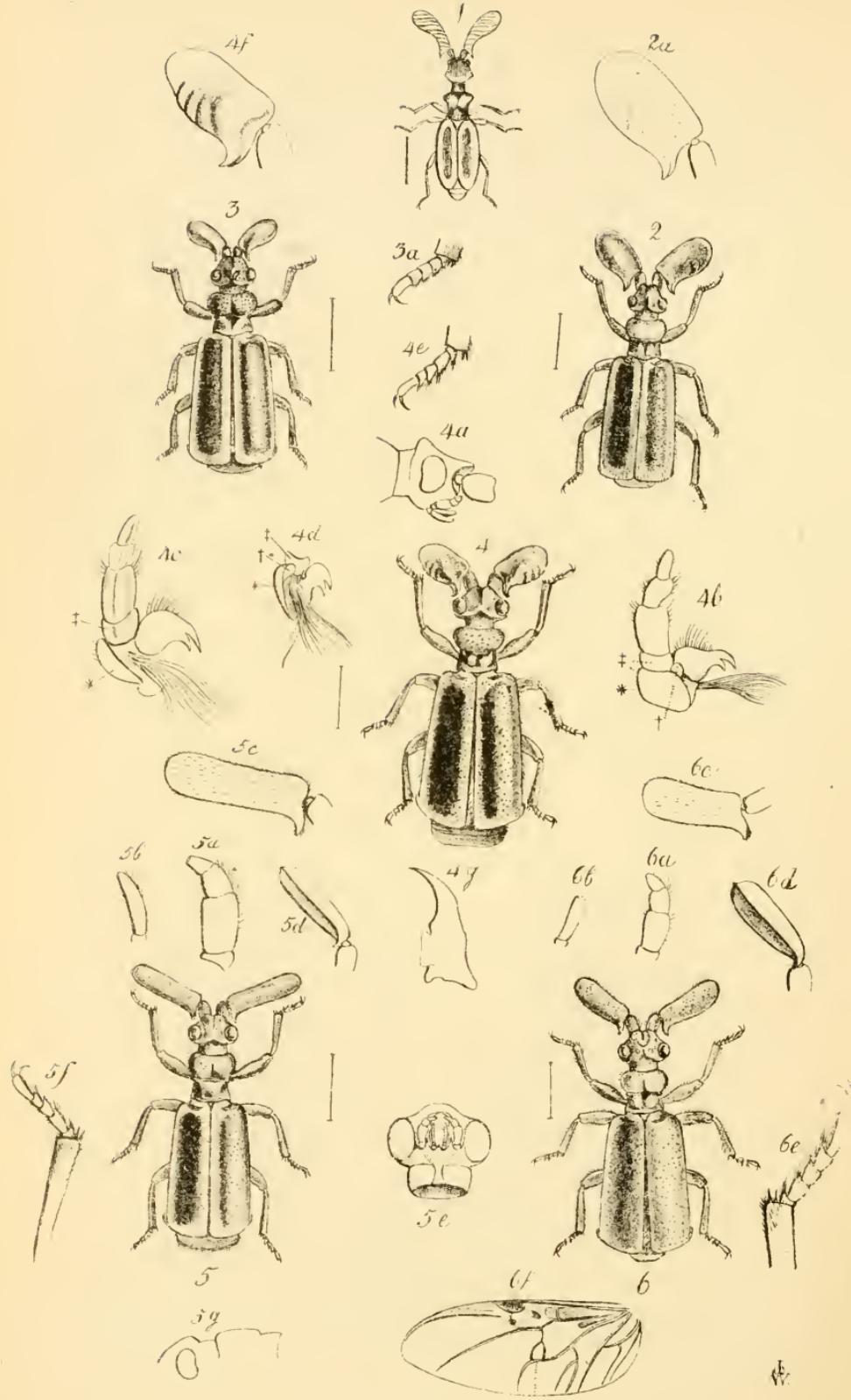




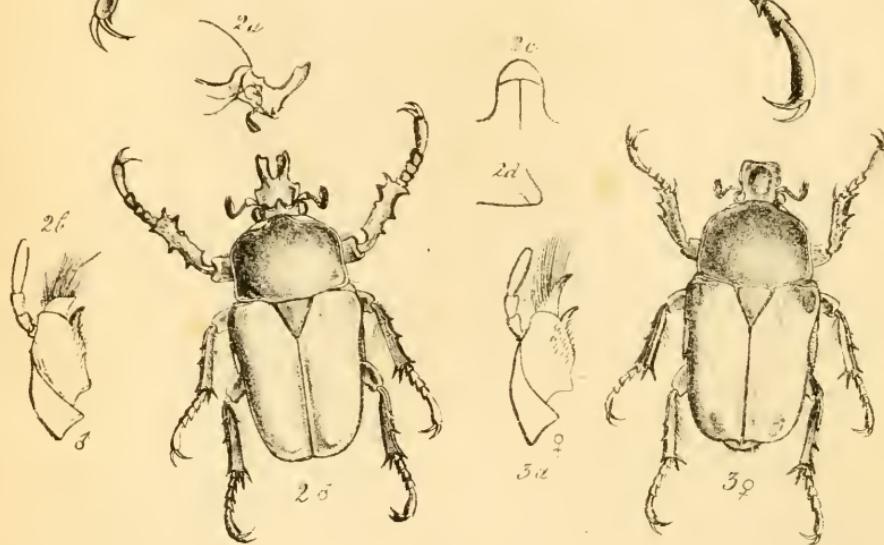
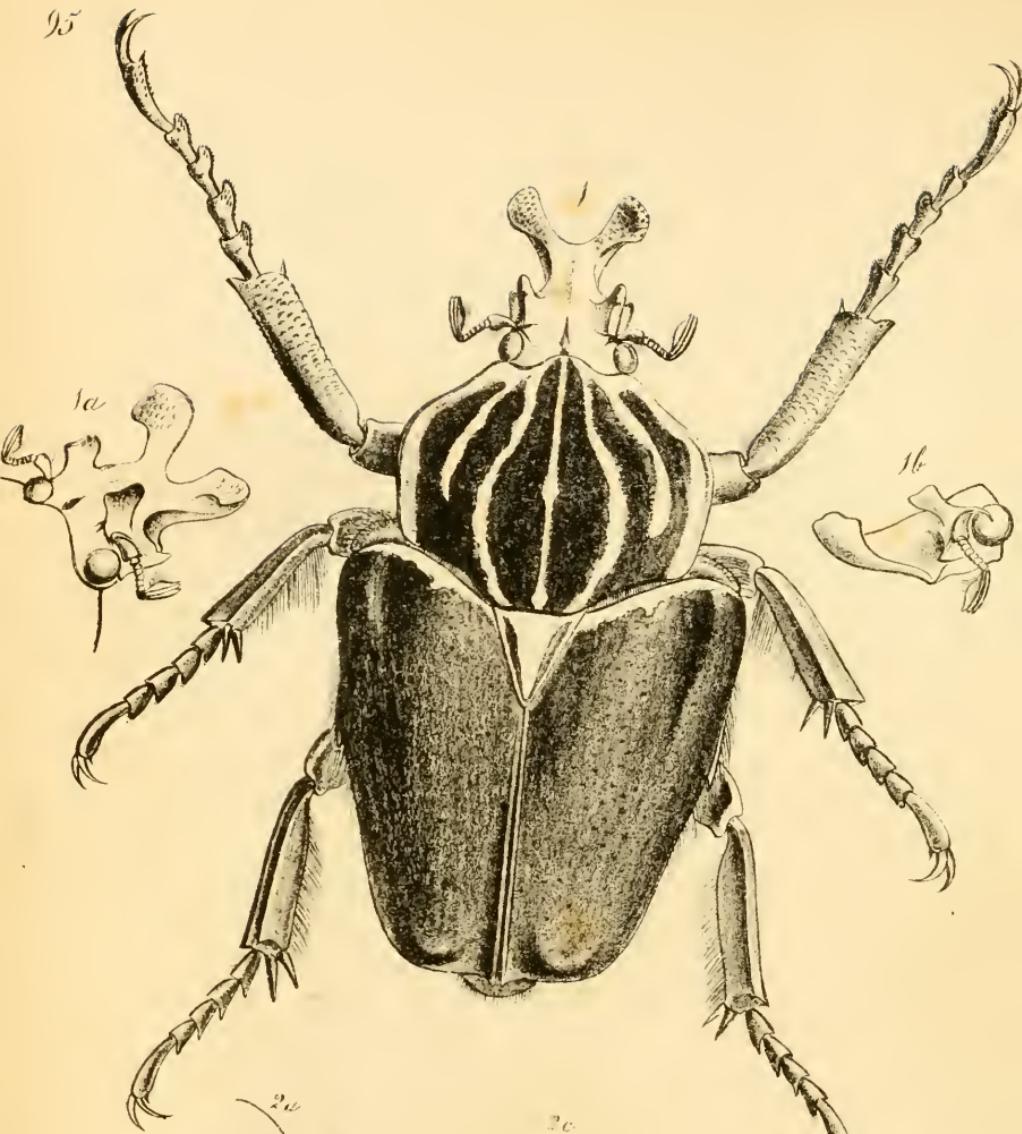








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PLATES LXXXVIII.—XCV.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART IV.

GENUS PLATYRHOPALUS *Continued.*

SINCE the third part of this monograph was published (*ante*, p. 73), I have obtained a knowledge of Captain Boys' very interesting memoir on the species of this family captured by himself in India, published in the 'Journal of the Asiatic Society of Bengal' (n. ser., No. 54); in which that gentleman has given the following description of a species of Platyrhopalus which appears to be closely allied to *P. acutideus*.

SPECIES VI?—*PLATYRHOPALUS SUTURALIS*, *Westw.*

"No. 2, Fig. 2. Mhow. July 17, 1839.—Genus Paussus. Length, 6-20th of an inch; body brown, rather deeper in colour near the sutural margin of the elytra; antennæ of two joints, the last having an elongated pedicel resembling an intermediate joint; the club is pear-shaped when viewed from above, irregular if seen in flank; edges compressed, forming a carina, which is produced into a small tooth near the basal angle. Head has the front slightly emarginated in front and rounded, narrower than the thorax, from which it is exserted; eye rather large for the insect, rounded when seen from above, reniform when viewed on the side. Thorax cordiform, broadly truncated posteriorly, having a transverse sinus crossing its centre. Elytra narrowed anteriorly, rounded on the posterior external margin, squared on the internal one; abdomen tumid and very like many of the Carabici I have been lately taking. Tarsi of five joints, the first of the posterior tarsus scarcely discernible unless the foot is put in motion; last joint longest; all of them cylindrical or obconical, and furnished with a few hairs beneath.

"*Note.* This insect came to the lights on the table some time after gunfire last night."

From the structure of the antennæ and prothorax, as represented in Capt. Boys' figure (copied in my Plate 88, 1, 1a), I infer that this insect belongs to the present genus; although the want of details and the description of the tarsi render this opinion doubtful.

The specific name proposed above is therefore for the present merely provisional.

Having, however, received information from Captain Boys of his having been so kind as to forward to me a number of species of this family from India, I trust to be enabled in the following number of this work to give coloured figures of this and other apparently new species described in his paper above referred to.*

SPECIES VII.—*PLATYRHOPALUS MELLII. Westw.*

(Plate 88, fig. 2.)

Pl. rufo-piceus, elytris castaneis latissimis fere quadratis, antennarum clava compressa fere circulare, basi externe angulum formanti, pedibus latissimis.

