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INCLUDING

CEYLON AND BURMA.

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EDITED BY A. E. SHIPLEY, M.A., HON. D.SC., F.R.S.

DERMAPTERA
(EARWIGS).

BY

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EDITOR'S PREFACE.

In this the first of the 'Fauna of British India' Series issued under my Editorship, I would wish to record my sense of the loss Science has sustained through the death of the late Lieutenant-Colonel C. T. Bingham. He succeeded Dr. Blanford, who initiated and edited the Series for more than twenty years, in 1905, and since that time devoted himself unremittingly to the task he then took up. His loss has been widely felt, especially amongst the workers in systematic Entomology: if I may quote his own words about his predecessor:—"To few, however, will that loss be personally so great as to those who under his direction were working for the Fauna of India series."

During the year 1908 Colonel Bingham was engaged on his third and final volume on the Indian Butterflies. This, which was to have included the families *Lycænidæ* and *Hesperiidæ*, he left unfinished. I am happy to state that Mr. H. Druce has, with the sanction of the Secretary of State for India, undertaken to complete the work; but owing to the constantly increasing amount of material now available it will be necessary to devote a volume to each of these families.

At the time of Lieutenant-Colonel Bingham's death, volumes on the following Groups had been sanctioned by

the Secretary of State for publication:—on the *Cicindelidæ*, *Paussidæ*, and a General Introduction to the Coleoptera, by Canon W. W. Fowler: on the Orthoptera, by Mr. W. F. Kirby: on the Dermaptera, by Mr. Malcolm Burr: on the Butterflies (third and last volume), by Lieutenant-Colonel Bingham: on the *Curculionidæ*, by Mr. G. A. K. Marshall: on the *Cetoniidæ* and *Dynastidæ*, by Mr. G. Arrow: on the *Ichneumonidæ*, by Mr. Claude Morley: on Longicorn Beetles, by Mr. C. J. Gahan: and on the *Buprestidæ*, by Mr. E. P. Stebbing.

Since that date, sanction has been obtained for an Appendix to the volumes on the Rhynchota, by Mr. W. L. Distant. In addition to the two (3rd and 4th) volumes on Butterflies already mentioned, the Secretary of State for India has also sanctioned a half volume on the *Blattidæ*, by Mr. R. Shelford; and a whole volume, instead of the half volume previously sanctioned, on the *Acridiidæ* and *Locustidæ*, by Mr. Kirby. Further, approval has been given for a second volume on the Mollusca, by Lieutenant-Colonel H. H. Godwin-Austen.

Although there are few better known insects in Europe than the common Earwig, the Dermaptera are said to be rare in most parts of the world. The Order, however, in warm and tropical regions is rich in species. Hence, although but two species are probably indigenous to our islands, the number described by Dr. Burr from India amounts to over one hundred and thirty.

In the present work Dr. Burr has adopted a new classification, and has incorporated in its pages the results of a series of systematic Papers which he has published during the last year or two. If we except some statements taken from de Bormans' account of Earwigs from Burma, a very large proportion of this work is original. In the fifth volume of the 'Cambridge Natural History' Dr. Sharp states:—"The classification of the earwigs is still in a rudimentary state": I do not think I exaggerate when

I say that Dr. Burr's work will cause the deletion of this sentence if a new edition of Dr. Sharp's volume be called for.

I cannot let this volume appear without expressing my gratitude to Mr. G. A. K. Marshall for much time spent in proof-reading, and for much help in other Editorial tasks.

A. E. SHIPLEY.

October 1909.

AUTHOR'S PREFACE.

The Earwigs form a compact, homogeneous and well-defined group of insects. Owing to a superficial resemblance to certain *Staphylinidæ*, Linnæus included them in the Coleoptera, but de Geer placed them in his Order Dermaptera, which corresponded to the Orthoptera of Olivier, in the modern acceptance of the name. Kirby, in 1815, treated them as a distinct Order, restricting to them de Geer's name *Dermaptera*, which had been superseded by Olivier's word for the larger group. Authors were then divided into two camps, those in favour of considering the earwigs as an Order and those who preferred to regard them as a Family of the Orthoptera.

The actual name employed for the group of earwigs has varied still more. Erichson and Fischer called them *Labiduroidæ*; Latreille, Serville, and Scudder, *Forficulidæ*; Newman and Fischer von Waldheim, *Forculina*, followed at first by Burmeister, who later proposed *Dermaptera* in an amended form, *Dermatoptera*. Westwood invented the appropriate name *Euplexoptera*, and Fischer, *Harmoptera*; Brunner called them *Forficularia*, as a family of the Orthoptera; Bolivar regards them as a section of the Orthoptera, under the name *Dermaptera*, with the single family *Forficulidæ*. Dohrn, Redtenbacher, Krauss and Verhœff follow Kirby, in giving them full ordinal rank, under de Geer's name *Dermaptera*; but de Bormans, in his monograph published in "Das Tierreich," treats them as a family, *Forficulidæ*.

Our own inclination is to treat them as a distinct order,

with the name *Dermaptera*, sanctioned by mueh use, rejecting the corrections suggested, such as *Dermoptera* by Agassiz and *Dermatoptera* by Burmeister.

No attempt had been made to subdivide earwigs into smaller groups until this was done by Verhœff (1902), who based his classification upon the genitalia. His system has the double disadvantage of being impracticable for ordinary purposes, and incomplete. Many of his characters are of doubtful value, and some of his work will probably never be accepted, while it is not free from inaccuracy, involved synonymy, and other drawbaeks. It was, however, the first attempt to reject the empirical arrangement, with whieh de Bormans, for want of material, had been obliged to be content. As such it merits recognition and approbation.

The writer of this work has endeavoured to pick out those portions of Verhœff's work whieh appear to him to be sound, to retain the best part of de Bormans' system, to add a considerable amount of new material and original observation and to produce a harmonious whole. The result of this attempt is set forth in the following pages.

Families and subfamilies were first established by Verhœff, but his definitions are not always retained, and his separation of the *Apachyidæ* into a suborder under the name *Paradermaptera* is rejected. Only five families are retained, each divided into a varying number of subfamilies. A careful study of the characterisation of these groups is essential to the understanding of the Dermaptera as a whole; the main outline of this new classification is presented in the synoptical table of families on page 31.

The author is engaged at the same time upon a general revision and Monograph of the Earwigs of the world, and the system put forward in the following pages is that which he has so far adopted in his manuscript of the larger work.

It is unneeessary to add with what pleasure criticism and suggestions will be received. Above all, fresh material is most urgently required, in order that a solution may be obtained for the still remaining problems.

In order to be consistent in the use of the word "type" the author has uniformly followed the principle that one individual specimen, and one only, can be the *type* of a species.

For instance, of *Forficula sjöstedti,* Burr, an African species, the author has examined nearly 500 specimens. Now, it is posssible that in future generations, some entomologist, with great local knowledge, may decide that this number included two distinct forms; consequently, if every one of these 500 specimens were labelled "*Type*" and these "types" were scattered through the collections and museums of the world, it would have been impossible to decide which was the true *Forficula sjöstedti.*

Again, some of de Bormans' species were based on material partly in the Genoa and partly in the Vienna Museum. Each Museum claims to possess the type. Every specimen, in both collections, in many instances, is labelled "type." In such a case the author has endeavoured to identify the actual individual on which the description was based, or the first specimen named, and for him that has been the type.

All the others are *syntypes,* which have nearly, but not quite, the same value for purposes of identification. The 499 remaining specimens of *Forficula sjöstedti,* for instance, are syntypes.

A further term is *paratype,* which is applied to a specimen which has been identified authoritatively by comparison with a true type.

A paratype has therefore a little less value than a syntype, and a syntype than the type, of a species.

In the systematic part of this work, an asterisk indicates that the *type* has been examined by the author, two asterisks denoting a *syntype.*

The material for this work has been derived from the following sources :—

I. The results of Leonardo Fea's travels in Burma; the collections are in the Civic Museum of Genoa; they have been reported on by de Bormans (88) and (94).

II. A few species taken in Trichinopoli, near Kodaikanal, enumerated by Bolivar (97), in which paper de Bormans describes some new species.

III. Scattered references to Indian localities in general works upon Orthoptera, or on Dermaptera, such as Guérin (38), Dohrn (63–67), de Bormans (83) and (00), Dubrony (79), Westwood (39), and so on.

IV. Material in the collections of the Museums of Brussels, Budapest and Paris, reported on by Burr (00), (02), (07[3]), (08[1]) and (08[2]).

V. Material in the Oxford University Museum; no account of this collection has yet been published, but the material has been kindly lent to the author by Professor E. B. Poulton, M.A., F.R.S.

VI. A paper on the Earwigs of Ceylon, by Burr (01), based chiefly on material collected by Mr. E. Ernest Green, Government Entomologist, at the Royal Botanic Gardens, Peradeniya.

VII. Material in the Indian Museum, Calcutta, mostly taken by Dr. Nelson Annandale, and published by Burr (05[3]), (06[1]) and (07[2]), including some communicated by Mr. Maxwell Lefroy, Imperial Entomologist at Pusa, Bengal.

VIII. Material specially collected for the purpose of this work, and communicated to the author, by Mr. T. B. Fletcher, formerly of H.M.S. 'Sealark,' quartered at Ceylon, and by Dr. A. Willey, of Colombo.

IX. Material from various sources contained in the author's collection and in the collection of Monsieur Henri Gadeau de Kerville, of Rouen, who has very obligingly placed his specimens very freely at the author's disposition.

But for the efforts of the gentlemen named above, the number of species and localities in the following work would have been reduced by about half. The author takes this opportunity of repeating his thanks for their valuable and enthusiastic help.

It will be observed in the list of species on p. 23, that a large proportion of types have been examined and it has been attempted to show where all the types are at present preserved. This has been possible in almost all cases where species have been recently described, but the older authors did not specify their types with the accuracy which is now considered necessary. Consequently it has not always been possible to state where the types are in the case of such authors as Serville, Dohrn, &c. In describing a new species the latter author often noted that his material was based on specimens in several collections ; all his original specimens are syntypes, but it is impossible to determine which individual is the type. In such instances, the whereabouts of the syntypes has been noted. It has been assumed that Dohrn's own specimens are still preserved at Stettin, but this is the only important collection of earwigs which has not been placed at the disposal of the author.

The author gladly takes this opportunity of recording his gratitude to Dr. Shipley, the most courteous of editors, and especially to Mr. G. A. K. Marshall, whose laborious and careful proof-reading has placed him under a deep sense of obligation.

The plates and figures in the text have been drawn by Mr. Edwin Wilson, with the exception of several figures (75, 76, 79 & 90) which are by Mr. Horace Knight. No work upon this group of insects has yet enjoyed such accurate and abundant illustration.

MALCOLM BURR.

Eastry, Kent.
July 6th, 1909.

SYTEMATIC LIST OF SPECIES.

DERMAPTERA.[1]

Family I. **Apachyidæ.**

Genus 1. APACHYUS, Serv.

1. *A. fecæ*, Borm.
2. *A. pascoei*, Kirby.

Genus 2. DENDROIKETES, Burr.

† 1. *D. corticinus*, Burr.

Family II. **Pygidicranidæ.**

Subfamily 1. *Diplatyinæ.*

Genus 1. DIPLATYS, Serv.

† 1. *D. gladiator*, Burr.
† 2. *D. falcatus*, Burr.
† 3. *D. lefroyi*, Burr.
† 4. *D. angustatus*, Burr.
5. *D. bormansi*, Burr.
6. *D. gerstæckeri*, Dohrn.
† 7. *D. ernesti*, Burr.
† 8. *D. siva*, Burr.
9. *D. greeni*, Burr.
10. *D. rufescens*, Kirby.
† 11. *D. fletcheri*, Burr.
12. *D. liberatus*, Burr.

Subfamily 2. *Pygidicraninæ.*

Genus 1. PYGIDICRANA, Serv.

1. *P. picta*, Guer.
† 2. *P. valida*, Dohrn.
3. *P. pallidipennis*, Haan.
4. *P. eximia*, Dohrn.
5. *P. marmoricrura*, Serv.
6. *P. siamensis*, Dohrn.

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[1] Species marked with a dagger (†) are not represented in the National Collection.

Genus 2. Dicrana, Burr.

1. *D. kallipyga*, Dohrn.

Genus 3. Cranopygia, Burr.

1. *C. cumingi*, Dohrn.
2. *C. nietneri*, Dohrn.

Genus 4. Picrania, Burr.

1. *P. angustata*, Dohrn.

Genus 5. Pyge, Burr.

1. *P. modesta*, Borm.
2. *P. ophthalmica*, Dohrn.

Family III. **Labiduridæ.**

Subfamily 1. *Palicinæ.*

Genus 1. Palex, Burr.

† 1. *P. sparattoides*, Borm.

Subfamily 2. *Echinosomatinæ.*

Genus 1. Echinosoma, Serv.

1. *E. sumatranum*, Haan.
† 2. *E. parvulum*, Dohrn.

Subfamily 3. *Psalinæ.*

Genus 1. Psalis, Serv.

1. *P. femoralis*, Dohrn.
2. *P. dohrni*, Kirby.
† 3. *P. lefroyi*, Burr.
† 4. *P. castetsi*, Borm.

Genus 2. Labidurodes, Dubr.

† 1. *L. robustus*, Dubr.

Genus 3. Gonolabis, Burr.

† 1. *G. electa*, Burr.

Genus 4. Anisolabis, Fieb.

1. *A. colossea*, Dohrn.
2. *A. maritima*, Bon.
† 3. *A. kulagæ*, Burr.
4. *A. annulipes*, Luc.
5. *A. dubronii*, Kirby.
† 6. *A. gaudens*, Burr.

Genus 5. Borellia, Burr.

1. *B. greeni*, Burr.
2. *B. ståli*, Dohrn.
†3. *B. annandalei*, Burr.

Subfamily 4. *Labidurinæ.*

Genus 1. Forcipula, Bol.

†1. *F. decolyi*, Borm.
2. *F. trispinosa*, Dohrn.
3. *F. pugnax*, Kirby.
4. *F. quadrispinosa*, Dohrn.
†5. *F. lurida*, Bol.

Genus 2. Labidura, Leach.

†1. *L. nepalensis*, Burr.
2. *L. lividipes*, Dufour.
3. *L. bengalensis*, Dohrn.
4. *L. riparia*, Pall.

Subfamily 5. *Parisolabinæ.*

Genus 1. Pseudisolabis, Burr.

†1. *P. burri*, Bor.
†2. *P. tenera*, Burr.

Subfamily 6. *Brachylabinæ.*

Genus 1. Nannisolabis, Burr.

†1. *N. philetas*, Burr.
†2. *N. willeyi*, Burr.

Genus 2. Metisolabis, Burr.

†1. *M. bifoveolata*, Bol.
2. *M. caudelli*, Burr.

Genus 3. Ctenisolabis, Verh.

†1. *Ct. fletcheri*, Burr.

Family IV. **Labiidæ.**

Subfamily 1. *Labiinæ.*

Genus 1. Spongiphora, Serv.

1. *Sp. lutea*, Borm.
2. *Sp. nitidipennis*, Borm.
3. *Sp. semiflava*, Borm.

Genus 2. Erotesis, Burr.

1. *E. decipiens*, Kirby.

Genus 3. Labia, Leach.

1. *L. nigrella*, Dubr.
2. *L. luzonica*, Dohrn.
3. *L. curvicauda*, Motsch.
4. *L. mucronata*, Stål.
5. *L. pilicornis*, Motsch.
6. *L. pygidiata*, Dubr.
7. *L. ridens*, Borm.
8. *L. arachidis*, Yers.

Genus 4. Platylabia, Dohrn.

1. *P. major*, Dohrn.
2. *P. gestroi*, Dubr.
3. *P. thoracica*, Dohrn.
4. *P. nigriceps*, Kirby.

Genus 5. Sphingolabis, Borm.

1. *S. fecæ*, Borm.

Family V. **Forficulidæ.**

Subfamily 1. *Chelisochinæ.*

Genus 1. Chelisochella, Verh.

1. *Ch. superba*, Dohrn.

Genus 2. Exypnus, Burr.

1. *Ex. pulchripennis*, Borm.

Genus 3. Chelisoches, Scudd.

1. *Ch. morio*, Fabr.

Genus 4. Proreus, Burr.

1. *P. simulans*, Stål.
2. *P. melanocephalus*, Dohrn.
3. *P. ritsemæ*, Borm.

Genus 5. Solenosoma, Burr.

† 1. *S. birmanum*, Borm.

Genus 6. Adiathetus, Burr.

1. *A. shelfordi*, Burr.
† 2. *A. dravidius*, Burr.
3. *A. glaucopterus*, Borm.
† 4. *A. nigrocastaneus*, Burr.
5. *A. tenebrator*, Kirby.

Genus 7. Hamaxas, Burr.

1. *H. fecæ*, Borm.

Subfamily 2. *Anechurinæ.*

Genus 1. ALLODAHLIA, Verh.

1. *A. scabriusculus*, Serv.
2. *A. macropygus*, Westw
3. *A. coriacea*, Borm.
4. *A. ahrimanes*, Burr.

Genus 2. HOMOTAGES, Burr.

1. *H. fecæ*, Borm.

Genus 3. PTERYGIDA, Verh.

1. *P. circulata*, Dohrn.

Genus 4. ANECHURA, Scudd.

†1. *A. calciatii*, Bor.
2. *A. zubovskii*, Sem.

Subfamily 3. *Forficulinæ.*

Genus 1. ELAUNON, Burr.

1. *E. bipartitus*, Kirby.

Genus 2. FORFICULA, Linn.

†1. *F. schlagintweiti*, Burr.
†2. *F. mogul*, Burr.
†3. *F. beelzebub*, Burr.
†4. *F. aceris*, Burr.
5. *F. ornata*, Borm.
†6. *F. greeni*, Burr.
†7. *F. ambigua*, Burr.
8. *F. lucasi*, Dohrn.
†9. *F. celeris*, Burr.
†10. *F. interrogans*, Burr.
11. *F. planicollis*, Kirby.

Subfamily 4. *Opisthocosmiinæ.*

Genus 1. SONDAX, Burr.

†1. *S. repens*, Burr.

Genus 2. EUDOHRNIA, Burr.

1. *E. metallica*, Dohrn.

Genus 3. EMBOROS, Burr.

†1. *E. dubius*, Borm.

Genus 4. LIPARURA, Burr.

†1. *L. punctata*, Burr.

Genus 5. OBELURA, Burr.

†1. *O. asiatica*, Borm.
†2. *O. tamul*, Burr.

Genus 6. Cordax, Burr.

1. *C. armatus*, Haan.
2. *C. ceylonicus*, Motsch.

Genus 7. Hypurgus, Burr.

1. *H. humeralis*, Kirby.
2. *H. simplex*, Borm.

Genus 8. Eparchus, Burr.

† 1. *E. dux*, Borm.
2. *E. insignis*, Haan.
3. *E. tenellus*, Haan.

Genus 9. Timomenus, Burr.

† 1. *T. oannes*, Burr.
† 2. *T. æsculapius*, Burr.
† 3. *T. nevilli*, Burr.
4. *T. lugens*, Borm.

Genus 10. Syntonus, Burr.

1. *S. neolobophoroides*, Burr.

Genus 11. Kosmetor, Burr.

† 1. *K. temora*, Burr.
† 2. *K. brahma*, Burr.
† 3. *K. vishnu*, Burr.

Genus 12. Lipodes, Burr.

† 1. *L. vivax*, Burr.

Species of Uncertain Position.

† *Forficula*? *pulchripes*, Borm.
† *Forficula*? *cingalensis*, Dohrn.

Summary.

	Subfamilies.	Genera.	Species.
Apachyidæ	1	2	3
Pygidicranidæ	2	6	24
Labiduridæ	6	13	34
Labiidæ	1	5	17
Forficulidæ	4	25	55
Total	14	51	133+2 uncertain.

DERMAPTERA.

The literature dealing with the Dermapterous Fauna of British India is not very extensive. In general books upon Dermaptera and Orthoptera there are occasional references to Indian species and Indian localities, such as may be found in the works of Serville, Dohrn, and de Bormans. The first paper dealing exclusively with Indian Earwigs was de Bormans'[1] first account of the collections made by Leonardo Fea in Burma, published in the 'Annali del Museo Civico di Genova' in 1888, followed six years later by his second paper (1894), in which he incorporated the first, and added a number of species, many of which were new. In 1897 Bolivar described an extensive collection of Orthoptera from Trichinopoli, in which several species of earwigs are recorded, three being new.

But these works, valuable as they are, give little assistance for the determination of species. The first paper which enabled an entomologist in India to determine the species was the account of the earwigs of Ceylon by the author of the present work, published in the 'Transactions of the Bombay Natural History Society' in 1902, based almost entirely upon material obtained by Mr. Ernest E. Green. This paper, however, dealt only with Singhalese species, and is now out of date. In 1905 the present writer published a first list of the earwigs in the collection of the Indian Museum, Calcutta, followed in 1906 and 1907 by two more, chiefly based on material obtained by Dr. Nelson Annandale. These three papers, however, contain little beyond lists of names and localities, and are of no use for purposes of identification, except where new species are described.

In these circumstances it is evident that there is a real need for a work by the help of which entomologists in India may be able to determine such collections of earwigs as they may make. It is hoped that by its means collectors in India may be encouraged to take an interest in a group of insects which is by no means lacking in fascination, and which has the undeniable advantage of being so neglected that it offers scope and encouragement to all students. The need of such a work is further made evident by the following pages, in which it will be noticed there are frequent appeals for further material, and there remain still several species the exact position of which is doubtful. This is especially the

[1] Full references to these works are given in the Bibliography on p. 26.

case where single females have been described, since, without an examination of the male, it is impossible accurately to determine the affinities of a species of earwig. It is also encouraging to collectors to know that species new to science are being continually discovered. Hardly a collection, however small, is sent to England for determination that does not contain one or more undescribed species.

It is to be especially hoped that entomologists in the field, having now a means of naming their specimens, will be induced to observe the bionomics—the true Natural History—of Earwigs. There remains a very great deal to be done that may be easily accomplished by a careful observer, even if he makes no claim to be a systematist or a specialist. The interesting notes of Dr. Annandale, in these pages, and, above all, the classic observations of Mr. Green on *Diplatys*, are encouraging examples of this. As instances of work that may be well carried out in India, the following lines of research are suggested :—The post-embryonic development of *Apachyus* and *Pygidicrana* compared with *Diplatys*; the variation of the allied species of *Forficula*; the semi-aquatic habits of *Forcipula*; the elucidation of the numerous and subtle species of *Diplatys*; the vertical distribution of the mountain-loving forms, such as *Allodahlia*, *Eudohrnia*, &c., and why these have deeply tinted wings; the discovery of the males of those species of which only the females are known: earwigs are frequently accused of damaging flowers by devourg the petals; has this been proved? Probably they are omnivorous; they are known to be largely carnivorous: are they entirely so? These and many other problems await solution.

Structure.

The *head* is more or less heart-shaped, varying from almost triangular to pentagonal; the posterior margin is generally truncate, but sometimes emarginate in the middle. The head is divided dorsally by a *transverse suture* between the eyes into the *frons* or anterior portion, and the *occiput* or posterior portion, the latter being divided by a *median suture* which runs from the middle of the transverse suture to the posterior margin of the head. In some earwigs the head is smooth and tumid, so that the sutures are scarcely discernible; in others the sutures are profoundly marked and very distinct. The form of the head offers useful specific characters in the genus *Diplatys*, where the frons is often tumid and the occiput depressed, while an oblique keel runs from the eyes to the posterior margin of the head, but these characters are scarcely developed in the females. The *mouth-parts* offer practically no characters of any value to the systematist. The *eyes* are large and prominent in *Diplatys* and some *Brachylabinæ*, but are generally small, and *ocelli* are not present.

The *antennæ* offer very valuable and important characters, both generic and specific; the number of segments may be as few as ten or as great as fifty. The first or basal segment is relatively large, generally clubbed at the apex; in *Eudohrnia* this segment has two distinct keels. The second segment is invariably minute and cylindrical; the third is of very variable length and form, being cylindrical, ovate, or clubbed; the fourth segment is usually minute, shorter than the third and generally more simple in shape; it is sometimes barely half as long as the third, but occasionally equals it or even slightly exceeds it in length. The fifth segment resembles the fourth, but is always a little longer; the rest of the segments are each a little longer than the preceding one; sometimes the fifth equals the length of the third, but when it falls short the sixth is the first to equal the third. The relative length of the third, fourth, and fifth segments is one of the characters most valuable to the Dermapterist. The segments may be absolutely cylindrical, in which case they are usually very slender; more or less ovate or spindle-shaped, subconical or clavate, or sometimes decidedly conical, in which case the apex of the cone is invariably directed basally, *i. e.* backwards towards the head. Sometimes the segments are globular, and no longer than broad, and as a rule the fewer the segments the thicker they are and the more removed from cylindrical. In *Nannisolabis philetas*, Burr, there are only nine segments, but in *Apachyus fœx*, Borm., there are nearly fifty.

The *thoraæ* consists of three segments, the *pro-*, *meso-* and *metathoraæ*, each covered by a dorsal sclerite, the *pro-*, *meso-* and *metanotum* respectively. The *pronotum* is a flat disc of very varied shape; it is as a rule more or less quadrangular; the hinder margin is generally more or less rounded in winged forms, or at least the hinder angles are rounded; in the wingless forms the hinder margin is usually truncate; the anterior margin is usually truncate, but occasionally narrowed and produced into a kind of neck. The pronotum is sometimes oval, or almost circular. Very useful characters are afforded by the different shapes of this plate: the anterior portion or *prozona* is generally more or less tumid, while the posterior portion or *metazona* is as a rule flattened. There is often a more or less distinct median *sulculus*, or furrow, which may pass into a faint ridge or keel (*carina*); in the prozona there is frequently an impression on each side.

The *mesonotum* carries the elytra when these are present, and is thus hidden from view; in apterous forms it is visible as a short transverse plate; in the *Brachylabinæ* it is often furnished on each side with an oblique tumid ridge or keel.

The *metanotum* carries the functional wings when these are present; in apterous forms it is visible as a transverse segment with the anterior margin straight, but the posterior margin sinuate or roundly emarginate.

The corresponding ventral plates form the *pro-*, *meso-* and *metasterna*.

The *prosternum* is a longitudinal plate, generally more or less parallel-sided, with a constriction near the base, but occasionally angustate or narrowed posteriorly; this constriction admits the insertion of the anterior pair of legs.

The *mesosternum* is a plate of irregular outline, usually about as broad as long, with sinuate sides to admit the middle pair of legs; the hinder margin extends somewhat beyond the middle coxæ, and is truncate, or more or less rounded; the relative width of this intercoxal portion is the expression of the breadth or slenderness of the insect.

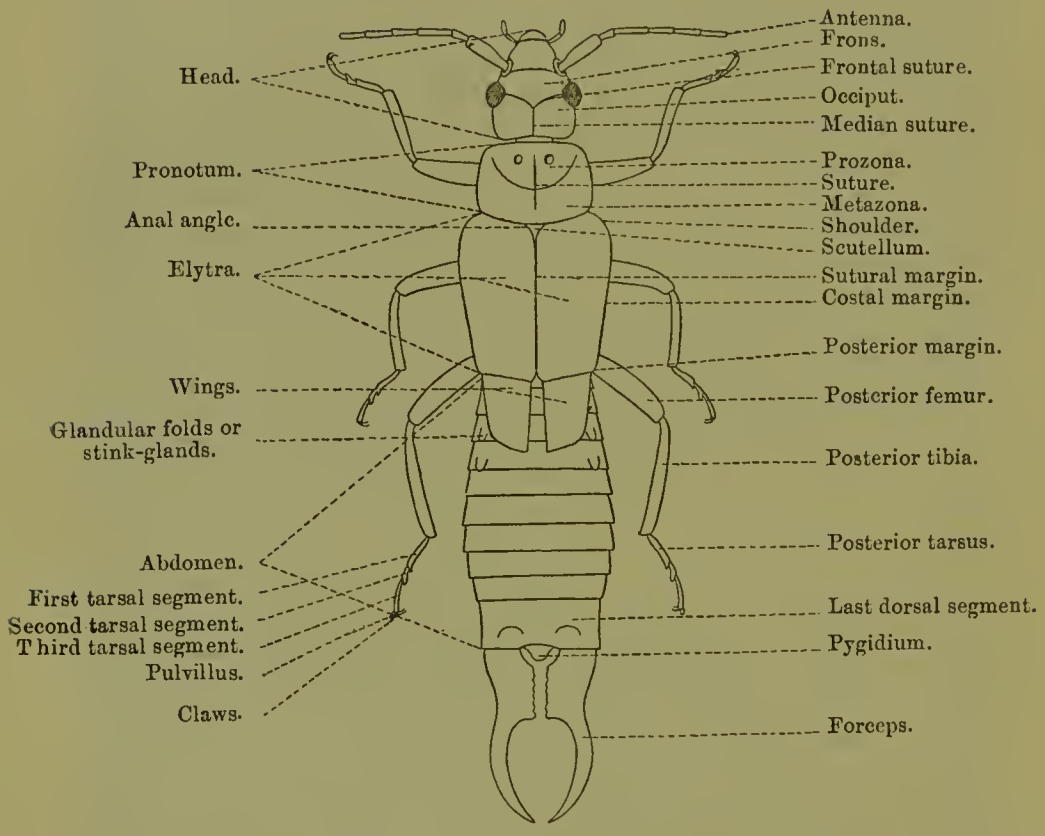

Fig. 1.—Diagram of dorsal aspect of an Earwig.

The *metasternum* is of the same general shape as the mesosternum, but is larger, in order to carry the hinder or largest pair of legs; its maximum breadth is in the anterior portion, and it is strongly narrowed behind by the emargination of the sides so that the posterior portion forms a relatively narrow lobe which generally extends beyond the coxæ; the shape of this lobe affords useful characters: its posterior margin may be truncate, sinuate

or rounded, and its breadth may be relatively great or the contrary; the amount of the extension beyond the coxæ varies in different genera.

The *elytra* are totally absent in *Anisolabis*, the *Brachylabinæ*, and certain other genera not occurring in India. In the normal development they are more or less rectangular, veinless, chitinous flaps. They are attached to the mesonotum, and in repose lie in a horizontal position over the dorsal surface of the insect, the sutural margins of the two elytra being contiguous and consequently forming a median suture. They are divided into a broad

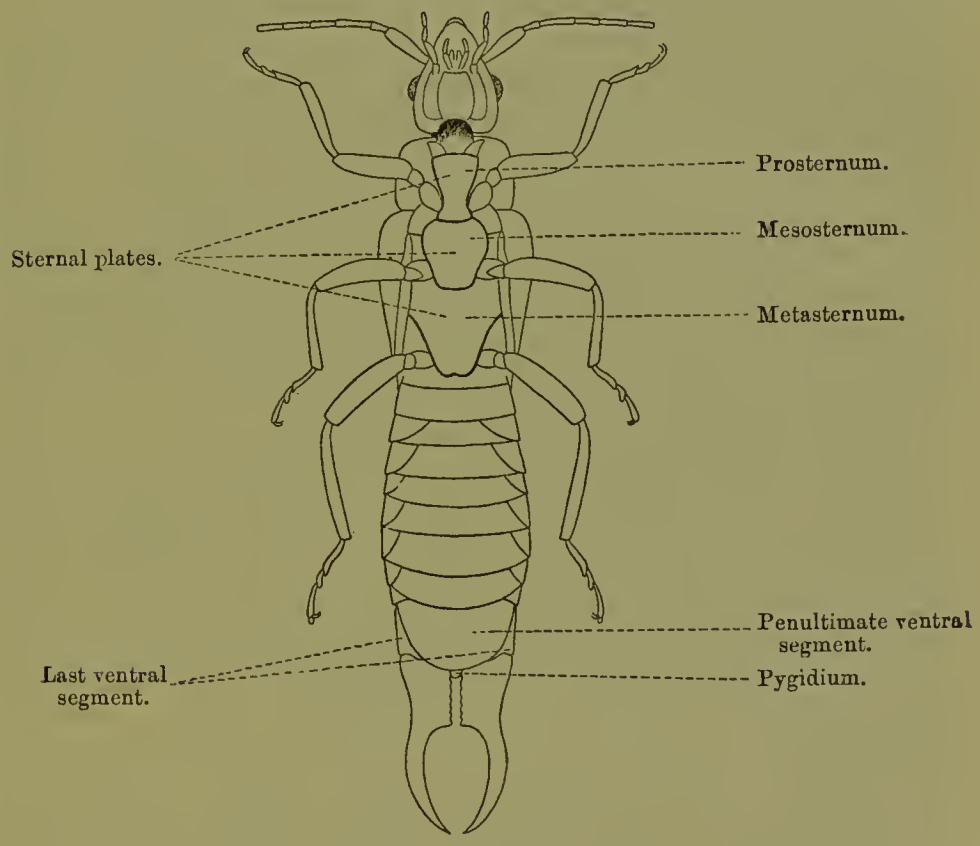

Fig. 1 *a*.—Diagram of ventral aspect of an Earwig.

dorsal area or *disc*, and a narrow *costal* portion, which, in repose, assumes a vertical position along the flanks of the thorax. These two portions are sharply separated from each other by a distinct keel in *Labidura*, *Forcipula*, *Allodahlia* and some other genera; but as a rule there is no sharp line of demarcation, the areas passing gradually into each other. In a good many genera the shoulders of the elytra are rather prominent, rounded and projecting beyond the sides of the pronotum, but when the wings are

ill-developed or absent this shoulder is not developed, and the sides of the pronotum form a continuous line with those of the elytra. In normally winged forms the axillary portion of the elytra is as a rule rectangular, so that in repose the sutural margins are in contact from base to apex; but in feebly winged or apterous forms the axillary angle may be rounded, so that a small portion of the mesonotum is exposed at the base of the suture, even when these organs are in repose: this portion of the mesonotum is in such cases hardened by exposure, and is termed the *scutellum*. As a rule, in fully winged forms the pronotum extends backwards over the base of the elytra and prevents the exposure of any scutellum; but in *Apachyus*, *Diplatys*, and the *Pygidicraninæ* the axillary angle is rounded off so that the elytra are oval rather than rectangular, and at the same time the pronotum is not produced backwards and consequently the scutellum is prominent. The disc of the elytra is always flat, and it is the disc which is implied when the *elytra* is used in description without qualification. The small vertical costal area is sometimes of a different colour. The elytra may be rectangular and so parallel in repose, as is usually the case, or they may be dilated and convex, broad at the shoulders and narrowing posteriorly as in *Hypurgus*, *Pterygida*, and *Allodahlia*. In *Apachyus* and *Diplatys* the distinction between the disc and costal area is weak and the whole elytra lie flat upon the thorax. The apex of the elytra is truncate in hemiapterous forms, generally sinuate in winged forms, or obliquely truncate.

When rudimentary, the elytra are very much shortened; they may be mere lateral flaps on the sides of the mesonotum (*Borellia*), or they may still be sufficiently large to meet at the median suture in the apical portion (*Obelura*, *Liparura*); the weakening of the axillary angle and consequent exposure of a scutellum is the first step towards abbreviation. The elytra may be perfectly smooth (*Forficula*, &c.), or granulose (*Allodahlia*), or clad with short, obtuse bristles (*Echinosoma*), or punctulate (certain species of *Forcipula*).

The *hind wings* are often entirely absent (*Anisolabis* and *Brachylabinæ*); when perfectly developed (which is the rule) they are semicircular in shape, very ample and membranous; the basal half of the costal margin is hardened into a leathery scale which protrudes from beneath the elytra in repose, and it is this scale which is meant when the word "wing" is used without qualification. From the apex of this scale the wing-veins radiate, and when the wings are closed they shut up fanwise about this point; they are then folded transversely at right angles to the first line of folding and so tucked away under the scale that they are entirely hidden when in repose. In *Apachyus* and *Diplatys*, however, the membranous folds are visible along the suture during repose. The basal margins of the *squamæ*, or hardened scales, are in contact when in repose, and thus form the continuation of the suture of the elytra. The wings are frequently abbreviated, and it is

common to find wings well developed or abbreviated in one and the same species (*Labia* spp., &c.). In addition to the fan-like radiating veins mentioned there is a curved transverse vein, the *radial* vein, which runs the length of the wing and remains at a more or less constant distance from the axillary or anal margin of the wing.

