ARCANA ENTOMOLOGICA;

OR

Ellustrations

OF

NEW, RARE, AND INTERESTING

INSECTS.

BY J. O. WESTWOOD, F.L.S.,

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IN TWO VOLUMES.

VOL. I.

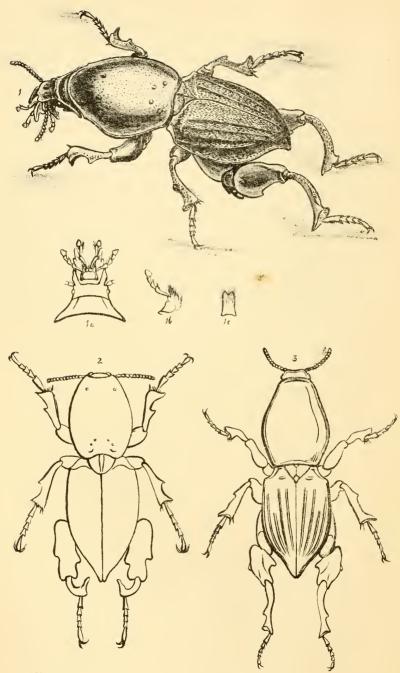
These waved their limber fans
For wings and smallest lineaments exact,
In all the liveries decked of summer's pride,
With spots of gold and purple, azure and green. '—MILTON.

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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 Xenomorphæ. 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 coxæ, 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 eves 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. 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 ungues 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.) †
		Mandibles							
_	_	Head .						$. 5\frac{1}{2}$	
_		Prothorax						. 13	
-		Elytra (and	Scute	llnm)) .			. 15	
		• •							$36\frac{1}{2}$
		Antennæ							~
Breadtl	of the	Prothorax	(acress	the	midd	le)		. 103	
_		Elytra .							

M. Desmarest's specimen is only $2\frac{\pi}{5}$ inches or 55‡ millemetres long, whilst that described by Gistl is still smaller, being $2\frac{1}{12}$ 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 maxilla 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 ½ a line long. It is shorter in my figure by 2 lines, but allowance must be made for the curve of the body.

I 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 [Cyrtognathus Fald. Prion. rostratus and Pr. paradoxus]—Spondylus, Trictenotoma 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 Prionida.

"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"—Metopocoilus 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 tibice 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, Catogenus, 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 Longicorns 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.

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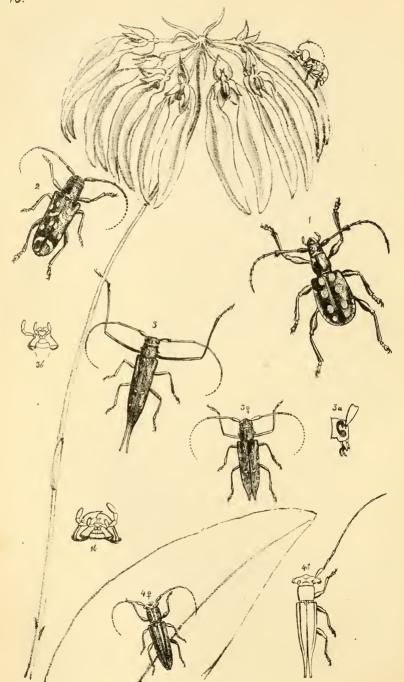


PLATE XV.

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 cylindraceum, oculi reniformes, palpi mediocres, articulis terminalibus oblongo-ovatis, et subtruncatis. Antennæ 11-articulatæ, breves et graciles, articulo 3tio 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-æncus, indistincte cærulescenti relucens, palpis nigris, antennis articulis 3tio et sequentibus griseis ad apicem nigris, capite linea alba longitudiualiti notato, elytris 14 guttis flavescenti—albis adspersis, maculis codem colore corpus subtus ornantibus, tarsis cinereis, articulo terminali nigro. Long corp. lin. 5½.

Pl. 1 a. natural size; 1. 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 cœrulca aureo æncoque tineta, rudo punctata, thorace macula alba in medio marginis postici, elytris guttis 10, fascia abbreviata angulata ante medium alteraque postica enrvata ad suturam interrupta, albo-squamosis autennis pedibusque cyancis; corpore subtus nigro-œneo, sterno marginibusque segmentorum abdominalium squamis albis variis. Long corp. lin. 10½.

UROCALYMMA, Westw.

Corpus gracile depressum punctatum. Caput antice perpendiculariter deflexum (fig 3 a).

Antennæ gracillimæ. Prothorax subquadratus autice et postice marginatus, lateribus dente parvo in medio armatis. Elytra elongata depressa, subparallela apicem versus attenuata et in 3 in caudas duas longas producta, apicibus in \$\frac{1}{2}\$ hiantibus et acuminatis. Pedes longi tenues præsertim antici maris, qui longissimi sunt, tibiisque anticis ante apicem in hoc sexu intus, 4 que posticis extus tenuissime penicillatis. Palpi graciles breves (fig. 3 b Maxillæ 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. 2, 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 Cirrhopetalon 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 3.) 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 \(\rightarrow \). 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.

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 tibie, dilated at the tips and armed with spines and teeth, and adds, that the person from whom M. Marc 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." [By which relations it would, as it appears to me, be

unnaturally separated from Hypocephalus.] Mr. Newman has subsequently published a proposed distribution of the Coleoptera into four, or rather seven, stirpes; one, Coleoptera Macrocera, 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.

ADDENDA ET CORRIGENDA.

Page 2, line 18, and page 6, line 35, for "Endacilla," read Endicella.

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 S. I now possess an additional species of Phyllomorpha, intermediate between P. Latreillii and P. Persica, which may be thus characterised.

PHYLLOMORPHA 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 în Africa 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 Hopii, 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. læta is distinct from E. æratus.

Page 33, M. De Haan, in the Verhandl. o. d. Natuurl., &c., Orthopt. 1842, has figured Deroplatys desiccata Q 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, 1, 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 triangulari 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 Cetoniidæ 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, Aphelorhina. Vide p. 108 and 181. Page 79, Enictus 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 S1, See p. 157 and seq. for additional species of Australian Scaritide, 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 :-