Long. corp. lin. $4\frac{1}{2}$; lat. elytr. lin. $2\frac{1}{2}$.

Plat. Mellii, Westw. Liun. Trans. xvi. p. 685. Trans. Ent. Soc., II., pl. x., fig. 4. Guerin, Iconogr. Régne An. Ins. pl. 40, fig. 11.

Habitat Malabariâ. Mus. Melly, Gory, &c.

This singular insect in its dilated form approaches the Cerapteri, but in all its essential characters it belongs to the present genus. It is subconvex, and of a rufo-piceous colour, with the upper surface of the body finely and distantly punctured, shining, very slightly setose, and with the head and prothorax lower than the back of the elytra; the head is small, rather glossy, with the anterior margin emarginate, and the hind part of the head narrowed into a neck; the clava of the antennæ is very large, nearly circular, and compressed—that is, the anterior or upper face is slightly concave, whilst the posterior or inferior surface is slightly convex, especially in the middle; the entire margin is acute, and with three very minute ciliated tubercles in the upper part of the margin a little before its extremity; the base of the clava is also produced in a somewhat square lobe at its under angle.

The maxillæ are furnished with a minute filiform appendage analogous to the inner maxillary palpi of the Carabidæ, which in the specimen examined by me was twisted, giving the appearance of being articulated in the middle; the maxillary palpi are large, with the second joint broad, and strongly produced at its inner extremity. The labial palpi are cylindrical, hirsute, and with the middle joint rather larger than the apical one. The prothorax is short, transverse, nearly twice as broad as the head,

* In consequence of this intelligence, the publication of the following number (which will complete the Monograph of the Paussidæ, as well as the present work itself), will be deferred until after the arrival of Captain Boys's parcel.

rather opaque, with the lateral margins rounded; the posterior portion is very short and narrow, but distinct, and separated from the anterior part by a nearly straight line. The elytra are glossy and castaneous, one-third wider than the prothorax, being rather longer than broad; each is furnished at its outer posterior angle with a small mamillated tubercle, the sides of which are raised so as to give it the appearance of a spiracle; the femora and tibiae are very broad, short and depressed; the latter subobliquely truncated, the fore posterior being furnished with two calcaria; the tarsi are short and cylindrical, ciliated beneath, distinctly five-jointed, the first joint being the thickest and the fourth the shortest; the basal joint in the anterior tarsi is shorter than in the other feet.

Fig. 2a, underside of head; 2b, maxilla; 2c, labium and palpus; 2d and 2e, antenna in different points of view; 2f, posterior tibia and tarsus.

SPECIES VIII.—*PLATYRHOPALUS APLUSTRIFER* WESTW. (Plate 88, fig. 3.)

P. depresso-fuscus, rufo-fulvus antennarum clava lata fere plana externe spinis duabus acutis, prothorace brevi plano lateribus antice rotundatis postice dilatatis, angulis posticis semicirculariter emarginatis, tibiis ad apicem externe acute spinosis.

Long. corp. lin. 3½.

Platyhopalus aplustrifer, Westw., Linna. Trans. xvi. p. 664, pl. xxxiii., fig. 51.

Habitat Bengalia. Mus. Britann. and Westermann.

This extraordinary species was first described by me from a somewhat mutilated specimen, in the British Museum, of unknown locality, so that I was unable to determine its legitimate situation. M. Westermann having, however, had the kindness to forward me a specimen, contained in his fine collection, from Copenhagen, for examination, I am enabled to give a more correct representation of it, and to speak of its true relationship to the present genus with decision. It is depressed, smooth, very slightly pubescent, and of a testaceous-fulvous colour; the head is short and almost rounded in front, and scarcely emarginate, convex, and with the disc entire. The antennæ are slightly pubescent, with the clava large, somewhat ovate, very compressed, with the anterior margin slightly rounded, the apex rounded, and the outer or upper edge produced into two long and very acute spines; the space between which is strongly emarginate, and between them and the base of the clava are two small impressions which seem to indicate rudimentary articulations. The mandibles are curved and acute at the tips; the maxillary palpi have the second joint very broad, and acutely produced into a strong point at the inner extremity; the labial palpi arise from

a rather broad mentum, and have the two terminal joints of nearly equal size. The prothorax is flat, broader than the head, short, with dilated sides, the margin being rounded at the anterior angles; whilst the hinder angles are acutely truncate, or rather very deeply and nearly semicircularly emarginate, leaving a narrow posterior lobe to the prothorax nearly as in the genus *Lebia*. The elytra are oblong-quadrate, with the base rather broader than the prothorax, smooth, shining, impressed at the base, and of a rather brighter colour than the rest of the body. The feet are rather slender, with the tibiæ compressed at the tips, the outer angle being produced into an acute spine, and the inner angle furnished with two calcaria; the tarsi are five-jointed, but the fourth joint is very minute.

Fig. 3 *a*, lower parts of the mouth in situ; *, the mandible; 3 *b*, maxilla; 3 *c*, posterior tibia and tarsus.

GENUS.—PAUSSUS, *Linnæus.*

*Corpus oblongum subdepressum; caput mediocre prothorace angustius; antennarum clava maxima formæ variabilis sèpius irregulariter obtigona, compressa vel subdepressa, basi externe in hamum producto. Labrum subeoriaceum parvum transversum angulis anticis rotundatis. Mandibulæ cornæ parvæ basi dilatatae apice falcatae acutæ denteque in medio marginis interni membranaque coriacæ interna basali quadrata instructæ. Maxillæ stipite crustaceo (figs. *) processu terminali (interno) tenuissimo corneo mandibuliformi, valde arcuato et acute bidentato, spatio intermedio membranaceo (et in P. Hearsiano solum inveni rudimentum partis illæ cornæ in tab. 68, fig. 1. e—l, pugione † notatæ). Palporum maxillarium internorum vestigia nulla detexi. Palpi maxillares (externi) 4-articulati articulo 2udo maximo sèpius ad apicem interne acute producto. Mentum (ut videtur) rectangulare trianguliforme (hypothenua antice transversa) lateribus obliquis capite coalitis, nec basi articulatum, angulis anticis lateralibus porrectis et in dentem subacutum productis. Labrum, os inferne claudens subquadratum cornuum subplanum vel medio longitrosum subcarinatum, margine antico integro vel carinæ apice in dentem parvum centralem producto. Palpi labiales maxillaribus breviorebus labioque longiores ad ortum subconnati (sc. interdum in scapum parvum vel radiculam * inserti ut in P. microcephalo) labiisque faciem inferiorem velantes et marginem ejus anticum ultra extensi, interdum reflexi, 3-articulati articulis duobus basalibus brevissimis ultimo magno longe ovato aut cylindrico, subulato, apice acuto. Prothorax subcylindricus vel truncato-cordatus paullo longior quam latior, plerumque quasi in duas partes divisus, parte antica plus minusve elevata. Scutellum parvum. Elytra prothorace latiora, oblongo-quadrata, postice truncata angulis posticis externis tuberculiferis. Pedes breves robusti plerumque dilatati; tibiis quatuor posticis sèpius bicararatis. Tarsi 5-articulati articulo basali sèpius minuto. Abdomen 4-articulatum articulis duobus intermediis brevissimis.*

In my monograph upon this family, published in the Linnaean Transactions, I endeavoured, at considerable length, to clear up the confusion existing in the writings of Afzelius, Latreille, and others, as to the real structure of the parts of the mouth. Having at that

* Is it possible that this scape of the labial palpi can be the real representative of the mentum, and that the part I have described as the mentum is in fact part of the skull?

time taken out the labium of only one species of this genus, of which the anterior margin was quite simple, I was induced to believe that in describing the labium as 3-dentate, Latreille had mistaken the two spines at the anterior margin of the mentum or gula triangularis for part of the labium. Having, however, recently dissected *P. microcephalus*, which appears to have been the species which he dissected (as he gives it as his first example of the genus, having received it from Mr. MacLeay), I find that its labium accords with Latreille's description. As to the part which I have regarded as the mentum (a part which Latreille states is wanting), it may be contended that the two porrected spines represent the produced undersides of the head, or undercheeks peculiarly developed, as in *Catogenus*, *Passandra* and *Megagnathus*; but as the true mentum is occasionally soldered to the head (as in *Siagona*), and as the maxillæ arise at the outsides of the produced spines (thus agreeing with the typical structure of the Coleoptera, where the base of the maxillæ arises at the outside of the mentum), I have the less hesitation, especially after a comparison of this part in this genus and in the preceding, in regarding the gula triangularis as the representative of the mentum.

As regards the external sexual marks of distinction in this genus, I am only able to state, that, according to Afzelius, the female of *P. sphœrocerus* differs chiefly from the male in having the labial palpi rather narrower, the produced lobes or spines of the mentum glaucous, the maxillary palpi shorter, with the second joint narrower, the abdomen longer, and the posterior femora slenderer. In some individuals, we find the extremity of the abdomen furnished with two acute curved diverging spines, which, I believe, will be found to be a sexual peculiarity.

The species of this genus are much more numerous than those of any of the other genera. Some of them, possessing a subcontinuous prothorax, and a broad clava to the antennæ, are closely allied to the *Platyrhopali*; whilst others, with a bipartite prothorax, seem to approach *Pentaplatarthus*, although the structure of the palpi, maxillæ, &c., of the last-named genus (see pl. 58, fig. 2, details) materially differs from that of the true Paussi.

Of the habits of this genus we possess but little information; sufficient, however, appears to be known to lead us to infer that the species are nocturnal in their habits, being often attracted by the light in houses after dark, and that, like *Claviger*, *Lonechhusa*,

&c., they reside in ants' nests. Afzelius states of *P. sphærocerus*, that having (in January, 1796) entered upon a newly-erected residence, "one evening, having just lighted my candle, and begun to write, I observed something dropping down from the ceiling before me upon the table. It remained for a little while quite immovable, as if stunned or frightened, but soon began to crawl very slowly and steadily." Several others were obtained by him in like manner, whence he "concludes that it is a nocturnal animal, that it becomes benumbed by candlelight, that it lives in wood, and prefers new-built houses."* None were taken after February. Since the days of Afzelius, other captures, under similar circumstances, have been recorded.

Captain Boys, whose attention has been especially directed to the Indian species, and who has detected eight species, states, in his memoir above alluded to, that "in flight the Paussi are exceedingly easy and agile; the lower wing, when expanded, being in comparison to the size of the insect, of large dimensions; and when they alight, the movement is so sudden, and the elytra are closed so instantaneously over the lower wings, that they appear as having dropped down to the spot on which they rest, and where they generally remain several seconds previous to again attempting to move (*facts which I have also remarked as practised by many Carabici*). Its walk, however, entirely differs from that of this last-mentioned genus; for instead of being nimble, and occasionally rapid, I have never seen it moving but in a slow and sedate manner, at which time the antennæ are extended to the front of the head, and to these is occasionally given an upward vibratory motion.—On being seized, they emit from the anus a very acrid liquid, accompanied by an explosion, and attended with a strong scent, resembling that produced by Brachini and other allied genera when similarly treated; and although in minuter quantities, it is abundantly sufficient to produce a very sensible heat, and the crepitation may be distinctly heard and felt. Wherever the skin has been subjected to its action, discoloration immediately ensues, of a reddish-brown colour, which soon after turns to a brownish black, resembling the stain produced by the touch of caustic, and which remains permanently fixed for many days after. The explosion is repeated three or four times succes-

* Linn. Trans. iv., p. 261.

sively, at which periods a vapour may be observed to accompany each crepitation, attended with a strong and very penetrating odour, something like that of nitric acid." On touching the papillæ-like tubercles at the outer angles of the extremity of the elytra (giving cover to an elongated appendage of the same description, which is attached to the upper exterior margin of the abdomen ; and which, by the aid of a pin's point, may be lifted up, and in a slight degree outspread, but collapsing immediately the impediment is removed), Captain Boys observed, that "they possessed the power of discharging a yellowish milky liquid, resembling pus in consistency, and which speedily overspread the lower part of the elytron, granulating into small egg-shaped grains. On repeating the irritation, the same results occurred ; and in order to be certain of the fact, I tried each elytron twice with the same effect ;—and in all these trials, each emission was accompanied with a faint acidulous odour."