The wings are exceedingly delicate, and their unfolding is a matter of great difficulty. In fresh or highly relaxed specimens they may be teased open with a fine pair of forceps and a camel's-hair brush; a glass tube, drawn out to a capillary point, is useful to blow them gently out; but considerable practice is required before they can be expanded without tearing. This operation, however, is by no means necessary, as the wings are scarcely ever referred to for distinctive characters, and there appears to be little diversity in the venation.

The *legs* offer very useful characters. The femora are generally rather compressed, but they are decidedly thickened in *Timomenus*. They are strongly compressed in the *Pygidicranidæ* and furnished with little keels. The *tibiæ* are gently curved as a rule and compressed; the upper margin at the extreme apex is flattened and rather hollowed; in *Exypnus*, *Chelisoches* and the allied genera, this character takes the form of a well-marked furrow or sulcus, which extends for one-third or one-half the length of the tibia. The *tarsi* have three segments: in *Apachyus* the first segment is much shorter than the third, but as a rule the first segment is longer than the other two united. The second segment is invariably the shortest; in *Labia* it is very minute; the greatest length is attained in the *Brachylabinæ*; as a rule it is cylindrical, like the other segments (*Labiduridæ*, *Labiidæ*, &c.), but in the *Chelisochinæ* it is produced into a long narrow lobe under the third segment; in the other *Forficulidæ* it is broadened and dilated into a heart-shaped lobe. The third segment is usually about half as long as the first, and generally cylindrical; it is rather short and broad in the *Chelisochinæ*. The tarsi are depressed. In *Diplatys* and some other genera there is a *pulvillus* or pad between the claws of the tarsi, but this shrivels up so much in drying that it it is not of great value as a character. The third segment is armed with a pair of claws. The tarsi are generally strongly pubescent and furnished with long stiff bristles. The legs are long and slender in the *Opisthocosmiinæ* and in some genera of the *Chelisochinæ*, but as a rule they are relatively short. The hinder pair are always longer than the middle, and the middle than the anterior pair.

The *abdomen* is the most prominent part of an earwig. It is elongate, and in bulk equal to the whole of the rest of the insect. In *Solenosoma* it is almost perfectly cylindrical; in many *Opisthocosmiinæ* it is spindle-shaped, that is, thickest in the middle, but convex, with an almost circular cross-section; in *Diplatys* and *Pygidicrana* it is also convex, but narrowest in the middle (in the male); the commonest form of the abdomen is more or less

depressed, with a transverse elliptical cross-section; the sides may be parallel (*Labidura*, *Elaunon*), or gently dilated about the middle (*Anisolabis* and certain species of *Forficula*); in the *Apachyidæ* and in *Platylabia* the body is remarkably depressed, being as flat as cardboard. In the female the abdomen almost invariably tapers somewhat towards the hinder end. There are in all ten segments; excluding the last, there are nine, but in the female only seven are visible, as the eighth and the ninth are aborted and reduced to mere specks of chitin which can only be detected upon dissection.

In *Forcipula* the sides of certain segments are furnished with ridges, keels or long spines; in certain species of *Psalinæ* the sides of the segments are produced posteriorly to a more or less acute angle and are generally striated or furrowed. This structure affords useful specific characters. In *Eparchus* the sides of the abdomen are studded with a series of knobs or tubercles. In the *Labidurinæ* the posterior margins of the segments are milled. All these structures are almost or entirely undeveloped in the females. In many genera, as in the *Forficulidæ*, the *Labiidæ*, and others, the second and third abdominal segments have at the sides tubercular folds in the integument, which are stink-glands. The segments are closely imbricated into each other; when the abdomen is distended, the membrane holding the chitinous plates together may be seen with the minute perforation of the tracheal pores. The texture of the chitin varies from smooth to granular. The ventral surface is flat, and generally smoother and paler than the dorsal surface.

The *last dorsal plate*, or *sclerite*, is large and ample, and as it presents a great variety of form and of armature it offers valuable discriminative characters; it is invariably more simple and almost always narrower in the female than in the male.

The *penultimate ventral sclerite* is very large, so that the *last ventral sclerite* is almost or entirely hidden; when disclosed by the removal of the penultimate it is shown to be separated into two portions by a median fissure so as to permit the passage of the fæces and the reproductive cells. The outline of the penultimate segment is usually slightly different in the two sexes and offers useful generic and specific characters.

The *pygidium* is a chitinous organ existing between the roots of the forceps and the edges of the apical abdominal segments; it is sometimes hidden, but is as frequently protruded. It assumes a great variety of shapes in both sexes, thus offering very useful specific characters.

In the *Apachyidæ* the last abdominal segment is produced without any apparent suture or joint into a depressed lobe termed the *anal process*; as it appears to be a mere extension of the anal segment, it is probably not homologous with the pygidium, which is a distinct organ.

The *forceps* are the most characteristic organs of earwigs. They consist of a pair of more or less elongate, hard unsegmented

chitinous processes, rooted into the last abdominal segment, which is enlarged in order to accommodate the powerful muscles which work these organs. The forceps present a great diversity of form: they may be remote or contiguous at the base; they may be long and slender, or stout and conical; they may have a round or a trigonal cross-section; they are invariably more or less attenuate towards the apex and almost always slightly hooked at the points themselves; they may be strongly depressed and dilated near the base (*Forficula*), or slender and almost cylindrical (*Kosmetor*), or conical (*Psalis*), very elongate (*Eudohrnia*), arcuate (*Pterygida*), asymmetrically bowed (*Anisolabis*, *Borellia*), undulate in a vertical plane (*Anechura*, *Allodahlia*), armed with diversified teeth (*Eparchus*); in both sexes of *Apachyus* they are curved, sickle-shaped hooks. In the female they are almost invariably simpler than in the male, being as a rule straight and unarmed; but in certain species of the *Chelisochinæ* the female has forceps as highly organized as those of the male, though very different from them, so that they have sometimes been described as male specimens.

As a rule a given type of forceps will be found to characterize a group of species, a genus, or a group of genera, but it is far from rare to find very different forceps in closely allied species. The forceps vary in different degrees within certain limits, and a very slight actual difference will often alter the superficial appearance of a specimen to a remarkable extent. Care must be taken in drawing deductions from the form of the forceps; the remarks upon these organs under the heading "Variation" should be studied. The development of the forceps presents phenomena of great interest which throw light upon the phylogeny of the Dermaptera; these are referred to in the article upon the development of *Diplatys*.

The forceps are subject to malformations due to wounds and mutilations, and also to deficient nourishment. It is common to find a male earwig in which one branch of the forceps is formed as in the female; such cases are frequently recorded as hermaphrodites, but whenever the full complement of nine segments occurs together with one male branch, it is more probable that these are not gynandromorphic specimens, but merely that one branch has been unable to attain full development. Since the specialization (armature &c.) of the forceps is purely a sexual character, it is probable that the simple forceps of the female represent the more primitive form, to which there would be a natural tendency to revert.

Cases undoubtedly due to traumatism are shown where an immature specimen has one branch of the forceps pronged: this is evidently caused by an attempt at reproduction of lost parts caused by an injury to the immature forceps. Cases where the forceps have the full complement of teeth but are misshapen or distorted are probably caused by an injury received when the insect has freshly emerged from the nymphal skin and is consequently soft and tender.

Determination of Species.

In attempting to determine the species of an earwig, until experience has taught the distinction of the leading groups, the Table of Families on p. 31 should first be consulted. The species of the *Apachyidæ* are so distinctive and so few in number, that they can be recognized almost at a glance. If the specimen is not one of the *Apachyidæ*, the femora should be examined; if these are compressed and have one or two little ridges running down them, the specimen is one of the *Pygidicranidæ*. The appearance of the two subfamilies of this group are quite distinctive. Each subfamily has its own strong family likeness, but although it is easy to recognize a member of the *Diplatyinæ* or *Pygidicraninæ* at a glance, it is usually a matter of some difficulty to determine the species. If the femora are smooth, the tarsi should be examined; if the small second segment has any lobe or dilation, the specimen is one of the *Forficulidæ*, and if not, it must be referred to the *Labidurinæ* or to the *Labiidæ*. In the former family, the dorsal surface of the last segment is folded downward between the base of the forceps and so presents a vertical face, which sometimes is separated from the dorsal horizontal face by an angle, but the passage is often gradual. In the *Labiidæ*, this does not occur, there being an opening between the roots of the forceps and the dorsal and ventral plates of the end of the abdomen, and in this space there may often be seen the chitinous organ of diversified shape termed the *pygidium*. It is worth while giving an imaginary example of these synoptical tables.

The examination of our undetermined earwig perhaps shows a small lobe on the second segment of the tarsi; we accordingly turn to the Table of the Subfamilies of the *Forficulidæ* on p. 129. We again examine the second tarsal segment and observe that it is broadened out on each side, thus assuming a heart-shaped outline; this precludes the *Chelisochinæ*. Next, turning the specimen over and examining the sternal plates, we find that these are not decidedly broader than they are long, which precludes the *Anechurinæ*. The body is rather depressed—somewhat widened about the middle; a cross-section would not be circular, but would show a depressed transverse ellipse. Therefore it must be referable to the *Forficulinæ*, and we turn to the Table of Genera on p. 162.

The shape of the forceps, which are very broad and flat near the base, but become suddenly elongate, arcuate and slender, show that it is a *Forficula*, and we turn to the Table of Species on p. 165 We see that the pronotum is not very decidedly transverse, so this precludes the first four species. Neither is it crescent-shaped, and this precludes the next two. As the dilation of the forceps is not confined to the extreme base, but extends about a quarter or a third of the length of these organs, it cannot be *F. ambigua*. The elytra and wings are not spotted, so it cannot be *F. lucasi*.

The pronotum is not much longer than broad, and does not extend very far over the base of the elytra, so it cannot be *F. celeris*. The sides of the abdomen are not parallel, thus excluding *F. interrogans*, but are decidedly widened about the middle. Our specimen is therefore *Forficula planicollis*, Kirby, and we verify this by a careful comparison of the detailed description, remarks and figures on p. 174.

Development.

The post-embryonic development of *Diplatys* has been worked out by Green for the two Singhalese species, *D. gerstæckeri*, Dohrn, and *D. greeni*, Burr.

The young larva has a general resemblance to the imago, but there are of course no signs of any organs of flight in the earlier stages. The second tarsal segment is fused with the first, there is no pulvillus between the claws, and the lateral abdominal glandular folds are not developed until later. But the most remarkable characteristic of the larva lies in the fact that instead of forceps, the apex of the abdomen is furnished with long segmented cerci or filaments. The number of segments in these cerci varies in the different species, and also in different individuals of the same species, this being probably due to their fragility.

The following series of measurements of *D. gerstæckeri* is given by Green :—

No.	*Length of body.*	*Length of cerci.*	*No. of segments in cerci.*
1	2·5 mm.	2·5 mm.	14
2	3	6	27 with incomplete divisions where fresh joints are forming.
3	4·5	10	43
4	6·5	incomplete	(apparently injured)
5	7·75	13·5	45
6	9	1	1

This table brings out the remarkable development of the cerci.

In the penultimate instar these are abruptly curtailed to a single segment, which retains, however, its original character, and the extremities look as though they were bitten off. The two cerci are not necessarily curtailed simultaneously. The future forceps can be seen by transmitted light, showing through the sheath thus formed by this basal segment, which is always much longer than

any of the other segments. In *D. greeni*, Burr, the cerci are shorter, the increase in the number of segments is more gradual, and the maximum number attained appears to be 18 or 20.

Green was unable to count the exact number of ecdyses, but observed four successive moults, the last revealing the perfect insect. Each instar occupies about 10 days. In ecdysis, the skin splits along the median dorsal line of the thorax and is shed completely, even including the covering of the delicate caudal appendages. The penultimate instar, or nymph, may be recognized by the truncated cerci and also by the appearance of the radiating pattern on the metathorax, showing in miniature the future wing of the imago. The lateral glandular folds of the abdomen appear when the larva is about half grown.

A curious point was also noticed by Green. In the penultimate stage the anterior femora were broad and armed on the inner edge with a row of spines, which gave them a distinctly raptorial appearance: but he never saw them used for any purpose other than locomotion.

The segmented caudal cerci have been recorded, but not described, in some unknown African species (*vide* Proc. Ent. Soc. Washington, iv, nr. 2, p. 53, 1898).

Terry (05) has described the egg and post-embryonic development of *Chelisoches morio*. There appear to be four larval instars before the adult imago. Terry's observations on the manner of increase of the antennal segments are very interesting. It appears that the larva has at first only 8 segments; at the first ecdysis the third segment is divided into four additional segments; at the second ecdysis, the third segment gives rise to four more; at the third, to three more; at the fourth, to one more, so that the normal total of 20 is thus attained.

Terry failed to discover any trace of segmentation in the forceps of the embryo *in ovo*: this is interesting when compared with Green's observations on *Diplatys*.

Copulation.

De Geer's description of the family life of the common English earwig is generally known. According to this observer, the act of copulation is effected by the male approaching the female backwards, tapping her with his forceps, and then effecting the connection tail to tail, the pair being thus arranged in a straight line. Gadeau de Kerville has noticed and described the same thing, and insists that, though the male seems to try to catch hold of the female with his forceps, this organ does not appear to be of any use either before or during the act. The male is obliged to twist the apex of his abdomen so that the ventral plates face upwards in contact with the ventral plates of the female, and this torsion sometimes goes so far as to involve the

head. The connection appears to last several hours, as observed in captivity.

In another species, *F. lesnei*, Finot, not uncommon in West Central Europe, Lesne observed a pair *in coitu* while hanging from the under surface of the cork of a tube: in this case, the ventral surfaces of the two individuals were juxtaposed.

In *Chelidura aptera*, Charp., a European Alpine species, de Bormans observed that the male applied the underside of his forceps to the ventral surface of the female. This position involves the torsion of the abdomen of the male as Gadeau de Kerville observed. Xambeu noted the same thing in an allied species, *Ch. pyrenaica*, Géné. Bennett observed the same fact in *Anisolabis maritima* in New York, and Gadeau de Kerville noticed it in *Anisolabis mauritanica*, Luc. The copulation of *Labidura riparia*, Pallas, as observed by Sopp, is effected in the same way. The copulation of *Diplatys greeni* is described as follows by Green:—"On Oct. 27, 1897, a pair of this new species, reared up in captivity, were found *in coitu*. The abdomen of the male was twisted round and the extremity was closely applied to the under surface of the pygidium [? penultimate ventral plate] of the female."

Oviposition.

In Ceylon, Green observed *Diplatys greeni in coitu* on Oct. 27th: the first eggs were deposited on Nov. 4th, that is only a week later, and other eggs were added at intervals, during the following week, until a total of twenty-five had been laid. They were scattered singly over the exposed surface of the moss-covered bark, which had been provided as a shelter for the insect, adhering slightly to their support. Towards the end of the egg-laying period, a few were deposited in irregular clusters and unattached to the moss.

In Sweden, de Geer found the newly hatched larvæ at the beginning of June, and the writer has found them in the south of England in April. De Geer also found a female (*F. auricularia*) with her eggs under stones in April. Taschenberg found the ova in Europe on February 19th after an exceptionally mild winter, and the larvæ emerged on March 7th. Camerano found the ova in Southern Europe as early as January 24th, and the larvæ emerged on 30th January. With regard to the period between fertilization and oviposition, the same author records a female, which he had taken during the winter, laying eggs on 10th March; and in temperate latitudes it is probable that this period is generally a good deal longer than in warm countries. Rühl records the emergence of young larvæ from ova which had been 26 days in his possession.

With regard to *Chelidura pyrenaica*, Géné, in the Pyrenees, Xambeu records that copulation occurs in April or May,

according to the altitude (this species ranges from 4000 to 8000 ft.). The larvæ hatch out about three weeks after oviposition, in mild weather. In New York, Bennett observed that *Anisolabis maritima* generally lays its eggs in the warm days of July and August, and a few after the middle of September.

Ova.

The ova are elliptical in shape. Those of *Forficula auricularia* are white, smooth and oval (de Geer). They are described as yellowish by Taschenberg and Rühl; Camerano found them regularly piled in little heaps. The eggs of *Chelidura pyrenaica* are described by Xambeu as being 1·3 mm. long and 1 mm. in diameter, ovoid in shape, yellowish, smooth and shining, imperceptibly punctuated, with rounded poles and a resisting shell. The eggs of *Anisolabis maritima* are described by Xambeu as ellipsoid, white, and surrounded by a shining translucent shell; they are about 2 mm. long. A few days after oviposition the embryo is visible inside the egg-shell, in the form of a crescent, and the side of the egg bulges somewhat. At the end of 17 days the larva emerges, but this period varies with the condition of warmth and moisture.

The egg of *Diplatys greeni* is regularly elliptical, pale, pinkish yellow, and shining; 0·8 mm. long and 0·5 mm. broad. Those of *Anisolabis mauritanica*, Luc., are of a faint yellowish white, subspherical, from 1 to 1·2 mm. long; the shell is smooth, thin and transparent. Heymons describes the ova of *Anisolabis littorea*, White, as 3 mm. long. The number of eggs laid varies :—

Species.	*No. of eggs.*	*Observer.*
Diplatys greeni (captivity)	25	Green.
Anisolabis maritima (free)	90	Bennett.
,, ,, (captivity) ..	25	,,
(One female laid four times in a summer.)		
Anechura bipunctata (captivity)..	18–25	Rühl.
Chelidura pyrenaica (free).....	40–45	Xambeu.
Forficula auricularia (free)	12–22	Rühl.

Habits.

Earwigs may be found almost everywhere out of doors. Generally they shun daylight, and many species may be found

under stones, crawling in shallow galleries or chinks. Green noticed a curious habit in *Diplatys*; on lifting a stone, this creature is usually found back downwards, clinging to the stone itself. Other earwigs are generally found resting on the ground beneath the stone. Apterous, alpine forms are generally found under stones, or under dead leaves, bark of trees or other rubbish. They occur up to an elevation of 8000 ft. in the Alps. In the Himalayas, earwigs are common up to a considerable elevation, but information as to the limits of their vertical distribution is lacking.

Although nocturnal in habits, earwigs, like moths, are attracted to light, and Mr. Green has taken a good number of species in his bungalow in this manner.

No earwigs are truly aquatic, but species of *Forcipula* are known to frequent moist places. Dr. Annandale found *F. decolyi* at Kurseong, under stones at the edges of mountain streams, practically in the water. When forced towards the stream, they swam rapidly on the surface, but they did not enter the water of their own accord. Dr. Annandale, referring to *Labidura riparia*, Pall., var. *inermis*, Br., writes as follows[1]:—

"By far the commonest species in Calcutta. They lie in crevices such as those in the bark of trees, and when a small cockroach or other suitable insect passes them, the abdomen is rapidly shot out sideways and the forceps seize the insect by means of a sudden twist. The prey is transferred to the mouth, sometimes being held also by the forceps; but should the earwig be disturbed, it runs away carrying the prey in the latter. If one individual comes upon another which is feeding, the former often attempts to steal the food. The rightful owner then threatens the other by directing its forceps towards the aggressor over its back; but I have never seen one earwig nip another, nor have I been able to induce one to nip my finger."

Of an allied species, *L. lividipes*, Dr. Annandale writes the following note[2]:—

"These little earwigs frequently come to light singly or in small numbers during the hot weather and the rains, and specimens can generally be taken round the arc lamps in the public gardens in Calcutta at this time of the year, the two forms occurring together. Large numbers were noted round an oil lamp in the Museum compound on the evening of June 16th, after a wet and stormy day, the first of the monsoon. Several persons have told me that they saw enormous numbers of small earwigs round their lamps on the same evening in different parts of Calcutta. On the preceding and following evenings only a few individuals were seen."

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[1] Burr, (06) p. 388.
[2] Annandale, (06) p. 391.

"I have often watched earwigs of this species expanding and folding away their wings. The wings are generally expanded by a rapid movement of the anterior part of the body, suggesting a shrug of the shoulders; but sometimes a hitch occurs, and this movement is insufficient to stretch out both wings properly. The abdomen is then bent upwards and forwards, and the forceps are used to unfold the delicate membrane. They do not seize this membrane, however, but are closed together during the operation and are used as a lever or smoothing organ. In a similar manner they are often employed to push the wing into its place beneath the elytra, although movements of the thorax play an important part in this process also."

Terry never saw *Chelisoches morio* use its forceps in this manner. He writes (05):—

"The adults will readily take to flight, the unfolding of the wings being a very rapid process and quite independent of the forceps, the writer never having seen them used either to assist in the folding or unfolding process."

The flattened forms, as *Apachyus*, probably live under bark. An African species of this genus was observed by Dr. Creighton Wellman, at Benguella, to live under the bark of dead trees, and to come out of wood when placed on the fire. In Burma, Fea found *A. feæ* under bark, as well as various species of *Chelisoches*, and some species of *Labia*. The flattened genera *Sparatta* (which is not yet known to occur in India) and *Platylabia* probably resemble *Apachyus* in their habits. Fea found *Metisolabis caudelli* and various species of *Opisthocosmiinæ* under dried leaves, vegetable rubbish, and over-ripe fruit. *Pygidicrana picta* is found commonly among dead leaves at the base of trees near Calcutta (Annandale), and *P. cumingi* and *P. nietneri* are found in Ceylon, under stones, loose bark, etc., and often come into buildings (Green). *Labia mucronata* was found by Green in decaying pods of cocoa and of *Poincania*, and in the crevices of the bark of cocoa trees. *Forficula greeni* is often taken in bungalows in Ceylon, and one was found by Green in an empty gall on *Antidesma*, one of the *Euphorbiaceæ*. *Cordax ceylonicus* is attracted to light (Green), and also *Proreus simulans* (Annandale). In Europe earwigs do not, as a rule, use their wings readily, except *Labia minor*, but in the tropics crowds of them come flying to light (de Bormans).

The common European *Forficula auricularia*, Linn., has been recorded by Collinge (08) to fly into houses through the windows in England in considerable numbers on dark sultry evenings in June and July between 9.30 and 10.30 p.m.; in three consecutive evenings, as many as 26 specimens flew in; it is noteworthy that they avoided the gas, and also that they were all males. The same author notes two occasions on which they were seen to fly in broad daylight.

Theobald (96) has noticed that in Kent they devour the young foliage of hops and sometimes do considerable damage; he writes:

"It seems the adults take readily to their wing on certain nights, especially when the moon is bright. Numbers later in the year used to fly into my house of a night, attracted by the lights."

The tubercular folds in the integument at the sides of the abdomen appear to be stink-glands, but little evidence is forthcoming on this point. Green found that *Elaunon bipartitus*, Kirby, when handled, gave off a pungent odour, like that of the Bombardier Beetle.

The forceps, which assume such a variety of remarkable shapes, especially in the male, are useful weapons of offence and defence. We have seen (p. 15) how *Labidura riparia* uses them to seize its prey. Of *Diplatys*, Green writes:—"When food is offered to an adult *Dyscritina* [*Diplatys*] it usually goes through a curious performance to test its suitability. It takes up its position to one side of and slightly in advance of the object; then bending its abdomen round to one side, it gives it a sharp nip with its forceps and retires quickly to note results. If the proffered object does not resent this treatment, it is then considered safe and fit for food; but if the victim makes any movement, *Dyscritina* immediately retires beneath its shelter."

A number of interesting notes on the function of the forceps of earwigs have been collected by Gadeau de Kerville (05), who shows that they are used as a weapon of offence and defence, but never during the act of copulation. Also, the insects do, occasionally, at all events, use them as a help to fold and unfold their delicate wings and to lift their elytra. Even *Forficula auricularia* was observed to do this by Paul Noel, and the same thing has been observed in an unnamed species by Morris.

With reference to their use as a weapon, the author was startled by a nip of a female *Labidura riparia*, which made him drop the creature, and though the forceps did not pierce the tough skin of the human thumb, it would have been a formidable adventure to an insect of its own size. Gadeau de Kerville was nipped by *F. auricularia* so strongly that blood was drawn, and Commander J. J. Walker had the same experience in New South Wales, from the largest known earwig, *Anisolabis colossea*. Baer (04) has recorded that the relatively weak *Apterygida linearis*, Esch., in the Argentine Republic, is capable of raising a local inflammation by its nip, though the irritation was perhaps caused by septic matter present on the forceps, for no traces of poison glands are known. The author introduced a large bluebottle into a small glass-topped box with a male *Labidura riparia*. The earwig by a lightning-like movement, instantly transfixed the fly on one limb of its forceps, and carried it about thus spiked for several hours before devouring it.

Food.

Earwigs are probably omnivorous, though chiefly carnivorous. Green was unable to determine the natural food of *Diplatys*, but

he is probably correct in supposing that it consists of soft bodied insects. In captivity, his larvæ and imagines fed sparingly on the dead bodies of small spiders and flies and other minute insects, showing a preference, however, for certain species. They did not relish Lepidoptera or mosquitos, though they would devour the bodies of the latter if hungry. Bread, raw meat, petals of flowers, fruit, and minute fungi were offered and refused.

The writer has fed *Labidura riparia* on bluebottles; these they suck dry and leave the empty skin. Xambeu tells us that *Chelidura pyrenaica* is a veritable glutton. Tender vegetables, fruit, worms, larvæ, all are greedily eaten; but they have pronounced carnivorous tastes.

Many species are found in swarms on stinging nettles, but it is probable that they are less attracted by the nettles themselves than by the numbers of minute insects to which these plants offer a home.

Terry records of *Chelisoches morio*, Fabr., in the Sandwich Islands, that its habit of eating the leaf-hoppers has been observed by several people. Young hoppers are seized and devoured without the aid of the forceps, but these organs frequently assist inholding an adult hopper whilst it is eaten at leisure. An examination of numerous crops invariably revealed only insect remains, often entirely leaf-hopper. Those bred in captivity showed during all instars a marked preference for insect diet.

Maternal Care.

The oft-quoted observations of de Geer on the solicitude of the mother earwig for her ova and young larvæ are worthy of reproduction:—

"At the commencement of the month of June, (says he) I found under a stone a female earwig accompanied by several small insects which I easily recognized as its young. They grouped round the mother and did not leave her, and even placed themselves under her stomach like little chicks under the hen. The insects of this genus have then, in a kind of manner, care for their young, even after their birth: and they seem to wish to protect them by remaining near them.

"The young resemble their mother in figure, except in one or two of their parts. . . . . I placed them in a sand-box where I had put a little fresh earth. They did not enter the earth, and it was curious to see how they ran under the stomach and between the legs of the mother, who remained very quiet and allowed them to do it: she seemed to cover them like a hen does her little chicks, and they remained often in this position for hours. . . . . .

"Another time, at the commencement of April 1759, I found some female earwigs under some stones, together with a pile of eggs on which the mother was seated and of which she took the greatest care imaginable without ever moving a step away, and this M. Frisch has already observed before me. I took it

with its eggs and placed it in a sand-box half filled with fresh earth, in such a fashion that the eggs were scattered here and there: but soon the mother took the eggs one after the other between her jaws and transported them. After several days I noticed she had got them all together in a like place on the surface of the earth which she found in a sand-box, and there she remained constantly seated on them in such a manner that she seemed to cover them."

This interesting observation has been confirmed by a number of writers, including Kirby and Spence, Taschenberg, Camerano, and Fritz Rühl. Lesne found a mother sitting on her eggs near Las Palmas (Grand Canary), and Xambeu's remarks on the same habit in *Chelidura pyrenaica* are worth quoting[1]:—

"As soon as the female is fertilized, she digs at the end of the gallery a small excavation in which she places her eggs one by one to the number of 40 or 45, in such a way as to make a small bundle of them, upon which she soon places herself in much the same way as a hen sits on her eggs. It is with a solicitude without equal—an unexampled attachment—that she devotes herself to this maternal task (a rare case in the entomological world), and this continues up to the time of hatching. If during the course of sitting, anything disturbs or exposes her eggs—in raising the stone which shelters them—she takes them with her mandibles and conceals them in the soil at the bottom of her gallery.

"During the first days which follow the hatching, the young *Chelidura* are watched by their mother and led, like a hen leads her chicks, towards the places where they will find the means of satisfying their great appetites. Tender vegetables, fruits, worms, larvæ, in fact anything is good enough for these gluttons who are insatiable. As soon as their bodies are fortified, and their integument has acquired a certain stability, the mother ceases her care and abandons them to themselves. They then disperse, each taking a different direction, and this scattering has become very necessary, as, owing to their very pronounced carnivorous tastes, they would injure and devour one another, which it is necessary to avoid for the preservation of the species."

Green's ova of *Diplatys greeni* were watched by the parent who remained constantly near her eggs, visiting each in turn, and mouthing them in a peculiar manner, as if to keep them clean.

Geographical Distribution.

Although the state of our knowledge of the Dermapterous fauna of India is still meagre, some generalization may be permitted.

As would be expected, we find in the Himalayas marked Palæarctic affinities; for instance, the essentially Eurasian genus *Anechura* is represented by two species, both occurring in Kashmir; one of these, *A. calciatii*, is probably peculiar; the other,

[1] (1903) p. 143.

A. zubovskii, is a local form of the common European Alpine *A. bipunctata*, which passes into *A. asiatica* in the mountains of Central Asia. Allied to *Anechura* is *Allodahlia* which has its headquarters in the mountains of Northern India, whence it has spread through Burma into the Malayan Archipelago; thus of the four known species, *A. ahrimanes* is probably confined to the Eastern Himalayas, *A. macropyga* and *A. coriacea* extend to the uplands of Northern Burma, and *A. scabriuscula* has reached Java. Of the eleven known Indian species of *Forficula*, eight are Himalayan; as this genus is eminently Palæarctic, it is probably from Northern India that it has gained a precarious footing in the remoter parts of the Oriental Region.

The occurrence of two species of *Pseudisolabis* in the mountains of the north-west of India is curious, as this genus was hitherto only known from a single species in New Zealand. It may be that it is a very ancient genus.

The hills of Northern India seem to be the headquarters of some other genera, which have thence extended their distribution into the heart of the Oriental Region. Thus *Kosmetor* is represented by three species, the other two being Malayan; the same may be said of *Timomenus*, which has however, an outlying representative in the extreme north-east of the Palæarctic Region. The distribution of the genus *Forcipula* is remarkable, as it is a well-marked group; two species are known in the Neotropical Region, and two in the Ethiopian, but eight are purely Oriental, of which five are only found in India. One of these, *F. lurida*, is a South Indian form, but the other four are characteristic of Northern India and Northern Burma; perhaps this district is the headquarters of the group, for the non-Indian Oriental forms are rare, and less highly specialized. Another widely-distributed genus well represented in India is *Diplatys*; this is certainly a primitive and ancient group, with representatives in all tropical regions except Australia, so far as is known. Of the two dozen described species, no less than twelve occur in India and are probably peculiar. Well-marked genera which are confined to India, so far as we know, are *Liparura*, *Eudohrnia*, and the curious *Solenosoma*, all being specialized monotypic genera only known from North India and Burma. *Lipodes*, of which a unique defective specimen from Dikrangs is in the Calcutta Museum, is probably also peculiar.

The *Brachylabinæ* are an apterous group with some distinctly archaic features recalling the Tertiary earwigs of Florissant. Probably they are the survivors of an ancient group, which would account at once for their comparative scarcity and wide distribution in all tropical regions. Of the seven known genera, three are represented in India: *Nannisolabis* has two known species, both peculiar; *Metisolabis* has four, of which two are Indian and two Ethiopian; and *Ctenisolabis* has three, one Indian, one Ethiopian, and one Neotropical. No one species of *Brachylabinæ* occurs in any two regions.

In Southern India and Ceylon we find several peculiar genera, such as *Cranopygia* (two species), *Dendroiketes*, *Obelura*, *Sondax*, and *Syntonus*, all monotypic. We find here also peculiar species of genera which have their headquarters in the Burmo-Malayan districts, such as *Echinosoma*, *Hypurgus*, and *Cordax*. *Adiathetus* is mainly Indo-Burman, but extends to Borneo: *Gonolabis* is an Australo-Oriental genus with a single Ethiopian species and one peculiar to Ceylon. In Burma we find, as would be expected, marked Malayan affinities, as shown in the occurrence of several species of *Eparchus*, *Hypurgus*, *Platylabia*, *Pyge*, all of which are better developed in the eastern parts of the Oriental Region, though not confined to it. *Palex* is a monotypic genus common to Burma and Sumatra. The *Chelisochinæ* are well represented in all tropical Old World regions, but most of the genera represented in India are better developed in the Malay Archipelago. *Psalis* is a cosmopolitan genus, with four species probably confined to India. *Anisolabis*, *Borellia*, *Labidura*, *Labia*, *Spongiphora*, are all cosmopolitan but represented in India by several peculiar species. *Pygidicrana* predominates in the Oriental Region, and has four purely Indian species, but it is also represented in South America. *Echinosoma* is essentially an Old World genus; of the two Indian species, one is peculiar to Ceylon, the other ranges from Burma to Borneo. *Apachyus* is also an Old World genus, with perhaps two species peculiar to India.

The following analyses of genera and species and their geographical distribution is of course purely provisional. That of the genera is particularly incomplete, as many of the limits are vague, and the classification of some of the large genera, such as *Spongiphora* and *Labia*, requires a thorough revision, as a good many heterogeneous forms are included. A glance at the list, however, will show which genera are confined to the Oriental Region, and of these, which are peculiar, *i. e.*, confined to the Indian Fauna; the geographical relations of the others are shown by the regions [1] in which they occur.

The analysis of species supplements the list of genera, and here it is possible to be more exact; in this list it is also stated in what collection or what Museum the type is preserved, where known to the author, what material has been examined in the case of types, syntypes [2] or paratypes [2], what species are represented in the National Collection, and what species are peculiar.

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[1] The usually accepted zoogeographical regions, namely Palæarctic, Oriental, Australian, Ethiopian, Neotropical, and Nearctic, are represented by obvious abbreviations.

[2] These terms are explained in the glossary, *q. v.* p. 210.

Name of Genus.	*Peculiar.*	*Distribution.*	*Remarks.*
Apachyus	.....	Or., Austr., Eth.	6 sp.
Dendroiketes ..	+	Or.	Monotypic.
Diplatys.....	.....	Or., Eth., Neo.	Out of 24 sp., 12 in India.
Pygidicrana ...	.....	Or.,Neo.,Eth.,Austr.	
Dicrana.....	.....	Or., Eth.	Chiefly Ethiopian.
Cranopygia ...	+	Or.	2 sp.
Picrania	.....	Or., Eth.	2 sp.
Pyge	.....	Or., Austr.	
Palex.....	.....	Or.	Monotypic.
Echinosoma ...	.....	Or., Austr., Eth.	
Psalis.....	.....	Or., Eth., Neo.	
Labidurodes ...	.....	? Or., Austr.	One little known species.
Gonolabis	.....	Or., Austr., Eth.	9 sp.; 5 are Oriental.
Anisolabis	.....	Cosmopolitan.	
Borellia	.....	Cosmopolitan.	
Forcipula	.....	Or.,Eth.,Austr.,Neo.	Out of 12 sp., 5 in India.
Labidura	.....	Cosmopolitan.	
Pseudisolabis...	.....	Or., Austr.	1 sp. in New Zealand.
Nannisolabis ...	+	Or.	2 sp.
Metisolabis.....	.....	Or., Eth.	
Ctenisolabis ...	.....	Or., Eth., Neo.	
Spongiphora ...	.....	Or.,Austr.,Eth.,Neo.	Requires further revision.
Labia.....	.....	Cosmopolitan.	idem.
Platylabia.....	.....	Or., Eth., Austr.	idem.
Sphingolabis ...	.....	Or., Eth., Austr.	idem.
Erotesis	.....	Or.	2 sp.
Chelisochella ...	.....	Or.	Monotypic.
Exypnus	+	Or.	idem.
Chelisoches.....	.....	Or., Eth., Austr.	
Prorcus	.....	Or., Austr.	Mainly Oriental.
Solenosoma ...	+	Or.	Monotypic.
Adiathetus.....	.....	Or.	Of the 5 known Indian sp., only one occurs elsewhere within the Region.
Hamaxas	.....	Or.	
Allodahlia	.....	Or.	Mainly Indian.
Homotages ...	+	Or.	Monotypic.
Pterygida	.....	Or.	2 sp.
Anechura	.....	Or., Pal.	Mainly Palæarctic.
Elaunon.....	.....	Or., Eth.	
Forficula	.....	Or., Eth., Pal.	Mainly Pal.; over 40 sp. known.
Sondax	+	Or.	Monotypic.
Eudohrnia.....	+	Or.	idem.
Emboros.....		Or., Eth.	idem.
Liparura	+	Or.	idem.
Obelura	+	Or.	2 sp.
Cordax	.....	Or., Eth.	Mainly Oriental.
Hypurgus	.....	Or., Eth.	idem.
Eparchus	.....	Or.	
Timomenus ...	.....	Or., Pal.	Mainly Indian, but 1 sp. occurs in Korea.
Syntonus	+	Or.	Monotypic.
Kosmetor	.....	Or.	Mainly Indian.
Lipodes	+	Or.	Monotypic.

Name of Species.	*Distribution.*	*Type at:*	*Material examined.*	*B.M.*	*Peculiar*
Apachyus fœ	Or.	Genoa.	Syntype.	+	
A. pascoei	Or.	B.M.	Type.	+	+
Dendroiketes corticinus	Or.	coll. Burr.	Type.	...	+
Diplatys gladiator	Or.	Calcutta.	Type.	...	+
D. falcatus	Or.	,,	Type.	...	+
D. lefroyi	Or.	,,	Type.	...	+
D. angustatus	Or.	,,	Type.	...	+
D. bormansi	Or.	coll. Burr.	Type.	+	+
D. ernesti	Or.	coll. Burr.	Type.	...	+
D. siva	Or.	Paris.	Type.	...	+
D. grecni	Or.	coll. Burr.	Type.	+	+
D. rufescens	Or.	B.M.	Type.	+	+
D. gerstæckeri	Or.	Berlin.	.....	+	+
D. fletcheri	Or.	coll. Burr.	Type.	...	+
D. liberatus	Or.	B.M.	Type.	+	+
Pygidicrana picta	Or.	.....	.....	+	+
P. valida	Or.	.....	.....	+	
P. pallidipennis	Or.	Leyden.			
P. eximia	Or.	? Stettin.	.....	+	+
P. marmoricrura	Or.	.....	.....	+	
P. siamensis	Or.	? Stettin.			
Dicrana kallipyga	Or.	Vienna.	.....	+	+
Cranopygia cumingi	Or.	? Stettin.	.....	+	+
C. nictneri	Or.	Berlin.	.....	+	+
Picrania angustata	Or.	,,	Type.	+	+
Pyge modesta	Or.	Genoa.	Type.	+	+
P. ophthalmica	Or., Austr.	? Stettin.			
Palex sparattoides	Or.	Genoa.	Syntype.	+	
Echinosoma sumatranum	Or.	Leyden.	.....	+	
E. parvulum	Or.	Berlin.	.....	...	+
Psalis femoralis	Or.	? Stettin.	.....	+	
P. dohrni	Or.	B.M.	Type.	+	+
P. lefroyi	Or.	coll. Burr.	Type.	...	+
P. castetsi	Or.	.....	.....	...	+
Labidurodes robustus	? Or., Austr.				
Gonolabis electa	Or.	coll. Burr.	Type.		
Anisolabis colossea	Or., Austr.	? Paris, Vienna, or Stettin.	.....	+	
A. maritima	Cosmopolitan.	.....	.....	+	
A. annulipes	,,	.....	.....	+	
A. kudagæ	Or.	coll. Burr.	Type.	...	+
A. dubronii	Or.	B.M.	Type.	+	+
A. gaudens	Or.	Paris.	Type.	...	+
Borellia grecni	Or.	coll. Burr.	Type.	+	+
B. annandalei	Or.	Calcutta.	Type.	...	+
B. stâli	Or. and Eth.	Stockholm.	.....	+	
Forcipula decolyi	Or. and Austr.	Genoa.	Syntype.	+	
F. trispinosa	Or.	Vienna.	.....	+	+
F. pugnax	Or.	B.M.	Type.	+	+
F. quadrispinosa	Or.	Paris or Berlin.	.....	+	
F. lurida	Or.	.....	.....	...	+
Labidura nepalensis	Or.	Calcutta.	Type.	...	+
L. lividipes	Or., Eth., Pal.	.....	.....	+	
L. riparia	Cosmopolitan.	.....	.....	+	

Name of Species.	*Distribution.*	*Type at:*	*Material examined.*	*B.M.*	*Peculiar*
Labidura bengalensis	Or.	Vienna or Berlin.	.....	+	+
Pseudisolabis burri	Or.	Turin.	Syntype.	...	+
Ps. tenera	Or.	coll. Burr.	Type.	...	+
Nannisolabis philetas	Or.	coll. Burr.	Type.	...	+
N. willeyi	Or.	coll. Burr.	Type.	...	+
Metisolabis bifoveolata	Or.	.....	.....	...	+
M. caudelli	Or.	coll. Burr.	Type.	+	+
Ctenisolabis fletcheri	Or.	coll. Burr.	Type.	...	+
Spongiphora lutea	Or.	Genoa.	Syntype.	...	+
S. nitidipennis	Or.	Genoa.			
S. semiflava	Or.	Genoa.			
Erotesis decipiens	Or.	B.M.	Type.	+	+
Labia nigrella	Or.	Genoa.	Syntype.	+	
L. luzonica.....	Or.	.....	.....	+	
L. curvicauda	Or., Eth., Neo.	.....	.....	+	
L. mucronata.....	Or.	Stockholm.			
L. pilicornis	Or.	.....	.....	...	+
L. pygidiata	Or. and Austr.	Genoa.	Syntype.	+	
L. ridens	Or.	Genoa.	Syntype.	...	+
L. arachidis	Cosmopolitan.	.....	.....	+	
Platylabia major	Or.	.....	.....	+	
P. gestroi	Or.	Genoa.			
P. thoracica	Or.				
P. nigriceps	Or.	B.M.	Type.	+	
Sphingolabis fœ	Or.	Genoa.	Syntype.	+	
Chelisochella superba	Or.	? Berlin.	.....	+	
Exypnus pulchripennis	Or.	Genoa.	Syntype.	+	
Chelisoches morio	Or., Eth., Austr.	.....	.....	+	
Proreus simulans	Or.	Stockholm.	.....	+	
P. melanocephalus.....	Or.	.....	.....	+	+
P. ritsemæ.....	Or.	Leyden.	Type.		
Solenosoma birmanum	Or.	Genoa.	Type.	...	+
Adiathetus shelfordi	Or.	Sarawak	Syntype.	+	
A. dravidius	Or.	Calcutta.	Type.	...	+
A. glaucopterus.....	Or.	Genoa.	Syntype.	+	
A. nigrocastaneus	Or.	Pusa.	Type.	...	+
A. tenebrator.....	Or.	B.M.	Type.	+	+
Hamaxas fœ	Or.	Genoa.	Syntype.	+	
Allodahlia scabriuscula ...	Or.	Vienna.	.....	+	
A. macropyga	Or	Oxford.	Type.		
A. coriacea.....	Or.	Genoa.	Syntype.	+	
A. ahrimanes.....	Or.	coll. Burr.	Type.	...	+
Homotages fœ	Or	Genoa.	Syntype.	+	+
Pterygida circulata	O	Vienna.	.....	+	+
Anechura calciatii	Or.	Turin.	Syntype.	...	+
A. zubovskii	Or.	St. Petersburg.	Paratype.	+	+
Elaunon bipartitus	Or.	B.M.	Type.	+	
Forficula schlagintweiti ...	Or.	Paris.	Type.	...	+
F. mogul	Or.	Paris.	Type.	...	+
F. beelzebub	Or.	Brussels.	Syntype.	...	+
F. aceris.....	Or.	Calcutta.	Type.	...	+
F. ornata	Or.	Genoa.	Syntype.	+	

Name of Species.	*Distribution.*	*Type at:*	*Material examined.*	*B.M.*	*Peculiar*
Forficula greeni	Or.	coll. Burr.	Type.	...	+
F. ambigua	Or.	Paris.	Type.		
F. lucasi	Or., Eth., Pal.	Paris or Vienna.	.....	+	
F. celeris	Or.	Calcutta.	Type.	...	+
F. interrogans	Or.	Paris.	Type.	...	+
F. planicollis	Or.	B.M.	Type.	+	+
Sondax repens	Or.	Oxford.	Type.	...	+
Eudohrnia metallica	Or.	? Berlin.	.....	+	
Emboros dubius	Or., Eth.				
Liparura punctata	Or.	Paris.	Type.	...	+
Obelura asiatica	Or.	.....	.....	...	+
O. tamul	Or.	Oxford.	Type.	...	+
Cordax ceylonicus	Or.	.....	.....	...	+
C. armatus	Or.	Leyden.	.....	+	
Hypurgus humeralis	Or.	B.M.	Type.	+	+
H. simplex	Or.	Genoa.	Syntype.	+	
Eparchus dux	Or.	Genoa.	.....	...	+
E. insignis	Or.	Leyden.	.....	+	
E. tenellus	Or.	Leyden.	.....	+	
Timomenus oannes	Or.	coll. Burr.	Type.		
T. æsculapius	Or.	Madrid.	Type.	...	+
T. nevilli	Or.	Paris.	Type.	...	+
T. lugens	Or.	Genoa.	Type.	+	+
Syntonus neolobophoroides	Or.	coll. Burr.	Type.	...	+
Kosmetor temora	Or.	Paris.	Type.	...	+
K. brahma	Or.	Paris.	Type.	...	+
K. vishnu	Or.	Paris.	Type.	...	+
Lipodes vivax	Or.	Calcutta.	Type.	...	+

LITERATURE.

Annandale, Dr. Nelson. (06). Note on the habits of the Earwig, *Labidura lividipes*, Dufour. An Appendix to Mr. Burr's paper. (Journ. Asiat. Soc. Bengal, N.S. p. 391, 1901.)

Baer, G. A. (04). Note sur la piqûre d'un Forficulide de la République Argentine. (Bull. Soc. Ent. Fr. p. 163, 1904.)

Bateson, W., & Brindley, H. H. (92). On some Cases of Variation in Secondary Sexual Characters statistically examined. (Proc. Zool. Soc. London, p. 586, 1892.)

Bold, T. J. (60). Note on the Use of the Forceps of the Earwig. (Zoologist, xix. p. 7411, 1860, and Tyneside Nat. Field Club, iv. p. 335, 1860.)

Bolivar, Ignacio. (97). Les Orthoptères de St. Joseph's College, à Trichinopoly, sud de l'Inde. (Ann. Soc. Ent. Fr. lxvi. p. 282, 1897.)

Borelli, Dr. Alfredo. (07). Ortotteri raccolti da Leonardo Fea nell' Africa occidentale. Dermatteri. (Ann. Mus. Civ. Gen. (3) iii. pp. 345–390, 1907.)

—— (09). Nuove forficole del Kashmir. (Boll. Mus. Tor. xxiv. no. 603, pp. 1–4, 1909.)

Borg, Hjalmar. (04). Forficuliden aus Kamerun. Beiträge zur Kenntniss der Insektenfauna von Kamerun. (Arkiv f. Zool. i. p. 563, pl. 26, 1904.)

Bormans, A. de. (83). Étude sur quelques Forficulaires nouveaux ou peu connus, precédé d'un Tableau synoptique des genres de cette famille. (Ann. Soc. Ent. Belg. p. 59, pls. 2 & 3, 1883.)

—— (84[1]). Six Forficulaires nouveaux de Sumatra. (Notes from the Leyden Museum, vi. p. 183, 1884.)

—— (84[2]). Description des deux Sexes de la *Labia gravidula*, Gerst. (Notes from the Leyden Museum, vi. p. 197, 1884.)

—— (88). Viaggio di Leonardo Fea in Birmania e regioni vicine, vii. Dermaptères. (Ann. Mus. Civ. Gen. (2) vi. p. 431, 1888.)

—— (94). Viaggio di Leonardo Fea in Birmania e regioni vicine, lxi. Dermaptères (2me partie). (Ann. Mus. Civ. Gen. (2) xiv. p. 371, 1895.)

—— (00[1]) Quelques Dermaptères du Musée civique de Gênes. (Ann. Mus. Civ. Gen. (2) xx. p. 441, 1900.)

—— (00[2]). Forficulidæ, in "Das Tierreich," 1900.

Brunner von Wattenwyl, K. (82). Prodromus der europäischen Orthopteren. (Leipzig, 1882.)

Burmeister, H. (38). Handbuch der Entomologie. (Berlin, 1838.)

—— (40). Audinet-Serville, Histoire naturelle des Orthoptères verglichen mit H. Burmeister's Handb. der Entomologie, etc. (Germar's Zeitschr., 1840, ii. p. 1.)

Burr, Malcolm. (98). On the Species of *Dyscritina*, reared by Mr. Green. (Tr. Ent. Soc. London, p. 387, pls. xviii. & xix. 1898.)

—— (99). Notes on the Forficularia, II. *Apterygida* or *Sphingolabis*? III. A New Species of *Anisolabis*, from Ceylon. (Ann. Mag. N. H. (7) iv. p. 254, 1889.)

—— (00[1]). Notes on the Forficularia, V. Descriptions of New Species, and a New Genus. (Ann. Mag. N. H. (7) vi. p. 79, pl. vi. 1900.)

—— (00[2]). Forficules exotiques du Musée royal d'Histoire Naturelle de Bruxelles. (Ann. Soc. Ent. Belg. xliv. p. 47, 1900.)

—— (00[3]). Notes on the Forficularia, VI., On a collection of Forficularia from Sarawak. (Ann. Mag. N. H. (7) iv. pp. 89–101, pl. vi. figs. 1, 2, 4 & 6, 1900.)

Burr, Malcolm. (01). The Earwigs of Ceylon. (Journ. Bombay Nat. Hist. Soc., 1901, pp. 59–78 & 316–336, pls. A & B.)
—— (02). On the Forficularia of the Hungarian National Museum of Budapest. (Termesz. Füz. xxv. p. 477, pl. xx. 1902.)
—— (03). Notes on the Forficularia, VIII. Five New Species from the de Bormans collection. (Ann. Mag. N. H. (7) xi. p. 270, 1903.)
—— (04). Observations on the Dermatoptera, including revisions of several genera and descriptions of New Genera and Species. (Tr. Ent. Soc. London, p. 277, 1904.)
—— (05[1]). Descriptions of Five new Dermaptera. (Ent. Mo. Mag. (2) no. 184, p. 84, 1905.)
—— (05[2]). Notes on the Forficularia, IX. On New Species, with Synonymic Notes. (Ann. Mag. N. H. (7) xvi. p. 486, 1905.)
—— (05[3]). Earwigs of the Indian Museum, with Descriptions of New Species. (Journ. Proc. Asiat. Soc. Bengal (N. S.), vol. i. no. 2, p. 27, 1905.)
—— (05[4]). Una especie nueva de *Opisthocosmia* (Dermapteros). (Bol. R. Soc. Espan. Hist. Nat., Diciembre, 1905.)
—— (06). A Further Note on Earwigs (Dermaptera) in the Indian Museum, with a Description of New Species. (Journ. Proc. Asiat. Soc. Bengal (N.S.), vol. ii. p. 387, 1906.)
—— (07[1]). A Preliminary Revision of the *Forficulidæ* (sensu stricto) and of the *Chelisochidæ*, Families of the Dermatoptera. (Tr. Ent. Soc. London, 1907, p. 91, pl. iv.)
—— (07[2]). A Third Note on Earwigs (Dermaptera) in the Indian Museum, with Description of a New Species. (Rec. Ind. Mus. vol. i. pt. 3, no. 15, Calcutta, 1907.)
—— (07[3]). Catalogue des Forficulides des Collections du Muséum National d'Histoire Naturelle de Paris. (Première Partie.) (Bull. Mus. Hist. Nat. Paris, 1907, no. 7, p. 508.)
—— (08[1]). Notes on the Forficularia, XII. Notes on the Genus *Apachyus*, Serv. (Ann. Mag. N. H. (8) i. p. 51, 1908.)
—— (08[2]) Catalogue des Forficules des Collections du Musée National d'Histoire Naturelle de Paris. (Deuxième Partie.) (Bull. Mus. Hist. Nat. Paris, 1908, no. 8, p. 29.)
—— (08[3]). Catalogue des Forficules du Collections du Musée National d'Histoire Naturelle de Paris. (Troisième Partie.) (Bull. Mus. Hist. Nat. Paris, 1908, no. 2, p. 115.)
—— (08[4]). Notes on the Forficularia, XIII. A Revision of the *Brachylabidæ* (*Isolabidæ*). (Ann. Mag. N. H. (8) ii. p. 246, 1908.)
—— (08[5]). Notes on the Forficularia, XIV. A Revision of the *Pygidicranidæ*. (Ann. Mag. N. H. (8) ii. p. 382, 1908.)
—— (09[1]). Note on the Classification of the Dermaptera. (Deutsch. Ent. Zeitschr. p. 320, pl. iv. 1909.)
Collinge, W. E. (08). A Note on the Flight of an Earwig, *Forficula auricularia*, Linn. (Journ. Econ. Biol. iii. pt. 2, pp. 46 & 47, 1908.)
Costa, Oronzio Gabr. (39). Fauna Vesuviana, ossia descrizione degli Insetti che vivono nei fumajoli del cratere del Vesuvio. (Atti R. Accad. Sc. Nap. iv. Zool. 1839, p. 21, tab. 1.)
Dohrn, Dr. H. (62). Die Dermaptera von Mexico. (Stett. Ent. Zeit. xxiii. p. 225, 1862.)
—— (63). Versuch einer Monographie der Dermapteren. (Op. cit. xxiv. pp. 35 & 309, 1863.)
—— (64). Id. (Op. cit. xxv. pp. 285 & 417, 1864.)
—— (65). Id. (Op. cit. xxvi. p. 68, 1865.)
—— (67[1]). Id. (Op. cit. xxviii. p. 341, 1867.)

Dohrn, Dr. H. (67²). Neue und bisher nicht genugend bekannte Forficuliden. (Op. cit. xxviii. p. 343, 1867.)

Dubrony, A. de. (79). Enumeration des Orthoptères des régions Indienne et Austro-Malaise, rapportées par MM. J. Doria, O. Beccari, et L. M. d'Albertis. (Ann. Mus. Civ. Gen. xiv. p. 348, 1879.)

Dufour, Léon. (20). Description de dix espèces nouvelles ou peu connues d'Insectes recueillis en Espagne. (Ann. génér. des Sc. Phys. de Bruxelles, 1820, vi. p. 307, tab. 1.)

—— (28). Recherches anatomiques sur les Labidoures. (Ann. Sci. Nat. 1828, xiii. p. 337, tab. 19–22.)

Fabricius, J. C. (75). Systema Entomologiæ. (Felsenberg et Lipsiæ, 1775.)

—— (93). Entomologia systematica emendata et aucta. (Hafniæ, 1792–94, tom. II, Orthoptera, 1793.)

—— (81). Species Insectorum, exhibentes eorum differentias specificas, etc. (Hamburgi et Kiloni, 1781.)

—— (87). Mantissa Insectorum, sistens eorum species nuper detectas, etc. (Hafniæ, 1787.)

Fieber, Fr. (53). Synopsis der europäischen Orthopteren (aus dem iii. Jahrg. der Zeitschrift "Lotos," 1853, besonders abgedrückt). Prag, 1854 (recte 1853.)

Fischer, L. H. (53). Orthoptera europæa. (Lipsiæ, 1853.)

Gadeau de Kerville, H. (03). L'Accouplement des Forficulides. (Bull. Mus. Soc. Ent. Fr. no. 4, p. 85, 1903.)

—— (05). Notes sur les Fonctions de la Pince des Insectes Orthoptères de la Famille des Forficulides. (Bull. Soc. Zool. France, xxx. p. 53, 1905.)

—— (06). Sur l'Accouplement et les œufs d'*Anisolabis mauritanica*, Lucas. (Bull. Soc. Ent. Fr. no. 18, p. 252, 1906.)

—— (07). Note sur l'Accouplement, les oeufs, et l'amour maternel des Insectes Orthoptères de la Famille des Forficulides. (Rouen, 1907.)

Geer, Carl de. (73). Mémoires pour servir à l'Histoire des Insectes, I. Orthoptères, vol. iii., avec 44 planches. (Stockholm, 1773.)

Géné, Giuseppe. (32). Saggio di una Monografia delle Forficule indigene. (Ann. delle Sci. di Regno Lombardo-Veneto, Padova, ii. p. 215, 1832.)

Gerstaecker, A. (73). Baron Karl von der Decken's Reise in Ost-Afrika, III. 2 Abth. Gliederthiere, Insecta. (Lipsiæ, 1873.)

—— (83). Beitrag zur Kenntniss der Orthopteren-Fauna Guineas, nach den von T. Buchholz wahrend den Jahre 1872 bis 1875 dasselbst gesammelten Arten. (Mitth. des naturw. Ver. Neuvorp. u. Rügen, 1883.)

Green, E. Ernest. (96). Notes on *Dyscritina longisetosa*, Westw. (Tr. Ent. Soc. London, p. 229, 1896.)

—— (97). *Dyscritina longisetosa*, Westw. is a Forficulid larva. (Ent. Mo. Mag. (2) viii. p. 235, 1897.)

—— (98). Further notes on *Dyscritina longisetosa*, Westw. (Tr. Ent. Soc. London, p. 381, pls. xviii. & xix., 1898.)

Guérin-Méneville, F. E. (38). (Magasin de Zool. (2) Paris, viii. p. 23, 1838.)

Haan, Dr. W. de. (42). Bijdragen tot de Kennis der Orthoptera. (Verhandl. over de natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen, 1842.)

Jacobson, G. G., & Bianki, V. L. (05). Прямокрылыя и Ложносѣтчатокрылыя Россійской Имперіи и сопредѣльныхъ странъ. (St. Petersburg, 1905.)

Karsch, Dr. F. (86). Ueber einige neue oder wenig bekannte Ohrwuermer (Dermaptera) der æthiopischen Region. (Berl. Ent. Zeit. xxx. p. 85, 1886.)

Kerville. See Gadeau.

Kirby, W. F. (91). A Revision of the Forficulidæ, with Descriptions of New Species in the British Museum. (Linn. Soc. Journ., Zool. xxiii. pp. 502–512, 1891.)

—— (96). Descriptions of New Species of Forficulidæ, in the Collection of the British Museum (N. H.). (Linn. Soc. Journ., Zool. xxv. pp. 520–529, 1896.)

—— (03). Notes on Forficulidæ, with Descriptions of New Species in the Collection of the Natural History Museum, South Kensington. (Ann. Mag. N. H. (7) xi. p. 60, 1903.)

—— (04). A Synonymic Catalogue of Orthoptera. (Vol. i. 1904.)

Krauss, Dr. H. (92). Dermaptera oder Dermoptera? Eine nomenclatorische Eroerterung. (Wiener Ent. Zeit. xi. p. 164, 1892.)

—— (95). Beschreibung einer neuen Forficula aus Tunis, nebst Bemerkungen ueber das Vorkommen von *Forficula lucasi*, Dohrn. (Entom. Nachr. xxi. p. 97, 1895.)

Leach, W. (15). Article on Entomology, in Brewster's Edinburgh Encyclopædia, ix. p. 57, 1815.

Linnæus, C. (59). Systema Naturæ. (Ed. X., Holmiæ, 1759.)

Lucas, H. F. (47). *Forficesila annulipes*, sp. n. (Ann. Soc. Ent. Fr. (2) v. p. lxxxiv, 1847.)

—— (49). Histoire Naturelle des animaux articulés de l'Algérie. (Expl. Sci. d'Alg., Zool. iii. Orthoptères, 4 pls. Paris, 1849.)

Motschulsky, V. von. (63). Essai d'un Catalogue des Insectes de l'île Ceylan. ii. Dermaptères. (Bull. Soc. Imp. Moscou, xxxvi. II. p. 1, pl. xx., 1863.)

Olivier, A. G. (72). Introduction à l'Histoire naturelle. (Encyclopédie méthodique, Hist. Nat. vol. vi. Paris, 1772.)

Pallas, P. S. (73). Reise durch verschiedene Provinzen des Russischen Reiches in den Jahren 1768–74. (St. Petersburg, II. Anhang, p. 30, 1773.)

Rehn, James A. G. (05). Notes on Exotic Forficulides, or Earwigs, with Descriptions of New Species. (Proc. U. S. Nat. Mus. xxix. p. 501, 1905.)

Saussure, Dr. H. de. (74). Путешествіе въ Туркестанъ; А. П. Федченко. (Fedchenko's Travels in Turkestan, Orthoptera. Moscow, 1874.)

Scudder, S. H. (76). Critical and Historical Notes on the Forficulariæ. (Proc. Bost. Soc. Nat. Hist. xviii. pp. 287–332, 1876.)

Semenov, A. P. (01). Русскіе виды родовъ *Anechura*, Scudd. и *Forficula* (L.) Scudd., и ихъ географическое распредѣленіе. (Russian species of the genera *Anechura* Scudd. & *Forficula* (L.) Scudd., and their geographical distribution). (Horæ Soc. Ent. Ross. xxxv. p. 185, 1901.)

—— (02). Dermatopera привезенныя Н. А. Заруднымъ изъ путешествія 1900–1901 гг. по восточной Персіи. (Dermatoptera brought by N. A. Zarudny from his journey in 1900–1901 in Eastern Persia). (Horæ Soc. Ent. Ross. xxxvi. p. 192, 1902.)

Serville, Audinet de (31). Revue Méthodique des Insectes de l'ordre des Orthoptères. (Ann. Sci. Nat. xxii. pp. 28, 134 & 262, 1831.)

—— (39). Histoire Naturelle des Insectes Orthoptères. Suites à Buffon. Paris, 1839.

SHARP, Dr. D. (95). The Cambridge Natural History, Vol. v. (London, 1895.) (*Forficulidæ*, pp. 202–216.)
STÅL, C. (60). Fregatten Eugenies Resa omkring Jorden. Insekten, Orthoptera. (Stockholm, 1860.)
STEPHENS, J. Fr. (37). Illustrations of British Entomology, or a Synopsis of Indigenous Insects. Mandibulata, vol. vi. (London, 1837.)
TERRY, F. W. (05). Leaf Hoppers and their Natural Enemies. (Ent. Div. Bull. no. 1, pt. 5. Report of Work of Experimental Station of Hawaiian Sugar Planters' Association, 1905.)
THEOBALD, F. V. (96). On some Hop-Pests. (Ent. Mo. Mag. (2) vii. p. 60, 1896.)
VERHŒFF, Dr. K. W. (02[1]). Ueber Dermapteren. I. Aufsatz. (Zool. Anzeig. no. 665, p. 181, 1902.)
—— (02[2]). Ueber Dermapteren. II. Aufsatz. (S.B. Ges. Naturf. Fr. Berlin, no. 1, p. 7, 1902.)
WESTWOOD, J. O. (39). (Rözel's Himalayas, pl. ix. fig. 12, 1839.)
—— (40). An Introduction to the Modern Classification of Insects, II. (London, 1840.)
—— (81). On the Earwig. (Tr. Ent. Soc. London, i. p. 157, 1881.)
XAMBEU. (03). Instinct de la Maternité chez le *Chelidura dilatata*, Lafresnaye, Orthoptère du groupe des Forficuliens. (Le Naturaliste, Paris, 15 juin 1903, p. 143.)
YERSIN, ALEXANDRE. (60). Note sur quelques Orthoptères nouveaux ou peu connus. (Ann. Soc. Ent. Fr. (3) viii. p. 509, pl. x., 1860.)

DERMAPTERA.

Table of Families.

1. Last dorsal egment of abdomen produced between the forceps into a depressed and dilated lobe, formed by a fusion with the pygidium. (Body very strongly depressed; antennæ with over 40 segments; elytra very weak at axillary angle, exposing a very prominent scutellum.) — 1. **Apachyidæ**, p. 31.

1.1. Last dorsal segment of abdomen not strongly produced and forming no prominent process.

2. Second tarsal segment simple, not lobed, cylindrical.

3. Last dorsal segment with posterior margin entire, not fused with the pygidium, which is free.

4. Femora compressed and keeled.. — 2. **Pygidicranidæ**, p. 37.

4.4. Femora not compressed or keeled — 4. **Labiidæ**, p. 110.

3.3. Last dorsal segment deflexed between the forceps, fused with the pygidium, which thus presents a vertical face — 3. **Labiduridæ**, p. 67.

2.2. Second tarsal segment lobed ..... — 5. **Forficulidæ**, p. 129.

Family I. APACHYIDÆ.

Apachyidæ, *Verhœff*, (02[1]) p. 200.

This family is well characterized.

The body is uniformly depressed, extremely so in the dominant and typical genus *Apachyus*, less so in *Dendroiketes*; the latter only differing from *Apachyus* in the somewhat less depressed body and subquadrate pronotum. With the exception of these two points the common characters of the family, to save repetition, are given in the characterization of the genus *Apachyus*.

There are a few species confined to the tropical regions of Africa, Asia, and New Guinea, but only three have as yet been recorded from British India.

Owing to their remarkable appearance, they may be easily recognized, and the few Indian species cannot be confused.

Table of Genera.

1. Body very strongly flattened; pronotum elliptical..... — Apachyus, Serv., p. 32.

1.1. Body less strongly flattened; pronotum nearly square..... — Dendroiketes, Burr, p. 36.

Genus **APACHYUS**, *Serville*.

Apachyus, *Serville*, (31) p. 35.
Apachya, *Serville*, (39) p. 54.

Type, *Forficula depressa*, Pal.-Beauv.

Entire body remarkably flattened and depressed. Antennæ long, with from 30–50 segments, 1st segment stout and long, 2nd minute, remainder cylindrical or conico-cylindrical, 3rd long, 4th to 7th very short, the remainder gradually lengthening. Head rather broad, triangular in front, truncate posteriorly, sutures distinct; eyes prominent. Pronotum elliptical, angustate anteriorly, the sides convex and constricted quite near the posterior margin, which is truncate. Scutellum coriaceous, acutely triangular. Elytra ample and smooth; costal portion very narrow; humeral fold very faint. Wings ample and long, the coriaceous part with a nearly obsolete faint longitudinal ridge; the folds of the membranous part well exposed along the suture. Prosternum parallel, widened posteriorly; mesosternum ample, subquadrangular, truncate posteriorly, the posterior angles rounded. Metasternum ample, posterior margin sinuate. Femora compressed, carinulate, fairly stout; tibiæ slender; first tarsal segment short and thick, second very minute, third long and slender, considerably longer than the first. Pulvillus present between the claws. Abdomen parallel-sided, very flat, generally smooth; lateral tubercles not visible. Last dorsal segment ample in both sexes, subquadrate. Penultimate ventral segment produced posteriorly into a long acuminate lobe in both sexes. Last ventral segment visible at the sides of this pointed lobe. Anal process produced between the forceps from the last dorsal segment into a flat lobe, rounded, pentagonal or lanceolate. Forceps with the branches very similar in both sexes, flat, arcuate or incurved at an angle, without teeth.

Range. Tropical Asia, New Guinea and Africa.

In the nymph the anal process is lanceolate; the sixth ventral segment is produced to a pointed lobe, but still leaves the 7th and 8th segments visible, and the 9th is visible as a triangular area on each side of the under surface of the anal process.

This genus is easy to recognize, as all the species are very similar and the generic and family characters are very distinctive; the very strongly flattened body, the form of the organs of flight, the elliptical pronotum, the anal process, and sickle-like forceps are very noticeable.

Table of Species.

1. Anal process with side angles not very sharp; last dorsal segment granulose; reddish chestnut ..... *fea*, Borm., p. 33.

1.1. Anal process with side angles sharp; last dorsal segment rugose; colour deep chocolate-brown ..... *pascoei*, Kirby, p. 35.

1. **Apachyus feæ**, *Bormans*.* [1] (Figs. 1, 2, & 93.)

Apachyus feæ, *Bormans*, (94) p. 273 ; *Burr*, (05) p. 27, (07[3]) p. 508, (08[1]) p. 54.

Size very large. Colour dark chestnut, abdomen reddish-chestnut, shaded with black ; legs testaceous, wings straw-coloured. Antennæ with 40 segments ; 1–3 fulvous, the rest dark chestnut. Head dark chestnut, mouth-parts paler. Pronotum dark chestnut, narrow and rounded anteriorly, the sides strongly convex, converging before the posterior margin, which is truncate : thus the form of the pronotum is a posteriorly truncate ellipse ; median sulcus distinct, sides somewhat incrassate. Scutellum dark chestnut ; in the form of an isosceles triangle, the apex pointing posteriorly. Sternal plates pale yellowish. Elytra broad and ample, somewhat convex and obliqne posteriorly ; smooth, dark chestnut. Wings ample, straw-coloured or testaceous ; coriaceous and membranous parts scarcely differentiated. Legs reddish testaceous. Abdomen deep reddish chestnut, shaded with blackish near the base, rugulose, with a pair of smooth spots in the middle of each segment. Penultimate ventral segment of the ♂ hidden by the 8th, which has a faint median sulcus and is produced posteriorly into a rather short obtuse triangle, not reaching the anal process ; it is hidden in the ♀ by the 6th, the furrow is obsolete, the hind margin produced into a very long narrow acuminate lobe extending almost to the apex of the anal process. Last dorsal segment in the ♂ ample, longer than broad, with a shallow median depression ; rough, with a mass of small tubercles ; dorsal surface separated from the ventral by a row of minute sharp black tubercles ; in the ♀ somewhat shorter, but structure and pattern similar. Anal process in the ♂ pentagonal ; that is, the sides are at first convex, slightly emarginate at the base itself ; outer angles marked by a short point, thence converging to an apical point ; the edge itself is slightly thickened and studded with minute tubercles ; under surface smooth with a shallow median sulcus ; upper surface somewhat smoother than the last dorsal segment ; in the ♀ lanceolate, that is, more strongly emarginate at the base itself so that the sides form a sharp angle near the base, beyond which they converge to form an acute angle ; edges studded with minute sharp tubercles, especially at the angles. Forceps with the branches deep red, darker at the apex, with minute pittings ; in the ♂ regularly arcuate in the basal third, then bent inwards at an obtuse angle and very distinctly thickened, the inner margin straight and outer margin gently arcuate, rather blunt at the apex itself ; in the ♀ the

[1] Whenever a species is marked with an asterisk, it indicates that the type specimen has been examined by the author ; two asterisks signify that a syntype has been seen.

branches are regularly curved and arcuate, sickle-shaped, very slightly thickened at the apex itself.

	♂	♀
Length of body (without anal process)..	40 mm.	29–39 mm.
,, forceps (with anal process) ..	5–7 ,,	4–7 ,,

Bhutan: Maria Basti (*Paris Mus.*); Sikkim (*Ind. Mus., coll. Burr*); Assam (*Brit. Mus.*); Burma: Karen-ni, Keba District, 3000–3700 ft., May to Dec., 4000–4500 ft., Jan. (*Genoa Mus., Brit. Mus., coll. Burr*); Tonkin (*coll. Gadeau, coll. Burr*).

Type in Genoa Museum.

Larva.

The author has examined three nymphs, one of which, being considerably larger than the others, may perhaps be in the penultimate instar. In this specimen the anal process is simply a long acute triangle, the tenth ventral segment only visible as a triangular area on each side of the base of the anal process, as in the imago; the ninth ventral segment is obtusely rounded posteriorly; the other segments have the posterior border truncate, except the basal three, which have it sinuate. The radiate structure of the wings is visible on the metanotum, which is deeply but roundly emarginate posteriorly; the mesonotum is truncate posteriorly and anteriorly, the sides convex; the forceps are gently arcuate and do not overlap. The total length of the body to the apex of the anal process is 38 mm.