Of the species described by Captain Boys, one is stated to have been captured on a heap of manure, a second was taken by sweeping high grass with a hoop net, three were taken at night, having been attracted to the lights ; "another was rescued from the clutches of a small black ant, which circumstance I notice merely because a belief exists that the Paussi inhabit ant-hills ;" and the last was found crawling up the wall of his bathing-room.

Since the article containing the description of *Ceratoderus bifasciatus*, (*ante* pl. 58, f. 1, p. 37,) was published, I have received a specimen of that curious insect from my friend Colonel Hearsey, by whom it was captured at large during the day-time.

In the former articles on this family in the present volume, I have alluded to the views of Dr. Burmeister as to the relationship of the Paussidæ with the Carabidæ analogous to that which exists between the Dyticidæ and Gyrinidæ (*ante* pp. 5, 10, 11, 12, 76, 80.) This relationship is considered to be exhibited in the structure of the mouth, wings, and indeed in the entire general structure of the insect, not excepting the antennæ which are brought into comparison with those of *Helluo laticornis*, *Ozæna orientalis*, and some species of *Morio*.*

* Captain Boys also, in his Memoir on the Genus above referred to, has likewise arrived at the conclusion that these insects are related to the Carabidæ, "approximating in outward appearance" to many of that family, possessing also five-jointed tarsi, and possessing, like *Brachinus*, the power of crepitation.

The examination of the structure of the mouth of *Platyrhopalus*, which I have detailed in my former article, has produced a result at variance with Dr. Burmeister's views, and from an investigation of the characters afforded by the wing veins of the Coleoptera, I believe it will be found that this ingenious relationship is equally unfounded; for it is to be observed that not only is the form of the wing of the Paussidæ quite unlike that of the Carabidæ and Dyticidæ, but that the arrangement of the wing-veins is much less complicated, and the part of the wing where the fold takes place is much further removed from the extremity of the organ in the Paussidæ; it is true that like those families it possesses a small cell at the recurved extremity of the radial vein, but this can scarcely be entitled to the weight which Dr. Burmeister would give to it, since it is wanting in all the Cicindelidæ which I have examined,* and yet the relationship of these with the Carabidæ is infinitely more decided than that of *Carabus* and *Paussus*. It is to be observed, however, that the genera *Rhysodes*, *Catogenus*, *Passandra*, &c., which I have hitherto regarded as the nearest allies of the present family, differ entirely in the arrangement of their wing-veins, the extremities being entirely destitute of longitudinal veins. The texture and general appearance of the body, the dilated antennæ having (as in the Cerapteri, &c.) no appearance of elevation at their extremities, the form and insertion of the feet and the anomalous structure of the mouth are, however, characters which I am still disposed to regard as of equal importance with those insisted upon by Burmeister. The Paussidæ, in fact, are an isolated and extremely anomalous group, and which every fresh discovery renders more perplexing to the entomologist.

The species of the genus *Paussus* may, for convenience, be arranged in the following divisions and subdivisions:

- SECTION A. Prothorax quasi bipartitus.
 - a. Antennarum clava postice haud excavata.
 - b. Antennarum clava postice excavata.
 - * Species Indicæ.
 - ** Species Africanæ.
- ,, B. Prothorax subcontinuus.
 - a. Species Africanæ.
 - b. Species Indicæ.

SECTION A. Prothorax quasi bipartitus.
SUB-SECTION a. Antennarum clava postice haud excavata.

* This character, hitherto unnoticed, will at once distinguish the family Cicindelidæ from the Linnæan Carabi, since all the sub-families of the latter group possess this little cell.

SPECIES I.—PAUSSUS MICROCEPHALUS, *Linnæus.*

(Plate 88, fig. 4.)

Obscure niger vel nigro-piceus, elytris magis piceis vel rufo-piceis capite mutico, antennarum elava permagna, oblongo-sphaeroïdæa inæqualiter elevata ad basin pedunculato, pedunculo angulato, latere externo 4-tuberculato, basi supra in uncum obtusum unidentatum producto, prothorace in medio profunde excavato parte antica strangulo distincto valde et transverse elevata, illius margine supero acuto in medio interrupto; tibiis linearibus postieis paullo latioribus apice subangustioribus; abdominis apice setis brevibus luteis utrinque marginato. Long. corp. lin. $3\frac{1}{2}$ —4.

SYNON.—*Paussus microcephalus*, Linnæus (Dahl. Dissert. Acad. Bigæ ins. p. 6, tab. ann. f. 6—10; Afzelius, Trans. Linn. Soc. vol. iv. tab. 22, f. 1—5.; Fabricius, Latreille, Gen. Crust., &c., tom. iii. p. 2; Westw. Trans. Linn. Soc. xvi. p. 631.

Habitat in Africa occidentali tropicali. Mus. Banks, (Soc. Linn. Lond.) MacLeay, Latreille, and Turner. (Individuum Linnæanum in Museo Linnæano haud nunc invenitur.)

This is the species upon which the genus was originally established by Linnæus. Its true locality was for a considerable period a matter of doubt, but it is now fully established as a native of tropical Western Africa, whence a specimen has been lately received by J. Turner, Esq., by whose kindness in placing it in my hands, I have been enabled to clear up several points in its structure, incorrectly described by Afzelius.

The head is even on its upper surface, and its front margin is slightly emarginate; the basal joint of the antennæ is terminated above in pale rounded vesicular tubercles, and in a living state the part of the antennæ bearing the four minute tubercles is upwards, and the curved peduncle downwards. The parts of the mouth are delineated in figures 4 *a*—4 *e*; 4 *a* being one of the mandibles, showing the strong muscles whereby it is moved; 4 *b* one of the maxillæ, seen from beneath, and 4 *c* the same with the base of the maxillary palpi, seen laterally, showing the absence of the analogue of the inner maxillary palpi; 4 *d* the labium, with the base of the labial palpi arising from the basal scape, and having the anterior extremity terminated by three points; 4 *e* the same seen laterally showing the lateral continuation of the scape, and the thickness of the labium; and 4 *f* the posterior tarsus and the extremity of the tibiæ destitute of calcaria.

SPECIES II.—PAUSSUS JOUSSELINII, Guér.

“ Corps d'un brun foncé presque noir, avec l'abdomen et l'extrémité des élytres ferrugineux: tête petite, ayant un sillou longitudinal en avant et trois tubercles en forme de cornes sur le vertex; antennes rugueuses avec le 1er article grand presque carré, le second ou la masse subcylindrique, trois fois plus long que le premier, un peu rétréci au milieu, ayant en dedans et à la base un appendice tronqué, et, près de l'extrémité, trois fortes dents aigues, corselet divisé en deux par un profond étranglement, ayant une profonde excavation longitudinale au milieu, et deux taches orangées produites par un fin duvet et placées de chaque côté et presque au fond de l'étranglement transversal; élytres lissés, avec une petite dent dilatée près de l'extrémité, pattes rugueuses comme les antennes.”

" Ce curieux insecte a été trouvé au Pégou, au bord de la rivière Yrrawady, à une journée de Rangoon ; il était posé sur un trone de palmier."—Guérin-Meneville, Revue Zool., No. 2, p. 21.

I regret that I have not been able to obtain a figure of this species, which I have not found in any of the Parisian Cabinets which I have examined. From the structure of the prothorax the present appears to be the proper position of the species.

SPECIES III.—*PAUSSUS LINNÆI, Westw.*

(Plate 89, fig. 3.)

Parvus subcylindricus, rufo-piceus, elytris rufescensibus antennarum clava lata subquadrata, apice valde depresso recurvo, subhirsuto ; tibiis quatuor anticis angustis.

Long. corp. lin. 2.

Habitat ——? In Mus. Soc. Linn. Lond.

Paussus Linnæi, Westw. In Trans. Linn. Soc. xvi, p. 634, pl. 33, fig. 22—24.

This is the most minute species of the family with which I am acquainted. It is preserved in the Linnaean Cabinet, being attached to the Linnaean label of the Genus, although quite distinct from the species described by Linnaeus. Seen under a lens it appears very finely shagreened ; the head and prothorax being opaque, whilst the hind part of the latter and the elytra are more glossy. The head is subconvex above, obscure, pitchy, and of a subtriangular form, but narrowed behind the eyes ; the fore margin is deeply emarginate, and between the eyes is a rather deep horse-shoe-like excavation. The clava of the antennæ is rufo-fuscous with the apex rather pilose ; seen in front it is of an oblong form, rather broadest towards the base, its outer angle being slightly produced ; the anterior margin has three minute tubercles ; the disc is very uneven, the apex being suddenly depressed, and reflexed, with an acute edge (figs. 3 a, 3 b). The prothorax is elongated and bipartite, with the fore part broader than the head, angulated at the sides, with a transverse carina, interrupted in the middle ; the hinder part is deeply excavated in the middle, with irregular margins, bearing two small tufts of luteous decumbent hairs near the contraction ; the lateral margins of this part are nearly rounded. The elytra are broader than the prothorax, but scarcely longer than it and the head together ; they are of a dull rufo-pitchy colour, with a slight gloss, with the apex truncated. The four fore legs are rather narrow and subcompressed ; but the posterior tibiae are broader and depressed. I could not observe any calcaria to these legs. The legs and antennæ are of a reddish-brown colour.

This species is closely allied to the following, but is at once distinguished by its minute size, the want of the two porrected tubercles behind the eyes, the form of the clava of the antennæ, the want of the pale scales scattered over the body, &c.

SPECIES 4.—*PAUSSUS BURMEISTERI*, Westw.

(Plate 89, fig. 2.)

Obscure castaneo-piceus albido-squamosus ; elytris magis rufescentibus ; capite pone oculos utrinque spina armato ; thorace bipartito ; elytris subangustis pedibusque dilatatis.
Long. corp. lin. 3.

Habitat apud Promont. Bon. Spei. Mus. Reg. Berol. Hope, Evans, Westermann.

SYN. *Paussus Burmeisteri*, Westw., in Trans. Ent. Soc., ii., p. 86, pl. ix., f. 3.
Paussus contractus, Klug MSS.