The two undoubted nymphs measure respectively 36 mm. and 37 mm.; the form of the mesonotum is the same as in the larger specimen, but the lateral convexity is more pronounced and distinctly suggests incipient elytra; the radiating wings are distinctly visible on the metanotum, showing the first dorsal segment beyond it.

The form of the anal process is almost that of the adult female.

The ventral surface of one agrees with that of the larger specimen—that is, the eighth segment is convex posteriorly, only it is obtusely triangular rather than rounded. This specimen has therefore the full complement of dorsal segments behind this convex one, and is therefore probably a male.

In the other specimen the eighth ventral segment, also the seventh, is gently rounded, and the sixth is very distinctly produced in the form of a triangular lobe passing over the seventh to the edge of the eighth; the specimen is therefore probably a female, and in the imago this triangular lobe completely conceals the seventh, eighth and ninth segments. In both these specimens the ventral part of the tenth segment is the same as in the adult.

I can find no other signs of sexual differentiation in either the anal process or forceps, which decidedly resemble those of the

adult female. The full number of dorsal segments is also visible in both.

We may therefore conclude that, as this lobed ventral segment is far more acute and produced in the ♀ than in the ♂, it is more pronounced in the last instar, and consequently shows the sex at this stage better than any other part or organ.

Variation.

This species varies considerably in size. The following are the dimensions of a number of specimens in different collections from various localities, measured from the mouth to the apex of the anal process.

	♂	♀
Burma (*Genoa Mus.*)	42 mm.	40 mm.
Tonkin (*coll. Burr*)	43 „	41 „
„	..	31 „
Bhutan (*Paris Mus.*)	..	30 „

It is easy to recognize by its usually great size and the form of the anal process and forceps.

2. **Apachyus pascoei**, *Kirby*.*

Apachyus pascoei, *Kirby*, (91) p. 521, pl. 20, fig. 1; (04) p. 3.

Very closely resembles *A. fœæ*, Borm., the description of which applies well to this species, with the following points of distinction. The colour is generally decidedly darker, being a deep chocolate-brown; the forceps are less coarsely pitted; the abdomen is shorter and decidedly broader in proportion. The last dorsal segment is rugose rather than granulose, and the granules are far more densely crowded; finally the anal process is more angular, owing to the fact that the projections at the edges, not only in the middle but at the sides, are more marked, and so emphasize the angles. ♂.

	♂
Length of body.....	35 mm.
„ forceps	8 „

Assam: Sylhet (*Brit. Mus.*).

Type in the British Museum.

This species has always been sunk as a synonym of *A. fœæ*, Borm., but a comparison of Kirby's type with authentic specimens of *A. fœæ* from de Bormans' own collection shows the distinctions as given above. It is consequently prudent to suspend judgment, and leave the final decision to collectors on the spot.

Genus **DENDROIKETES**, *Burr.*

Dendroiketes, *Burr*, (09[1]) p. 321.

Type, *Apachyus corticinus*, Burr.

Resembles *Apachyus* generally, but body less depressed; head less flattened, occiput tumid. Antennæ with about 30 segments; first long and thick, third long and cylindrical; fourth and fifth short and subconical, together not longer than third; sixth and ninth slightly longer, subconical; the rest more elongate, nearly cylindrical. Pronotum rectangular; elytra and wings perfectly developed; femora somewhat compressed; tibiæ slender; tarsi slender, first and third segments about equally long. Abdomen parallel-sided, depressed and smooth. Last dorsal segment of ♂ and ♀ ample, slightly broader than long, densely granulated; penultimate ventral segment of ♂ convex, rounded and obtusely triangular, punctate; in ♀ punctate, produced into a long, slender, sharp-pointed lobe. Anal process smoother, depressed, the margin itself finely crenulated, rounded in ♂; in ♀ parallel-sided at the base itself, then obtusely triangular. Forceps with the branches depressed, finely punctulate; in ♂ unarmed, incurved; in ♀ straighter.

Range. Ceylon.

This genus was founded for a single Singhalese species which represents the passage from *Apachyus* to typical earwigs.

It resembles *Apachyus* in its main features, especially in the form of the apex of the abdomen and the forceps, and in the penultimate ventral segment of the female, but in the less depressed body, rectangular pronotum, somewhat different tarsi, and penultimate ventral segment of the male it approaches the normal earwig.

3. **Dendroiketes corticinus**, *Burr.** (Fig. 3.)

Apachyus corticinus, *Burr*, (08[1]) p. 51.
Dendroiketes corticinus, *Burr*, (09) p. 321.

Of small size; general colour greyish fuscous; antennæ with first three segments yellowish, the rest grey; head smooth, yellowish, the mouth-parts darker; sutures distinct. Pronotum rectangular, nearly square, prozona tumid, median suture distinct, metazona depressed, sides reflexed; scutellum obtusely triangular; elytra narrow, not rounded at the shoulders, about twice as long as the pronotum, smooth, greyish brown; wings very prominent, longer than the elytra, the scales of the same colour; legs yellowish, the femora with darker shading; abdomen depressed, parallel-sided, yellowish brown, smooth. Last dorsal segment of ♂ and ♀ ample, reddish brown, a little broader than long, coarsely scabrous, with a faint median depression. Penultimate ventral segment of ♂ punctate, decidedly convex, obtusely triangular; of ♀ produced into a long slender sharp-pointed lobe. Anal process smoother, depressed and prominent, the edge finely crenulate; in

♂ rounded, in ♀ parallel-sided at the base itself, then obtusely triangular, with rather sharp points at each side. Forceps depressed, finely punctulate, deep red; in ♂ sickle-shaped, unarmed, regularly arcuate; in ♀ with a blunt tubercle on the underside near the base, rather thick, straight and parallel near the base itself, then bowed inward at an obtuse angle, then straight, converging to the points, which are abruptly attenuated and slightly hooked.

	♂	♀
Length of body	8·5 mm.	10 mm.
„ forceps	1·5 „	1·5 „

Ceylon: Peradeniya, in October (*coll. Burr*). One larva from Ceylon (*Vienna Mus.*).

Type in the author's collection.

This species, the only known Singhalese representative of the *Apachyidæ*, may be easily recognized by the generic characters. It was discovered by Mr. Green, who found a single pair.

Family II. PYGIDICRANIDÆ.

The compressed and carinulate femora afford a convenient mesns of separating this family.

Fig. 2.—Leg of *Pygidicrana siamensis*, Dohrn.

The elytra are weakly attached—that is, the anal angle is rounded, so that a triangular scutellum of varying size is exposed at the base of the elytra when closed.

The antennæ have numerous segments, the fourth and fifth shorter than the third, which is long.

The abdomen is cylindrical and generally narrower near the base than at the apex, which is usually more or less dilated.

No known Indian members of the family are apterous, but totally wingless forms occur in certain parts of the world.

Two subfamilies are represented in India.

Table of Subfamilies.

1. Antennæ with 15-25 segments, the fifth cylindrical, longer than broad. (Size small or medium, build fragile.) .... [p. 38. I. *Diplatyinæ*,

1.1. Antennæ with over 30 segments, the fourth, fifth, and sixth short, globular, not longer than broad. (Size large or very large, build robust and powerful as a rule.) ..... [p. 53. II. *Pygidicraninæ*,

Subfamily I. DIPLATYINÆ.

This subfamily contains the single genus *Diplatys*, Serv., if we agree to sink *Cylindrogaster*, Stål.

Genus **DIPLATYS**, *Serv.*

Diplatys, *Serville*, (31) p. 33.
Dyscritina, *Westwood*, *Trans. Ent. Soc. London*, 1881, p. 601 (larva).—*Type*, D. longisetosa, *Westw.*
Nannopygia, *Dohrn*, (63) p. 60.—*Type*, N. gerstæckeri, *Dohrn.*

Type, *Forficula macrocephala*, Pal.-Beauv.

Body glabrous or hairy. Stature small and slender. Antennæ with 16–20 rather thick segments, almost cylindrical; first long and thickened at the apex, second very short, third longer, fourth about half as long as third, fifth a little longer; the remainder gradually lengthening. Head rather broad, pentagonal, usually different in the sexes; in the ♂ globose, smooth, and tumid, with obsolete sutures, or more often tumid between the eyes and strongly depressed posteriorly, the two parts often sharply separated by the transverse suture; sutures very distinct or obsolete; posterior margin truncate or emarginate, somewhat reflexed into an incrassate transverse ridge which continues round the corners to the eyes; a more or less sharp ridge often runs from behind the eyes to the posterior angles of the side; sides of the head parallel or converging posteriorly, in which case the head is lanceolate; median suture sometimes very distinct, sometimes replaced by a short keel; in the ♀ the head is generally simpler, more approaching quadrate, smooth, not notably tumid or depressed, and somewhat broader. Pronotum small, narrower than the head, sometimes a little longer than broad, usually as broad as long, produced and narrowed anteriorly with a short neck; sides parallel or convex; posterior margin truncate, the angles rounded; prozona usually tumid;

sides and metazona flat; in the ♀ usually more rounded and broader; the pronotum extends slightly over the elytra. Scutellum small and triangular. Elytra broad and ample, usually long and convex or truncate posteriorly, with no humeral carina. Wings generally long; squamæ generally pointed; a triangular membranous patch often exposed; rarely abortive. Femora feebly keeled; first tarsal segment very long and slender, longer than second and third united; second very short, rather broad; third segment about half as long as first, a little broader; pulvillus present between the claws. Abdomen in the ♂ slender and cylindrical; the segments distinctly separated; lateral tubercles on segments three and four generally more distinct in the ♀ than in the ♂; towards the apex a little broader, sometimes notably so. Last dorsal segment of ♂ ample, smooth, tumid, truncate posteriorly, sometimes very remarkably widened and quadrate. In the ♀ the abdomen is usually broader and more depressed, not widened apically, but narrowed down the last dorsal segment which is sloping, long, and very narrow. Penultimate ventral segment in the ♂ very ample, completely covering the last segment, quadrate, angles rounded, posterior margin truncate or sinuate, or deeply emarginate. Pygidium not visible. Forceps of ♂ stout, straight, conical and contiguous, usually depressed, flat beneath and keeled above, dilated near the base to form a flat dilation recalling typical *Forficula* or merely forming a flat triangular tooth, and then attenuate and arcuate so as to enclose an elliptical area. In the ♀ simple, straight, very short, and contiguous.

Larvæ depressed; instead of forceps, having long segmented caudal styles, resembling antennæ; number of segments varying from about 15–30; segments cylindrical, gradually lengthening after the second, the basal segment equalling in length the next five or six segments. This long basal segment is the sheath of the future forceps.

Range. Tropical Asia, Africa and America.

This genus is one of the most interesting and also one of the most difficult. In 'Das Tierreich,' de Bormans gave a table for the half dozen species which he knew, based entirely upon colour alone. It is consequently impossible to discriminate any species by means of that work.

The inherent difficulty of the genus is complicated by the sexual dimorphism; it is, at present at least, only possible to allocate females to their respective places by guesswork, as the form of the head and pronotum is usually different in the female from the same parts in the male, and, of course, the anal parts differ also. It is accordingly particularly desirable that no new species of *Diplatys* be described from females only.

It is also probable that there may be two different types of coloration in one species. It may eventually be proved that *D. gerstæckeri*, var. *calidasa* is really a yellow variety of the large fuscous *D. siva*, and the same thing may occur in certain African species.

The name *Dyscritina* was proposed by Westwood (1881) for the larval form, with long segmented cerci, which proved to be identical with the insect described by Dohrn under the name *Nannopygia gerstæckeri*. This is, of course, a true *Diplatys*, so *Nannopygia* must fall, although de Bormans describes *Nannopygia gerstæckeri* and *Diplatys longisetosa*, Westwood, as separate creatures in distinct genera.

Table of Species.

1. Forceps strongly depressed and dilated near the base.
   2. Last dorsal segment strongly dilated, much wider than the waist; broad and flat part of forceps quite prominent.
      3. Elytra short, only $1\frac{1}{2}$ time as long as broad, rounded at apex; wings abortive; occiput not strongly depressed ..... *gladiator*, Burr, p. 41.
      3.3. Elytra at least twice as long as broad, narrow at apex; wings well developed; occiput depressed. *falcatus*, sp. n., p. 42.
   2.2. Last dorsal segment not strongly dilated, but little wider than the waist; dilated part of forceps very short, scarcely visible from above.
      3. Penultimate ventral segment rounded, gently sinuate at hinder margin; forceps stout, very gently arcuate ..... *lefroyi*, sp. n., p. 44.
      3.3. Penultimate ventral segment narrowed; hinder border produced to a small truncate lobe; forceps more slender and arcuate ..... *angustatus*, sp. n., p. 44.

1.1. Forceps gradually attenuate.
   2. Penultimate ventral segment with posterior margin distinctly excavate or emarginate.
      3. Penultimate ventral segment with round emargination..... *bormansi*, sp. n., p. 45.
      3.3. Penultimate ventral segment with one or more deep triangular emarginations.
         4. Penultimate ventral segment bi-emarginate (small Singhalese species).
            5. Colour red ..... *gerstæckeri*, Dohrn, p. 46.
            5.5. Colour black ..... *ernesti*, sp. n., p. 48.
         4.4. Penultimate ventral segment with three triangular emarginations (large North Indian species).. *siva*, Burr, p. 49.
   2.2. Penultimate ventral segment entire or gently sinuate.

3. Penultimate ventral segment very gently sinuate ..... *greeni*, Burr, p. 50.
3.3. Penultimate ventral segment truncate.
4. Last dorsal segment scarcely wider than the abdomen; forceps trigono-conical.
5. Penultimate ventral segment rectangular, the angles not rounded ..... *rufescens*, Kirby, p. 51.
5.5. Penultimate ventral segment with the angles rounded.... *fletcheri*, sp. n., p. 52.
4.4. Last dorsal segment decidedly wider than the abdomen; forceps depressed ..... *liberatus*, sp. n., p. 52.

4. **Diplatys gladiator**, *Burr*.*

Diplatys gladiator, *Burr*, (05) pp. 28 & 29, (06[1]) p. 319.

Pale testaceous or reddish; elytra black. Antennæ with 14 segments, pale straw-coloured; third segment not very long, fourth much shorter, and fifth a little shorter than the third, all cylindrical. Head tumid between the eyes, not remarkably depressed on the occiput, postocular keels nearly obsolete; sutures not very distinct; there is a faint small ridge on each side of the median suture and parallel to it; colour fuscous or reddish. Pronotum of ♂ and ♀ as broad as long, subquadrate, with rounded sides and angles, truncate posteriorly, testaceous; prozona tumid; metazona and sides depressed. Scutellum pale, larger in the ♀ than in the ♂. Elytra black, short and broad, convex posteriorly; in the ♀ the elytra slope away at the base and so expose a larger scutellum than in the ♂. Wings abortive. Legs pale and slender. Abdomen yellowish near the base, reddish or darker near the apex; cylindrical in the ♂, rather depressed in the ♀; smooth lateral tubercles on the third and fourth segments distinct in both sexes. In the ♂ the eighth and ninth segments are wider than the others but very short; in the ♀ they are normal and somewhat narrowed. Last dorsal segment in the ♂ very ample, quadrate and smooth, the median sulcus nearly obsolete; posterior margin subsinuate, slightly convex on each side over the forceps; exterior angles depressed, prominent, and rectangular. In the ♀ the last dorsal segment sloping, narrow, normal. Penultimate ventral segment of ♂ as ample as the last dorsal segment, posterior margin gently rounded, angles rounded. Forceps of the ♂ with the branches very depressed and strongly dilated near the base itself, forming a flattened but sharp tooth, at which point the two inner margins touch; then suddenly and strongly attenuate and arcuate, enclosing an elliptical area: in the ♀ straight, simple, and slender.

	♂
Length of body	8·75 mm.
„ forceps	1·5 „

Bengal: Calcutta (*Ind. Mus., coll. Burr*).
Type in the Indian Museum, Calcutta.

Larva.

Antennæ of same number of segments and form as adult. Pronotum almost circular, ample, anterior and posterior margins straight; elytra present as free short rounded flaps; legs very slender, depressed and rather broad; lateral tubercles very distinct; lateral dorsal segment very small and narrow; caudal setæ very long, with 20–30 segments, considerably longer than the body; basal segments very long, about equalling the next seven segments together; the segments all cylindrical, rather long, gradually lengthening after the second. Head, elytra, apical half of abdomen and cerci, except at the very base itself, blackish, the rest of the body straw-coloured. Length of body 5·5 mm., of basal segment of cerci 1·7 mm., total length of cerci 7·75 mm. (The soft body is of course rather shrivelled.)

This is a very distinct species, being the only one known in which the wings are abortive, and the elytra so short that they are almost square; the coloration is also distinctive; in the strongly dilated last dorsal segment of the male and the depressed and dilated forceps, it approaches *D. falcatus*, but in that species the inner margin of the dilated part is crenulate, and the forceps are bowed so that the outer margin is strongly arched; in *D. gladiator* the outer margin is almost straight.

It has hitherto only been recorded from Calcutta, where Dr. Annandale found the larvæ during hot weather under flower-pots, resting on stones.

5. **Diplatys falcatus**, sp. n. (Fig. 4.)

Size relatively great. General colour reddish brown. Antennæ pale yellowish grey. Head blackish brown, broad, especially in the ♂, depressed, sutures strongly marked, postocular carina strong and sharp, occiput depressed. Pronotum of ♂ suboval, a little longer than broad, a little narrower posteriorly than anteriorly, the sides rounded; yellowish brown, with indistinct blackish markings; in ♀, the prozona brown, the metazona pale yellowish, pentagonal, slightly longer than broad and narrowed posteriorly; anterior margin roundly convex, sides and posterior margin almost straight. Scutellum yellowish, broader in the ♀ than in the ♂. Elytra ample, long and narrow, purplish black. Wings long and prominent, creamy, the scale blackish. Legs dirty yellowish, shaded or banded with brownish. Abdomen reddish brown, with stiff reddish bristles at the sides; long and slender and dilated posteriorly in the ♂, stouter and narrowed posteriorly in the ♀; lateral tubercles distinct. Last dorsal

segment of ♂ very large, ample and smooth, nearly square, much broader than the abdomen, yellowish brown; sides somewhat converging posteriorly, posterior margin truncate; in ♀ ample, but narrower than the abdomen, truncate posteriorly. Penultimate ventral segment of ♂ ample, somewhat narrowed posteriorly, the sides straight and converging; posterior margin gently sinuate, with a triangular depressed area in the middle; in ♀ narrow, acutely convex. Forceps with the branches in the ♂ strongly flattened throughout their length and almost sulcate above, strongly dilated at the base itself, this portion ending abruptly in a blunt tooth, as the branches are sharply attenuated near the base and diverging, then strongly arcuate, so as to enclose a slightly transverse oval area; in the ♀ the branches are simple, straight, contiguous, tapering.

	♂	♀
Length of body.....	13·5 mm.	11 mm.
,, forceps.....	1 ,,	1 ,,

Punjab: Simla Hills, Kasauli, about 6300 ft., 16.v.08 (*Ind. Mus.*); Lower Burma: Dawna Hills, 2000–3000 ft., 2–3.iii.08 (*Ind. Mus.*).

Type in the Indian Museum, Calcutta.

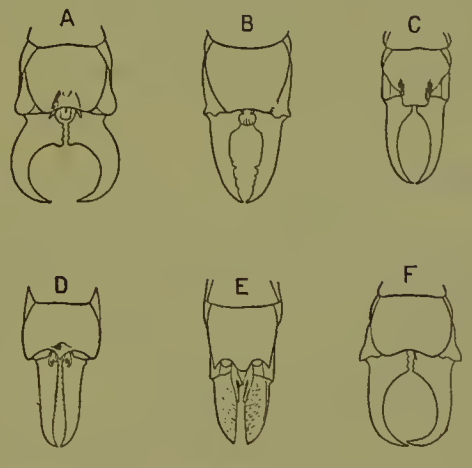

Fig. 3.—Apex of abdomen of male, showing penultimate ventral segment and forceps, from beneath, of six species of *Diplatys*.

A. *D. falcatus.*
B. *D. lefroyi.*
C. *D. angustatus.*
D. *D. gerstæckeri.*
E. *D. ernesti.*
F. *D. fletcheri.*

This is a fine species, which most nearly approaches the African *D. macrocephala*, but the penultimate ventral segment is of a different shape, and the forceps are very strongly arched.

Perhaps de Bormans included this species in his *D. macrocephala* from Burma.

6. **Diplatys lefroyi**, sp. n. (Fig. 5.)

Relatively large. General colour blackish brown, body reddish. Antennæ brown, yellowish near the base, blackish towards the apex. Head black, the frons tumid and smooth, the transverse suture obscure; postocular keels sharp and distinct; median suture distinct only near posterior margin, which is depressed, as also the occiput. Pronotum of ♂ about as broad as long, irregularly pentagonal, with rounded angles; anterior margin roundly convex; posterior margin truncate, sides gently converging so that the pronotum is somewhat narrower posteriorly than anteriorly; prozona black; metazona yellowish. Scutellum yellow. Elytra ample, smooth, black. Wings long, smooth, black. Legs yellow, banded with blackish. Abdomen blackish red, gently widening posteriorly. Last dorsal segment not very strongly dilated, about half as wide again as the middle of the abdomen, rather longer than broad, smooth, tumid, black with yellowish pubescence. Posterior margin simple, gently sinuate in the middle, the sides obliquely truncate. Penultimate ventral segment ample, rounded, the posterior margin gently sinuate. Forceps with the branches stout and trigonal, not very much depressed; at the very base itself the inner margin is produced into a depressed triangular tooth, which is best seen from below, as it does not extend beyond the edge of the last dorsal segment, and so is not easily visible from above; the branches are gently tapered, nearly straight or gently incurved, the points scarcely hooked; the interior margin in the apical portion is denticulate; the basal portion of the forceps is pale yellow, the apical portion black.

	♂	
Length of body	12	mm.
„ forceps	1·5	„

S. Bombay: Belgaum, 2000 ft., iv.08 (*Pusa Coll.*); Travancore: E. side of Western Ghats, Madras frontier, Shencottah (*Ind. Mus., coll. Burr*).

Type in the Indian Museum, Calcutta.

This species is related to *D. falcatus*. The dilation at the base of the forceps is so short that it is not at first noticeable, and thus the forceps appear to resemble those of *D. bormansi*. The penultimate ventral segment also is different from that of *D. falcatus*, being rounded or sinuate, thus approaching the African *D. macrocephala*, but the last abdominal segment is very little broader than the abdomen.

7. **Diplatys angustatus**, sp. n. (Fig. 6.)

Size small, general colour black. Antennæ black with a yellowish ring near the base; 16 segments, all cylindrical, third rather short. Head black, tumid; occiput depressed, with sharp postocular

carinæ and a pair of small keels in the middle of the posterior margin. Pronotum as broad as long, all margins gently convex; black, with a narrow yellowish posterior border. Elytra and wings ample, black. Scutellum minute, black. Legs black, ringed with white at the base of the femora, the knees and base of the tarsi. Abdomen slender, black, the tubercles on second and third segments very distinct; gradually widening towards the apex. Last dorsal segment tumid, but scarcely wider than the abdomen and about as long as broad. Penultimate ventral segment broad at the base but rapidly narrowing towards the apex, which is truncate. Forceps with the branches depressed at the base itself and so contiguous there; then immediately and abruptly attenuate, the branches very slender, elongate and arcuate, enclosing an elliptical area. ♀ unknown.

	♂
Length of body	10·5 mm.
„ forceps	1·75 „

N. Bengal: Purneah District, Bhogaon, 30.ix.08 (*C. A. Paiva, Ind. Mus.*).

Type in the Indian Museum, Calcutta.

This species, based on a single male, approaches *D. lefroyi* in the form of the forceps and the last dorsal segment, but is smaller and more slender; the forceps especially are far less robust. The form of the penultimate ventral segment is perfectly distinctive.

8. **Diplatys bormansi**, sp. n. (Figs. 91, 91 *a*.)

Diplatys macrocephala, *Borm.* (*nec Beauv.*) (88) p. 433, (94) p. 372, (00[1]) p. 9 (text) (partim).
Diplatys nigriceps, *Burr*, (04) pp. 279 & 284 (partim).
Diplatys bormansi, *Kirby*, (04) p. 1 (nomen nudum).

Fuscous varied with whitish, not very pubescent. Antennæ with 14–16 segments, basal two fuscous, the remainder greyish testaceous. Head of ♂ with transverse suture rather distinct, the tumid frontal part very distinct from the depressed occiput; postocular ridges shorter than the diameter of the eyes, not very sharp; median suture fairly distinct, with one or two faint ridges on each side; in the ♀ broader and flatter, the sutures more faint, so that the somewhat tumid part passes gradually into the depressed occiput; postocular ridges rather more blunt; black; the eyes very prominent, especially in the male; eyes sometimes white. Pronotum with median sulcus faint; prozona tumid, brownish black, occupying the greater part of the disc; metazona narrow and flat, white or yellowish, which colour extends forwards along the flat sides to form a crescent; trapezoidal, nearly rectilinear in the ♂, the sides subconvex in the ♀, angles rounded in both sexes, slightly narrowed posteriorly, about as broad as long, but distinctly broader in the ♀ than in the ♂. Scutellum transverse

in the ♂; very small in the ♀. Elytra smooth, ample, long, fuscous, with a distinct purple sheen; with a few stiff bristles; sometimes with a pale transverse band at the shoulders. Wings ample; squamæ long and narrow, pale and with a central fuscous spot. Legs pale, femora and tibiæ with fuscous rings; former with distinct carinulæ. Abdomen of ♂ slender, shining purplish black, gently and slightly broadened towards the apex; ♀ broader, somewhat depressed, angustate posteriorly, with a short thick yellowish pubescence. Last dorsal segments of ♂ quadrate, smooth, scarcely broader than the base of the abdomen; in the ♀ sloping and narrowed. Penultimate ventral segment of ♂ parallel-sided, posterior margin rather deeply emarginate in the middle, with broadly rounded lobes. Forceps with the branches not depressed, stout, straight, subcontiguous, trigono-conical, acuminate and very slightly hooked at the apex; in the ♀ cylindro-conical, short, contiguous, straight.

	♂	♀
Length of body.....	10 mm.	9 mm.
„ forceps.....	1 „	0·75 „

Burma: Bhamo, April and August (*coll. Burr*, *Genoa Mus.*); Karen-ni, Keba District, 3000–3700 ft. (*coll. Burr*).

Type in the author's collection.

This species was confused by de Bormans with *D. liberatus*, Burr, under the name of *D. macrocephala*, which is a very distinct African species, and by the author of this work with *D. nigriceps* and *D. greeni*.

It differs from them all in having the penultimate ventral segment of the male emarginate in the middle; in *D. liberatus* this plate is truncate; in the true *D. nigriceps* from Hong Kong it is somewhat convex in the middle.

Superficially it also resembles *D. greeni*.

It is impossible to determine which of the localities quoted by de Bormans should be attributed to this species, and which to *D. bormansi* without an actual examination of each specimen. Those quoted above are all represented in the author's collection.

9. **Diplatys gerstæckeri**, *Dohrn*. (Fig. 7.)

Nannopygia gerstæckeri, *Dohrn*, (63) p. 60; *Scudder*, (76) p. 326; *Kirby*, (91) p. 508; *Bormans*, (94) p. 372, (00²) p. 11.

Dyscritina longisetosa, *Westwood*, (81) p. 601, pl. 22, figs. 1, 1 *a–i*; *Green*, (96) p. 229, (98) p. 383.

Diplatys longisetosa, *Burr*, (98) p. 388, pl. xviii, figs. 4, 5 & 16; pl. xix, figs. 9–14; *Borm.* (00¹) p. 10, fig. 6.

Diplatys gerstæckeri, *Burr*, (01) p. 74, pl. A, figs. 4 & 5, (05) pp. 279 & 282.

Diplatys gerstæckeri, *var.* calidasa, *Burr*, (04) pp. 279 & 282, (06) p. 387, (07[3]) p. 508.
Cylindrogaster rufescens, *Burr* (*nec Kirby*), (00[2]) p. 48.

Small and slender; general colour reddish tawny shading to yellow with a few reddish bristles. Antennæ with 15 segments, typical, testaceous. Head: in the ♂ not very tumid between the eyes, this part passing gradually into the narrowly depressed occiput, owing to the transverse suture being obsolete; eyes large, the postocular keels shorter than the eyes, a sharp hinder border somewhat incrassate, the median suture short but distinct, cutting the incrassate margin; sides of the head converging posteriorly: in the ♀ the eyes smaller and postocular keels relatively a trifle longer and less sharp; the head is somewhat broader and less tumid but otherwise it resembles the ♂, only the characters are weaker, sometimes nearly obsolete; the colour is yellowish testaceous, sometimes shaded with darker. Pronotum of ♂ as broad as long, subquadrate, posterior margin gently rounded; very slightly narrower posteriorly than anteriorly; prozona ample, tumid, metazona and sides flat; yellowish or reddish testaceous; in the ♀ similar, but somewhat broader. Scutellum minute. Elytra reddish to golden yellow, sometimes shaded with fuscous; ample, long and broad, obliquely convex posteriorly, with a few bristles on the shoulders. Wings long, of the same colour as the elytra. Legs yellow, very slender; posterior femora with carinulæ almost obsolete. Abdomen reddish, in the ♂ slender and cylindrical, slightly broadening posteriorly; in the ♀ somewhat depressed, a little broader apically. Last dorsal segment ample, tumid and smooth, quadrate in the ♂, and slightly broader than the abdomen; in the ♀ narrower, sloping and angulate posteriorly. Penultimate ventral segment in the ♂ ample, as broad as long, the posterior margin deeply triangularly emarginate, the apex of the emargination produced posteriorly into a short sharp equilateral triangular lobe, so that the outline of the posterior margin forms a **W**; in the ♀ longer and narrower, angustate posteriorly. Forceps of ♂ with the branches short, depressed, narrow, tapering and quite straight, slightly hooked at the apex itself; in the ♀ similar, but shorter and more slender.

	♂	♀
Length of body.....	7·4–14·75 mm.	7·5–8 mm.
„ forceps....	1–1·5 „	1–1·5 „

Burma: Karen-ni, Keba District, 3000–3700 ft., May to Dec. (*Genoa Mus.*); Ceylon: Punduluoya (*Brit. Mus., coll. Burr*), Maskeliya (*coll. Burr*).

Type in the Berlin Museum.

Although a female of one of Mr. Green's original specimens of *Dyscritina longisetosa* has the head with the male characters almost obsolete, whereas another female from Maskeliya has them fairly

well developed, there are probably not two species in the Island of Ceylon, and the author therefore maintains his opinion that *Dyscritina longisetosa* of Westwood and *Nannopygia gerstæckeri* of Dohrn are identical.

9 *a*. **Diplatys gerstæckeri**, var. **calidasa**, *Burr.*

This name was proposed for a few females, in the Paris Museum, from Northern India, which resemble the females of *D. gerstæckeri* in every respect but size. They are a great deal larger, their dimensions being as follows:—

Length of body.....	12–12·25 mm.
„ forceps.....	1–1·25 „

It is possible that when the male is discovered it will prove to be a yellow variety of the large *D. siva*.

Sikkim: Darjiling (*Paris Mus.*); Assam: Kurseong (*Ind. Mus.*).

Type in Paris Museum.

10. **Diplatys ernesti**, sp. n. (Fig. 9.)

Small and slender; with long dense pale pubescence; dark fuscous brown. Antennæ with 16 segments; yellowish, rather darker towards the apex, the second segment fuscous. Head black, ♂ with the tumid frons not entirely replete, passing fairly sharply into the depressed occiput, but the transverse suture not distinct; postocular keels rather blunt, shorter than the prominent eyes; posterior margin with a short broad raised space in the middle, divided by the short but distinct median suture; in the ♀ the tumid frons is replete, and passes gradually backwards, reaching the posterior margin itself, so that the occiput is not depressed; the postocular ridges are short, blunt, and obtuse, capped with a low sharp crest; as usual in the genus, the head is somewhat more quadrate posteriorly in the ♀, and the eyes a little smaller. Pronotum dark brown, about as broad as long, decidedly convex anteriorly, gently narrowed posteriorly, slightly longer in the ♀ than in the ♂, the sides straight, the posterior margin truncate, and the posterior angles rounded; flat margin very narrow. Scutellum brown, relatively large. Elytra ample, broad, blackish brown, paler towards the shoulders. Wings blackish brown. Legs long and slender; femora distinctly crenulate, fuscous; tibiæ pale, banded with fuscous; tarsi pale. Abdomen nearly black, relatively not very slender, very gradually and slightly broadening towards the apex in the ♂, almost parallel-sided in the ♀. Last dorsal segment of ♂ quadrate, sloping, scarcely wider than the abdomen; narrowed in the ♀. Penultimate ventral segment of ♂ quadrate, ample, deeply emarginate on the posterior border, the apex of the emargination produced again

posteriorly into a short triangular lobe, so that the outline forms a **W**; in the ♀ narrow, triangular. Forceps with the branches very short, rather broad, depressed, straight and tapering in the ♂; in the ♀ slightly longer, more slender.

	♂	♀
Length of body.....	6·75 mm.	6 mm.
„ forceps.....	0·5 „	0·75 „

Ceylon: Peradeniya (*Green, coll. Burr*), Madulsima (*Fletcher*). *Type* in the author's collection.

In colour and in the gradually widening abdomen, this species resembles *D. greeni* and *D. bormansi*, but is smaller than either and more slender; it differs from the former in the short depressed forceps, from the latter in the somewhat different pronotum and shorter and broader forceps. It differs from both in the double triangular emargination of the penultimate ventral segment of the male, thus approaching *D. gerstæckeri*, which it also resembles in form and build, but the middle triangular lobe between the two excisions is much broader and less acute in this species than in *D. gerstæckeri*.

It is dedicated to Mr. Ernest Green.

11. Diplatys siva, *Burr*.*

Diplatys siva, *Burr*, (04) pp. 278 & 283; (06) p. 387; (07[2]) p. 508.

Large; glabrous; reddish fuscous. Antennæ with 15 segments, typical, reddish fuscous. Head in the ♂ not very tumid on the frons, nor very depressed on the occiput; transverse suture fairly distinct and postocular ridges obsolete; in the ♀ the frons is still less tumid, the transverse suture marked by a vague shallow depression, and occiput normal. Pronotum: ♂ subquadrate, convex anteriorly, sides parallel and posterior margin gently rounded; ♀ slightly broader and truncate posteriorly; prozona tumid, ample; metazona flat and narrow in both sexes and median suture distinct. Scutellum smaller in ♂ than in ♀. Elytra and wings ample, smooth, fulvous brown, with a dense short yellowish pubescence. Legs brownish, long and slender; posterior femora carinulate. Abdomen slender, not broadened posteriorly. Last dorsal segment of the ♂ rectangular, short, transverse, not broader than the abdomen, smooth, posterior margin oblique at sides, truncate in the middle; in the ♀ sloping and strongly angustate. Penultimate ventral segment of the ♂ ample, subquadrate, posterior margin with three deep triangular emarginations, forming thus two triangular lobes in the middle; in the ♀ narrow and rounded. Forceps: in the ♂ with the branches rather depressed, rounded above, flat beneath, quite straight and unarmed, conical and tapering; in the ♀ shorter, stouter and conical.

	♂	♀
Length of body.....	14 mm.	13 mm.
,, forceps.....	1·5 ,,	1 ,,

Sikkim: Darjiling; Assam: Kurseong (? nymph) (*Ind. Mus.*); United Provinces: Kumaun, Bhim Tal, on flowers of stinging nettles (*Ind. Mus.*).

Type in the Paris Museum.

This is one of the largest species of the genus; it is distinguished by its size, fuscous colour, and the form of the penultimate ventral segment of the male.

In a larva, the length of the basal segment of the cerci was 2·5 mm.; the whole cercus 13 mm., composed of 15 segments; the body measured 10·5 mm.

12. Diplatys greeni, *Burr.*

Diplatys greeni, *Burr*, (04) pp. 280 & 285; *Kirby*, (04) p. 2.
Diplatys nigriceps, *Burr*, (nec *Kirby*, nec *Borm.*) (98) p. 389, pl. xviii, figs. 1-3 & pl. xix, figs. 6-8 & 15; (01) p. 75, pl. A, figs. 1-3; *Bormans*, (00²) p. 10 (partim).
Dyscritina longisetosa, *Green*, (96) p. 229 (partim).
Dyscritina, n. sp., *Green*, (98) p. 383.

General colour dark greyish brown, not very pubescent. Antennæ with 16 segments[1], greyish brown. Head dark reddish brown, not very tumid between the eyes, this part passing gradually into the depressed occiput, as the transverse suture is not very distinct; median suture very short, with a few faint blunt short ridges on each side; postocular ridges sharp, about as long as the diameter of the eyes. Pronotum a trifle longer than broad, broad anteriorly, narrow posteriorly, the sides straight and posterior margin truncate; median suture distinct; prozona tumid and occupying greater part of the area; metazona flat, very short, sides flattened and somewhat reflexed; dark greyish brown. Scutellum very small. Elytra long and broad, smooth, reddish-brown, convex at the posterior margin. Wings long and of the same colour (membranous part clearly hyaline). Legs with the femora fuscous, the carinulæ obsolete, just perceptible on the posterior pair; tibiæ and tarsi very slender, pale and typical. Abdomen brown, with a bronze sheen; gradually increasing in girth towards the apex; last dorsal segment large, scarcely broader than the abdomen, tumid, smooth, quadrate, the median sulcus faint; postero-external angles rectangular. Penultimate ventral segment ample, quadrate, posterior margin slightly emarginate, with a short

[1] Owing to the fragility of these organs, it is difficult to be certain what is the normal number of segments even in living specimens: the antennæ often differ in this respect in the same individual. Green has counted as many as 17 and as few as 13 segments; probably 16 is the normal number.

median sulcus. Forceps with the branches not quite contiguous at the base, trigonal, very short, then suddenly and notably attenuate, the apical half very slender, cylindrical and tapering, gently incurved, thus enclosing an elongate elliptical area; under surface flattened.

	♂
Length of body.....	8·5 mm.
,, forceps.....	1 ,,

Ceylon: Punduluoya (*Brit. Mus.*, *coll. Burr*), Peradeniya (*coll. Burr*).

Type in the author's collection.

This species was formerly confused with *D. bormansi*, Burr, from which it differs in the form of the penultimate ventral segment of the male, which is gently sinuate, having in *D. bormansi* a central round emargination. In *D. greeni* too, the forceps are stout at the base, and convex, cylindro-conical, quickly attenuate, and slightly arcuate towards the apex; in *D. bormansi* they are trigono-conical and almost straight. *D. greeni* as a rule has no white markings, which are commonly present in *D. bormansi*.

13. **Diplatys rufescens**, *Kirby*.* (Fig. 75.)

Cylindrogaster rufescens, *Kirby*, (96) p. 524, pl. 20, fig. 2.
Diplatys rufescens, *Kirby*, (04) p. 2; *Burr*, (07[3]) p. 508.

Antennæ yellowish, typical. Head with frons tumid and occiput depressed, postocular keels sharp; chocolate-brown. Pronotum suboval, slightly longer than wide, well-rounded in front, the sides convex and posterior margin truncate; chocolate-brown in colour with an indistinct darker shade outlining the somewhat tumid prozona. Scutellum wide and pale. Elytra reddish chocolate-brown. Wings whitish, shaded with brown. Legs yellowish, the femora shaded with brown. Abdomen clear brick-red, smooth, decidedly darker at the apex. Last dorsal segment decidedly wider than the abdomen, smooth, nearly square, but not dilated. Penultimate ventral segment of ♂ ample, quadrate, feebly depressed in middle near hinder margin. Forceps straight, contiguous, conical, trigonal, the inner margin serrulate, apices slightly hooked. ♀ unknown.

	♂
Length of body.....	12 mm.
,, forceps.....	1 ,,

Sikkim: Darjiling (*Brit. Mus.*, *Paris Mus.*); Tonkin.

Type in the British Museum.

This species was wrongly considered by de Bormans as synonymous with *D. gerstæckeri*, from which it is quite distinct.

14. **Diplatys fletcheri**, sp. n. (Fig. 8.)

Of small or medium size, colour reddish brown, varied with blackish. Antennæ typical, greyish and yellow. Head dark brown, the frons strongly tumid; the occiput depressed and postocular keels strong. Pronotum in ♂ a little longer than broad, convex anteriorly, the sides parallel, rounded posteriorly; in ♀ a little shorter and broader, the sides gently rounded, the hinder margin straight. Elytra reddish brown. Wings whitish. Legs reddish, shaded with brown. Abdomen reddish brown, darker apically; last dorsal segment in ♂ dark brown, square, smooth, ample, distinctly broader than the abdomen which widens gradually to it; in ♀ narrow and sloping. Penultimate ventral segment in ♂ ample, broad, rounded, the hinder border straight, the angles well-rounded; in ♀ narrow, lanceolate. Forceps in ♂ with branches rather stout, short, trigono-conical, the inner margin very crenulate, almost straight, the apex hooked; in ♀ simple, straight and conical.

	♂	♀
Length of body.....	9·5 mm.	7 mm.
,, forceps	0·75 ,,	0·5 ,,

Ceylon: Madulsima, 1.07 & 1.08 (*T. B. Fletcher, coll. Burr*). *Type* in the author's collection.

This species is founded on a pair sent me by Mr. T. Bainbrigge Fletcher, from Ceylon; the male is darker than the female, and at first glance it looks like *D. bormansi*, or *D. greeni*, but the simple penultimate ventral segment distinguishes it from the former. The trigono-conical forceps are like those of *D rufescens*, but *D. fletcheri* differs in the well-rounded penultimate ventral segment of the male.

The female, from the same locality as the male, is redder in colour, but is referred with little hesitation to the same species, though it is probable that females of *D. gerstæckeri* may be easily mistaken for it.

15. **Diplatys liberatus**, sp. n. (Figs. 90, 90 *a*.)

Nannopygia gerstæckeri, *Borm.*, (nec *Burr*, nec *Kirby*) (94) p. 372; (04) p. 11 (partim).

Dark brown, varied with whitish. Pronotum narrow and long, the sides straight, somewhat converging posteriorly. Abdomen gradually widening posteriorly, so that the last dorsal segment, though not strongly inflated, is distinctly wider than the base of the abdomen. Penultimate ventral segment broad, truncate, the hinder margin entire. Forceps with branches short, depressed, bowed, contiguous, tapering.

	♂
Length of body.....	10·5 mm.
,, forceps.....	1 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., v–xii.

Type in the British Museum.

In the British Museum there is a single male, one of de Bormans' originals, although he only records females.

It is quite distinct from *D. gerstæckeri* from Ceylon, with which de Bormans confused it. In appearance it resembles *D. nigriceps*, but differs in the non-convex posterior margin of the penultimate ventral segment and the rectilinear pronotum (which also separates it from *D. rufescens*). In the short, broad, flat, straight forceps it approaches the African forms, *D. raffrayi* and *D. æthiops*, thus differing also from *D. jacobsoni*.

The non-emarginate penultimate ventral segment of the male distinguishes it from the allied *D. bormansi*.

Subfamily II. PYGIDICRANINÆ.

This subfamily comprises all the species which were formerly included in the capacious genus *Pygidicrana*, which is now subdivided into five, all of which are represented in the Indian fauna.

They are large and powerful insects, some being among the largest known earwigs. They all have a decided family likeness and cannot be confused with the members of any other group.

Table of Genera.

1. Elytra ample; scutellum small and narrow.		
2. Pronotum oval; (penultimate ventral segment of male ample)	Pygidicrana, Serv.,	[p. 53.
2.2. Pronotum rectangular.		
3. Penultimate ventral segment of male ample and broad	Dicrana, Burr, p. 60.	
3.3. Penultimate ventral segment of male narrow.		[p. 61.
4. Head as wide as pronotum	Cranopygia, Burr,	
4.4. Head narrower than the pronotum	Picrania, Burr, p. 63.	
1.1. Elytra short; scutellum broad, almost or quite as wide as the pronotum	Pyge, Burr, p. 65.	

Genus **PYGIDICRANA**, *Serville.*

Pygidicrana, *Serville*, (31) p. 30.

Dicranopygia, *Burm., Germ. Ent. Zeitschr.* ii. p. 79 (1840).—*Type*, Pygidicrana V-nigrum, *Serv.*

Type, *Pygidicrana V-nigrum*, Serv.

Size large. Antennæ with over 35 segments, first segment long and thick; second very small, cylindrical; third decidedly shorter than first; the fourth, fifth, sixth, and seventh small, globular, hardly longer than second, and scarcely longer than broad; the rest gradually lengthening and passing to cylindrical. Head depressed,

smooth; eyes prominent. Pronotum more or less elliptical. Scutellum small, triangular. Elytra ample, long, rather narrow, depressed, not as a rule truncate at the apex, rounded at the axillary angle, so as to expose the scutellum; costal fold strongly marked but not carinate, the costal area pressed inwards, very distinct from the dorsal area. Prosternum somewhat convex on the anterior margin, constricted posteriorly. Mesosternum about as broad as long, posterior margin straight, the sides rounded. Metasternum generally slightly longer than broad, the posterior margin of the lobe more or less sinuate. Wings generally prominent. Legs long; femora compressed, keeled and rather broad tibiæ slender; tarsi (in Indian species) long and slender, the first segment longer than the third; pad present between the claws. Abdomen almost circular in cross-section in the male, somewhat depressed in the female, narrowest near the base and somewhat dilated apically in the male; broadest just beyond the middle in the female. Last dorsal segment smooth and ample. Penultimate ventral segment of male ample and broad, rounded at the apex. Pygidium not prominent, but never fused with the last dorsal segment. Forceps stout, depressed, of various forms; always simpler in the female than in the male.

Range. Australia, Asia, Africa, South and Central America.

The genus *Pygidicrana* is now restricted to those species which have a more or less oval pronotum, with broad and ample elytra, and therefore a small scutellum. Even thus reduced, there are half a dozen species known in India.

Table of Species.

1. Penultimate ventral segment of male with a depressed groove or canal in the middle of the posterior margin; (dark fuscous, varied with tawny lines and bands) .... *picta*, Guer., p. 55.

1.1. Penultimate ventral segment of male with posterior margin entire.

2. Branches of forceps of male contiguous, not arcuate or bowed ..... *valida*, Dohrn, p. 56.

2.2. Branches of forceps of male arcuate or bowed, often enclosing an oval or elliptical area.

3. Branches of forceps of male not elongate, strongly bowed, dilated on inner margin near apex; (pronotum, elytra and wings tawny; legs speckled) ..... *pallidipennis*, Haan, [p. 57.

3.3. Branches of forceps of male elongate, arcuate, not dilated, but toothed just before apex.

4. Size very great (44–47 mm.); bands of pronotum confluent behind .... *eximia*, Dohrn, p. 57.

4.4. Size less great (20–35 mm.); bands of pronotum irregular or parallel.

5. Size large (32–35 mm.); head black with an irregular tawny spot on the occiput	*marmoricrura*, Serv.,	[p. 58.
5.5. Size medium (20–21 mm.); head tawny with a black border	*siamensis*, Dohrn,	[p. 59.

16. **Pygidicrana picta**, *Guerin.* (Fig. 10.)

Pygidicrana picta, *Guer.* (38) p. 236, fig. 1; *Dohrn*, (63) p. 50; *Scudd.* (76) p. 329; *Borm.* (00²) p. 18; *Burr*, (00) p. 48, (01) p. 69, (06) p. 387, (08⁵) p. 384; *Kirby*, (04) p. 5.

Size medium. Antennæ with 35 segments, light brown, except the two basal segments which are testaceous. Head testaceous, the mouth-parts blackish, occiput bordered with black, with a black central longitudinal stripe which is sometimes broken in the middle. Pronotum subovate, slightly longer than broad, roundly truncate posteriorly, testaceous, with two irregular broad blackish bands which vary in detail but converge about the middle, being broader anteriorly and straight posteriorly. Scutellum testaceous. Elytra ample, rather short, with a narrow testaceous stripe near the axillary and costal margins and a central stripe which may be broad or narrow, entire or broken into a series of spots, but does not extend much beyond half way down the elytra. Wings testaceous with a fuscous band. Legs testaceous, with narrow fuscous stripes and sometimes with spots. Abdomen of ♂ cylindrical, gently widened posteriorly; of ♀ more depressed, nearly parallel-sided; blackish with a dense short pale pubescence. Last dorsal segment of ♂ ample, scarcely wider than the abdomen, subquadrate, punctate, pubescent, the posterior margin rounded, posterior angles rectangular. Penultimate ventral segment broadly rounded in the ♂; narrow, triangular, and apically rounded in the ♀. Forceps with the branches stout, trigonal, depressed; in ♂ subcontiguous at the base, rather elongate, gently arcuate, enclosing a narrow elongate oval area, the inner margins crenulate; meeting just before the apex, at a rather strong, blunt, dilated tooth, beyond which they are attenuate, converging, crenulate, acuminate and hooked at the apex; in the ♀ subcontiguous, straight, regularly acuminate, crenulate on the basal half of the inner margin.

	♂	♀
Length of body	24 mm.	18·5–28 mm.
„ forceps ..	5·5 „	4·5– 5·25 „

S. India: Tinnevelli District, Kudiraimalai (*Brit. Mus.*); Bengal: Calcutta (*Ind. Mus.*); Assam: Kurseong (*Ind. Mus.*, *Brit. Mus.*, *Brussels Mus.*); Bhutan: Maria Basti (*Madrid Mus.*); Ceylon: Dedurin and Kurunegala (*Willey*, December), Trincomali, May 1908 (*Brit. Mus.*).

Dr. Annandale tells us that this species is common in Calcutta among dead leaves at the foot of trees. It belongs to the group

of *P. marmoricrura*, and resembles that species generally in structure, but is somewhat stouter and smaller; it is distinguished by the variegated pattern of the anterior portion of the body. The markings of the head, pronotum, elytra and femora vary considerably in detail, but always conform more or less to the pattern as described.

17. Pygidicrana valida, *Dohrn.*

Pygidicrana valida, *Dohrn*, (67) p. 344, ♂; *Scudd.* (76) p. 328; *Borm.* (94) p. 375, (00[1]) p. 22; *Kirby*, (04) p. 5; *Burr*, (08[5]) p. 385.

Size large, stature powerful; not very pubescent. Antennæ entirely reddish testaceous. Head black, with a broad central yellowish spot. Pronotum oval posterior margin truncate, the others and all angles rounded; equally wide anteriorly and posteriorly; testaceous, with two broad black bands which unite posteriorly and reach the posterior margin; anterior margin narrowly bordered with black. Scutellum small, testaceous. Elytra ample, long, nearly twice as long as the pronotum, blackish, with an oblique large yellowish spot on the disc near the shoulder. Wings prominent, testaceous. Legs testaceous, with a very narrow fuscous stripe on the femora. Abdomen dark reddish black, rather depressed in both sexes, very slightly widened posteriorly in the ♂, parallel in the ♀; with a fine, dense, short, yellowish pubescence and a few bristles. Last dorsal segment quadrate, very finely granulate, angles rather sharp, posterior margin rounded alike in the two sexes, a little wider in the ♂ than in the ♀, with a faint lateral longitudinal keel. Penultimate ventral segment of ♂ broad, rounded; of ♀ triangular, rounded apically. Forceps stout, trigonal, and decidedly depressed; contiguous along the inner margin; in the ♂ broad and flat, the inner margin crenulate in the basal half, which is nearly straight, but directed somewhat towards the right; then half way down, both branches bent abruptly to the left, so that the inner margin of the right branch is concave and that of the left branch is decidedly convex; then tapering and directed to the left, as far as the apex which is hooked; the outer margin of the right branch is convex at the bend, that of the left branch decidedly concave; in the ♀ the forceps are straight and rather elongate.

	♂	♀
Length of body	27·25 mm.	30–34·5 mm.
,, forceps ..	6·5–7 ,,	5·5–6 ,,

Madras: Madura (*coll. Burr*); Burma: Karen-ni, Keba District, 3000–3700 ft., May–Dec. (*Genoa Mus.*); Tonkin (*coll. Burr*).

In the form of the forceps this species resembles *Cranopygia cumingi*; in colour, build, and general structure it resembles *P. imperatrix*, from which it differs in the unarmed forceps.

18. **Pygidicrana pallidipennis**, *Haan.* (Fig. 11.)

Forficula (Pygidicrana) pallidipennis, *de Haan*, (42) p. 240, pl. 23, fig. 8.
Pygidicrana pallidipennis, *Dohrn*, (63) p. 50; *Scudd.* (76) p. 328; *Borm.* (88) p. 433, (94) p. 375, (00[7]) p. 18; *Kirby*, (04) p. 5; *Burr*, (08[5]) p. 385.

Large; general colour tawny, the abdomen and forceps blackish. Antennæ entirely tawny. Head tawny; eyes, frons, and mouth-parts blackish. Pronotum tawny, with a few dark dots. Elytra darker tawny, somewhat paler in the centre of the disc. Wings tawny. Legs tawny, the femora speckled with numerous black dots. Abdomen shining reddish black, very finely rugulose. Last dorsal segment more strongly rugulose, very much wider than the abdomen, widened posteriorly; posterior margin rounded and incrassate in the middle; externo-posterior angles produced into a short rounded fold. Penultimate ventral segment broadly rounded. Forceps in ♂ with the branches strongly depressed, smooth, broad and nearly contiguous at the base, diverging and rapidly narrowing, then abruptly bowed inwards at an angle, thus enclosing a nearly equilateral triangular area; then strongly broadened and incrassate so that they meet; thence straight, contiguous, attenuate and unarmed towards the hooked apex.

	♂
Length of body	27·5 mm.
„ forceps	6·5 „

Burma: Kakhyen (Kachin) Hills, Aug.–Nov.; Karen-ni, Keba District, 3000–3700 ft., May–Dec., 4700–5000 ft., March–April (*Genoa Mus.*).

Occurs also in Borneo, Sumatra and Java.

Type in the Leyden Museum.

This fine species is easily recognized by the dark speckling on the outer face of the pale legs.

19. **Pygidicrana eximia**, *Dohrn.*

Pygidicrana eximia, *Dohrn*, (65) p. 49; *Scudd.* (76) p. 328; *Borm.* (00[2]) p. 18, fig. 11; *Kirby*, (04) p. 5; *Burr*, (05[5]) p. 27, (08[5]) p. 385.

Very large, black, with orange-yellow markings. Antennæ brown, the first two segments yellowish. Head black, with a yellowish-brown, irregular spot in the centre. Pronotum oval, a little longer than broad, yellowish with two black bands, which converge and meet posteriorly. Elytra blackish, with a long oval tawny spot occupying the greater part of the disc; costal area tawny in the basal half. Wings tawny. Legs tawny, sometimes with dark lines. Abdomen black, elongate, parallel-sided in ♀.

gradually widened towards the apex in the ♂. Last dorsal segment broad and ample, black, smooth, wider than the abdomen in the ♂, as wide in ♀. Penultimate ventral segment rounded in ♂, narrower in ♀. Forceps with branches in the ♂ subcontiguous at the base, which is rather broad, flat and dentate; then gently arcuate, denticulate along inner margin, with a tooth near the apex; in ♀ contiguous, depressed and straight.

	♂	♀
Length of body	33–36 mm.	36–39 mm.
„ forceps	11 „	8 „

Sikkim: Darjiling; Madras: Berhampur (*coll. Burr*); Assam: Khasi Hills, Nangkok, 1000–3000 ft., vi.05 (*Pusa Coll.*), Sylhet (*Brit. Mus.*).

Type in the Stettin Museum (?).

This fine species may be easily recognized by the build and pattern of coloration.

20. **Pygidicrana marmoricrura**, *Serville*. (Fig. 12.)

Pygidicrana marmoricrura, *Serville*, (39) p. 20; *Dohrn*, (63) p. 50; *Scudd.* (76) p. 328; *Bormans*, (00²) p. 19; *Burr*, (00²) p. 47, (01) p. 69, (02) p. 478, (07³) p. 509, (08⁵) p. 385; *Kirby*, (04) p. 5.
Forficula (Pygidicrana) marmoricrura, *Haan*, (42) p. 239.
Pygidicrana marmoricauda, *Sharp*, (95) p. 215.
Pygidicrana hugeli, *Sharp*, (95) pp. 202 & 215, fig. 102.

Size medium, relatively slender. Antennæ with segments one and two tawny, the rest greyish brown, with a thin darker band at the base of each segment. Head fuscous with a large central tawny spot (shaped like + +) which has a small fuscous dot in the middle; the actual detail of the spot varies considerably in different specimens. Pronotum tawny, with two longitudinal broad fuscous bands, sometimes interrupted in the middle, sometimes united posteriorly. Scutellum tawny. Elytra fuscous, usually with an oblique oval yellowish spot on centre of the discoidal surface. Wings prominent, tawny. Legs tawny, with irregular fuscous bands and markings on the outer surface of the femora. Abdomen dark reddish black, relatively slender and cylindrical in the ♂, rather wider and depressed in the ♀. Last dorsal segment of ♂ ample, subquadrate, globose, sloping, and slightly widened posteriorly, with a distinct median sulcus, almost smooth, the posterior margin irregularly rounded, the middle part rather flattened and incrassate; in the ♀ similar but the characters less marked. Penultimate ventral segment in ♂ broadly rounded; in ♀ narrow, triangular, with the apex rounded. Forceps with the branches in the ♂ elongate and depressed; the basal part dilated, thick and with its inner margin strongly denticulate;

then depressed and slender, elongate and gently arcuate, so as to enclose an elliptical area; in the apical quarter the branches meet, are thickened and strongly toothed on the inner margin, beyond which they are straight, contiguous, tapering, hooked and crossed at the apex; in the ♀ the branches are long and straight, unarmed, slender and contiguous, not depressed, almost cylindrical, the apices hooked and crossing.

	♂	♀
Length of body	23–27·5 mm.	28 mm.
,, forceps	9–10·5 ,,	7 ,,

Ceylon (*Brit. Mus.*, *Oxford Mus.*); Bhutan: Maria Basti (*Paris Mus.*).

The determination of the above specimens is not beyond reproach. This species is common in Java, but it is doubtful whether the true *P. marmoricrura*, of Serville, occurs in India.

One specimen in the British Museum is a fragment, with immaculate elytra; another is complete, but is a female; it is probably a distinct species.

Variation.—I have a specimen from the Tengger Mountains, in Eastern Java, in which the elytra are of a uniform fuscous, owing to the absence of the yellow discoidal spot, thus resembling *P. celebensis*. The star-shaped spot on the head varies considerably in detail, but always resembles, more or less distinctly, a ++. The dark bands on the pronotum sometimes unite posteriorly, thus forming a dark V; sometimes they are broken in the middle; they vary also in breadth. The black marbling of the outer surface of the femora also varies considerably in detail but always consists of two or three more or less broken blackish bands.

There is a single specimen, probably referable to this species, in the Hope Collection, Oxford, labelled "Thwaites, Ceylon." It is common in Java, and is to be found in most collections. In the "Cambridge Natural History," Sharp (*l. c.*) incorrectly calls it *P. marmoricauda*, and figures it under the name *P. hugeli*, calling it a "nondescript form," but giving it a *nomen nudum*, with no description beyond a passing reference to general characters.

21. **Pygidicrana siamensis**, *Dohrn*. (Fig. 13.)

Pygidicrana siamensis, *Dohrn*, (63) p. 51; *Scudd.* (76) p. 329; *Borm.* (94) p. 375, (00²) p. 19; *Kirby*, (04) p. 5; *Burr*, (08⁵) p. 385.

Relatively small. Antennæ with two basal segments yellow; the rest reddish testaceous. Head yellowish, mouth-parts blackish, sides blackish with blackish markings on the posterior margin. Pronotum ovate, nearly circular, truncate posteriorly, testaceous, with two narrow stripes converging behind the prozona, almost meeting in the middle and diverging posteriorly. Scutellum small, testaceous. Elytra reddish brown, with a testaceous band

along the costal margin; a small testaceous spot at the shoulder and a clear testaceous spot in the basal portion of the disc. Wings yellow, with an outer fuscous stripe. Legs testaceous; femora with two narrow black lines and a number of blackish dots. Abdomen cylindrical, gently widened posteriorly, blackish brown, with a dense close yellowish pubescence. Last dorsal segment of ♂ subquadrate, exceedingly finely rugulose; posterior margin straight, the sides rounded, but slightly folded and not very pronounced. Penultimate ventral segment of ♂ broad, posterior margin straight, corners rounded. Forceps with the branches strongly depressed, subcontiguous, and rather dilated at the base itself, which is toothed on its inner margin; then attenuate, elongate, arcuate, enclosing an elliptical area, with the inner margins crenulate and with a strong tooth before the apex.

	♂
Length of body	22·5 mm.
,, forceps	5·25 ,,

Burma: Pegu, Palon, Aug.–Sept.; Karen-ni, Keba District, 4300–4700 ft., Febr.–March (*Genoa Mus.*); Penang; Siam.
Type in the Stettin Museum (?).

Genus **DICRANA**, *Burr*.

Dicrana, *Burr*, (08[5]) p. 387.
Pygidicrana, *Authors*.

Type, *Pygidicrana frontalis*, Kirby.
This genus differs from the preceding in the almost rectangular pronotum, and the broad penultimate ventral segment of the male distinguishes it from *Cranopygia*. It contains about half a dozen little-known African species, and also a few Oriental ones. The single known Indian species has strong affinities with *Cranopygia* in the form of the last dorsal segment and of the forceps, but the broad penultimate ventral segment of the male makes it necessary to place it here. It is unlike the other members of the genus in appearance.
Range. Asia and Africa.

22. **Dicrana kallipyga**, *Dohrn*.

Pygidicrana kallipygos, *Dohrn*, (63) p. 53; *Scudder*, (76) p. 328; *Bol.* (97) p. 283.
Pygidicrana callipyga, *Bormans*, (00[2]) p. 21, fig. 13; *Kirby*, (04) p. 5.
Pygidicrana kallipyga, *Burr*, (07[3]) p. 509.
Dicrana kallipyga, *Burr*, (08[5]) p. 387.

Dark blackish brown. Antennæ tawny. Head brick-red,

depressed, smooth, sutures not very distinct. Pronotum black, narrowly edged with yellowish, square, the angles rounded. Scutellum black, nearly equilateral. Elytra black, granulose, weak at the axillary angle, short, truncated apically. Wings abortive. Legs orange-red. Abdomen black, widened gradually towards the apex in the ♂, nearly parallel in the ♀. Last dorsal segment in ♂ very broad, smooth, but rugulose in the middle, the sides produced into strong crested folds; in ♀ square, the exterior angles produced into rectangular folds but less strongly than in the ♂. Penultimate ventral segment of ♂ broad and rounded; in ♀ triangular and rounded at the apex. Forceps with the branches in ♂ very strong and broad, depressed, trigonal, subcontiguous, the upper and outer edge near the base is somewhat crested irregularly and asymmetrically sinuous, the right branch more strongly bowed than the left, both curved upwards at the tip; in the ♀ depressed, stout, trigonal and conical, contiguous, depressed, gently hooked at the apex.

	♂	♀
Length of body	20 mm.	18–20 mm.
,, forceps	5 ,,	4 ,,

Sikkim: Darjiling (*Brit. Mus.*); Madras: Kodaikanal (*coll. Bolivar*), Guynol, Nilgiri Hills [*Pusa Coll.*], Utakamand (*Brit. Mus., coll. Burr*).

Type in the Vienna Museum.

The strongly dilated and crested last dorsal segment and the upcurved, stout, dilated forceps readily distinguish this species.

Genus **CRANOPYGIA**, *Burr*.

Cranopygia, *Burr*, (08[5]) p. 389.
Pygidicrana, *Authors*.

Type, *Pygidicrana cumingi*, Dohrn.

Pronotum subrectangular, the angles themselves rounded. Penultimate ventral segment in ♂ narrow, lanceolate, the apex itself rounded; last dorsal segment in ♀ with the external angles on each side furnished with a compressed crested tubercle. Forceps of ♂ depressed and contiguous. Otherwise agrees with the preceding genera.

Range. Ceylon.

This genus contains two Singhalese species characterized by the nearly square pronotum and narrow penultimate ventral segment of the male.

Table of Species.

1.	Forceps of ♂ with a crested tooth above; elytra reddish, with dark borders; pronotum with two black bands	*cumingi*, Dohrn, p. 62.
1.1.	Forceps of ♂ unarmed above; elytra dark; pronotum dark testaceous with three pale lines	*nietneri*, Dohrn, p. 63.

23. **Cranopygia cumingi**, *Dohrn*. (Figs. 14 & 94.)

Pygidicrana cumingi, *Dohrn*, (63) p. 54; *Scudd.* (76) p. 328; *Borm.* (00[2]) p. 21; *Burr*, (01) p. 71, pl. B. fig. 26; *Kirby*, (04) p. 5.
Cranopygia cumingi, *Burr*, (08[5]) p. 389.

Size medium. Antennæ with two basal segments dark, the rest lighter reddish brown. Head black, with an ill-defined yellowish transverse spot in the centre of the occiput; in the male there are distinct ocular keels. Pronotum longer than broad, nearly parallel-sided, anterior and posterior margins convex, the angles rounded orange-yellow, with two broad black longitudinal bands. Scutellum yellowish, small, especially in the female. Elytra rather stout, truncate apically, orange-yellow with a black border. Wings abortive. Legs orange-yellow, with long bristles. Abdomen not cylindrical, depressed in both sexes; parallel-sided in the female, regularly widening posteriorly in the male; blackish, with yellowish indistinct markings above near the base. Last dorsal segment ample; in the ♂ transverse, very wide, very finely granular like the rest of the abdomen, at each side raised into an irregular crest-like fold extending down to the postero-exterior angles, posterior margin rounded; in the ♀ not wider than the abdomen, not transverse, sides not crested, and posterior margin rounded. Penultimate ventral segment of ♂ rather narrow; in ♀ triangular, rounded at the apex. Forceps with the branches in the ♂ broad and flat, armed near the base on the upper margin with a strong nearly vertical triangular tooth; regularly tapering, both branches curved towards the left, the inner margins subcontiguous, the apices hooked; in the ♀ depressed, contiguous and straight.

	♂	♀
Length of body.....	20·5 mm.	21 mm.
,, forceps.....	5·5 ,,	4 ,,

Variation.—The elytra are sometimes entirely black, with a faint reddish tinge in the centre. The wings are sometimes visible, in which case they are yellow, with a fuscous outer border. The variety with fully developed wings and uniform fuscous elytra is also a little smaller. (Length of body 17·5 mm., length of forceps 3 mm.) For it the name var. *greeni* is proposed.

Ceylon: Punduluoya (typ. form and var., *coll. Burr*); Watawella (var., *coll. Burr*).

Type in the Stettin Museum (?); type of *greeni* in the author's collection.

Mr. Green found this insect in the adult state in May, and from September to November, and larvæ in June and July. It is found under stones and loose bark, and often comes into buildings.

24. **Cranopygia nietneri**, *Dohrn*. (Fig. 15.)

Pygidicrana nietneri, *Dohrn*, (63) p. 53; *Scudd.* (76) p. 328; *Borm.* (00²) p. 21; *Burr*, (01) p. 70; *Kirby*, (04) p. 5.
Cranopygia nietneri, *Burr*, (08⁵) p. 389.

Stature medium; colour dark testaceous. Antennæ dark testaceous, typical, with 31 segments; each segment is fuscous basally and yellowish apically. Head reddish yellow, rather tumid, sutures distinct; eyes black. Pronotum almost as broad as the head, rounded anteriorly, truncate posteriorly, the angles rounded, sides parallel; dark fuscous, with whitish median line and borders. Scutellum rather long, fusco-testaceous. Elytra rather short, blackish. Wings abbreviated. Sternal plates yellow. Legs testaceous, slender; tarsi very slender. Abdomen reddish, slender at base, widening gradually towards the apex; with a dense fine yellowish pubescence. Last dorsal segment red, smooth, large, quadrate; the external angles are compressed into a blackened crest which is produced posteriorly to a point; posterior margin black, convex, truncate in the middle. Penultimate ventral segment narrowly rounded at the apex. Forceps with branches yellowish, darker at the margin, blacker at the tips; subcontiguous at the base, depressed and wide through the first half of their length, then abruptly attenuate and arcuate, the right branch more so than the left and armed with a strong blunt tooth in the middle of the curve.

	♂
Length of body.....	17 mm.
„ forceps	8 „

Ceylon: Peradeniya (*Brit. Mus.*, *coll. Dohrn*, *coll. Burr*), Diyatalawa, 12.ix.08 (*Fletcher*); Watawella (*Collett*).

Type in the Berlin Museum.

Somewhat resembles *Dicrana kallipyga*, but differs in the coloration, the weaker armature of the last dorsal segment, and the less curved almost horizontal forceps.

Genus **PICRANIA**, *Burr*.

Picrania, *Burr*, (08⁵) p. 390.
Pygidicrana, *Authors*.

Type, *Forficesila liturata*, Stål.

Agrees generally with the preceding genera, but the head is narrow, being scarcely as broad as, and never broader than, the

pronotum; the elytra are short; the tarsi long and slender; the abdomen narrow and nearly parallel-sided.

Range. Ceylon; S. Africa.

The type of this genus is *P. liturata*, Stål, from South Africa but *P. angustata*, from Ceylon, is placed here provisionally.

25. Picrania angustata, *Dohrn.*

Pygidicrana angustata, *Dohrn*, (63) p. 54; *Borm.* (00²) p. 23; *Burr*, (01) p. 71; *Kirby*, (04) p. 5.
Picrania angustata, *Burr*, (08⁵) p. 390.

Small, dark, greyish, with yellowish markings. Antennæ greyish yellow. Head smooth, globose, dark reddish brown, marbled with yellowish; sutures distinct; posterior margin truncate, not emarginate; not broader than the pronotum. Pronotum rather long, narrow, parallel-sided. pale yellowish testaceous, with two broad fuscous bands and a narrow dark line along the suture. Scutellum narrow, pale. Elytra short, greyish fuscous, with an oblique yellow discoidal spot and a narrow yellowish stripe along the basal half of the suture and along the costa. Wings short, yellowish. Legs short, pale, testaceous; femora rather broad, femora and tibiæ with broken black lines. Abdomen rather slender, gradually widening posteriorly, dark reddish brown, marbled with yellowish; the whole apparently grey owing to a short greyish pubescence. Last dorsal segment not pubescent, not inflated, very finely rugulose, deep chestnut; posterior margin truncate, obliquely truncate at the sides. Penultimate ventral segment of the ♂ narrow, truncate posteriorly, the sides oblique; of the ♀ triangular, the apex rounded. Forceps of ♂ with the branches deep red with an orange spot near the base above and beneath, depressed, rather slender, remote at base, elongate and gently arcuate, with one or two teeth on inner margin about the middle and a stronger one near the apex; in the ♀ broad, finely rugulose, trigonal, subcontiguous throughout their length, gradually tapering, crenulate along the inner margin; apices hooked.

	♂	♀
Length of body.....	22 mm.	16 mm.
,, forceps....	5 ,,	3·5 ,,

Ceylon (*Brit. Mus., Berlin Mus.*).

Type in the Berlin Museum.

The approximately equal width of the head and pronotum, the narrow parallel-sided body, the gently arcuate and remote forceps, readily distinguish this species. It is so far only recorded from Ceylon and appears to be rare. There are Dohrn's types, two females in the Berlin Museum, and one male in the British Museum.

Genus **PYGE**, *Burr*.

Pyge, *Burr*, (08[5]) p. 390.
Pygidicrana, *Authors* (partim).

Type, *Pygidicrana modesta*, Borm.

Body narrow. Pronotum nearly square. Scutellum very broad, transverse, almost or quite as broad as the pronotum, with a median sulcus. Elytra short, excavate at the axillary angle so as to expose the scutellum; the costal fold sometimes keeled. Wings rudimentary. Legs short; tarsi short, rather thick; the third tarsal segment as long as, or a trifle longer than, the first. Last dorsal segment ample. Penultimate ventral segment of the ♂ narrow, roundly acute; branches of forceps in the ♂ short, contiguous and depressed.