This dull-coloured insect is closely allied to the preceding, as above mentioned ; it is of a pitchy-chesnut colour, with pale scales scattered over the upper surface, and the elytra, especially towards the extremities, are of a redder hue, and destitute of gloss. The head is somewhat oval, narrowed in front, and impressed in the middle of the anterior margin, from whence runs a rounded impression towards the middle of the head ; between the eyes is a small round excavation, within which is a minute tubercle ; the head on each side behind the eyes is produced into a short blunt spine. The clava of the antennæ (fig. 2 a) is very irregular on the upper surface ; the base broadly truncate, and slightly angulated in the middle, with the outer or upper angle produced into an obtuse point ; the anterior margin with several small sinuations ; the extremity rounded but slightly emarginate behind both near the basal point and apex, the middle space considerably bulging out, and bearing four minute setigerous tubercles. The prothorax is subovate truncate, rather broader than the broadest part of the head, as well as longer ; near the anterior part is a deep constriction, the anterior portion being angulated at the sides, and formed into a transverse angulated ridge, interrupted in the middle ; the hinder part of the prothorax is marked with a deep and broad sulcus in the middle, bearing two small patches of luteous hairs at the sides in front, and having the edges of the impressed part rather acute, but irregular. The elytra are but little wider than the prothorax ; they do not entirely cover the extremity of the abdomen ; they are transversely impressed at the base, and bear the ordinary tubercles at the apical outer angles. The feet (fig. 2 d) are short, with the femora and tibiæ broad and compressed, the

latter having the tips obliquely truncate, and the angles acute. The tarsi have the basal joint very minute, as well as the calcaria, which are almost indistinct. The abdomen (fig. 2c), in the specimens in the collections of the Rev. F. W. Hope and M. Westermann, is simply 4-jointed, without any exserted appendages. [Fig. 26 represents the front part of the body, seen sideways.]

The figure published by me in the Transactions of the Entomological Society, above referred to, was engraved from a slight sketch made during my visit to Berlin. The present drawing is from a specimen sent to me from Copenhagen by M. Westermann for examination.

SPECIES 5.—*PAUSSUS RUFITARSIS*, *Sam. MS.*

(Plate 89, fig. 4.)

Fulvo-flavescens; antennarum articulo basali, prothoracis angulis posticis, elytrorum disco pedibusque piceis; tarsis rufis, antennarum clava ovata convexa basi externe in spinam obtusam producto. Long. corp. lin. 3.

Habitat —? In Mus. Britann.

Paussus rufitarsis, Westw., in Trans. Linn. Soc., vol. xvi., p. 638, pl. 33, fig. 25—27.

The form of this species is comparatively short and broad; it is somewhat cylindric, and very delicately punctured, and slightly pubescent. The head is subtriangular, porrected, and nearly as large as the prothorax, with the neck narrowed, and the anterior part truncate and slightly emarginate; it is of a pale flavescent colour; and in the middle, between the eyes, is a rounded excavation, having a minute round impression on either side; between the eyes and the base of the antennæ is also a rounded impression on each side of the head. The maxillary palpi have the second joint very broadly ovate and compressed. The basal joint of the antennæ is pitchy, and the second pale livid-flavescent, the latter elongate-globose, rather pointed at the apex, slightly carinated along the anterior margin, with the upper angle of the base produced into an obtuse pitchy spine; the middle of the upper or hinder margin, with a rather depressed oblong impression, in which are four slightly elevated transverse ribs. The prothorax is subquadrate, scarcely broader and larger than the head, and bipartite; the anterior portion fulvous-yellow, with the sides of the hinder portion pitchy; the anterior part is elevated and short; along the middle runs an angulated ridge, which is interrupted in the middle, the lateral angles subacute; the hinder part is larger,

with the middle deeply impressed, the edges of the impression being prominent and irregular in shape, and with two rounded tubercles in the middle of the hind margin. The elytra are subcylindrical, covering the extremity of the abdomen, considerably broader than the prothorax, the hinder part being broader ; they are shining, with the base reddish buff, and the lateral and posterior margins red ; the disc pitchy, and very obsoletely and finely punctured, the outer and apical margins with several tufts of short, rigid, red setæ. The body beneath is pale testaceous, and glossy. The feet are pitchy ; the femora slightly dilated, especially in the hind feet ; and the tibiæ scarcely compressed, except the posterior pair, which are broader than the others. The tarsi are red. The abdomen in the single specimen I have hitherto seen is destitute of any external appendages.

[Fig. 4 *a*, represents the lower parts of the mouth ; 4 *b*, the back view of the antennæ ; 4 *c*, front view of ditto ; 4 *d*, front part of body, seen sideways.]

The drawing, published with my monograph in the Linnæan Transactions, has been corrected by a recent examination of the typical specimen of the species.

SPECIES VI.—*PAUSSUS PILICORNIS*, *Donovan*.

(Plate 89, fig. 1.)

Rufo-testaceus punctatus, elytris piceo-nigris, antennarum clava oblongo-ovata convexa apice attenuata incurva pilis longis sparsis. Long. corp. liu. 2.

Habitat in Bengalâ. In. Mus. D. Westermann.

SYN.—*Paussus pilicornis*, Donovan Ins. of India, pl. Paussus, fig. *^{*}*. Westwood, Linn. Trans. xvi., p. 643.

This minute species having hitherto been known through Donovan's insufficient figure and description, it is with pleasure that I now offer a drawing of it, made from a specimen kindly sent to me from Copenhagen by M. Westermann, for that purpose. It is of a dark-red colour, with the exception of the elytra, which are pitchy black, shining and strongly punctate. The head is subtriangular, with the anterior margin notched, and with an impressed longitudinal line extending from the clypeus to the middle of the crown, where is a rather larger circular impression ; the angles behind the eyes are but slightly prominent ; the clava of the antenna is very setose and somewhat reversed pear-shaped, the basal portion being almost circular, with the outer angle at the base produced into a short obtuse spine ; and the apical portion is

attenuated and bent upwards, with a slight keel along the anterior margin and a transverse depression near the base on the upper side (fig. 1 b). The prothorax is subquadrate with the anterior part broadest, constricted a little before the middle, the anterior angles rounded off, and the fore part having an elevated angulated ridge, which is broadly interrupted by a rounded depression in the middle; the centre of the prothorax is occupied with a deep transverse sulcus, and the hind part is occupied by two large raised glossy spaces separated down the middle by an impressed line; the elytra are black, with the base rather pitchy, strongly punctate, and setose. The abdomen is simple in the specimen examined (fig. 1 a). The body beneath is pitchy, with the breast, legs, mouth, and head of a redder pitchy colour.

[Fig. 1 c represents the labial palpus.]

SPECIES VII.—*PAUSSUS TURCICUS*, *Fridv.*

(Plate 88, fig. 5.)

Oblongus rufus, capite elongato opaco, prothorace transversim diviso, elytris nitidis apice dilatatis truncatis macula media communi longitudinali fusca. Long. corp. lin. $2\frac{1}{3}$.
Habitat in montibus Turcicis Balkan dictis.

SYN.—*Paussus turcicus*, Fridvaldszky in Hungar. Trans. 1835, vol. 2, pl. 6, fig. 5.
Westwood, in Trans. Ent. Soc. 2, p. 91.

I regret not being able to give any further particulars of this species, which from its locality must be regarded as interesting. The figure here given is copied from M. Fridvaldszky's plate.

Sub-section b. Antennarum clava postice excavata.

* Species Indicæ. (Plate 90.)

SPECIES VIII.—*PAUSSUS TIBIALIS*, *Westw.*

(Plate 90, fig. 1.)

Castaneus nitidus, elytris plaga magna discoidali nigra, antennarum clava postice (vel supra) profundè excavata marginibus vix sinuatis, tibiis posticis dilatatis compressis. Long. corp. lin. $2\frac{3}{4}$.

Habitat in Bengalâ. In Mus. D. Westermann et Melly.

SYN.—*Paussus tibialis*, Westw. in Trans. Linn. Soc. xix. p. 47.

This very distinct species is chesnut-coloured and glossy, with the disc of each elytron marked with a large thick longitudinal blotch, leaving only the margins pitchy red. The head is rather narrower than the prothorax, nearly rounded and convex with the anterior margin scarcely emarginate, and with an impressed line running from the middle of the clypeus to the crown; the sides of the head behind the eyes are oblique and punctured. The second joint of the maxillary palpi is very much dilated and flattened,

being almost circular, with the inner apical angle produced and rounded, and the outer margin setose (fig. 1 *a*) ; the clava of the antennæ is subovate with the anterior margin acutely keeled and rather curved, the base produced at the outer angle into a rather obtuse tooth, the hind part of the antennæ (fig. 1 *b*) incrassated and deeply excavated, with the margins of the excavation nearly entire and setose, but marked inwardly with several small oval transverse impressions. The prothorax is rather broader than the head, and bipartite, the anterior part with the sides obtusely angulated, and the disc transversely elevated, the middle being slightly interrupted ; the hinder part of the prothorax is deeply excavated in the middle, with the edges slender and elevated. The elytra are broader than the prothorax, gradually dilated to the extremities, and of a shining black colour, with all the margins fulvous chesnut and setose ; the disc very delicately and widely punctured when seen through a lens. The four fore-feet are slender and cylindric, but the posterior pair have the femora and tibiae dilated and compressed ; the calcaria in all the feet appear to be obsolete.

[Fig. 1 *c* represents the underside of the abdomen.]

I am indebted to the kindness of Mr. Westermann for a knowledge of this Indian species, which he forwarded for my examination from Copenhagen.

SPECIES IX.—*PAUSSUS FULVUS*, *Westw.*

(Plate 90, fig. 3.)

Luteo-fuscus subopacus, elytris magis rufescensibus, rivuloso-rugosis, antennarum articulo basali, prothoracis latebris posticis, femoribusque obscurioribus ; capite supra profunde rotundato-impresso. Long. corp. lin. 3.

SYN.—*Paussus fulvus*, *Westw.* in *Trans. Linn. Soc.* xix. p. 47.
Habitat in India Orientali. In Mus. Hope et nostr.

The head is subtriangular, and is nearly as broad as the prothorax behind the eyes, where it is angulated to the narrowed part or neck ; the anterior part is truncated and slightly emarginate, with an impressed line or gutter extending from the clypeus towards the crown, where is a large and deep circular impression with the margin elevated ; it is of a luteo-fuscous colour, sub-opaque, and finely punctured. The antennæ have the basal joint punctate, and the clava is large broad ovate, depressed along the fore margin, which is slightly sinuated, the hind part of the antennæ being much dilated and deeply excavated, with the entire margins of the excavation sinuated, and the base, with the outer angle produced

into a broad and obtusely rounded tooth. The maxillary palpi have the second joint very large, punctate, and almost subcordate; the inner apical angle being rounded off; the labial palpi are separated at the base by a minute conical piece or scape, as in the type of the genus. The prothorax is bipartite, with the anterior part rather the widest, its sides being produced into rather acute angles, and its hind margin extended further backwards than in the preceding; the middle part of the prothorax is distinguished by a deep transverse impression, with the margins elevated on each side. The elytra are much wider than the prothorax, opaque and rugulose, the rugæ running together very irregularly. The feet are very much punctured, compressed, and rather broad, the posterior tibiæ being slightly curved, and broader than the others. The calcaria * are wanting, being replaced by a few setæ, similar to those at the tips of the joints of the tarsi. The abdomen has a slight notch at the anus, but is destitute of any external appendages.

[Fig. 3 *a*, represents the lower parts of the mouth; 3 *b*, maxillary palpus; 3 *c*, back view of antenna; 3 *d*, side view of front of body; 3 *e*, underside of abdomen.]

SPECIES X.—*PAUSSUS STEVENSIANUS*, Westw.

(Plate 90, fig. 2).

Pallide luteus, capite subrugoso; tuberculis duobus elevatis inter oculos; antennarum clava magna postice excavata, marginibus excavationis sinuato-tuberculatis; elytris apicem versus fasciculis duobus minutis setarum instructis. Long. corp. $3\frac{3}{4}$.

Habitat in India Orientali. In Mus. S. Stevens.

SYN.—*Paussus Stevensianus*, Westw. in Lin. Trans. xix. p. 48.