Range. Asia and Australia.

This genus is well characterized by the abbreviated elytra, with weak axillary angle, thus exposing an ample and broad scutellum. There is sometimes a distinct keel on the costal fold of the elytra, and the wings are abortive, sometimes represented by a pair of leathery flaps showing beneath the shortened elytra.

The species are confined to the Oriental and Australian regions, but do not appear to be common. They are of relatively small size, and the colour is usually dull brown or black. The forceps are depressed, subcontiguous and asymmetrical.

About half a dozen species are known, of which two are recorded from Burma.

Table of Species.

1. Scutellum as broad as pronotum; last dorsal segment of ♂ not crested ..... *modesta*, Borm., [p. 65.
1.1. Scutellum narrower than the pronotum; last dorsal segment of ♂ with angles crested ..... *ophthalmica*, Dohrn, [p. 66.

26. **Pyge modesta**, *Bormans*.* (Fig. 76.)

Pygidicrana modesta, *Bormans*, (94) p. 375 (00[2]) p. 21; *Burr*, (02) p. 477; *Kirby*, (04) p. 5.
Pyge modesta, *Burr*, (08[5]) p. 391.

Antennæ typical, tawny, with 28–30 segments. Head smooth, pubescent, sutures distinct; dull brown, with a reddish spot near each eye. Pronotum a little narrower than the head, rounded anteriorly and posteriorly, the sides parallel. Scutellum black, ample, nearly equilateral. Elytra short, dull brown, feeble at the axillary angle, thus exposing the ample scutellum. Wings abortive. Legs yellow; tarsi rather short and slender, the first and third segments equally long. Abdomen blackish red, smooth, gradually widening in the ♂ to the apex, which is twice as broad as the base; in the ♀ almost parallel-sided. Last dorsal segment of the ♂ ample, smooth. Penultimate ventral segment of the ♂ rounded but narrower towards the apex, where

there is a small emargination ; in the ♀ more strongly narrowed, with no notch at the apex. Forceps : in the ♂ with branches stout, broad, trigonal, contiguous, asymmetrical, the left branch longer, arched outwards and hooked inwards at the apex, both arched to the left ; in the ♀ the branches are straight, trigonal, subcontiguous ; the inner margin is finely serrulate in both sexes.

	♂	♀
Length of body	17·5 mm.	19 mm.
,, forceps	3–3·3 ,,	4 ,,

Burma : Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*Brit. Mus.*, *Genoa Mus.*, *coll. Burr*).

Type in the Genoa Museum.

The powerful and strongly curved asymmetrical forceps distinguish this species.

27. **Pyge ophthalmica**, *Dohrn*. (Fig. 16.)

Pygidicrana ophthalmica, *Dohrn*, (63) p. 55, (67) p. 344 ; *Scudder*, (76) p. 328 ; *Bormans*, (88) p. 433, (94) p. 375, (00²) p. 22 ; *Kirby*, (04) p. 6.

Pyge ophthalmica, *Burr*, (08⁵) p. 391.

Body pubescent. Antennæ testaceous. Head black, indistinctly marked with yellowish, and two small yellowish spots between the eyes. Pronotum granular, dark brown, varied with yellow ; sides square, the angles rounded. Scutellum decidedly narrower than the pronotum. Elytra varying in breadth, but always narrow ; brown, shaded with yellow above, granular. Legs yellowish, marked with black. Abdomen brown, widened towards the apex. Last dorsal segment of the ♂ ample, square, smooth, the sides marked by a crested ridge of tubercles separating the dorsal from the ventral surface. Forceps subcontiguous, depressed, trigonal, stout, hooked at apex, inner margin dentate near the base; the right branch more strongly bowed than the left.

	♂
Length of body	15 mm.
,, forceps	4 ,,

Burma : Senmyingyan (*Genoa Mus.*); Tenasserim (*Genoa Mus.*); Madras : Madura (*coll. Burr*).

Type in the Stettin Museum (?).

Originally described from Moreton Bay in Australia ; it is very doubtful whether de Bormans's Burmese specimens are really to be referred to the same species.

The above description is drawn from a male from Toowoomba in the British Museum, agreeing well with a poor specimen from Dohrn's own collection.

Another specimen in the author's collection from 'Madura' has no yellow spots on the head and the pronotum is orange-yellow, with two irregular black markings on the prozona. The coloration is very variable.

Family III. LABIDURIDÆ.

This family is well marked by the form of the pygidium. The essential feature is, however, rather difficult to describe and to illustrate; the last dorsal segment is produced and folded down between the branches of the forceps, so that the end of the body, viewed from behind, has the appearance of a vertical triangular plate, apex downwards; this is the pygidium, and it consequently does not assume the complex and varied forms of the same organ in other groups, in some of the *Labiidæ* and *Forficulidæ*, for instance. It is practically invisible from above; the fusion with the last dorsal segment is sometimes so complete that no suture or ridge is visible.

This is an extensive family comprising several well marked subfamilies, of which six are represented in India.

Table of Subfamilies.

1. Body very strongly depressed and flattened	1. *Palicinæ*, p. 67.
1.1. Body not strongly flattened.	
2. Metasternum with posterior margin sinuate: (body covered with bristles).	2. *Echinosomatinæ*, [p. 69.
2.2. Metasternum with posterior margin truncate.	
3. Mesosternum rounded posteriorly .	3. *Psalinæ*, p. 73.
3.3. Mesosternum truncate posteriorly.	
4. Antennæ with at least 25 segments. Elytra well developed.	4. *Labidurinæ*, [p. 90.
4.4. Antennæ with not more than 15 segments; apterous forms.	[p. 102.
5. Last dorsal segment truncate.	5. *Parisolabinæ*,
5.5. Last dorsal segment with posterior margin emarginate and bilobed	[p. 105. 6. *Brachylabinæ*,

Subfamily I. PALICINÆ.

This subfamily comprises at present a single monotypic genus which is very different in many features from the other members of the *Labiduridæ*. In general appearance and the strongly depressed body it so closely resembles the *Sparattinæ* that the only species was described as a *Platylabia*. In the Labidurine antennæ, and in the form of the tarsi, it approaches *Mecomera*, but the form of the pygidium, which is adpressed

and fused with the last dorsal segment, shows beyond doubt that it must be ranked in the *Labiduridæ*. A new genus and new subfamily are consequently required for its reception.

Genus **PALEX**, n. g.

Entire body strongly flattened. Antennæ with 19–20 segments, the first long and subconical, second minute, third long and cylindrical, fourth globular, fifth and sixth ovate, the latter a trifle longer, seventh cylindrical, longer, but shorter than third, the remainder cylindrical, gradually lengthening. Head smooth and depressed. Pronotum subquadrate, but convex anteriorly. Prosternum parallel-sided, scarcely constricted; meso- and metasterna about as broad as long, more or less rounded, and truncate posteriorly. Elytra perfectly developed but rather short, rounded at the apex; feebly developed at the axillary angles, thus exposing a small scutellum; no keel. Wings short but usually visible. Legs not very long; femora broad and compressed; tibiæ short and slender; tarsi slender, first segment short, the third longer than first and second united. Abdomen strongly depressed; no lateral tubercles. Last dorsal segment ample, simple. Penultimate ventral segment quadrate, triangular. Pygidium short, broad, adpressed, vertical, fused with dorsal segment and with no marked suture. Forceps remote at the base, broad, nearly straight at first, then bowed.

This curious genus has no resemblance whatever to any other known Labidurine form, but owing to the build, coloration and strongly flattened body, may be easily confused with the *Sparattinæ*.

The single known species, which is therefore the type, occurs in the Oriental Region.

28. **Palex sparattoides**, *Bormans*. (Fig. 77.)

Platylabia sparattoides, *Borm.* (00[1]) p. 459; *Kirby*, (04) p. 22.

Brown or blackish, very strongly depressed. Antennæ with 20 segments, brownish, yellowish, paler towards the apex; basal segment darker; third segment cylindrical; fourth only about half as long as the third; fifth a little longer than the fourth; rest longer, cylindrical. Head depressed, posterior margin sinuate. Pronotum with anterior margin decidedly convex, sides straight, posterior margin straight, angles rounded; reddish brown. Elytra brown, coriaceous. Wings of same colour and texture as the elytra. Legs yellowish. Abdomen strongly depressed, chestnut, slightly widened towards the apex; lateral tubercles absent. Last dorsal segment ample, in the ♂ quadrate, posterior margin truncate, flat and smooth; a little narrower in the ♀. Penultimate ventral segment in the ♂ ample, rounded, very gently emarginate in the middle of posterior margin. Pygidium: in the ♂ scarcely prominent, transverse, with a vertical face; in the ♀ slightly larger, with a minute

tubercle at each angle. Forceps : in the ♂ with branches remote at the base, trigonal at the base itself, quite straight in the basal half, tapering, then abruptly bent inwards at a right angle, the points overlapping, the apical half thus forming a line parallel to the posterior margin of the last dorsal segment and at right angles with the main axis of the insect; about half way down the straight part there is, on the inner margin, a short tooth : in the ♀ the branches are elongate, very gently sinuate, almost straight, incurved at the apex, with a sharp depressed tooth on the inner margin in the basal third, and strongly crenulated as far as this tooth.

	♂	♀
Length of body	7·5–9 mm.	9–10·5 mm.
„ forceps	1–1·5 „	2·25–3·5 „

Burma : Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*coll. Burr, Brit. Mus.*); Pulo Penang; Sumatra (*Genoa Mus.*); Java; Annam (*coll. Burr*).

Type in the Genoa Museum.

Although originally described by de Bormans, from Pulo-Penang and from Sumatra, the pair in the author's possession were from Fea's collection and came to him through de Bormans; yet the latter never quoted this species from Burma. The only specimens from Karen-ni, May to December, quoted by de Bormans are referred by him to *Platylabia major*, and perhaps, owing to the inconspicuous pygidium, he regarded them as identical with that species in 1894, but separated them in his later work in 1900.

The form of the forceps is quite characteristic and they are not likely to be confused with anything else.

This species is totally distinct from any other known Labidurine earwig; but it has so strong a resemblance to the genera *Platylabia* and *Sparatta*, that the structure of the pygidium must be carefully examined.

Subfamily II. ECHINOSOMATINÆ.

Pronotum transverse, decidedly broader than long, elytra complete, with no lateral keels, entirely concealing the scutellum. Femora not compressed or keeled. Abdomen short, broad, rather dilated, body clothed with short stiff bristles; forceps short, cylindrical, remote at base in male, arcuate and unarmed.

This subfamily includes only the old genus *Echinosoma*, which has close affinities with the *Labidurinæ*.

The short, thick-set body, densely clad with stiff hairs and many obtuse thick bristles, gives these earwigs a very distinctive appearance.

Genus **ECHINOSOMA**, *Serv.*

Echinosoma, *Serv.* (39) p. 34.

Type, *Forficula afra*, Pal.-Beauv.

Stout and small or medium-sized insects, the whole body covered with short stiff bristles and long yellow hairs. Antennæ with about 30 segments; third segment long and cylindrical, nearly as long as the first, the rest very short, fifth and sixth each a trifle longer than fourth, the rest gradually lengthening, the apical segments approaching cylindrical, fourth, fifth and sixth together scarcely longer than third. Head broad, flat and smooth. Pronotum transverse, as broad as the head, subrectangular, hinder angles broadly rounded. Elytra broad, truncate, bristly. Wings generally prominent, bristly. Scutellum concealed. Prosternum broad, scarcely narrowed posteriorly; mesosternum broad; metasternum broad, the lobes slightly produced, the hinder margin gently sinuate. Legs short; femora thick, not keeled. Abdomen short, broad. Last dorsal segment: in the ♂ smooth, transverse; in the ♀ somewhat narrower. Pygidium: in the ♂ almost concealed; in the ♀ forming a short blunt tubercle. Forceps with the branches in both sexes remote at the base, short, cylindrical, unarmed and arcuate, more strongly bowed in ♂, gently curved in ♀.

Range. Asia, Africa, Papua.

The members of the genus are easy to recognize owing to their short, rather thick-set build, the simple sickle-shaped forceps of the male, and especially the short, thick bristles with which they are densely clothed.

About 14 species are known, inhabiting all the tropical countries of the Old World. The discrimination of the different forms is difficult, as the specific characters are not very well marked, and the coloration varies within certain limits. Only two species are known from India and these are easy to distinguish. They occur chiefly in rotten wood.

Table of Species.

1. Antennæ with first segment light yellow; segments of apical half of antennæ slender, subcylindrical or ovate; size medium (12–14 mm.) ..... *sumatranum*, Haan, [p. 70.

1.1. Antennæ with first segment dark yellow or brownish; segments beyond seventh or eighth short, thick, pyriform or subconical; size small (6–8 mm.) ..... *parvulum*, Dohrn, p. 72.

29. **Echinosoma sumatranum**, *Haan.* (Fig. 17.)

Forficula (Echinosoma) sumatranum, *Haan*, (42) p. 241.

Echinosoma sumatranum, *Dohrn*, (63) p. 65; *Scudder*, (76) p. 310; *Dubr.* (79) p. 352 *Borm.* (88) p. 433, (94) p. 377, (00²) p 28;

Burr, (00[1]) p. 89, (02) p. 478, (05[3]) p. 28, (07[3]) p. 510; *Kirby*, (04) p. 8.

Echinosoma westermanni, *Dohrn*, (63) p. 65; *Scudder*, (76) p. 310 *Dubr.* (79) p. 352; *Borm.* (00[2]) p. 28; *Kirby*, (04) p. 8.

Pronotum broader than the head, depressed, transverse, anterior margin gently convex, angles rounded; sides broadly reflexed; prozona somewhat tumid, and with a strong sulcus; metazona depressed, varying in colour from a uniform pale yellow to almost black, with a few dark markings. Elytra ample, rugulose and densely clad with dark bristles; brown or blackish, sometimes with a small red spot in the middle. Wings usually prominent, but occasionally short and scarcely protruding, pale yellowish, with a dark spot at the tip. Legs pale yellowish, the femora and tibiæ usually ringed with blackish. Abdomen dark brown to black, densely punctulate and densely bristly. Last dorsal segment in the ♂ transverse, with a median impression, posterior margin truncate, tumid over the roots of the forceps; in the ♀ similar but narrowed. Pygidium: in the ♂ rectangular, very short and very broad; in the ♀ conical. Forceps: in the ♂ with branches remote and roundly trigonal at base, smooth, stout, nearly straight basally, then gently arcuate; in the ♀ remote at base, straight at first, then arcuate, but less strongly than in ♂.

	♂	♀
Length of body	9–14 mm.	10–14 mm.
„ forceps	1·5–2 „	1·5–2 „

Bhutan: Maria Basti (*Paris Mus.*); Sikkim (*Ind. Mus.*); Assam: Khasi Hills, Sibsagar (*Ind. Mus.*); Burma: Metanjà in April, Teinzò, Kathà, in November, Bhamò in July, Shwegu in October, Palon in August and September (*Genoa Mus.*); Ceylon (*Brit. Mus.*).

Widely distributed and abundant throughout the Oriental Region, extending as far as New Guinea and Northern Australia.

A careful examination of numerous specimens, offering many differences of pattern, from all parts of India, Burma, Annam, Tonkin, Siam, the Malay Archipelago and New Guinea, fails to reveal any structural distinction, and consequently *E. westermanni*, Dohrn, is sunk, as being based merely on coloration or wing-development. The burden of proof lies with the advocates of separation. Perhaps the intensity of coloration depends upon the age and condition of the specimen when caught.

The following variations are represented in the Burr collection:—

I. General colour ranging from light brown (Java) to almost entirely black (Annam).

II. Labrum blackish (Tonkin, Java, etc.) or yellow (Annam, Tonkin, Java).

III. Pronotum uniform pale yellow (Java); more generally black, with yellowish markings at the sides and posteriorly.

IV. Elytra light brown or deep black (usual) or with a small not perfectly distinct red spot on the disc near the suture.

V. Wings abbreviated, slightly developed or prominent.

VI. Brown ring of femora faint or absent, especially in the anterior pair.

There is presented nearly every stage in the transition between each of these varieties; that is why, in the author's opinion, it is necessary to sink *E. westermanni*, Dohrn (labrum yellow, wings short, anterior femora not ringed).

30. **Echinosoma parvulum**, *Dohrn*.

Echinosoma parvulum, *Dohrn*, (63) p. 66; *Borm.* (00²) p. 29; *Burr*, (01) p. 77; *Kirby*, (04) p. 8.

Size small; colour dark brown, with dense, stiff, dark pubescence, and numerous thick reddish bristles. Antennæ with 19 segments, the first thick and dark yellow, second minute and pale yellow; the rest grey-brown; third rather elongate and perfectly cylindrical; fourth globular; fifth, sixth and seventh subcylindrical and a little longer than the fourth; the rest pyriform, but none equalling the third in length. Head dark brown, broad, depressed, with a few thick bristles; eyes prominent, mouth-parts yellowish. Pronotum decidedly transverse and a trifle wider posteriorly than anteriorly; prozona somewhat tumid and metazona flattened; sides broadly reflexed, all angles rounded, sides very slightly convex, dark brown, with a few scattered thick bristles. Sternal plates smooth, yellow. Elytra of the same colour, texture and clothing as the pronotum, the shoulders scarcely developed, truncate posteriorly; in the short-winged form short, scarcely longer than the pronotum; in the long-winged form quite double as long as the pronotum. Wings either abortive (short-winged form) or long and ample (long-winged form), in which case they protrude very prominently, the scale being even longer than the elytra, of a lighter brown colour, especially near the base and the suture, where the whitish membranous part is descernible; densely clothed with short bristles. Legs yellow, the femora ringed with brown near the base. Abdomen broad and rather flat, nearly parallel-sided, with a dense and close pubescence, and rows of yellowish, thick, short bristles; ventral surface red, smoother. Last dorsal segment in the ♂ strongly transverse, about three times as broad as long, of the same colour, texture and hairiness on the rest of the abdomen, truncate posteriorly; in the ♀ similar, but longer and narrowed posteriorly, the margin subsinuous. Penultimate ventral segment: in the ♂ transverse, with a median depression, posterior margin with a round median emargination with thick yellowish pubescence; in the ♀ posterior margin straight. Pygidium: in the ♂ rectangular, very short and very broad; in the ♀ short and conical. Forceps with the branches in

the ♂ remote at the base, smooth, deep red, stout, and rather broad at the base, very slightly diverging at first, then strongly arched in a semicircular curve; in the ♀ short, contiguous, straight, stout, conical, with a very blunt tooth near the base.

	♂	♀
Length of body	6–8·5 mm.	7–8 mm.
,, forceps	1 ,,	0·75–1 ,,

The larvæ resemble the female in the form of the abdomen and forceps; the colour is light brown, with darker longitudinal bands.

Ceylon: Peradeniya, in August and November (*coll. Burr*).

Type in Berlin.

This species has hitherto been known only from Dohrn's description of the female. Mr. Green found it commonly at Peradeniya, in rotten wood; a larva was taken in a termite's nest.

Of the specimens sent by Mr. Green, there is one male of each form, and four females of the short-winged form, which would thus appear to be commoner, though Dohrn's type is evidently winged. De Bormans incorrectly describes the first antennal segment as brown.

Owing to its small size, strongly bowed forceps and thick pyriform antennal segments, it is easy to recognize.

Dohrn describes the sixteenth antennal segment as yellowish, but this uncertain character is of no value.

Subfamily III. PSALINÆ.

The dominant genus of this subfamily is *Anisolabis*, but *Psalis* is chosen as the typical genus because it is the oldest. It has many features in common with the *Labidurinæ*, with which group it is closely allied.

It is exceptional for the forceps to be slender or remote at the base, whereas the reverse is the case in the *Labidurinæ*.

In this group we find a gradual transition from the fully winged *Psalis* to the entirely apterous *Anisolabis*.

Fig. 4.—Antenna of *Psalis dohrni*.

The glandular folds of the third and fourth abdominal segments, which are absent in *Labidura*, are often present in *Anisolabis*; and Rehn (Proc. Ac. Nat. Sci. Philadelphia, 1903, p. 301) has

shown that in the Neotropical species, *Psalis americana*, Pal.-Beauv., these folds are present in the larvæ and nymphs, but disappear when the creature attains maturity. This is evidence in favour of the view that these organs are useless as generic characters.

The possession of fully developed elytra is the chief distinction between *Psalis* and *Anisolabis*, so that immature specimens of the former are easily mistaken even for adult specimens of the latter genus.

The *Psalinæ* are generally thick-set, dark-coloured earwigs, with stout forceps.

Table of Genera.

1. Elytra perfectly developed; (abdomen subparallel-sided).	
2. Antennæ with 12–22 segments; sides of abdomen with no glandular folds.	Psalis, Serv., p. 74.
2.2. Antennæ with 20–30 segments; sides of abdomen with glandular folds ..	Labidurodes, Dubr., [p. 78.
1.1. Apterous forms; elytra entirely wanting or rudimentary.	
2. Abdomen dilated from the base to the apex. (Elytra absent.)	Gonolabis, Burr, p. 79.
2.2. Abdomen subparallel-sided, or slightly dilated about the middle.	
3. Elytra entirely wanting	Anisolabis, Fieb., p. 80.
3.3. Rudimentary elytra present	Borellia, Burr, p. 87.

Genus **PSALIS**, *Serv.*

Psalis, *Serv.* (31) p. 34.
Carcinophora, *Scudd.* (76) p. 291.—*Type*, C. robusta, *Scudd.*

Type, *Forficula americana*, Pal.-Beauv.

Body stout; antennæ with 12–22 segments; basal segment very long and conical; third segment cylindrical, half as long as the first; third and fourth short, no longer than broad; fifth a little longer; sixth and others gradually lengthened, the sixth nearly as long as the third. The segments are nearly cylindrical, but in the Indian species they are almost clavate. Head convex, smooth and shining. Pronotum nearly as broad as the head, subquadrate, widened somewhat posteriorly (especially in Old World species); posterior margin convex. Mesosternum convex; metasternum with the lobe produced between posterior coxæ, truncate. Elytra and wings smooth, well developed, the former with no carina. Legs rather short, stout. Abdomen broad and depressed, last dorsal segment quadrate in both sexes; sides of the sixth, seventh, eighth and ninth segments acute; no glandular folds in adults. Penultimate ventral segment of the ♂ broad, obtuse, rounded; in the ♀ roundly triangular; pygidium indistinct. Forceps with

branches conical, stout, subcontiguous, gently curved in the ♂; contiguous in the ♀.

Range. Asia, Africa, America.

This genus was confused by the older authors with *Labidura*. De Bormans remarks that it approaches nearer to *Anisolabis*, and this is correct, for it is practically the same thing but with fully-developed organs of flight.

The genus *Carcinophora*, Scudd., only differing from typical *Psalis* in the absence of wings, cannot stand, and must be absorbed in *Psalis*.

Table of Species.

1. Wings perfectly developed; forceps of male not contiguous at base; (colour shining chocolate, varied with yellowish)	*femoralis*, Dohrn, p. 75.
1.1. Wings abortive; forceps of male contiguous at base.	
2. Elytra rectangular, showing no scutellum.	
3. Colour brilliant shining reddish black, with blue sheen on elytra, which are truncate posteriorly..	*dohrni*, Kirby, p. 76.
3.3. Colour reddish black, with no blue sheen; elytra oblique posteriorly.	*lefroyi*, sp. n., p. 77.
2.2. Elytra strongly cut away at the axillary angle, thus being triangular; exposing a small scutellum	*castetsi*, Borm., p. 77.

31. **Psalis femoralis**, *Dohrn.* (Fig. 18.)

Labidura femoralis, *Dohrn*, (63) p. 321; *Scudder*, (76) p. 522 (nec *Dubr.*).

Psalis femoralis, *Borm.* (88) p. 434, (94) p. 378, (00²) p. 38; *Burr*, (01) p. 78, pl. B, fig. 3, (08²) p. 29; *Kirby*, (04) p. 13.

Stature small but robust; general colour deep chestnut-brown, varied with yellowish and often with a bluish sheen. Antennæ greyish yellow, the basal segments paler. Head shining deep dark brown. Pronotum chocolate-brown, shining, the sides somewhat paler, longer than broad and broadened posteriorly; anterior and lateral margins straight; posterior margin subconvex, the angles rounded. Elytra shining chocolate-brown, truncate apically, with a faint bronze sheen. Wings long, pale yellowish at the base, of the same colour as the elytra at the apex. Legs pale yellow, the femora banded with dark brown. Abdomen deep chocolate-brown, smooth and shining. Last dorsal segment quadrate in both sexes, faintly rugulose posteriorly in the ♂, with a median depression and a faint tumid tubercle over the insertion

of the forceps. Forceps: in the ♂ flat beneath, convex above, stout, tapering, subcontiguous, straight, gently incurved at the apex, denticulate near base on inner margin; in the ♀ straight, conical, contiguous.

	♂	♀
Length of body....	8·5–9 mm.	10 mm.
,, forceps..	1·25–1·5 ,,	1·75 ,,

Burma: Metanja, viii.; Teinzo, v.; Bhamò, vi.–viii.; Kathà, ii.–vi.; Rangoon, v.; Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*Genoa & Brit. Mus.*); Tenasserim: Thagatà, iv. (*Genoa Mus.*); Ceylon: Punduluoya, Galagedara, Peradeniya (*Green*), Ambegammoa (*Willey, coll. Burr*), Diyatalawa (*coll. Burr*); Tonkin (*Brit. & Paris Mus.*).

Type in the Stettin Museum (?).

This species has no strong resemblance to any other, its shiny deep colour being very characteristic. Its nearest resemblance, perhaps, is to the African species of the genus. The bronze sheen is much more striking in some specimens than others; this may be due to the age of the specimens, or perhaps the sex, season or locality in which they were caught.

32. **Psalis dohrni**, *Kirby*.* (Fig. 19.)

Nannopygia dohrni, *Kirby*, (91) p. 508; *Borm.* (00²) p. 11.
Labidura femoralis, *Dubr.* (79) p. 353 (nec *Dohrn*).
Carcinophora cæruleipennis, *Borm.* (00²) p. 40.
Carcinophora dohrni, *Burr*, (01) p. 328, pl. B, fig. 8; *Kirby*, (04) p. 15.

Small; black, shading towards reddish black posteriorly, smooth, shining, with an oily lustre. Antennæ with 17 segments; the first three are yellowish, the rest greyish, except second and third (probably varying) before the apex, which are pale. Head very convex and smooth, shining black. Pronotum of same colour, somewhat longer than broad and broadened posteriorly. Elytra rather short, but longer than the pronotum, truncate at the apex, brilliantly shining with a bluish bronze metallic sheen. Legs pale testaceous, the femora strongly banded with black. Abdomen intensely deep chocolate blackish-brown, with brilliant oily lustre, of the same form as *Psalis*. Last apical segment as in *Psalis*. Forceps: in the ♂ short, stout, trigonal, subcontiguous, tapering, attenuate and hooked at the apex; in the ♀ practically identical.

	♂ ♀
Length of body	10–12 mm.
,, forceps	2–2·5 ,,

Ceylon: Galle, Kandy (*coll. Bolivar*), Peradeniya in May–Oct. (*coll. Burr*), Ambegammoa (*Willey, coll. Burr*); Travancore:

North side of the Western Ghats, Tenmalai (*Ind. Mus., coll. Burr*).

Type in the British Museum.

This handsome little earwig can only be confused with the following species. Its deep black colour, brilliant oily lustre, and blue sheen on the elytra are very distinctive, although the latter is not always very strongly marked, at least in old specimens.

A record from Somerset, in Northern Australia, must almost certainly refer to a distinct species.

33. **Psalis castetsi**, *Borm.*

Carcinophora castetsi, *Borm.* apud *Bol.* (97) p. 284; *Borm.* (00[2]) p. 41; *Kirby*, (04) p. 15.

Pitch-black, punctulate; three basal segments of antennæ dark yellowish; mouth-parts yellowish; pronotum with very narrow pale side border. Elytra short, truncate, excavate at axillary angle so as to expose a minute scutellum; abdomen typical; forceps unarmed, typical.

	♂	♀
Length of body	9·5 mm.	11 mm.
,, forceps	1·75 ,,	2 ,,

Madras: Trichinopoli, Kodaikanal (*coll. Bolivar*).

According to de Bormans this species differs from the preceding in the axillary excavation of the elytra, which thus expose a minute scutellum; he also states that these organs are much the same as in the European *Pseudochelidura sinuata*.

34. **Psalis lefroyi**, sp. n. (Fig. 20.)

Of medium size, sturdy build, and deep reddish chestnut colour. Antennæ blackish, the apical segments white. Head shining blackish red. Pronotum black, slightly wider posteriorly than anteriorly, a little longer than broad, almost rectangular; posterior margin straight, very narrowly bordered with yellow, the sides reflexed; prozona not tumid. Elytra blackish brown, ample, obliquely truncate at the apex. Wings abortive (in the type). Femora yellowish, with a broad black ring; tibiæ and tarsi yellowish. Abdomen deep reddish chestnut, almost black, smooth. Last dorsal segment in the ♂ smooth, transverse, gently narrowed posteriorly. Forceps in ♂ and ♀ red, the branches subcontiguous, stout, trigonal, conical, straight.

	♂	♀
Length of body	9 mm.	7·5 mm.
,, forceps.....	1·75 ,,	2 ,,

Bombay: Mahim, 22.ii.04, "feeding on plantain roots" (*Pusa coll.*); Bengal: Pusa (*Pusa coll.*).

Type in the author's collection.

Dedicated to the Imperial Entomologist, Mr. Maxwell Lefroy, who has contributed some interesting material.

This species is described from a single pair in poor condition. In general appearance it resembles *P. femoralis*, but differs in the pronotum, which is almost rectangular, in correlation with the abortive wings; the forceps are contiguous and the femora ringed with black. The head is also larger.

It might be confused with *P. dohrni*, but it is a more powerfully built and much broader insect; the abdomen is decidedly broader and shorter and the elytra relatively shorter and truncate obliquely, that is the posterior margin is not quite at right angles to the median suture. The colour is less deep, redder and browner, and there is no blue tinge on the elytra.

Probably the specimens recorded by the present writer from Ceylon under the name of *Anisolabis brunneri*, (01) p. 377, and from the Purneah District, (05³) p. 389, are nothing more or less than immature specimens of this species. They have certainly nothing to do with the true *Anisolabis brunneri* of Dohrn, from Australia, which is now a well-known and totally distinct species.

Genus **LABIDURODES**, *Dubr.*

Labidurodes, *Dubr.* (79) p. 355.

Type, *Labidurodes robustus*, Dubr.

Allied to *Psalis*, but differs in having from 20–30 segments in the antennæ, and in having well-developed glandular folds at the sides of the second and third abdominal segments.

Range. Four species have been described, occurring in New Guinea, Siam and Madagascar, but more material is required to place this genus in a satisfactory condition.

35. **Labidurodes robustus**, *Dubr.*

Labidurodes robustus, *Dubr.* (79) p. 356; *Borm.* (00²) p. 39; *Kirby*, (04) p. 15; *Burr*, (05³) p. 28.

Large and powerful. Head and pronotum shining black. Antennæ brown, with 27 segments. Elytra and wings well developed, shining brownish black. Femora short, brown; base of tibia brown; apex of tibia and tarsi yellowish. Abdomen and forceps shining dark brown. Forceps of the ♂ with branches not contiguous, robust, trigonal in basal third, then rounded with the points strongly incurved; the trigonal portion has three strong crenulations.

	♂
Length of body	23 mm.
,, forceps	6 ,,

? Lower Burma: Tavoy (*Ind. Mus.*).

This species is known only through Dubrony's description. It is recorded from the Fly River, New Guinea. An immature specimen in the Indian Museum, from Tavoy, is attributed to it, with considerable hesitation.

Genus **GONOLABIS**, *Burr.*

Gonolabis, *Burr*, (00²) pp. 48 & 53; *Borm.* (00¹) p. 451; *Kirby*, (04) p. 15.

Type, *Anisolabis javana*, Bormans.

Entirely apterous. Antennæ with less than 20 segments, third cylindrical, fourth and fifth globular, the rest longer, subpyriform. Head smooth. Pronotum square, as broad as the head or broader. Sternal plates as in *Anisolabis*. Elytra entirely wanting. Femora rather thick; tibiæ and tarsi compressed, the latter very slender; second segment very short. Abdomen in the ♂ narrow at the base, gradually broadened, attaining the greatest width at the apex. Last dorsal segment of the ♂ broad and rectangular; of the ♀ broad, but narrowed posteriorly. Forceps of the ♂ stout, remote at base, arcuate strongly; of the ♀ conical, contiguous, straight.

Range. Asia, Africa, Australia.

By the removal of certain non-Indian species, characterized by a strongly narrowed prosternum, this genus is now restricted to Old World forms. The genus is related to *Anisolabis*, but has fewer antennal segments; the gradual widening of the abdomen from base to apex is very characteristic.

36. **Gonolabis electa**, sp. n. (Fig. 21.)

Small; shining dark chestnut-brown. Antennæ brown, basal segments paler, with 14–15 segments; third cylindrical, elongate, fourth and fifth globular, the rest gradually lengthening, passing from subcylindrical to ovate. Head tumid, smooth, shining, dark blackish brown. Pronotum as broad as the head, square or very gently widened posteriorly, flat, shining brown, the sides paler. Mesonotum short, about twice as broad as long. Entire thorax smooth, shining, deep brown. Legs testaceous, femora with darker shading. Abdomen of the same colour, gradually dilated in the ♂ from the base to the apex, which is about $1\frac{1}{2}$ times as wide as the base. Sides of the sixth to ninth segments produced backwards to sharp points in the ♂ only. Last dorsal segment: in the ♂ rectangular and about twice as broad as long, smooth and shining, with a faint median depression, posterior margin truncate; over the roots of the forceps there is a slight tumid elevation, outside which is a depressed triangular area, so that the segment is bounded externally by a slight longitudinal fold or ridge which is continuous with the line formed by the points of the sixth–ninth abdominal segments; in the ♀ trapezoidal, strongly

narrowed, otherwise formed as in the ♂, except that the external depression and ridge are absent. Penultimate ventral segment in the ♂ ample, very broadly rounded; in the ♀ similar but less broadly rounded, more pronouncedly convex. Pygidium of ♂ and ♀ not protruding. Forceps with the branches in the ♂ remote at the base, very stout and trigonal, the upper keel corresponding to the slight tumidity of the last dorsal segment, the outer surface being depressed in correspondence with the similar depressed area on the last dorsal segment, the outer ridge corresponding with the line of the points of the sixth–ninth abdominal segments and lateral ridge of the last dorsal segment; the branches are straight at first, tapering rapidly; at about half their length they become abruptly attenuate, cylindrical and strongly bowed inwards; the maximum breadth is over double the length. In the ♀ the branches are contiguous, stout, trigono-conical, straight and tapering, the inner margin crenulate.

	♂	♀
Length of body	6·5–7 mm.	6–7 mm.
„ forceps	1 „	1 „

Maximum breadth of abdomen: 2·5 mm.
Minimum „ „ 1·5 mm.

Ceylon: Peradeniya, April (*Green, coll. Burr*); Java (*coll. Burr*).

Type in the author's collection.

Easily recognizable by the apically dilated abdomen. It is related to *G. javana*, Borm., and *G. sumatrana*, Borm., but is smaller, more shining, and the abdomen much more strongly dilated.

Genus **ANISOLABIS**, *Fieber*.

Anisolabis, *Fieber*, (53) p. 257.
Forcinella, *Dohrn, Stett. Ent. Zeit.* xxiii. p. 226 (1862).
Brachylabis, *Dohrn*, (64) p. 292 (partim).—*Type*, Forficula maritima, *Bon.*

Type, *Forficula maritima*, Bon.

Body convex, rather elongate, generally stout. Head convex, longer than broad. Antennæ with from 15 to 25 segments, formed as in *Psalis*, but the form and size varies within certain limits. Pronotum rectangular, almost or quite square; mesonotum transverse; metanotum with posterior border sinuate. Elytra entirely absent. Legs rather short, wide. Sternal plates rather narrow, longer than broad. Metasternum somewhat produced between posterior coxæ; the lobe generally truncate at the apex. Mesosternum rounded posteriorly. Abdomen depressed, rather broad, attaining its greatest breadth at about two-thirds of its length; lateral tubercles sometimes distinct, sometimes obsolete.

The sides of the sixth and seventh segments of the male are convex, often produced into a sharp point, striate, rugulose or even carinate; this feature is present on a feebler scale in the female. Last dorsal segment in the ♂ ample, subrectangular, but broader than long, less broad than the preceding segments; in the ♀ similar, but somewhat narrower. Penultimate ventral segment of ♂ ovate or roundly triangular; broader in the ♀. Branches of forceps in

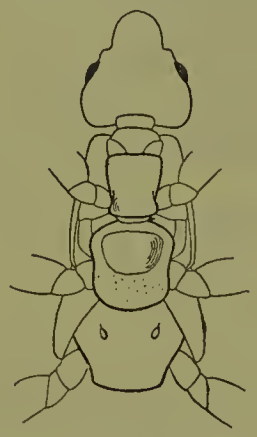

Fig. 5.—Sternal plates of *Anisolabis maritima*, Bon.

the ♂ of two types: (1) contiguous or subcontiguous, stout, nearly straight, tapering, or (2) remote, straight at first and strongly and abruptly bent inwards, the right branch often more strongly than the left. In the ♀ the branches are contiguous, straight, stout, tapering.

Range. Cosmopolitan.

After the removal of those forms now separated into *Borellia* and the sinking of a number of names as synonyms, there are still about two dozen species left in this genus, occurring in all parts of the world. Their discrimination is often difficult, and it is absolutely necessary to know the male before a species can be characterized or satisfactorily determined.

Some species seem to have a very restricted distribution, though two, *A. maritima* and *A. annulipes*, have become cosmopolitan.

Immature specimens of various species of *Psalis* are often placed under this genus in collections, and sometimes may have been described as species.

Table of Species.

1. Posterior margin of metasternal lobe rounded; size great; (forceps subcontiguous, straight; legs and antennæ unicolorous). ..... *colossea*, Dohrn, p. 82.

1.1. Posterior margin of metasternal lobe truncate; size medium or small.

2. Branches of forceps of ♂ remote at the base, strongly curved.

3. Thorax with faint median line; forceps of ♂ abruptly bowed, with a rectangular internal projection on the right branch. ..... *maritima*, Bon., p. 83.

3.3. Thorax with distinct median line; forceps of ♂ gently arcuate, with no rectangular projection. ..... *kudagæ*, Burr, p. 84.

2.2. Branches of forceps of ♂ subcontiguous or contiguous, nearly straight, curved at the apex.

3. Sides of 6th–9th abdominal segments of ♂ with longitudinal keel along the striations. (Antennæ and legs banded; size small) ..... *annulipes*, Luc., p. 84.

3.3. Sides of 6th–9th abdominal segments of ♂ striate, rugulose but not carinate. (Size large; head red; legs long, clear yellow-brown) .. *dubronii*, Kirby, p. 85.

Head red; legs banded; ♂ unknown ..... *gaudens*, Burr, p. 86.

37. Anisolabis colossea, *Dohrn*.

Forcinella colossea, *Dohrn*, (64) p. 286; *Dubr.* (79) p. 357.
Anisolabis colossea, *Borm.* (94) p. 379, (00²) p. 47; *Kirby*, (04) p. 19.
Anisolabis colossea, *var.* minor, *Burr*, (02) p. 479.

Size varying from 20 to 50 mm. in length. Build robust; colour red-brown passing into blackish. Antennæ brown with 4th and 5th segments almost globular, the rest pear-shaped. Pronotum quadrate, with a transverse depression. Prosternum truncate posteriorly. Metasternum long and narrow, lobe well produced between posterior coxæ, and rounded. Mesosternum narrow, rounded posteriorly. Abdomen smooth, broad and flat; sides of last two or three segments of ♂ & ♀ convex, slightly rugulose. Last dorsal segment of ♂ rectangular, broader than long, with a median impression, rugulose posteriorly; in ♀ somewhat narrower. The penultimate ventral segment broadly rounded. Forceps in both ♂ and ♀ with branches subcontiguous at the base, stout and robust, trigonal, broad, gradually tapering, with the inner margin crenulate, perfectly straight as far as the apex, where the points are slightly incurved.

	♂	♀
Length of body	20–51 mm.	30–43 mm.
„ forceps	6–8·5 „	4–8 „

Burma: Pegu, Palon, viii./ix.; Karen-ni, Keba District, 3000–3700 ft., iv., xii. (*Genoa Mus.*).

Type. Undefined, in Paris, Vienna or Stettin.

This earwig appears to be the commonest in Australia where it attains an immense size; the variety *minor*, however, is recorded, from New South Wales, and it is the form which de Bormans records from Burma. It is probable that the Burmese specimens belong really to a distinct species. The forceps of the large specimens are capable of giving a severe nip, and even of drawing blood from the human finger.

38. **Anisolabis maritima**, *Bon.* (Fig. 22.)

Forficula maritima, *Bonelli*, apud *Géné*, (32) p. 224.
Forficula (Labidura) maritima, *Fischer*, (53) p. 68, pl. 6, fig. 4 *a-d*.
Forficesila maritima, *Serv.* (39) p. 27.
Forficula (Forficesila) maritima, *Haan*, (42) p. 240.
Forcinella maritima, *Dohrn*, (62) p. 226.
Brachylabis maritima, *Dohrn*, (64) p. 293.
Anisolabis maritima, *Fieb.* (53) p. 257; *Scudder*, (76) p. 303; *Brunner*, (82) p. 9, pl. 1, fig. 2; *Borm.* (88) p. 435, (94) p. 379 (00²) p. 45; *Kirby*, (04) p. 17.

The references in literature to this species are very numerous. The above are the most important.

Black. Antennæ and mouth-parts yellow. Thorax dull black, smooth, with a few impressed points. Legs uniform yellow. Abdomen rather broad, all the segments recurved at the sides in the ♂, the sides regular and in some specimens forming a longitudinal keel; in the ♀ the sides are merely convex and smooth. The whole of the abdomen is sparsely covered with impressed points. Last dorsal segment of ♂ rectangular, parallel-sided, broader than long, with a median impression, the posterior margin straight; similar in the ♀, but somewhat narrower. Branches of the forceps in the ♂ remote at the base; in the basal third stout, straight, trigonal and somewhat dilated, especially the right branch; asymmetrical, the left branch being gently and regularly incurved and tapering, while the right branch is abruptly curved inwards, so that the apical third of the branch is at right angles to the longitudinal axis of the insect; the outer margin presents a regular curve; the inner margin is curved in a semicircle and shows a rectangular projection at the basal third where the attenuation is sudden. In the ♀ the branches are symmetrical, subcontiguous, trigonal, nearly straight, unarmed, and tapering.

	♂	♀
Length of body	15–23 mm.	21–23 mm.
,, forceps	3–3·5 ,,	3·5–4·25 ,,

Burma: Kakhyen Hills, viii./ix.; Tenasserim: Mt. Mulaiyit, 3300–6300 ft. (*Genoa Mus.*).

This species, apparently indigenous to the Palæarctic Region, has been transported by shipping to all parts of the world and has quickly naturalised itself wherever possible.

Its usual haunts are the banks of rivers and coasts of seas, but it sometimes occurs on mountains at a considerable elevation, as in the above noted instances in Tenasserim; and de Bormans records it from Mount Lebanon. It probably occurs also in the mainland of India in suitable localities.

Although generally considered a stable species, *A. maritima* varies within certain limits, as Scudder first pointed out. That author refers to two males from South Carolina, with forceps

simple as in the female; occasionally the antennæ have a pale ring. The posterior margin of the last dorsal segment of the male varies from almost smooth to rugose.

39. Anisolabis kudagæ, *Burr.** (Fig. 23.)

Anisolabis kudagæ, *Burr*, (01) p. 320, pl. B, fig. 6; *Kirby*, (04) p. 19.

Of medium size. Shining black, passing from deep chestnut, through reddish black to deep black. Antennæ dark brown, basal and apical segments reddish. Thoracic plates with a well marked median line. Legs varying from light red to reddish black. Abdomen broad, from red to reddish black, shining, with exceedingly fine punctulations; sides of apical segments convex, very finely striated in the ♂, smooth in the ♀. Last dorsal segment in the ♂ rectangular, broader than long, with a distinct median impression and a more or less indistinct tumid elevation on each side, over the insertion of the forceps a distinct oblique compressed crest on each side; in the ♀ narrowed and simple. Forceps with branches in the ♂ remote and trigonal at the base, the upper ridge becoming obsolete in the basal third; rather depressed, tapering and bowed inwards, the apical third strongly so; the right branch is curved more strongly than the left and lies above it, but the asymmetry is not nearly so marked as in the last species. In the ♀ the forceps are subcontiguous, straight, tapering; the inner margin is finely crenulate in both sexes.

	♂	♀
Length of body	12·5–15·75 mm.	15 mm.
,, forceps	2–3 ,,	3·5 ,,

Ceylon: Kudaga, Hutton, vii. (*coll. Burr*), Maskeliya at light, Hakgala and Patipola in April and December (*coll. Burr*).

Type in the author's collection.

This species somewhat resembles *A. maritima*, but the forceps are more regular and less abruptly curved, the median line of the thorax is distinct, and the last dorsal segment has tumid elevations and folds that are absent in that species.

The specimen from Maskeliya, sent by Mr. Green after the publication of the original description, is somewhat smaller than the type, and much lighter and redder in colour. It is found under stones and logs.

40. Anisolabis annulipes, *Lucas*. (Fig. 24.)

Forficesila annulipes, *Lucas*, (47) p. 84.
Forcinella annulipes, *Dohrn*, (64) p. 290.
Forficula (Labidura) annulipes, *Fisch.* (53) p. 69, pl. 6, fig. 6 *a-c*.
Anisolabis annulipes, *Scudd.* (76) p. 302; *Brunner*, (82) p. 8; *Borm.* (88) p. 435, (94) p. 378, (00²) p. 48; *Burr*, (01) p. 321, (05³) p. 28, (06) p. 388, (07²) p. 209; *Kirby*, (04) p. 18.

Forcinella hottentotta, *Dohrn*, (67²) p. 344.
Anisolabis bormansi, *Scudd., Bull. Mus. Harvard*, xxv. p. 5, pl. i, fig. 1; *Borm.* (00²) p. 49.
Forcinella antoni, *Dohrn*, (64) p. 289.
Anisolabis antoni, *Borm.* (00²) p. 49.
Forcinella azteca, *Dohrn*, (62) p. 226.
Anisolabis azteca, *Scudd.* (76) p. 302 : *Borm.* (00²) p. 49.
Anisolabis antennata, *Kirby*, (91) p. 517.

The references given above are the more important in the extensive literature and synonymy of this species.

Medium sized, black, shining. Head black; antennæ with basal segment reddish; the rest greyish brown, except the two penultimate segments which are whitish. Pronotum as broad as the head, sometimes paler in colour, quadrate; elytra entirely absent. Abdomen with sides more or less parallel, with no tubercles upon the sides of the second and third segments; sixth to ninth segments in the ♂ with sides acute-angled, striate and carinate. Last dorsal segment larger than the others, slightly impressed in the middle. Legs testaceous, the femora banded with black, as are also the tibiæ; the depth and intensity of this banding varies very considerably. Branches of the forceps in the ♂ subcontiguous at the base, stout, strongly incurved, the right branch crossing above the left at the apex; in the ♀ the branches are straight, conical, subcontiguous.

	♂	♀
Length of body	11 mm.	12–14 mm.
„ forceps	2 „	3·35 „

Bengal: Calcutta (*Ind. Mus.*), Purneah District (*Ind. Mus.*); Muzaffarpur, Behar, Sitamarhi and Pupri (*Pusa coll.*); Pusa (*Pusa coll.*, *coll. Burr*); Bombay: Karachi (*Paris Mus.*), Bombay (*coll. Bormans*); Madras: Trichinopoli (*coll. Bolivar*); Burma: Metanja, viii.; Teinzo, v.; Shwegu, x.; Bhamò, vii./viii.; Mandalay, xi.; Rangoon, v./xii.; Karen-ni, Keba Distr., 3000–3700 ft., vi./xii.; Karen-ni, Geku Distr., 4300–7400 ft., ii., iii., v. (*Genoa Mus.*); Ceylon: Punduluoya, Hutton, Kala Wewa, Madulsima (*coll. Burr*).

A universally distributed species, very abundant in the wild state and also under artificial conditions.

41. **Anisolabis dubronii**, *Kirby*.* (Fig. 97.)

Anisolabis læta, *Borm.* (nec *Gerst.*) (88) p. 435, (94) p. 379, (00²) p. 46 (partim).
Anisolabis dubronii, *Kirby*, (03) p. 68, (04) p. 19; *Burr*, (03) p. 270.

Colour entirely dark reddish black except the head and legs. Head ferruginous, the sutures indistinct; mouth-parts blackish, palpi testaceous; antennæ with 21 segments, typical of the genus, dark brown. Pronotum subrectangular, longer than broad, slightly

broader posteriorly than anteriorly, anterior and posterior margins straight, angles rounded, slightly tumid, the sides very slightly elevated. Mesonotum subquadrate, simple, nearly as long as broad. Metanotum transverse, posterior border roundly emarginate. Legs uniformly testaceous. Abdomen extremely finely punctulated, almost smooth, the lateral tubercles very faint; sides of sixth to ninth segments rugulose and striate. Last dorsal segment large, square, also extremely finely punctulated, with a very faint median longitudinal line. Penultimate ventral segment also very finely punctulated; obtusely triangular, rounded at the posterior margin, exposing the lateral corners of the last segment; the rest of the venter quite smooth. Pygidium not apparent. Forceps with the branches stout, trigonal, blackish red, darker towards the apex, unarmed except for a few fine denticulations on the inner margin; the right branch is strongly curved in above the left which is much less strongly curved. ♀ unknown.

	♂
Length of body	20·25 mm.
,, forceps	4 ,,

Tenasserim: Mt. Mulaiyit, 3300–6300 ft., in April (*Brit. Mus., coll. Burr*).

Type in the British Museum.

This handsome species is quite distinct from the E. African *A. læta*, with which de Bormans confused it; from other Indian species it may be recognized by its large size, red head, clear and long legs, and the form of the forceps.

42. Anisolabis gaudens, *Burr.**

Anisolabis gaudens, *Burr*, (04) p. 291; (08²) p. 30.

Size medium; black, shining; antennæ with 15 segments, blackish, the basal two red; segments four and five nearly globular; head clear brick-red, smooth; thorax and abdomen typical, black, shining, the thorax with a median impression; last dorsal segment scarcely narrowed, smooth. Legs short, yellow, the knees black. Forceps stout, depressed, subcontiguous, convex above, straight, tapering, hooked at the extreme apex. ♂ unknown.

	♀
Length of body	7 mm.
,, forceps	3 ,,

Bhutan: Pedong (*Paris Mus.*).

Type in the Paris Museum.

The value of the original description is vitiated by the error which was made in mistaking the sex of the type. Attention is now called to this, so that collectors may look out for the male, in order that the species can be ranged in its correct position and its true affinities be determined. The brick-red head recalls *A. dubronii*, but the banded knees constitute a difference.

The Paris Museum possesses another female, from Bhutan (Maria Basti), which resembles the type of *A. gaudens*, except that the head is black. Further material is urgently required to solve the question.

Genus **BORELLIA**, *Burr.*

Borellia, *Burr*, (09) p. 325.

Type, *Forficesila mœsta*, Serville.

This genus differs from *Anisolabis*, Fieb. (q. v.) in the presence on the mesonotum of small rudimentary elytra. These are not generally contiguous at any point, and are usually soldered to the mesonotum.

Range. Cosmopolitan.

Table of Species.

1.	Elytra narrow at the base, exposing the mesonotum like a scutellum, dilated towards the apex and contiguous at the end of the suture, covering the base of the metanotum	*greeni*, Burr, p. 87.
1.1.	Elytra narrow, only covering the sides of the mesonotum.	
2.	Femora ringed with black	*ståli*, Dohrn, p. 88.
2.2.	Femora not ringed	*annandalei*, Burr, p. 89.

43. **Borellia greeni**, *Burr.* *

Anisolabis greeni, *Burr*, (99) p. 257, (01) p. 319; *Kirby*, (04) p. 19.

Of medium size; the whole body exceedingly minutely punctulated and with a few long hairs; black, the legs brick-red, the rest black, except the four apical segments which are pale. Pronotum rectangular, with a median impression. Elytra narrow at base, exposing a broad, short, transverse area of the mesonotum; then suddenly and strongly dilated, so that the inner margins meet along the suture and cover the apical half of the mesonotum. Legs brick-red, the knees somewhat darker or all black. Abdomen deep reddish black; last dorsal segment somewhat narrowed in both sexes, with a faint median impression, with two faint tubercles on posterior margin in the ♂. Penultimate ventral segment triangular, the apex rounded. Forceps alike in both sexes, subcontiguous, stout, trigonal at base, rapidly tapering, straight, curved at the apex, more so in the ♂ than in the ♀; inner margin with a very faint tooth in the middle.

	♂	♀
Length of body	11·5–23·5 mm.	17 mm.
,, forceps ..	2–3 ,,	3·25 ,,

Ceylon: Punduluoya, v. & x., under stones and in bungalows (*coll. Burr*), Madulsima, 13.viii.08 (*T. B. Fletcher*), Kala Wewa, 12.xii.08 (*Willey*; *coll. Burr*); Nilgiri Hills (*Brit. Mus.*).

Type in the author's collection.

The form of the elytra is the characteristic of this species.

The specimens taken by Mr. Green at Punduluoya are the typical form, as originally described, with bright brick-red legs affording a contrast to the jet-black body.

The specimens taken by Mr. Fletcher at Madulsima are very different in appearance, as they are distinctly larger and the legs and antennæ are entirely dull black. The males attain a maximum length of body (without forceps) of 23·5 mm., the forceps 3 mm In three of these males, the elytra are almost obsolete and their outline can scarcely be detected; this may be an anelytrous variety or, more probably, the specimens are not fully mature.

The dimensions of the various forms are as follows:—

	♂	♀
Typical specimen from Punduluoya:		
Length of body	11·5–13 mm.	17 mm.
„ forceps	2 „	3·25 „
Black specimens from Madulsima:		
Length of body	15·75–23·5 „	19–23 „
„ forceps	3–3·5 „	3·5–4 „
Anelytrous specimens from Madulsima:		
Length of body	15·5–17 „	
„ forceps	3 „	

These differences are not of sufficient importance to justify the establishment of a distinct species, and it is safer to regard these big black specimens from Madulsima as a local race or variety.

44. Borellia ståli, *Dohrn.*

Forcinella ståli, *Dohrn*, (64) p. 286.
Anisolabis ståli, *Scudd.* (76) p. 308; *Borm.* (88), p. 435, (94) p. 378, (00²) p. 45; *Burr*, (02) p. 479, (08²) p. 30; *Kirby*, (04) p. 19.

Small, black, shining; antennæ with basal two segments red, the rest black, except the two or three apical segments, which are whitish. Pro-, meso- and metanota typical. Elytra present as small ovate flaps on the side of the mesonotum; they are as long as the mesonotum, but much narrower than long. Legs testaceous, the femora and tibiæ ringed with blackish. Forceps of ♂ with branches not contiguous at the base, trigonal in basal half, straight at first and robust, tapering and cylindrical in the apical half, sharply curved in the apical third, the right branch curved more strongly than the left and above it; in the ♀ the branches are

robust, trigonal, straight, tapering, cylindrical towards the apex and gently hooked there.

	♂	♀
Length of body	8–9 mm.	9–10 mm.
,, forceps	1–2 ,,	1–2·5 ,,

Bombay: Bombay (*coll. Bormans*), Karachi (*Paris Mus.*); Madras: Pondicherry (*Paris Mus.*); Ceylon: Diyatalawa in August, Trincomali in July (*coll. Burr*).

Type in Stockholm.

Widely distributed through the Malay Archipelago and elsewhere in the Oriental Region, this species occurs also in Madagascar (Nossi-be), the Comoro Is., and Pemba, off the east coast of Africa.

Superficially, it resembles the ubiquitous *Anisolabis annulipes* in size, colour and form, but may be at once distinguished by the presence of narrow, but perfectly distinct, lateral flaps on the mesonotum, the abbreviated rudiments of elytra. Immature specimens of these two species are probably indistinguishable.

The specimens from Ceylon are a little larger than the typical form (length of body, 13·5 mm.), the legs are of a uniform yellow colour, and the head is rather larger and more tumid.

45. Borellia annandalei, *Burr.* *

Anisolabis annandalei, *Burr*, (06) p. 389, (07[2]) p. 209.

Head reddish, smooth and shining, darker in the centre; sutures fairly distinct. Antennæ with 16–17 segments, typical, the basal segments testaceous, the rest dark greyish brown. Pronotum ample, subquadrate, somewhat broader posteriorly than anteriorly, all borders straight, hinder angles rounded; disc somewhat tumid, but metazona scarcely more flat than prozona; median suture fairly distinct; sides distinctly reflexed; dark fuscous, varied with testaceous, especially on the borders; slightly longer than broad. Mesonotum smooth, ample, transverse, bearing the elytra. Metanotum normal, posterior border sinuate. Elytra present as small, elongated, testaceous, oval flaps on each side of the mesonotum; as long as the mesonotum and about one-quarter as broad. Legs yellowish testaceous, the femora and knees sometimes marked with a narrow black band, which is often obsolete. Prosternum oblong, scarcely attenuate posteriorly. Abdomen dark reddish black, shining, very finely punctulated; somewhat flattened and broadened towards the apex (in the manner of typical *Anisolabis maritima*, Bon., ♂); sides of the segments, as seen from above, slightly recurved; as seen from the side, pointed posteriorly and bearing a small longitudinal keel. Last dorsal segment ample, broader than long, very finely punctulated, with a deep median

impression ; hinder border roughened and truncate. Penultimate ventral segment very large, broad and ample, well rounded posteriorly, entirely covering the last ventral segment. Last ventral segment almost entirely covered by the preceding, visible at the corners, where a longitudinal small keel is present. Pygidium scarcely visible, very small, short, blunt and rounded. Forceps with the branches remote at the base, stout and trigonal in the basal half, crenulate on the inner margin, straight ; in the apical half strongly attenuate, smooth, unarmed and incurved ; the right branch is a little more strongly curved than the left. ♀ unknown.

	♂
Length of body	10–12·5 mm.
„ forceps	1·75–2 „

Bengal : Comilla, Purneah District (*Ind. Mus.*) ; a doubtful specimen from Ceylon : Halaoya (*Willey* ; *coll. Burr*).

Type in the Indian Museum, Calcutta.

This species is stouter and broader than *B. stâli*, the legs are not banded and the colour is paler, more inclined to reddish. It also attains a larger size.

Subfamily IV. LABIDURINÆ.

This is the typical group of the *Labiduridæ*, and is represented in every part of the world where earwigs occur.

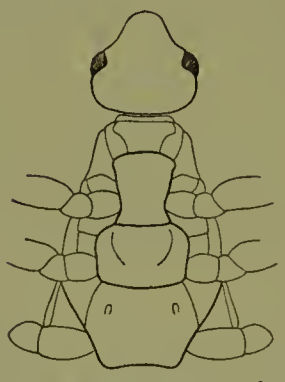

Fig. 6.—Sternal plates of *Labidura riparia*, Pall.

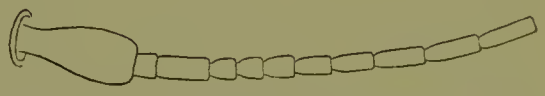

Fig. 7.—Antenna of *Labidura*.

Table of Genera.

1. Sides of abdomen furnished with varying number of spines, hooks or crests.....	Forcipula, Bol., p. 91.
1.1. Sides of abdomen smooth	Labidura, Leach, p. 95.

Genus **FORCIPULA**, *Bol.*

Forcipula, *Bolivar*, (97) p. 283.
Labidura (partim), *Dohrn* and authors.

Type, *Labidura quadrispinosa*, Dohrn.

Large or medium sized insects with the general characters of *Labidura*, but certain abdominal segments are furnished with spines, crests or ridges at the sides; the keels of the elytra are present at the shoulder only, not reaching posterior margin, or almost obsolete. The forceps of the male are long and slender, often as long as the body, undulating and often constricted in the middle; those of the female are stouter, straight and toothed before the apex.

Range. This genus is represented in the tropical parts of Africa and America, but attains its maximum development in the Oriental Region.

Five species are known in India. They have a characteristic appearance, and may be recognized at a glance.

Table of Species.

1.	Segments 3–6 of abdomen of ♂ with two spines on each side	*decolyi*, Borm., p. 91.
1.1.	Certain abdominal segments of ♂ with one spine on each side.	
2.	Segments 3–5 of ♂ with spines	*trispinosa*, Dohrn, p. 92.
2.2.	Segments 3–6 of ♂ with spines.	
3.	Elytra nearly smooth; basal portion of ♂ forceps straight and parallel.	*pugnax*, Kirby, p. 93.
3.3.	Elytra granulated; basal portion of ♂ forceps bowed.	
4.	Colour dark chocolate; spines simple	*quadrispinosa*, Dohrn, [p. 94.
4.4.	Colour lurid; spines rising out of compressed keels; (forceps very long)	*lurida*, Bol., p. 94.

46. **Forcipula decolyi**, *Borm.*** (Fig. 25.)

Forcipula decolyi, *Borm.* (00[1]) p. 444; *Burr*, (04) p. 289, (05[3]) p. 27, (06) p. 388, (07[2]) p. 207; *Kirby*, (04) p. 9.

Dark chestnut-brown. Antennæ and legs ochre-yellow; elytra rather short; wings abortive. Abdomen typical, segments three to six with double spines in the ♂; the upper spine is much larger than the lower; the spines on segments three to five large, those on second and sixth much smaller; the milling on the posterior borders stronger on the hinder segments. Last dorsal segment smooth, square, with a median depression. Forceps of the ♂ trigonal at the base, then cylindrical, gently arcuate, constricted

about the middle, then straight, parallel, hooked and crossing at the apices, sometimes with a tooth on the inner margin. Forceps of ♀ trigonal as far as the middle, nearly straight, typical of the genus.

Assam: Sibsagar (*Ind. Mus.*), Kurseong, at 5000 ft. (*Brit. Mus., Ind. Mus., coll. Burr*); Nepal: Soondrijal (*Ind. Mus.*).

Also known from New Guinea (*Borm.*).

Type in the Genoa Museum.

The double spines and abbreviated wings render this a very distinct species. De Bormans gives the wrong segments in enumerating the spines. The milling of the segments is always stronger towards the sides and on the second segment shows the beginning of development into the spines; on the sixth segment the spines are feeble, and show obsolescence back to the milling. The spines are blunt and recurved.

Relative to this species, Dr. Annandale makes the following note: "... under stones at edge of mountain streams, practically in the water. When forced towards the stream, they swam rapidly on the surface, but they did not enter the water of their own accord. Their position must have rendered them liable to be submerged or washed away by sudden floods."

47. **Forcipula trispinosa**, *Dohrn.* (Fig. 26.)

Labidura trispinosa, *Dohrn*, (63) p. 310.
Forcipula trispinosa, *Borm.* (00^2) p. 30; *Kirby*, (04) p. 9; *Burr*, (04) p. 289, (05^3) p. 27, (07^2) p. 207.
Labidura morosa, *Kirby*, (91) p. 513; *Borm.* (00^2) p. 36.
Forcipula morosa, *Kirby*, (04) p. 9.

Of medium size; general colour black, with dense yellowish pubescence. Antennæ typical, tawny. Head black. Pronotum black, the sides tawny, square. Elytra exceedingly finely punctulate, nearly smooth; black, with yellowish pubescence. Wings smooth and black, the tips yellowish. Legs uniform tawny. Abdomen deep blackish chestnut, exceedingly finely punctulate, posterior border of each segment milled; sides of segments three to five in the ♂ with a distinct sharp slender spine; in the ♀ with two spines but no tubercles. Last dorsal segment square, smooth, with a deep median impression; posterior margin truncate in ♂, simple but milled in ♀, with a blunt tubercle over the root of each branch of the forceps. Penultimate ventral segment square. Forceps long, with branches in the ♂ remote at the base, trigonal, straight for about two-thirds of their length, with a long sharp spine on the inner margin about the middle of the straight part; at two-thirds of their length they are bent in and armed with a second sharp tooth; beyond this they are straight to the points, which are hooked inwards. In the ♀ the branches are subcontiguous, stout, trigonal, gradually tapering and straight, the inner margin crenulate, and a small sharp tooth just before the apex which is hooked.

There is a form, occasioned by stunted growth or defective

nourishment, in which the wings are not developed; the forceps are nearly straight, merely gently undulated, the teeth obsolete, the first abdominal spine almost or entirely obsolete. To this we may give the name *minor*, though it is hard to say whether it is an ill-developed form of this species or of *F. pugnax*.

	♂	♀	Var. *minor* ♂.
Length of body....	20 mm.	21 mm.	10–14 mm.
„ forceps..	12 „	6 „	5·5–6 „

Sikkim (*Ind. Mus.*); Nepal: Chitlong, Pharping (*Ind. Mus.*); United Provinces: Kumaun, Bhim Tal (*Ind. Mus., coll. Burr*); Bengal: Calcutta, at light (*Ind. Mus.*).

Var. **minor**, nov.

Nepal: Soondrijal (*Ind. Mus.*); United Provinces: Kumaun, Bhim Tal (*Ind. Mus., coll. Burr*).

Type in Vienna Museum.

According to Dubrony, this species occurs in Abyssinia, but the record refers to an African species, *F. gariazzi*, Borelli.

48. **Forcipula pugnax**, *Kirby*.* (Fig. 27.)

Labidura pugnax, *Kirby*, (91) p. 510, pl. 12. fig. 1; *Borm.* (94) p. 377.

Forcipula pugnax, *Borm.* (00[1]) p. 443, (00[2]) p. 30; *Burr*, (04) p. 287.

Size large; colour deep chestnut-brown or blackish, with a close yellowish pubescence. Antennæ tawny. Head black. Pronotum square, black, with yellow borders. Elytra dark chocolate-brown, exceedingly finely punctulate, pubescent. Wings of the same colour, smooth. Legs uniform tawny. Abdomen blackish brown, finely granulose, hinder borders of the segments milled; sides of segments 3–6 in the ♂ armed with recurved spines; the one nearest the base is the biggest and they regularly decrease posteriorly. Last dorsal segment of ♂ smooth, with a median impression, truncate posteriorly. Forceps of ♂ with branches remote at the base, reddish, trigonal, straight for about two-thirds their length, then abruptly bent inwards, with a blunt tooth on the inner margin at the angle of the bend, then straight, simple, hooked at the points.

	♂
Length of body....	20·5 mm.
„ forceps..	12–14·5 mm.

Punjab: Kangra Valley (*Brit. Mus.*); Bhutan: Maria Basti (*coll. Burr*); Assam: Kurseong (*coll. Burr*); Burma: Rangoon, v.–vii. (*Genoa Mus.*).

Type in the British Museum.

This species is closely allied to *F. trispinosa*; it only differs in its browner colour, in having four abdominal spines instead of three, and in having no tooth in the middle of the forceps, and only a blunt one at the angle.

49. **Forcipula quadrispinosa**, *Dohrn*. (Fig. 28.)

Labidura quadrispinosa, *Dohrn*, (63) p. 311; *Borm.* (88) p. 434, (94) p. 377.
Forcipula quadrispinosa, *Bol.* (97) p. 283; *Borm.* (00[2]) p. 30; *Burr*, (01) p. 323, (04) p. 289, (05[3]) p. 27, (07[3]) p. 510.

Large; blackish chocolate. Antennæ tawny. Head black. Pronotum square, black, sides tawny. Elytra rich chocolate-brown, very dark, finely granulose, not pubescent. Wings resemble the elytra. Legs tawny, often with darker shading. Abdomen black, finely granulose, hinder margins of the segments milled; sides of segments 3–6 armed with thin spines. Last dorsal segment square, smooth, with a median impression, the hinder margin truncate. In the ♀ the spines are absent and the last dorsal segment is somewhat narrower. Forceps with the branches remote at the base in the ♂, trigonal, slender and elongate, bowed so as to enclose an elliptical area, nearly meeting at about two-thirds of their length at which point there is sometimes a blunt tooth; the apical third straight and the point hooked. In the ♀ the branches are subcontiguous, stouter, straight, crenulate along the inner margin near the base, with a strong blunt tooth on the inner margin near the apex.

	♂	♀
Length of body	17–22 mm.	22 mm.
„ forceps ..	9–10 „	5 „

Sikkim (*Ind. Mus.*); Bhutan: Maria Basti (*coll. Burr*); Bengal: Calcutta (*Brussels Mus.*); Madras: Tranquebar (*coll. Dohrn*); Travancore, Tenmalai (*Annandale*; *Ind. Mus.*, *coll. Burr*); Ceylon (*coll. Dohrn*); Burma: Bhamò, viii., Katha, ii./vi. (*Genoa Mus.*).

Occurs also in Siam, Cambodia and Annam.

Type undefined, in Paris or Berlin.

50. **Forcipula lurida**, *Bol.* (Figs. 29 & 92.)

Forcipula quadrispinosa, *var.* lurida, *Bol.* (97) p. 283; *Borm.* (00[1]) p. 31.
Forcipula lurida, *Kirby*, (04) p. 9.

Resembles typical *F. quadrispinosa*, but is entirely lurid in colour, with a reddish oblique keel on the sides of the segments 2–5 (*fide* Bolivar, 3–6 ?) of the abdomen of the males, the keels being produced into a tooth, which is crenulate beyond the middle. Forceps very long.

	♂
Length of body.....	23 mm.
„ forceps....	22 „

Madras : Madras (*Oxford Mus.*), Trichinopoli (*coll. Bolivar*).

A larva of *Forcipula*, sp., from Peradeniya, Ceylon (coll. Burr), may perhaps be referred to this species.

Kirby is probably right in elevating this form to specific rank, as apart from the colour, the abdominal spines are of a different shape.

Genus **LABIDURA**, *Leach.*

Labidura, *Leach*, (1815) p. 118.
Forficesila, *Serville*, (39) p. 39.—*Type*, Forficula riparia, *Pall.*

Type, *Forficula riparia*, Pall.

Body rather elongate and depressed. Antennæ with from 20 to 36 segments; third segment nearly as long as the first, the fourth and fifth short, as long as the second; sixth to ninth each a trifle longer, all cylindrical, the remainder gradually lengthening, but even the apical segment is barely as long as the third. Pronotum more or less quadrate. Elytra always well developed, with a carina usually well developed, but sometimes obsolete before reaching the posterior margin. Wings well developed or rudimentary. Scutellum concealed. Prosternum constricted before the posterior margin which is truncate. Mesosternum quadrate, truncate posteriorly. Metasternum not produced beyond the posterior coxæ, truncate. Legs rather long, slender; first tarsal segment long and cylindrical, longer than the second and third united. Abdomen elongate, rather depressed, with no lateral tubercles or spines. Last dorsal segment of ♂ large, subquadrate; narrower in the ♀. Penultimate ventral segment of ♂ narrowed, subtruncate at the apex; in the ♀ bluntly triangular. Pygidium concealed. Forceps of ♂ with branches remote at base, elongate, rather slender, variously armed; in the ♀ subcontiguous, straight.

Range. Cosmopolitan.

This genus includes several species, but owing to the great range of variation of the typical species, the number of names has been enormously multiplied.

The genus falls into two groups; one including the larger species, *riparia* Pall., and *bengalensis*, Dohrn; the other, the smaller species, *lividipes*, Duf., *tenuicornis*, Borm., and *nepalensis*, Burr.

Once it is admitted that the innumerable varieties from all parts of the world are but different races of one and the same species, the discrimination offers no difficulty.