This species is nearly allied to *P. fulvus*, but differs in its paler colour, narrow feet, pair of tubercles between the eyes, &c. The head is nearly as broad as the prothorax, pale luteous, finely rugose, the posterior angles behind the eyes rounded off, with a distinct neck, the fore margin or clypeus having a central notch, from whence extends an impressed line to the middle of the crown, where are two elevated tubercles excavated at the tips with a fine impressed line between each of them and the eyes. The clava of the antennæ is large and strongly punctate, the anterior margin acute and curved, and the posterior considerably dilated and excavated, the sides of the excavated part being sinuato-tuber-

* By a typographical error the tibiæ of this species were described in the Linn. Trans. as "calcaratis," instead of "eocalcaratis."

culated, and the basal external angle produced into a broad rounded lobe. The maxillary palpi have the second joint very broad. The prothorax is bipartite, the sides of the anterior part being acutely angulated with a transverse elevated carina, interrupted in the middle, the posterior half of the prothorax with the sides elevated and the middle deeply impressed, the hind part having two elevated and rounded lobes in the middle. The elytra are pale luteous, somewhat shining, with the hinder part darker, very finely rugose, nearly twice as broad as the prothorax, having near each of the posterior lateral angles a small fascicle of reddish rigid setæ. The legs are elongated, slender, and punctated, the posterior tibiae being rather broader than the others; the tarsi distinctly five-jointed, but with the calcaria obsolete and replaced by a few short bristles, similar to those at the extremity of the joints of the tarsi. The anal segment of the abdomen is furnished in the middle with two curved horny points. The head and thorax beneath are pale coloured, but the abdomen and mesosternum are darker.

Fig. 2 *b* represents the head and prothorax, seen sideways; fig. 2 *a*, the antenna seen from behind, showing the excavated part, with its sinuato-tuberculated margins; and fig. 2 *c*, the underside of the abdomen.

SPECIES XI.—*PAUSSUS BOYSII*, *Westw.*

(Plate 92, fig. 2, and pl. 90, fig. 6.*)

Luteo-fuscus, antennarum clava antice valde depressa, marginibus excavationis subcrevulatis, capite supra in medio excavatione rotunda, clytris basi apiceque exceptis nigricantibus singulo versus apicem scutula instrueto. Long. corp. lin. 3½.

Habitat in India orientali, D. Boys.

SYN.—*Pauussus* No. 6. Boys in Journ. of Asiatic Soc. of Bengal, N.S., No. 54, p. 433, and Tab. ann., fig. 6.

The kindness of Captain Boys in sending to me his specimen of this insect from India, enables me to determine its situation between *P. Stevensianus* and *fulvus*, as it possesses the rugose elytra, armed near the tip with a pair of short curved bristles of the former, and the deep circular excavation of the head of the latter; it is also much more glossy than the latter, and its legs are very much

* The whole of the row of figures at the foot of pl. 90 are copied from the plates accompanying Captain Boys' memoir, of which he justly complains to me in his letters, that they are very unfaithful copies of his drawings, which is certainly the case, Captain B. having sent me his original figures as well as the insects themselves.

narrower, as is also the reflexed lobe at the base of the club of the antennæ. The following is Captain Boys's description:—

“ Length 6-20ths of an inch. The antennæ are composed of two joints, of which the last is very large and in the form of a wide-mouthed cornucopia, being attached to the first at its basal angle. The margins of the upper side are slightly crenulated, and the upper surface is rather deeply excavated, giving this part a cuspiform appearance. Anterior and posterior margins compressed, the latter produced into a blunt recurved tooth. The sides of the club are striped with six grooved bands; the eye when seen from above appears round, of an irregular oval shape when viewed from the side. Head trigonal depressed, with a marginal excavation, but no groove on the upper part. The thorax appears as if composed of two portions, the anterior being angulated and forming a rather sharp spine on each side, with its base inserted in the posterior part; this latter portion is crenulated, with the exterior margins produced and rounded: a sulcus in the form of a bracket crosses the centre. The clytra are black, broadly patched anteriorly with brownish sienna; the posterior margin has a faint undefined line of the same colour, which blends into the general black of the wing-cases. The follicles at the exterior margin of the elytra posteriorly are much produced, and close to them on each side is a very curious moveable spine (pl. 90, fig. 6 b), slightly incurved and projecting over the latter segment of the abdomen (fig. 6 a). Body beneath a bright chesnut; head, antennæ, and thorax livid brown: all the joints in the tarsi are simple, cylindrical, furnished beneath with hairs, and of five joints in each leg, the first small, the last longest.

“ *Note*.—Taken accidentally, while sweeping in high grass, with a net, under a Munja clump (*Saccharinum Munja*). On withdrawing this insect from the net, it gave two very distinct explosions, leaving the ordinary black stain on my fingers; the abdomen also swelled very much when submitted to the hot water process.” Upon being plunged into hot water, “a crepitation may be heard, and the abdomen becomes greatly distended, probably by rarefaction of air contained in vessels which give their assistance in its explosive powers, and the part retains the inflated appearance until a small perforation is made in it with a needle's point or such-like instrument, which, allowing the escape of the confined

air, enables the abdomen to contract to its natural size. The same fact is peculiarly remarkable in many species of *Brachinus*."

Pl. 92, fig. 2 *a*, represents the head and antennæ seen sideways.

SPECIES XII.—*PAUSSUS DENTICULATUS*, *Westw.*

(Plate 92, fig. 1, and pl. 90, fig. 17.)

Obscure-brunneocastaneus, setosus, elytrorum disco nigricanti, capite tuberculo minuto excavato inter oculos; excavatione clavæ anteunarum denticulata, prothorace postice latiori. Long. corp. lin. 2 $\frac{3}{4}$.

Habitat in India orientali, D. Boys.

SYN.—*Paussus* No. 1. Boys in Journ. of Asiatic Soc. of Bengal, N.S., No. 54, p. 426, and tab. ann. fig. 1.

I am likewise indebted to Captain Boys for sending me his specimen of this new and very distinct species. The following is Captain B.'s description :—

" Length 7-20ths of an inch; body brown, deeper in the middle of the elytra. Antennæ of two joints, of which the last is large, cuspiform, and having dentated edges, with a scallop between each tooth; apex rounded exteriorly: basal angle produced, acuminate, and forming a tooth at the end of the superior margins. Lower portions carinated; front view resembling the bows of a boat; head light brown, rounded posteriorly, emarginate in front, sunk nearly to the thorax, and bearing a minute depression in the centre of its upper part in the form of a diminutive horse-shoe. Eyes round when viewed from above, reniform when seen in flank. Thorax suboctagonal, with rounded margins anteriorly, angulated and scalloped at the corners posteriorly, bisected in its centre, the posterior portion bearing a strongly produced emargination, which crosses transversely in the form of a bracket. Tarsi simple, cylindrical, the last longest, the first very small, almost invisible; of five joints in each leg, all of which are furnished with hairs beneath; elytra truncated posteriorly, of a uniform width throughout, slightly depressed; body oblong flattened; palpi conical, not very salient; maxillary ones tumid at the base and over-arching the labials. Taken on a heap of manure at Plassie, near Mhow."

Fig. 1 *a* represents the head and antennæ seen sideways, and 1 *b* one of the hind tibiae and tarsi.

SPECIES XIII.—*PAUSSUS THORACICUS, DONOV.*

(Plate 90, fig. 4.)

Ferrugineo-testaceus, elytrorum disco late nigricanti, antennarum clava oblonga compressa sub-trigona margine antico acuto, postico vel supero excavato, cavitate ovali marginibus crenulatis; prothoracis lateribus anticus angulatis. Long. corp. lin. 3½.

Habitat in India orientali, Bengala, &c. In Mus. nostr., &c.

SYN.—*Paussus thoracicus*, Donovan. Epit. Ins. of Ind. t. 4, f. *. Westw. in Linn. Trans. xvi. p. 640, tab. xxxiii. fig. 28—30.

Paussus trigonicornis, Latreille, Gen. Crust., &c. vol. iii. p. 3, pl. II, fig. 8; Schonh. Syn. Ins. I, pt. 3, p. 19.

This species is subcylindrical, with the anterior part of the body attenuated. The head is scarcely so broad as the front of the prothorax, its anterior margin is acute and emarginate, its lateral margins, as far as the eyes, nearly parallel; an impressed line extends from the middle of the clypeus to the crown, which bears two small elevated curved ridges, which somewhat resemble a horseshoe, the intermediate space with two minute tubercles. The maxillary palpi have the second joint very much dilated, but with the apical internal angle not salient; the terminal joint of the labial palpi very slender. The antennæ have the clava compressed, oblong subtrigonate, with the anterior or lower margin acute, and the posterior or upper one dilated and boat-shaped, or excavated into an oblong-oval cavity, filled with pale coloured membrane, and having each of its margins scalloped, each scallop marked with an impressed dot; the basal angle is produced into an acute point. The prothorax is bipartite, the centre very deeply excavated, the anterior portion with the margins acutely angulated, and with its middle part dilated behind and emarginate; the hinder part has the sides in front considerably elevated and also angulated within. The elytra are black, subopaque, with the base and narrow apical margin of brick-red; the disc with minute luteous scales, and their sides with rigid setæ standing out at right angles from the body. The feet are elongate and slender, the posterior tibiae being more dilated and with the tips narrowed. The tibial calcaria are obsolete. The extremity of the abdomen is furnished with two incurved fascicles of hairs, and the anal segment is destitute of the two curved horny points.

The observation of Latreille upon this species (the name of which he unnecessarily altered to *trigonicornis*), “P. lineato proximus et forte varietas elytris latius nigris,” appears to me to be incorrect, that species belonging as I imagine to the second section, and in

structure being nearly allied to *P. affinis* and *Hardwickii*. The supposition of Donovan that this insect and *P. Fichtelii* are the sexes of the same species is certainly incorrect.

Fig. 4 *a* represents the antennæ seen from the front, and fig. 4 *b* from behind.

SPECIES XIV.—*PAUSSUS FICHTELII*, *Donov.*

(Plate 90, fig. 5, 8, 9.)

Testaceus clytrorum disco nigrante, prothorace angustiori sub-bipartito, antennarum clava oblonga postice excavata, cavitate pyriformi marginibus sinuato-denticulatis, capite supra profunde excavato. Long. corp. lin. 3.

Habitat in India orientali (Bengala, Calentta, &c.) In Mus. Kirby, Saunders, Boys, &c.

SYN.—*Paussus Fichtelii*, Donovan, Epirt. Ins. Ind. pl. 4, f.*.*. Westw. in Linn. Trans. xvi. p. 641, tab. xxxiii. fig. 31, 33. Saunders in Trans. Ent. Soc., vol. ii. p. 83 pl. ix. fig. 1. Boys, in Journ. of Asiat. Soc. of Bengal, N.S. N° 54, p. 429, and tab. ann., figs. 4 & 5.

This species is most nearly allied to *P. thoracicus*, from which, however, it is abundantly distinct, the general shape of the clava of the antennæ, and the number of elevations on the margins of the excavation being different; the keel-like anterior margin of *P. thoracicus* is replaced by an obtuse and irregular fore-margin, the front of the head is more emarginate in *P. thoracicus*, and more distinctly quadrate behind the eyes than in this species, in which the impression on the crown of the head is much deeper and rounder than in *P. thoracicus*, and incloses two minute, elevated tubercles.

The margins of the elytra are simply pubescent, whereas they are setose in that species; the lateral lobes of the mentum are long and acute; the extremity of the podex (which, seen from beneath, appears like a fifth joint of the abdomen) is furnished with two small tufts of short, thick hairs; the legs are comparatively long and slender.

Captain Boys describes two varieties of this species, which are evidently the sexes, one with the two diverging curved spines beneath the extremity of the abdomen (pl. 90, fig. 8 *a*), which is of an equal width throughout, and with the margins of the excavation of the clava of the antennæ presenting the appearance of a screw; the other, destitute of the two curved spines (pl. 90, fig. 9 *a*), and having the crenulations of the prothorax, across the centre, more deeply sculptured and foliated, with the abdomen narrowed as it approaches the thorax.

The former of these varieties, although considerably irritated,

could not be made to crepitate; on the contrary, when touched, it simulated death by contracting its limbs. The latter variety, however, discharged its little battery with facility, discolouring test-paper, and staining the hands so strongly that it was not till the end of eighteen days that the marks were worn out. On being plunged into hot water, its abdomen became very greatly distended, as is also observed in *Brachinus*, &c. when similarly treated.

The variety with the two horny ventral points was rescued by Captain Boys, "from the gripe of a small black ant, which in spite of its struggles was bearing it along with the utmost facility, holding on by one of its antennæ," thus confirming the fact of a connexion between the ants and *Paussus*, analogous to that which exists between the former and *Claviger*, &c., and leading to a clue for the discovery and capture of other species.

Figs. 5 *a*, and 5 *b*, represent the antennæ in different positions, and 5 *c*, the underside of the abdomen.

* * SPECIES AFRICANÆ. (Plate 91.)

SPECIES XV.—*PAUSSUS EXCAVATUS*, *Westw.*

(Plate 91, fig. 2.)

Obscure fusco-rufescens vel castaneus, capite et prothorace paulo obscurioribus, antennarum clava lata ovata basi hamato margine antico acuto et 4-foveato, postico valde excavato marginibus siuatis, capitis vertice bi-impresso, pedibus posticis latissimis. Long. corp. lin. 2.

Habitat in Senegallia, Mus. Dupont. Parisiis.

SYN.—*Paussus excavatus*, Westw. in Linn. Trans. xvi. p. 637, pl. xxxiii. fig. 60, 61.
Paussus crepitans, Dupont, MSS.

The figure now published was made during a recent visit to Paris, from M. Dupont's original specimen, which still, I believe, remains unique. It is very closely allied to the next species, from which, however, its geographical range as well as several structural characters seem sufficiently to separate it.

The two oval excavations on the crown of the head are outwardly margined by two narrow impressed curved lines, which become nearly confluent behind; the clava of the antenna is flat beneath, and much more strongly punctured than above; the hind part of the head is very finely granulated, and the elytra are smooth.

Fig. 2 *a* represents the impressions on the crown of the head, 2 *b*, the antenna seen from above, and 2 *c*, the same seen as in a transverse section.

SPECIES XVI.—*PAUSSUS RUBER*, *Thunberg.*

(Plate 91, fig. I.)

Castaneo-ferrugineus, sub-nitidus, vix pubescens sub lente punctatissimus; vertice impressionibus binis parvis ovalibus, capite antice emarginato; antennarum clava obovali margine antico subrecto et subacuto impressionibus nonnullis transversis brevibus intra marginem; margine postico oblongo-ovale excavato; serieque transversa impressionum in pagina ejus inferiore, angulo externo basali hamato margineque basali bisinuato, thorace bipartito parte antica in spinam conicam utrinque producta, parte postica longiore sed angustiore antice lateraliter subspinosis disco profunde et irregulariter sulcato, pedibus subdilatatis complanatis rugosae punctatis. Long. corp. lin. $2\frac{1}{5}$.

Habitat apud Prom. Bon. Spec. D. Krebs. In Mus. Reg. Berolinensi.

SYN.—*Paussus ruber* Thunberg, Act Holm. 1781, p. 170. 1. Afzel. Linn. Trans. iv. p. 272. Westw. Linn. Trans. xvi. p. 635. Trans. Ent. Soc. vol. ii., p. 88, pl. ix. fig. 5.

The above description and figure are made from a specimen in the Royal Museum at Berlin, being the only individual I have hitherto seen of the species which approaches very close to the preceding.

Fig. 1 *a* represents the front of the body seen sideways; 1 *b*, the labial palpus; and 1 *c*, the antenna seen from above.

SPECIES XVII.—*PAUSSUS COCHLEARIUS*, *Westw.*

(Plate 91, fig. 3.)

Ferrugineus subnitidus flavo-setosus, antennarum clava basi in spinam supra producta, valde compressa dimidio apicali dilata eroso-cochleario, capite antice emarginato linea impressa ad medium (impressum) vertice extensa; menti dente centrali fere oblitterato; prothorace capite vix majori bipartito, parte antica lateribus angulatis et postice elevata; parte postica angulis ejus anticis lateralibus prominentibus, transversa, in medio valde compressa tuberculisque duobus minutis centralibus; clytris setis flavescentibus (in lineas irregulariter dispositis) indutis, abdominis segmentis integris; pedibus satis elongatis tibiis presertim dilatatis. Long. corp. lin. $2\frac{1}{4}$.

Habitat in Africa Australi, (P.B.S.) In Mus. Melly, Westw. &c.

SYN.—*Paussus cochlearius*, Westw., in Trans. Ent. Soc., ii., p. 88, pl. ix. fig. 6.

The original specimen of this species, described by me from the collection of Dr. Hooker, has been, with great liberality, added by him to my cabinet. I have also received it from M. Dupont.

Figs. 3 *a*, and 3 *b*, represent the antenna seen in different positions.

SPECIES XVIII.—*PAUSSUS KLUGII*, *Westw.*

(Plate 91, fig. 4.)

Niger; capite antice emarginato linea impressa e clypeo ad verticem extensa, antennis nigris punctatis, clava lateribus sub-parallelis margine antico fere recto et acuto, postico vero multo crassiori et iu naviculam longam excavato cuius margo superior integer, inferior vero tuberculis 6 iustuctus; prothorace capite multo majori bipartito, parte antica lateribus angulatis et in medio transverse et acute elevata, parte postica o praecedente excavatione magna et irregulari separata in qua maculae 2 magnum laterale aurco-sericantes; clytris laevibus nitidis piccis marginibus lateralibus apicque rufescenti-luteis, pedibus nigris geniculis tarsisque piccis crassis dilatatis, pari postico latiori, abdemine rufescenti segmentis integris. Long. corp. lin. $3\frac{1}{2}$.

Habitat apud Promont. Bonae Spei. D. Krebs. In Mus. Reg. Berol. et nostr. Amicissimo communicavit D. Klug.

SYN.—*Paussus Klugii*, Westw., in Trans. Ent. Soc. vol. ii., p. 85, pl. ix, fig. 2.
Paussus runcinatus, Klug MSS.

The tibiae are destitute of calcaria, and the outer margin of the elytra is furnished with a series of curved setæ. The middle tooth of the mentum is obliterated.

Fig. 4 *a* represents the labrum; 4 *b*, the maxilla in situ; 4 *c*, the same detached; 4 *d*, the mandible; 4 *e*, the labium and its palpi.

SPECIES XIX.—*PAUSSUS LATREILLII* Westw.

(Plate 91, fig. 5.)

Castaneo-brunneus, elytrorum disco obscurō, capite antice emarginato, tenuissime punctulato utriusque prope marginem internum oculorum impressione parva ovali, anteunum clava elongata angustiori punctatissima postice excavata margine infero sub-serrato, palpis maxillaribus articulo 2 dō. dilatato; prothorace capite multo majori, magis nitido bipartito, parte antica lateribus angulatis parteque postica valde excavata maculis duabus anreopilosis versus medium positis; elytris parum nitidis et vix punctulatis disco nigricanti luteo-setosis, pedibus obscurioribus punctatis, tibiis ecalcaratis, posticis duabus dilatatis. Long. corp. fere lin. 3.

Habitat in Sierra Leona, Senegallia. Mus. Britann., Buquet, Norris.

SYN.—*Xiphocera brunnea* Latr. inedit.

From a sketch of the specimen of this insect in M. Buquet's Collection, I was induced to believe it to be merely a variety of the former species; but having since had an opportunity of comparing my specimen of *P. Klugii* with specimens of this species in the British Museum and Mr. Norris's Cabinets, I find them quite distinct, not only in colour but in structure.

The calcaria are obsolete; the lateral margins of the elytra have a row of curved setæ, and the segments of the abdomen are entire.

Fig. 5 *a* represents the head and prothorax, seen sideways; 5 *b*, the maxillary palpus; 5 *c*, the abdomen seen beneath.

SECTION B.—PROTHORAX SUBCONTINUUS.

SUBSECTION *a*.—SPECIES AFRICANÆ.

SPECIES XX.—*PAUSSUS SPHÆROCERUS*, Afzel.

(Plate 92, fig. 3.)

Rufo-castaneus nitidus, capitis vertice in cornu conico erecto apice piloso producto; antennarum clava sphærica livida magnitudine capitis basi hamato, carina minuta verticis tuberculo pilifero castaneo terminata instructa, prothorace supra parum inæquali, subdepresso et vix bipartito parte antica subelevata lateribus rotundatis postice submarginata; parte postica lateribus rectis margine anteriori signo medio quadrato, depresso, nigriscenti posteriorique parum elevato, elytris punctatis rufescentibus; pedibus longioribus gracilioribus subæqualibus. Long. corp. lin. 3½.

Habitat in Sierra Leona. D. Afzelius. In. Mus. Soc. Linn. Lond.

SYN.—*Paussus sphærocerus* Afzelius in Linn. Trans. iv. p. 270, tab. 22 f. 2—6. Sturm. Catal. meiner ins. samml. pl. 4, fig. 31.

Paussus sphæroides, Donov. ins. Ind. sub g. Paussus.

The habits of this very distinct species have been partially

detailed in the introductory observations on the family (*ante*, p. 3), from the memoir of Afzelius, published in the 4th vol. of the Linnaean Transactions.

Fig. 3 *a* represents the head and prothorax in profile; 3 *b*, the labium, maxillary and labial palpi; 3 *c*, the labial palpus; 3 *d*, one of the tarsi.

SPECIES XXI.—PAUSSUS ARMATUS, *Dejean*.

(Plate 93, fig. 1.)

Oblongus haud nitidus, laevis obscure rufescens-fuscus, capitis vertice spina erecta acuta armato; antennarum clava rotundato-ovali marginibus acutis basi externe in spinam producta disco supra et infra convexo; prothorace capite fore angustiori, pedibus valde setulosis obscurioribus. Long. corp. lin. 5.
Habitat in Senegallia, Sierra Leona, Gambia. In Mus. Dupont, Saunders, Hope, Chevrolat, &c.

SYN.—*Paussus armatus*, (Dej.) Westw. in Trans. Linn. Soc. vol. xvi. p. 645, pl. 33, fig. 62—64; Trans. Ent. Soc. vol. ii. p. 89.

Paussus cornutus, Chevrolat in Guerin Mag. de Zool. Ins. pl. 49.

The narrow prothorax of this insect distinguishes it from the great majority of the species of this genus. The very setose legs, and clava of the antennæ, the latter not larger than the head and closely punctured, the tibiæ furnished with two spurs, and the abdomen with two diverging horny points at the apex beneath, are also amongst its leading characters. The head is opaque, but not distinctly punctured, and the tarsi are as thick as the tibiæ. The structure of the palpi proves that this species is a species of the present genus. The insect figured by M. Guérin under the name of *P. cornutus*, Chevrolat, is identical with the present species, as, indeed, M. Chevrolat has since ascertained, the name *armatus* being now attached to the specimen in his collection. Figures 2, 2 *a*, and 2 *b*, are copied from M. Guérin's figures; the spine of the head is, however, much less acute than in the specimen represented at fig. 6.

Fig. 1 *a* represents the head seen sideways; 1 *b*, the maxillary palpus; 1 *c*, the labial palpus; 1 *d*, the antenna; 1 *e*, one of the tarsi.

SPECIES XXII.—PAUSSUS CILIIPES, *Westw.*

(Plate 93, fig. 3.)

Obscure rufo-castaneus, elytris magis rufescentibus, capite oblongo obseculo punctato, antennarum clava punctatissima setulosa, rotundato-ovali, basi extus hamato, marginibus acutis disco utrinque convexo, prothorace oblongo, capite vix latiori, in medio constricto, et nigranti; parte autica elevata linea tenui e sulco medio antice ducta, sed ad marginem anticum haud extensa, tibiis obscure castaneis extus fulvo ciliatis vel setosis; capite supra

tuberculo parvo corniformi armato ; abdominis segmentis simplicibus ; elytris tenue punctatis. Long. corp. lin. 3.
Habitat in Sierra Leona, D. Morgan. In Mus. Britann.

This species is closely allied to *P. armatus*, from which its small size and more strongly punctate disc at once distinguish it. A single specimen is contained in the British Museum collection, presented by the Rev. Mr. Morgan.

Fig 3 *a* represents the head seen sideways ; 3 *b*, and 3 *c*, the antennæ in different positions.

SPECIES XXIII.—*PAUSSUS ÆTHIOPS*, *Blanch.*

(Plate 93, fig. 6.)

Castaneus, sub-nitidus elytris magis rufescens punctatis, capite ante oculos breviori, vertice spina tenui acuta setosa armato, antennarum clava ovali basi extus in spinam obtusam producto, disco subdepresso sublente punctatissimo, tibiis gracilibus 2-calcaratis, tarsis 5-articulatis articulo basali minuto, prothorace vix capite latiori medio constricto, parte postica in medio longitudinaliter latè-impressa ; abdominis basi et metasterno castauco-fulvis. Long. corp. lin. 4½.

Habitat in Nubia, D. Botta. In Mus. reg. Paris.

SYN.—*Paussus Æthiops*, Blanchard in Regne An. Edit. Crochard. Ins. pl. 61, fig. 8.

The shape of the clava of the antennæ, and the habitat of the species, distinguish it from the other species with the head cornuted between the eyes.

Fig. 6 *a* represents the head seen sideways ; 6 *b*, the maxillary palpus ; 6 *c*, the antenna ; 6 *d*, the same seen sideways.

SPECIES XXIV.—*PAUSSUS DENTIFRONS*, *Dej.*

(Plate 93, fig. 4.)

Totus castaneo-fulvus nitidissimus ; antennarum clava brevi lata triangulari-ovata supra et infra disco in medio convexo, basi truncata et in spinam obtusam extus producta ; vertice spina erecta setigera armato ; elytris punctatis, prothorace antice lateribus dilatatis capite latiori in medio profunde impresso et sulco tenui longitudinali fere ad marginem antieum extensa ; pedibus compressis nitidis, tibiis bicalcaratis tarsorum articulo basali minuto abdominis segmentis simplicibus. Long. corp. lin. 4.

Habitat in Scnegallia. Mus. Dupont, Guérin, nostr., &c.

SYN.—*Platyrhopalus dentifrons*, (Dej.) Westw. in Trans. Linn. Soc. xvi. p. 662, pl. 33, fig. 68—70.

The structure of the palpi of this species proves it to belong to the present genus, and not to *Platyrhopalus*, in which I had at first provisionally arranged it. The form of the clava of the antennæ, and the very glossy surface of the body, separate it from the other cornuted species of the genus.

Fig. 4 *a* represents the head seen sideways ; 4 *b*, the maxillary palpas ; 4 *c*, the antenna ; * the same seen sideways ; 4 *d*, one of the tarsi.

SPECIES XXV.—PAUSSUS CURVICORNIS, *Chevrolat.*

(Plate 93, fig. 5.)

“ D'un ferrugineux un peu obscur avec l'extrémité des élytres plus pâle ; tête ayant sur le vertex une pointe conique un peu courbée en avant, corselet divisé transversalement par un fort étranglement, ayant une profonde impression à son lobe postérieur ; élytres presque lisses avec quelques tubercules très petits et une légère dilatation à l'extrémité et en dehors ; pattes d'une couleur plus foncée. Long. corp. 10 mill.”

Habitat in Senegallia. Mus. Chevrolat.

SYN.—*Paussus curvicornis*, Chevrolat in Silberm. Rev. Ent. 4, 263 ; Guétin, Iconogr. du Regne An. Ins. pl. 40, fig. 8.

Paussus cornutus, var. Chevrolat in Guérin Mag. de Zool. No. 49, fig. 1a, 2, 2a.

The accompanying figure and description are copied from the works above referred to, as I have not had an opportunity of examining the species, and am not therefore able to speak with precision as to its more decided characters.

Fig. 5a represents the head and antennæ seen in front; 5b, the head seen sideways; and 5c, the extremity of the abdomen beneath.

SPECIES XXVI.—PAUSSUS LÆVIFRONS, *Dej.*

(Plate 92, fig. 4.)

Rufo-castaneus, elytris magis rufescensibus ; lævis nitidus latus subdepressus vix setosus ; capite inermi, antennarum clava fere ovata depressa basi truucata externe in uringem parvum producto margineque externo 4-subdentato ; prothorace utrinque antice rotundato-dilatato ; palpis maxillaribus vix dilatatis, articulo 2do maximo ; elytris punctatis capite et prothorace minus punctatis ; tibiis 4-posticis 2-calcaratis, pedibus dilatato-compressis. Long. corp. lin. 4½—5.

Habitat in Senegallia. Mus. Reiche, Dupont, Norris.

SYN.—*Platyrhopalus lœvifrons*, (Dej.) Westw. Linn. Trans. xvi. p. 661, pl. 33, fig. 65—67.

The palpi of this species, upon examination of a specimen in the collection of T. Norris, Esq., of Redvales, Lancashire, are found to agree with those of the present genus in the relative length of the joints, although the maxillary palpi are not so much dilated as in many of the species.

Fig. 4a represents the head and prothorax seen sideways; 4b, the maxillary, and 4c, the labial palpi; 4d, one of the hind tarsi; 4e, the abdomen in a specimen in Mr. Norris's collection.

SPECIES XXVII. PAUSSUS SHUCKARDI. *Westw.*

(Plate 92, fig. 5.)

Ferrugineus ; capite longitudinaliter et prothorace transverse sulcatis, hoc subbipartito ; antennarum clava longa tenui punctata subcylindrica basi externe subacuto ; clypeo vix emarginato ; lateribus capitis inter oculos et basin antennarum elevatis ; menti denti centrali fere obliterate dentibusque lateralibus obsoletis, palpis maxillaribus vix dilatatis articulo ultimo minuto ; prothorace haud capite latiori lateribus antice obtuse dilatatis parte antica elevata et in medio sulco subdivisa ; elytris levibus subnitidis ; pedibus com-

pressis haud dilatatis punctatis setis brevibus aurantiis indutis, tarsis brevibus 5-articulatis; abdominis apice subtus spinis duabus divergentibus armato. Long Corp. lin. $5\frac{1}{2}$.
Habitat in Africa australi. Mus. Saunders.

This curious species is nearly allied to *P. armatus*, but I am unable to distinguish any spurs at the extremity of the posterior tibiae, which are furnished with a number of short rigid setæ.

Fig. 5 *a* represents the head and prothorax seen sideways; 5 *b*, the maxillary, and 5 *c*, the labial palpi; 5 *d*, one of the hind tarsi.

SPECIES XXVIII.—*PAUSSUS LINEATUS*, *Thunberg*.

(Plate 94, fig. 1.)

Rufescens glaber elytrorum disco nigro, thorace inæquali lateribus antice elevato et utrinque I-spinoso postice 3-foveato, antennarum clava magna, compressa apice obtusa basi externe in spinam excunte, capite punctato marginato "Magnitudo Carabi 4-pustulati." Thunb.
Long Corp. c. fig. Thunbergi, lin. $3\frac{1}{2}$.

Habitat ad Prenont. bonæ speci.

SYN.—*Paussus lineatus*, Thunberg Act. Holm. 1781, p. 171, pl. 3, fig. 4 and 5. Fabr. Syst. Eleuth. 2.75.2. Herbst. Syst. ins. Col. vol. 4, p. 102, t. 39, fig. 7, *a b*. Westw. Linn. Trans. xvi. p. 647.

Cerocoma lineata, Fabr. Ent. Syst. 1, 2. 82.

The above is an abstract of Thunberg's characters of a species which is the only one in the genus from Southern Africa, with the disc of each elytron of a black colour.

SPECIES XXIX.—*PAUSSUS AFFINIS*, *Westw.*

(Plate 94, fig. 2.)

Castaneo-rufus vel ferrugineus subnitidus tenuissime punctatissimus, elytrorum disco nigro prothorace supra inæquali lateribus antice rotundatis, antennarum clava subovata subconvexa, marginibus acutis basi externe in spinam conicam excunte, margine postico sulcis tribus obliquis fere oblitteratis; capite vix prothorace angustiori antice vix emarginato; vertice elevato et subcarinato; elytris disco nigro vix punctatis, podice nigricanti; pedibus angustioribus tibiis subcylindricis. Long corp. lin. $3\frac{1}{2}$.

Habitat —? In Mus. Britann.

SYN.—*Paussus affinis*, Westw. Linn. Trans. xvi. p. 646, pl. 33, fig. 36, 37.

This species is very nearly allied to *P. Hearseianus*, but differs in its comparatively longer prothorax, the sides of which, in front, are more rounded and the disc not polished; the club of the antennæ is of the length of the prothorax and has three very faint impressions towards the hinder margin, with the disc not glossy; the antennæ and legs are castaneous red, and the general colour more of a dull brick-red.

There is no locality attached to the two specimens in the British Museum collection, but in the MS. catalogue the insect is named

lineatus, and Africa given as its habitat, but probably merely on the supposition of its being identical with Thunberg's species.

Fig. 2 *a* represents the antenna seen from above.

SUBSECTION *b*.—SPECIES ASIATICÆ.

SPECIES XXX.—PAUSSUS COGNATUS, Westw.

(Plate 94, fig. 3.)

Rufo-castaneus nitidus punctatus, clytrorum singulo disco nigro, capite prothorace parum angustiori clypeo haud emarginato, sulco tenui impresso et fere ad verticem ducto, hoc carina media et impressionibus duabus semicircularibus; antennarum clava subovata, capite haud majori integra subconvexa basi in spinam externe producto; prothorace cordato-truncato parte antice capite paulo latiori lateribus rotundatis setosis, dorso in medio impresso margine postico parum latiori, pedibus subcylindricis, tibiis 2-calcaratis, podice nigricanti punctato tuberculisque duobus minutis conicis distantibus instructo. Long. corp. lin. 4.

Habitat in India orientali Bengala. Mus. Melly et Westermann.

Fig. 3 *a* represents one of the posterior tarsi.

SPECIES XXXI.—PAUSSUS HEARSEIANUS, Westw.

(Plate 94, fig. 4.)

Fulvo-castaneus nitidus punctatus, clytrorum singulo late nigro, capite pone oculos carina elevata transversa in medio parum angulata alteraque longitudinali subobsoleta mediana ad nasum fere ducta clypeo subemarginato; antennarum clava subovata basi externe in spinam conicam producta marginaque postico supra oblique 3-impresso; prothorace marginibus antice angulato-rotundatis disco pone medium valde impresso sulcoque tenui medio longitudinali, abdominis segmentis integris podice ferrugineo nitido, tibiis angustis apice 2-calcaratis. Long. corp. lin. 4.

Habitat in India orientali. Mus. Hearsey and Boys.

SYN.—*Paussus Hearseyanus*, Westw. in Proc. Linn. Soc. April 19, 1842. Boys in Journ. of Asiatic. Soc. of Bengal N.S. No. 54, p. 427, (No. 3) tab. ann. fig. 3.

A specimen of this species was first brought home by my friend, Col. Hearsey, to whom I dedicated it; three other specimens were captured by Capt. Boys at Sultanpore, Benares, late on the evening of the 21st of June, 1840, and another on the following evening.

Fig. 4 *a* represents the head seen sideways; 4 *b*; the maxilla seen from outside the mouth; 4 *c*, ditto from within; 4 *d*, the same seen obliquely from the outside, the parts indicated by marks corresponding with those used in the other plates of this family; 4 *e*, one of the hind tarsi; 4 *f*, the antenna; 4 *g*, the mandible.

SPECIES XXXII.—PAUSSUS HARDWICKII, Westw.

(Plate 94, fig. 5.)

Rufo-castaneus nitidus punctatus, clytrorum singulo plaga lata longitudinali nigra, antennarum clava elongata linearis subcylindrica, basi externe in hamum producto apiceque rotundata; clypeo subemarginato utrinque inter oculos longitudinaliter obsolete canaliculato carinaque tenui e vertice ad clypeum extensa, prothoracis lateribus antice rotundatis, capite haud latioribus; sulco profundo transverso in medio; impressione tenui abbreviata ad marginem

anticum haud extensa parteque postica haud sulcata ; pedibus gracilibus ; tibiis 2-calcaratis podice castaneo-nigro punctato ; abdominis segmentis inermibus. Long. corp. lin. 4.
Habitat in India orientali, Nepaul, Almorah. In Mus. Britann. Hope. Boys.

SYN.—*Paussus Hardwickii*, Westw. in Trans. Linn. Soc. xvi. p. 649, pl. 33, figs. 39, 40.
Boys in Journ. of Asiatic Soc. of Bengal, N.S., No. 54, p. 434, No. 8, and tab. ann. fig. 8.

Several specimens of this species were brought home by Major-General Hardwicke from Nepaul, and Capt. Boys captured two at Almorah at the end of the month of July, 1842, which came to the lights late at night, and which crepitated as strongly as the Brachini, discolouring test-paper, and emitting a strong scent of nitric acid.

Fig. 5 *a* represents the maxillary, 5 *b* the labial palpi ; 5 *c*, the antenna ; 5 *d*, the same seen from behind ; 5 *e*, the head seen from below ; 5 *f*, the anterior tibia and tarsus ; 5 *g*, the front of the head and prothorax seen sideways.

SPECIES XXXIII.—*PAUSSUS SAUNDERSII*, Westw.

(Plate 94, fig. 6.)

Totus castaneo-fulvus subnitidus punctatus, capite et prothorace obscurioribus, antennarum clava oblongo-ovata, basi extus in hamum setigerum producta margine acuto ; capite inter oculos impressionibus duabus semicircularibus notato ; prothorace cordato-truncato in medio transverse impresso impressione utrinque in tuberculum parvum laterale desinente parte antica paullo elevata, lateribus rotundatis ; pedibus gracilibus, tibiis apice bicalcaratis.
Long. corp. lin. 3½.

Habitat in India orientali. Mus. W. W. Saunders, F.L.S.

Fig. 6 *a* represents the maxillary, 6 *b* the labial palpi ; 6 *c* and 6 *d*, the antennæ in different positions ; 6 *e*, the anterior tarsus ; and 6 *f*, the wing ; the * indicating the small cell alluded to in p. 168.

SPECIES XXXIV.—*PAUSSUS* Sp. ined. Latr.

Of this species, the habitat of which is stated by Latreille to be the Isle de France, I am entirely ignorant.

The plant represented in pl. 88 is the Indian *Globba marantina* ; and that in pl. 89 is the *Moræa papilionacea* of Linnaeus, from Southern Africa.

NOTE.—I find, on examining the insect described by Captain Boys (noticed in p. 161, under the name of *Platyrhopalus suturalis*), and which that gentleman has been so good as to forward from India for my inspection, that it proves to be identical with *Platyrhopalus angustus*, p. 78. The specimen has the dark mark on each elytron almost obsolete ; and the description should be, “ Body brown, rather deeper in colour near the lateral margins of the elytra.”

PLATE XCVI.

ILLUSTRATIONS OF TWO SPECIES OF GOLIATH BEETLES FROM AFRICA.



GOLIATIIUS GIGANTEUS.*

(Plate 95, fig. 1.)

THE extreme rarity of this insect induces me to refigure it from a fine specimen recently obtained by J. A. Turner, Esq., of Manchester, from the river Gaboon, the locality of the specimen figured by Drury. The specimen now represented differs from Drury's figure in having the two lateral black marks on each side of the prothorax united together. The specific character given in my edition of Drury's Illustrations, vol. i. p. 61, requires amending thus:—

“Corpore supra velutino prothorace nigro, lineis 7 holosericeo-albis, clytris obscure ferrugineis basi extremo albo, scutello albo lineis duabus lateralibus nigris.”

GOLIATIIUS (COMPSOCEPHALUS) HORSFIELDIANUS.

(White in Ann. of Nat. Hist., Jan. 1845.)

(Plate 95, fig. 2 ♂ ; 3 ♀.).

Char. Subg. Corpus supra sericeum laud nitidum. Caput maris antice cornibus duobus elevato-
porrectis, apice sub-bifidis, armatum; feminæ subquadratum inerme. Maxilla utrinque
sexus lobo basali cornuto; apicali in mare inermi, in femina in cornu subacutum producto.
Prothorax maris valde convexus antice in lobum rotundum productus lateribus fere rectis,
feminæ magis depresso et minus quadratus. Pedes maris robusti tibiis anticis utrinque
dentatis; feminæ extus tridentatis; tibiis 4 posticis in utroque sexu spinis duabus ante
medium marginis externi armatis. Processus mesosterni parum productus apice obtusus.
(Fig 2 a, head of male seen sideways; 2 b, maxilla of male; 2 c and 2 d, sternal process;
3 a, maxilla of female.)

This new subgenus is most closely allied to Mecynorrhina, but differs from it and all the other Old World Goliath beetles, in possessing two spines in the middle of each of the four posterior tibiae, in which respect it approaches the New World Ynce. With the exception of the bifid front of the head, the present subgenus has no relation to Narycius and Dieronocephalus.

SPECIES UNICA. GOLIATHUS (COMPSOCEPHALUS) HORSFIELDIANUS.

Cupreo-viridis prothorace sentelloque castaneo-nigris, prothorace tenue viridi marginato, clytris
flavescenti-viridibus corpore subtus pedibusque viridi rubro et cupreo-tinetis. Long. corp.
lin. 16 ♂, 15 ♀.

Habitat in Abyssinia, D. Roth. In Mus. “East Ind. Comp.”—Mus. Brit. et Seckenberg,
Frankfort (D. Ruppell, test. D. Melly, and A. White).

* The synonyms of this species will be found in vol. i. p. 165.

ADDENDA ET CORRIGENDA.

VOLUME I.

- Page 12, *Systella*, W. = *Trigonopteryx*, Charpentier. *S. Rafflesii*, W. = *Tr. punctata*, *charp.*, teste De Haan in litt. [sed quare.]
- Page 65, M. De Haan (in litt.) considers that *Opsomala gladiator* belongs to the sub-genus *Pyrgomorpha* of Serville. Its whole habit, however, is that of the former genus.
- Page 66, De Haan (in litt.) considers *Bactrophora* to be nearest allied to *Pæcilocerus* and *Phymateus*.
- Page 100, *Mastax apicalis* and *vitrea* are considered by M. De Haan (in litt.) to be varieties of one species which he has described in the *Bijdragen*, under the name of *M. Agrionoides*, Pl. 22, fig. 2.
- Page 127, M. Schaum (Ann. Soc. Ent. France, 1844, p. 390), asserts that the female of *Schizorhina Guerinii*, is the *Cetonia collata* of Gory and Perch (in Silberm. 3, 125), and that the fore tibiae of the males are tridentate; "la supérieure est plus faible." I cannot, however, think that M. Guérin's specimen was thus constructed. He proposes to form it into a new genus named *Heterosoma*.
- Page 161, " *Toxodera denticulata*, Serv., was never received here from Java or any Dutch colonies; probably there has been a mistake at the Museum of Paris; it seems much rather an African insect. The horn on the head in the *Mantidae* seems a character of inferior value; *Diana*, Stoll (*Pictipennis*, Serv.), with a horn, has the same form of thorax and abdomen, the same colour of wings as *M. urbana*, Fabr., and *M. tricolor*, Linn., without the horn. It is the same case, with the pointed eyes, as Burmeister expressed it in *Germar's Zeitschrift* (2, 29). *M. rubicunda*, Stoll, 25, f. 96, with pointed eyes, belongs to the neighbourhood of *M. precaria*. *Blepharis* and *Schizocephala*, with pointed eyes, are very nearly allied to *Phyllocreania* and *Thespis* with rounded eyes. *Tarachodes coronata*, Klug, and *M. Oxyphilus lobiceps*, *Bijdrag.* (Pl. 17, fig. 4, 5), have both two little spines before the eyes; for the rest, however, they are very distant (vid. *Bijd.* p. 62). *Orthoderia* has sub-conical eyes (vid. *Burm.* ii. p. 529)." De Haan in litt.

VOLUME II.

- Page 49, M. De Haan considers *Diapherodes scricollis** to be identical with *D. gibbosa* of Burmeister, and *D. pumilio* (p. 50), to be a young insect, [sed quare]
- Page 51, M. De Haan assures me that the horn on the head of *M. (Blepharis) Kuhlii*, is horny as in *Bl. mendica*, and not foliated as in *Phyllocreania*.
-
- The same gentleman questions whether *M. metallica* (pl. 62, f. 3), is not a variety of *Metallyticus splendidus*—(of which *M. vitripennis*, Burm., is the male); but the two insects are not even congenerous, as may be seen at once in the form of the prothorax, size of the fore feet, and eyes, colour of the hind wings, &c.
- Page 53, M. De Haan considers *Proscopia occidentalis* much nearer to *Pyrgomorpha* than to *Proscopia*.
- Page 54, The sub-genus *Cephalocæma* is synonymous with *Astroma charp.*
- Page 56, *Prochilus* possesses the oval foramen near the base of the anterior tibia.
- Page 71, M. Schaum (Ann. Soc. Ent. de France, 1844, p. 401, pl. 10, fig. 1), has described and figured the female *Amaurodes Passerini*, from Port Natal.
- Page 99, M. Schaum (Ann. Soc. Ent. Fr., 1844, p. 399,) considers *Inca Sommeri* to be only a variety of *I. Weberi* (*Trichius clathratus*, Oliv. Journ. d'Hist. Nat. pl. 6, f. 2). The same author has also described several new African species of *Heterorrhina* in the same Annales.†

* M. C. Sommer, Esq., of Altona, assures me that he has received this insect direct from Para, in Brazil.

† Not having received the 3rd trimestre of the Annales for 1844, I cannot notice the critiques of M. Schaum on my articles on the Goliath Beetles, which he has introduced into the former part of his Memoir.