It is important to bear in mind the fact that the presence or absence of wings, or rather their development or abbreviation, is of no value whatever as a systematic character. In *L. riparia*, specimens with abbreviated wings are very frequent, but this does not serve to separate them, any more than the varying intensity of the coloration.

Table of Species.

1. Size small (7·5–13 mm.); pronotum somewhat longer than broad, rounded posteriorly; colour dark blackish grey.	
2. Forceps of ♂ dilated in basal half on inner margin	*nepalensis*, Burr, p. 96.
2.2. Forceps of ♂ cylindrical	*lividipes*, Dufour, p. 97.
1.1. Size larger (14–25 mm.); pronotum subquadrate, truncate posteriorly with angles rounded; colour tawny, reddish chestnut, varied with blackish.	
2. Forceps of ♂ with two strong teeth on inner margin.....	*bengalensis*, Dohrn, p. 98.
2.2. Forceps of ♂ unarmed or with one tooth	*riparia*, Pall., p. 99.

51. Labidura nepalensis, *Burr.** (Fig. 30.)

Labidura nepalensis, *Burr*, (07[2]) p. 208.

Stature small and slender; colour dull black; last dorsal segment and forceps reddish black; antennæ greyish; legs testaceous, femora and tibiæ banded with blackish. Antennæ typical of genus, 21 segments. Head smooth and convex, sutures obsolete; pronotum somewhat longer than broad, anterior border straight, posterior border rounded; prozona somewhat tumid, metazona flattened. Elytra long, truncate, granulate, carina sharp and well-defined; dull black. Wings long, same texture as elytra. Legs slender, typical. Sternum brown, typical. Abdomen dull chocolate-black, with a pale sparse pubescence, which is denser and longer in the ♀, apparently smooth, exceedingly finely punctulated, no lateral tubercles. Venter dark brown, smooth, with fine yellowish pubescence; penultimate ventral segment of ♂ obtusangular, truncate apically; rounded in ♀. Last ventral segment almost hidden in both sexes, only the exterior angles visible. Last dorsal segment of ♂ rectangular, reddish black, with a longitudinal median sulcus, and a blunt tubercle on each side at posterior border; in ♀ attenuate, with median depression. Pygidium in ♂ or ♀ not apparent. Forceps with the branches of the ♂ trigonal and stout at the base, inner margin depressed into a sharp flattened plate along one-third of its length; this part terminated with a small sharp tooth, the edges contiguous, then strongly attenuate, unarmed, gently incurved, the underside of each branch deeply furrowed; in the ♀ simple, straight, conical.

	♂	♀
Length of body.....	7·5–9·75 mm.	8·5–11 mm.
,, forceps....	3 ,,	1·75–2 ,,

Nepal: Soondrijal; Pharping (*R. Hodgart*, *Ind. Mus.*).
Type in the Indian Museum, Calcutta.

This is one of the group of smaller species, including *L. lividipes* and *L. tenuicornis*. It is well characterized by the flattened and dilated forceps, resembling many species of *Forficula*.

It is interesting to note that two species very similar to this occur preserved in Baltic amber of Oligocene age.

52. **Labidura lividipes**, *Dufour*. (Fig. 31.)

Forficula lividipes, *Dufour*, (28) p. 340.
Labidura lividipes, *Borm.* (00²) p. 36; *Kirby*, (03) p. 66, (04) p. 11; *Burr*, (01) p. 318, (02) p. 479, (05³) p. 28, (06) p. 388, (07²) p. 209, (07³) p. 510; *Annandale*, (06) p. 391.
Labidura dufourii, *Scudd.* (76) p. 322; *Brunner* (82) p. 7; *Borm.* (88) p. 434, (94) p. 378; *Burr*, (00²) p. 49, (01) p. 316.
Forficesila meridionalis, *Serv.* (39) p. 26.
Forficula (Labidura) meridionalis, *Fisch.* (53) p. 67, pl. vi, fig. 3 *a–c*.
Forficula meridionalis, *Fieb.* (53) p. 255.
Forficula pallipes, *Dufour*, (nec *Fabr.*) (20) p. 316, pl. 96, fig. 7.
Labidura pallipes, *Dohrn*, (63) p. 317.
Forficesila vicina, *Lucas*, (46) p. 5, pl. 1. fig. 2.
Labidura vicina, *Dohrn*, (63) p. 318; *Kirby*, (04) p. 12.
Labidura lividipes, *subsp.* vicina, *Borm.* (00²) p. 36.

Small, dark chestnut or blackish grey; antennæ with 25 segments. Head black, smooth, convex. Pronotum somewhat longer than broad and somewhat broadened posteriorly; anterior margin straight; posterior margin rounded, the sides convex; dark chestnut, with a pale yellowish or sometimes bluish border. Elytra yellowish brown, leathery, with complete keel. Wings of the same colour, developed or abbreviated. Legs dark greyish, the knees and tarsi generally yellowish. Abdomen almost smooth, blackish; last dorsal segment of ♂ transverse, ample, with an obtuse tubercle over the insertion of the forceps. Penultimate ventral segment obtuse, truncate at the apex. Forceps of ♂ with branches remote at the base, rounded, straight at the base itself, then bowed inwards at an angle, the branches themselves being straight, not arched; in the apical third on the inner margin there is often a strong tooth, this is sometimes absent; in the ♀ the branches are straight, cylindrical, simple and contiguous.

	♂	♀
Length of body.....	7–11 mm.	6·5–10 mm.
,, forceps....	1·5–3·2 ,,	1·5–2 ,,

Bengal: Purneah District, Calcutta (*Ind. Mus.*); Pusa (*Pusa coll.*, *coll. Burr*); Bombay (*Ind. Mus.*); Madras: Trichinopoli (*coll. Bolivar*); Ceylon: Punduluoya, Chilaw in October, at light, Peradeniya, Kala Wewa (*Buda-Pesth Mus.*), Ambegammoa, Batticalloa, Galle, Aluttnuwara, Trincomali (*coll. Burr*); Burma: Teinzo in May, Kyonk-Myaung in May, Bhamò in June, Katha in June, Sheunaja in June. Rangoon, June to December, Kokarit, January and November (*Genoa Mus.*).

This species is easy to recognize by its relatively small size and grey colour; the bend of the forceps is quite distinctive. The presence or absence of the tooth on the inner margin of the forceps of the male is not a sufficiently important character to justify a separate name, and *vicina* of Lucas is accordingly sunk as a synonym.

This species is widely distributed throughout Southern Europe, Africa (as least as far south as Pretoria), and tropical Asia.

In India it seems to be as common as it is widely distributed; it is the subject of an interesting note by Dr. Annandale (see *ante*, p. 15).

It is often found in rotten wood in company with *Echinosoma* (Green).

53. **Labidura bengalensis**, *Dohrn*. (Fig. 32.)

Labidura bengalensis, *Dohrn*, (63) p. 309; *Dubr.* (79) p. 353; *Borm.* (00[2]) p. 16; *Burr*, (00[2]) p. 49, (01) p. 317, (05[3]) p. 27 (06) p. 388, (07[2]) p. 207; *Kirby*, (03) p. 64, (04) p. 9.
Psalis bengalensis, *Scudd.* (76) p. 327.

Dark chestnut-brown. Antennæ greyish yellow. Pronotum brown, often with a yellowish margin; elytra dark chestnut-brown, often with a red band along the suture. Wings and legs yellowish. Forceps of ♂ with the branches strong, keeled above, remote, with a strong tooth on the inner margin near the base and another about two-thirds down their length; beyond the second tooth the inner margin is denticulate to the apex, the branches are gently curved inwards; in the ♀ near, but not contiguous, almost straight, denticulate all along the inner margin.

	♂ ♀.
Length of body.....	32–45 mm.
„ forceps.....	7–10 „

Bengal: Calcutta (*Ind. Mus.*, *Brussels Mus.*), Berhampur, Chandpur, district of Tipperah (*Ind. Mus.*); Madras (*Brit. Mus.*); Ceylon: Galle, Watawella and Butiwa (*Willey*; *coll. Burr*).

Type undefined, in Vienna or Berlin.

Its powerful build and deep colour give this species a distinctive appearance, which is difficult to express in words, but it can be distinguished at a glance from *L. riparia* once it is known. The forceps are differently curved and the teeth are more numerous. The strong denticulation of the forceps of the female is very distinctive, yet in some small specimens it is fully developed and these resemble some forms of *L. riparia*.

54. **Labidura riparia**, *Pallas*. (Figs. 33 & 34.)

[The synonymy and literature of this species is very extensive. The following are the more important notices of synonyms and references, which particularly concern the Indian Fauna, or those which have interest from being hitherto unrecorded. More complete synonymy is given by Scudder (76) and Kirby (03). In the latter paper, there are important observations upon the different forms and their distribution.]

Forficula riparia, *Pallas*, (73) p. 50.
Labidura riparia, *Dohrn*, (63) p. 313; *Scudd.* (76) p. 323 (giving full references up to 1876); *Brunner*, (82) p. 5; *Bormans*, (88) p. 434, (94) p. 378, (00²) p. 33; *Burr*, (00²) p. 49, (01) p. 316, pl. B, fig. 4, (05³) p. 27, (06) p. 388, (07²) p. 207; *Kirby*, (03) p. 64, (04) p. 10.
Forficula pallipes, *Fabr.* (nec *Dufour*), (75) p. 270; *Oliv.* (72) p. 468.
? Forficula dentata, *Fabr.* (75) p. 270.
Forficula gigantea, *Fabr.* (87) p. 24; *Géné*, (32) p. 8.
Labidura gigantea, *Leach*, (15) p. 707; *Stephens*, (37) p. 8.
Forficesila (Labidura) gigantea, *Fischer*, (53) p. 65, pl. 6, fig. 1.
Forficesila gigantea, *Serv.* (39) p. 23, pl. 1, fig. 2; *Lucas*, (46) p. 3; *Fieber*, (53) p. 252.
Forficula (Forficesila) gigantea, *Burm.* (38) p. 751; *Haan*, (42) p. 243.
Forficesila icterica, *Serv.* (39) p. 25.
Labidura icterica, *Kirby*, (03) p. 66, (04) p. 11.
Labidura riparia *var.* inermis, *Brunner*, (82) p. 5.
Labidura marginella, *Costa*, (39) p. 50, pl. 1, figs. 1–2.
Labidura mongolica, *Rehn*, (05) p. 503, fig. 2 (n. syn.).
Labidura dubronii, *Borg*, (04) p. 565 (n. syn.).
Labidura karschi, *Borg*, (04) p. 565 (n. syn.).
Labidura distincta, *Rodz. Wien. ent. Zeit.* xvi. p. 153 (1897).
Forficula (Forficesila) bivittata, *Burm.* (38) p. 751.
Forficesila terminalis, *Serv.* (39) p. 25.
Demogorgon patagonicus, *Kirby*, (91) p. 515, pl. 12, fig. 2, (04) p. 12.
Labidura pluvialis, *Kirby*, (91) p. 512, (03) p. 66, (04) p. 11.
Labidura granulosa, *Kirby*, (91) p. 511, (03) p. 66, (04) p. 11.
Forficula (Forficesila) gigantea *var.* japonica, *Haan*, (42) p. 240.
Forficula erythrocephala, *Fabr.* (nec *Oliv.*) (93) p. 4.
Forficula (Forficesila) suturalis, *Burm.* (38) p. 752.
Forficesila xanthopus, *Stål*, (60) p. 300.
Labidura servillei, *Dohrn*, (63) p. 316; *Borm.* (00²) p. 35; *Kirby*, (03) p. 66, (04) p. 11.
Labidura suturalis, *Kirby*, (03) p. 66, (04) p. 11.
Labidura clarki, *Kirby*, (91) p. 512, (03) p. 67, (04) p. 12.
Labidura riparia, *subsp.* pallipes, pluvialis, japonica, erythrocephala, livida, *Borm.* (00²) pp. 34–36.

Reddish testaceous, dark chestnut or tawny. Antennæ yellowish; head reddish. Elytra tawny, the suture banded with reddish; keel of elytra well developed, but often obsolete in

posterior half. Wings yellowish, well developed or rudimentary. Legs long, yellowish. Abdomen tawny, the dorsal surface reddish. Last dorsal segment ample, smooth, yellowish, quadrate; posterior margin armed with two acute points (often absent). Penultimate ventral segment of ♂ obtusely triangular, the apex truncate; in ♀ apex rounded. Forceps tawny, darker towards apex; in the ♂ the branches are remote at the base, elongate, gently and regularly curved inwards, cylindrical, with a keel above near the base; towards the base on the inner margin there is often a tooth, sometimes very strong, sometimes obsolete. In the ♀ the forceps are subcontiguous, straight and denticulate along the inner margin, especially near the base.

	♂	♀
Length of body	14–24 mm.	14–20 mm.
„ forceps	3·25–12 „	3–5 „

Sind: Karachi (*Paris Mus.*, *Brit. Mus.*, *coll. Burr*); United Provinces: Dehra Dun, Kathgodam; Sikkim: Darjiling (*Paris Mus.*); Bengal: Pusa, Berhampur, Calcutta, Comilla (*Ind. Mus.*); Orissa: Balasor (*Paris Mus.*); Mysore: Bangalore (*Ind. Mus.*); Bombay: (*Paris Mus.*, *Brit. Mus.*, *coll. Burr*); Madras: Pondicherry (*Paris Mus.*); Ceylon: Ambegammoa and Kala Wewa (*coll. Burr*); Burma: Teinzo in June; Kyonk-Myaung in April; Bhamò in July to August; Senmyingyan in February; from Yenang to Mandalay in June; Karen-ni, Keba District, 3000–5000 ft., January to April (*Genoa Mus.*).

Var. *inermis*, Brunner.

Bengal: Calcutta, Berhampur, Purneah District, Pusa (*Ind. Mus.*); Ceylon: Hambantota (very dark form, *Fletcher*).

This cosmopolitan species is exceedingly plastic, numerous names having been given, as even the abridged synonymy will show. Whether these forms are "species" or not is a matter of personal opinion, or rather of convenience, but the names are now so numerous that it is difficult to assign the correct forms to them. The following are the main points of variation:—

(i.) Size. This will be seen from the dimensions given. The form described by Kirby from Santarem (Amazons) has a total length of 51 mm.

(ii.) Intensity of colour. The typical form of Pallas is evidently the pale Palæarctic type; when alive this is almost white, but after death the specimen assumes that dirty tawny colour with which we are so familiar from cabinet specimens. Some from Japan, Russia, and the Philippines are nearly black, and others from Australia are of a uniform pale tawny.

(iii.) Colour of the head. This varies from pale yellowish to black.

(iv.) Colour of the pronotum. Varies from tawny to black, often with a pale border or median reddish stripe.

(v.) Texture of elytra. These may be quite smooth or of a leathery granulated texture.

(vi.) Keel of elytra may attain the posterior border, or scarcely surpass the shoulder of the elytra.

(vii.) Colour of elytra. From tawny to black; in the latter case a more or less narrow red band is usually visible along the suture; the commonest form in collections is reddish-tawny with a red band down the suture and a fuscous band down the disc of the elytra.

(viii.) Development of wings. These are often prominent, often scarcely protruding, and often abbreviated.

(ix.) Colour of wings. Reddish-brown, pale tawny, or tawny with a black spot.

(x.) Colour of abdomen. Tawny with indistinct dark dorsal stripe, or dark reddish chestnut, with or without the dorsal stripe, or almost uniform dull black.

(xi.) Armature of last dorsal segment. Two short sharp spines generally present; occasionally only one; often both are obsolete.

(xii.) Armature of forceps. ♂: a strong tooth may be present about the middle or near the apex, or may be entirely absent. ♀: the basal denticulation varies in strength and is often nearly obsolete.

As all these different forms appear to occur irregularly in all parts of the world, so that specimens from widely separated localities are almost indistinguishable, and extremes occur in the same neighbourhood, specific rank should not be accepted for them until it has been proved.

It is true that certain forms are more or less restricted to certain areas. Thus Kirby has described as *L. truncata* the Australian form, in which the male forceps are strongly denticulated as far as a median tooth and there is a second tooth near the extremity, the anal points are wanting; but even in this form there is colour-aberration, from uniform tawny to tawny and deep black; the wings are long or short. Specific rank is hardly justified, and yet it is undoubtedly convenient to know the Australian specimens as the "*truncata* form," as they have an undoubted though ill-defined characteristic appearance.

Some South American forms have a very distinctive appearance.

A pale form, with no anal points and a small second tooth not quite at the extremity of the forceps, is identified by Kirby with *L. icterica* of Serville, from India, Ceylon and China.

A very common form in India is probably identical with Brunner's variety *inermis*; the size is small, the colour deep, the head, pronotum and elytra being almost entirely black; the anal points are wanting; the forceps are relatively short and the teeth are almost obsolete. Specimens agreeing with this form occur in Japan and Java.

In the present state of our knowledge, for the purposes of this

work, it is convenient to regard *L. icterica*, Serv., Kirby's Asiatic form, as a subspecies, variety or race of *L. riparia*, scarcely deserving a distinctive name; and the dwarfed, dark, unarmed form, with no anal points, so common in India, as variety *inermis*, Brunner.

Subfamily V. PARISOLABINÆ.

This small group was formerly attached to the *Brachylabinæ*, with which it has several features in common, such as the long slender tarsi, with long second segment, few antennal segments, and almost rectangular meso- and metasterna.

The antennae are, however, longer than in that group, and this shows affinity with the *Labidurinæ*, as also the convex, subparallel body, long tarsi, and absence of glandular folds. For these reasons, as well as the fact that the metasternum is truncate, it appears to be more nearly related to the *Labidurinæ* than to the *Psalinæ*.

Two genera are known; one, *Parisolabis*, Verh., contains a single species occurring in New Zealand; the other, *Pseudisolabis*, with one species in New Zealand and two in India.

Genus **PSEUDISOLABIS**, *Burr*.

Pseudisolabis, *Burr*, (08[4]) p. 254.

Type, *P. walkeri*, Burr.

Antennæ with 15 segments, the first long, strongly clavate; second minute, cylindrical; third cylindrical, long, but not so long as the first; fourth minute and globular, not longer than broad; fifth longer than fourth, a little longer than broad; the rest gradually lengthening, but none equalling the third in length, rather thick, cylindrical, but the joints distinctly constricted. Head not sharply triangular, rectangular posteriorly; the occiput punctulate and pubescent; the frons smooth and tumid; the frontal impressions obsolete. Pronotum subquadrate, the anterior and posterior margins parallel and truncate, slightly broader posteriorly than anteriorly and broader than long, a trifle broader than the head; sides straight, gently diverging posteriorly. Mesonotum transverse, parallel-sided, with no keels. Metanotum broader than the mesonotum, the posterior margin gently sinuate. Prosternum about double as long as broad, parallel-sided. Mesosternum transverse, posterior margin truncate. Metasternum transverse, the posterior margin truncate. Femora rather thick, especially the anterior pair; tibiæ and tarsi slender, second segment of latter

rather long and slender, about half as long as the third, the first about as long as the second and third united. Abdomen rather depressed, gently dilated about the apical third and very slightly narrower at the apex itself; last dorsal segment short, transverse, truncate posteriorly; penultimate ventral segment obtusely rounded; last ventral segment visible as a pair of triangular lobes just protruding. Forceps remote at the base, trigonal at the base itself, tapering and short.

Range. India and New Zealand.

This genus differs from *Parisolabis* in being much less depressed and less dilated, and the last dorsal segment is by no means narrowed. It approaches more nearly to *Anisolabis* than does *Parisolabis*, and represents the transition between the *Brachylabinæ* and the *Psalinæ*.

In the form of the abdomen and the last dorsal segment *Pseudisolabis* approaches *Anisolabis*, but the antennæ have fewer segments, the second segment of the tarsi is longer, the posterior margin of the metasternum is scarcely produced between the posterior coxæ, and the metasternum is shorter, relatively much broader and truncate posteriorly.

Two species occur in India; a third, the type, occurs in New Zealand.

Table of Species.

1.	Shining black; forceps strongly bowed ..	*burri*, Borelli, p. 103.
1.1.	Dull brown; forceps straight, only arched at the apex	*tenera*, sp. n., p. 104.

55. **Pseudisolabis burri**, *Borelli*.** (Fig. 35.)

Pseudisolabis burri, *Borelli*, (09) p. 1.

Rather small, smooth, scarcely pubescent and shining black. Antennæ dark brown, with 15 segments, third cylindrical, fairly long, fourth very short, almost globular, fifth a little longer, subconical, sixth about equal to third, subconical, the remainder subconical. Head tumid, smooth, black, shining, sutures almost obsolete. Pronotum rectangular, decidedly broader than long. Meso- and metasternum transverse, with no trace of keel or elytra. Sternal plates typical of the genus. Femora rather thick, black, yellowish at the base and apex; tibiæ brown, yellow at the base and apex; tarsi yellowish, slender, typical of the genus. Abdomen dull black, exceedingly minutely punctulated, hairless above (in the specimens examined), with a few long slender bristles at the sides, which in the sixth and seventh segments of the ♂ are convex; the abdomen of the ♂ is gently dilated to about two-thirds its length and then slightly narrowed; in the ♀ the dilation is shorter and the narrowing a little stronger; penultimate ventral segment of ♂ and ♀ broadly rounded; pygidium of ♂ not protruding, broad,

vertical, tumid in the middle; in ♀ similar but very narrow. Last dorsal segment of ♂ very short and broad, somewhat inflated, with a median depression, posteriorly depressed, the margin truncate, subtuberculate over the insertion of the forceps: in ♀ similar, but narrower. Forceps of ♂ with the branches remote at the base, very obtusely trigonal at the base itself, almost immediately cylindrical, straight and diverging for about two-thirds their length, then strongly, but not angularly, bowed inwards; in ♀ subcontiguous, trigonal, short, tapering, conical, very gently arcuate; in both sexes the forceps are black for about two-thirds their length, the rest red.

	♂	♀
Length of body.....	9 mm.	8 mm.
,, forceps.....	2 ,,	1 ,,

N.E. Kashmir: on the road from Srinagar to Gilgit, altitude about 6700 ft. (*Turin Mus., coll. Burr*).

Type in the Turin Museum.

This is an interesting species, being closely related to *Ps. walkeri*, Burr, from New Zealand, with which it possesses many characters in common.

It differs in the somewhat smaller size, deep black colour and absence of dense pubescence (in the specimens examined); the last dorsal segment is gently inflated throughout in *P. walkeri*, but in this species it is depressed posteriorly and has a slight median depression which is absent in *P. walkeri*, as are also the faint tubercles over the roots of the forceps. The forceps differ in being red at the apex and being only faintly trigonal, and that only at the extreme base; they are more strongly divergent, and strongly arched inwards, not abruptly nor angularly bowed. The female of *P. walkeri* is unknown.

56. **Pseudisolabis tenera**, sp. n. (Fig. 36.)

Uniform dull red brown, with a few isolated bristles, but no close pubescence. Antennæ with 17 segments; the first clubbed, third cylindrical and elongate, fourth very short, not longer than broad, fifth a trifle longer, sixth a little longer, but not so long as the third, all these are gently conical; the rest are about as long as the third, subcylindrical, all dull brown, smooth. Head tumid, sutures obsolete. Pronotum a little broader than the head, and distinctly broader than long, rectangular, depressed; median suture distinct in fore portion only; prozona not distinct from metazona; sides reflexed, smooth; light dull brown. Mesonotum of the same colour, very short and finely punctulate. Metanotum of the same colour and sculpture, very short. Sternal plates smooth, light brown, the sides parallel, transverse; metasternum truncate. Legs dull brown; second tarsal segment nearly as long as the first. Abdomen subdepressed, dull

brown, very finely punctulate, subparallel-sided, slightly narrowed apically; glandular folds not developed. Last dorsal segment more than twice as broad as long, rectangular, posterior margin truncate in the middle, the angles obliquely truncate, slightly tumid over the roots of the forceps. Penultimate ventral segment transverse, very broadly rounded. Pygidium typical, somewhat tumid beneath. Forceps with the branches remote at the base, of circular cross-section, straight at first, incurved at the apex, quite simple.

	♂
Length of body.....	11·5 mm.
„ forceps.....	1·5 „

PUNJAB: Murree (*coll. Burr*).

Type in the author's collection.

This species closely resembles *P. burri* but is narrower in build, of a uniform dull red brown instead of shining black, and the forceps are quite straight for the greater part of their length, being only arcuate at the apex itself.

Subfamily VI. BRACHYLABINÆ.

The members of this family have all a very characteristic appearance and close superficial resemblance to each other.

The old genus *Brachylabis* of Dohrn, as restricted by de Bormans, has been revised and split up, and Verhœff's *Isolabidæ* incorporated. The genus *Brachylabis* itself is not represented in the Indian fauna.

The family is characterized by the total absence of organs of flight, long slender legs and tarsi, even the second segment being elongate, triangular head, cylindrical body, tapering at the apex, paucisegmentate antennæ, long narrow prosternum, equally broad and long meso- and metasterna, broad and rounded penultimate ventral segment, and sinuate, concave last dorsal segment, produced into a short pointed lobe on each side; the forceps slender, cylindrical, tapering, unarmed and arcuate.

They are all very dark brown or nearly black insects. The surface is usually very densely pitted and punctulate, and often clothed with a dense pubescence, which is rapidly rubbed off and lost in cabinet specimens.

A remarkable feature in some genera is the form of the eyes, which are elliptical and unusually large, reaching backwards almost to the posterior angles of the head, so that they are situated laterally instead of anteriorly.

Table of Genera.

1. Eyes normal, that is, small and anterior; mesonotum with tumid ridge, but no sharp keels ..... NANNISOLABIS, Burr, [p. 106.

1.1. Eyes large, elliptical, and lateral. Mesonotum with sharp keels.
2. Third segment of antennæ elongate, twice as long as broad, fourth longer than broad ..... METISOLABIS, Burr, [p. 108.
2.2. Third antennal segment scarcely longer than broad, the fourth globular ..... CTENISOLABIS, Verh., [p. 109.

Genus **NANNISOLABIS**, n. g.

Brachylabis & Leptisolabis (partim), *Burr* (olim).

TYPE, *N. willeyi*, Burr.

Small insects; head tumid; eyes small, anterior; antennæ with short segments; pronotum longer than wide; mesonotum with a transverse depression surrounded by a blunt tumid ridge. Abdomen spindle-shaped, attenuate apically, especially in the ♀. Lateral tubercles of third and fifth segments distinct; last dorsal segment sinuate and produced on each side to a small pointed lobe. Forceps simple, arcuate and tapering.

Range. Ceylon.

Though somewhat compressed at the shoulders, the ridge of the mesonotum is not sharp. The following two species are the only ones known.

Table of Species.

1. Pronotum parallel-sided, densely punctulate ..... *philetas*, Burr, p. 106.
1.1. Pronotum widened posteriorly, smooth .... *willeyi*, Burr, p. 107.

57. **Nannisolabis philetas**, *Burr*.*

Brachylabis philetas, *Burr*, (01) p. 322, pl. B, fig. 7; *Kirby* (04) p. 16.
Leptisolabis philetas, *Burr*, (08[4]) pp. 252 & 253.

Size small; colour black; the whole body punctulate, with a few stiff hairs. Antennæ with 9 segments, 2nd reddish, 7th and 8th white, the rest black; first long, second shorter, the rest quite round, as broad as long, gradually larger, the ninth a little smaller than the eighth, which is the largest. Pronotum broader than the head, elongate, the sides parallel and raised; mesonotum narrow, strongly impressed anteriorly, the posterior part being therefore slightly elevated, the sides keeled and the anterior angle slightly broader than the pronotum; metanotum as broad as the mesonotum, and exposing only a small part of the first abdominal segment. Legs long; tibiæ and tarsi testaceous; femora testaceous, with a strong broad black band; first tarsal segment longer than the second and third together. Abdomen cylindrical, the lateral tubercles very distinct on the second and

third dorsal segments; last segment very small in both sexes. Forceps very short, slender; in the ♂ the branches are remote at the base, slightly incurved, meeting at the apex, unarmed; in the ♀ subcontiguous, almost straight, crossing at the apex.

	♂	♀
Length of body.....	6 mm.	7·5 mm.
„ forceps.....	1·25 „	1 „

Ceylon: Pundaluoya, ♂ and ♀ *in coitu* (*coll. Burr*).

Type in the author's collection.

The types are unfortunately broken, and only fragments remain. The mesonotum is preserved, and this, with the description and figure, leaves no room for doubt as to the generic position of the species. It differs from *N. willeyi* in the form and structure of the pronotum.

58. **Nannisolabis willeyi**, sp. n.

Small; general colour dark reddish brown. Antennæ with 13 segments, brown, the apical segments paler; all segments, except the first, very short, only the apical two or three being slightly longer than broad; first segment about as long as third, fifth and sixth united. Head smooth, tumid, sutures distinct; eyes small, normal, anterior. Pronotum red-brown, smooth, decidedly longer than broad and widened posteriorly; median line distinct; sides strongly reflexed. Mesonotum with a transverse depression in anterior portion, surrounded by a short raised ridge which is somewhat compressed at the anterior angles, but is not sharp. The mesonotum is finely punctulate. Metanotum broader than the mesonotum, of the same colour and sculpture, the posterior margin strongly concave. Legs long and slender, dirty yellow; the femora with indistinct darker shading. Abdomen red-brown, darker basally, finely punctulate, with a fine golden pubescence; lateral tubercles of third and fourth segments very distinct; decidedly wider in ♀ than in the ♂. Last dorsal segment transverse in ♂, smooth, posterior margin nearly straight, slightly produced on each side over the forceps; in ♀ similar but narrower. Penultimate ventral segment of ♂ broad and rounded, more so in ♀ than in the ♂. Forceps of ♂ remote at base, cylindrical, straight at first, strongly arcuate in the apical half; in ♀ contiguous, gently arcuate from the base and overlapping.

	♂	♀
Length of body	8 mm.	6·5 mm.
„ forceps	1 „	1·5 „

Ceylon: Patipola, 1907 (*coll. Burr*), Hakgala, 1.ii.06 (*Dr. Willey*; *coll. Burr*).

Type in the author's collection.

This species is allied to *N. philetas*, but is a little larger. The

pronotum is longer and differs in being quite smooth and distinctly widened posteriorly. The femora are blackish in *N. philetas*, but this is an untrustworthy character. The present species is peculiar among the *Brachylabina* in having the pronotum quite smooth and also in its red-brown colour.

Genus **METISOLABIS**, n. g.

Brachylabis, *Bolivar*, *Burr* (olim).

Type, *Brachylabis voelzkowi*, Burr.

Agrees generally with the preceding genus, but the segments of the antennæ are longer, not globular, all beyond the second being at least a little longer than broad; and the eyes are large, elliptical, and nearly reach the posterior angles of the head; the mesonotum is keeled. From the following genus it differs in the long antennal segments, agreeing in the structure of the eyes and mesonotum.

Range. India and Madagascar.

Two species are known to occur in India.

Table of Species.

1.	Legs uniform reddish; abdomen with lateral tubercles on fourth segment only; keels of mesonotum strongly converging posteriorly	*bifoveolata*, Bol., p. 108.
1.1.	Femora banded with black; abdomen with lateral tubercles on third and fourth segments; keels of mesonotum gently converging posteriorly	*caudelli*, Burr, p. 109.

59. **Metisolabis bifoveolata**, *Bol.*

Brachylabis bifoveolata, *Bolivar*, (97) p. 285, pl. 10, fig. 1; *Borm.* (00[2]) p. 53; *Kirby*, (04) p. 16; *Burr*, (08[4]) pp. 250 & 251.

Pitch-black, entirely punctulate, and with reddish pubescence; basal segment of antennæ reddish, the rest up to the twelfth black. Mesonotum heart-shaped, with lateral keels. Legs reddish testaceous. Third abdominal segment with no lateral tubercles; fourth segment with a strong blunt tubercle on each side; the fifth segment impressed at the sides. Forceps of ♂ with branches short, trigonal, gently curved.

	♂ ♀.
Length of body.....	12–14 mm.
,, forceps.....	2 ,,

Southern India: Trichinopoli (*coll. Bolivar*).

Bolivar's description is brief but good, and so is his figure.

Without seeing the insect it is easy to place it in its true position. It differs from *B. caudelli* in the uniform reddish legs, in the more strongly convergent keels of the mesonotum, which is thus more strongly narrowed posteriorly, and in the absence of the lateral fold on the third segment of the abdomen.

60. **Metisolabis caudelli**, *Burr.**

Brachylabis punctata, *Borm.* (88) p. 436, (94) p. 375, (00²) p. 53.
Brachylabis caudelli, *Burr* (nec *Dubr.*, nec *Kirby*), (08⁴) p. 251.

Colour, texture, form, and pubescence typical. Antennæ with 15 segments, black with a pale ring before the apex; the segments rather long; the third segment about twice as long as broad; the fourth more than half as long as the third; the fifth quite as long as the third, if not a trifle longer; almost cylindrical. Mesonotum with the keels gently bowed at the shoulder and gently converging posteriorly. Femora black, yellowish towards the apex; tibiæ brownish yellow, tarsi pale. Abdomen typical, third and fourth segments with lateral tubercles. Forceps stout at base, rapidly tapering, gently arched, not contiguous in the ♂, contiguous in the ♀.

	♂	♀
Length of body	11 mm.	12 mm.
,, forceps	1·5 ,,	1 ,,

Burma: Teinzò, v., Prome, xii. (*Genoa & Brit. Mus.*); Meetan, iv., Karen-ni, Keba Distr., 3000–3700 ft., v.–xii.; Pegu, Palon, viii./ix. (*Genoa Mus., coll. Burr*).

Type in the author's collection.

Apparently common in Further India. This species was confused by de Bormans with *B. punctata*, Dubr., from Java, but that species has no keels on the pronotum and falls into *Leptisolabis*, Verh.

Genus **CTENISOLABIS**, *Verh.*

Ctenisolabis, *Verh.* (02²) p. 11.
Brachylabis, *Burr* (olim).

Type, *Ct. togoensis*, Verh.

This genus agrees with *Metisolabis* in the form of the eyes and keeled mesonotum, but differs in the short, almost globular, antennal segments. With *Nannisolabis* it agrees in the form of the antennæ, but has a keeled mesonotum and lateral eyes.

Range. Three species are at present placed in this genus; one, the type, *Ct. togoensis*, Verh., is African; the other, *Ct. nigra*, Scudd., occurs in South America; the third in Ceylon.

61. **Ctenisolabis fletcheri**, sp. n. (Fig. 79.)

Small, black, punctulate. Antennæ with 13 segments, all short after the first; third about as long as broad, fourth and fifth globular, the others slightly lengthening, but the apical segment is only a little longer than broad; from the third towards the apex all the segments become gradually thicker. Head typical: the eyes large and prominent, but not reaching so near to the posterior margin of the head as in some species. Pronotum wider than the head and still wider posteriorly, distinctly longer than broad, with a distinct neck in front, which carries the head. Mesonotum ample, the keels distinct but blunt, bowed outwards at first and arched gradually inwards, dying out just before reaching the posterior margin. Metanotum very ample and very strongly sinuate. Legs typical. Femora black, tipped with reddish, tibiæ and tarsi reddish. Abdomen typical; tubercles on third and fourth segments not very distinct, smooth spot on fifth segment distinct. Last dorsal segment gently sinuate. Penultimate ventral segment very ample, rounded. Forceps contiguous, simple, overlapping.

	♀
Length of body	10 mm.
„ forceps	1 „

Ceylon: Madulsima, 13.viii.08 (*T. B. Fletcher; coll. Burr*).

Type in the author's collection.

The keels of the mesonotum are very blunt and thus represent a passage to *Leptisolabis*.

It may be distinguished by its generic characters from the only species with which it is likely to be confused.

Family IV. LABIIDÆ.

This family contains a number of heterogeneous forms, and is in great need of revision.[1] A considerable number of species are known, but relatively few are recorded from India, representing five genera.

The discrimination between the smaller forms of *Spongiphora* and larger forms of *Labia* is rather subtle, and the generic characters must be examined with care.

Only one subfamily, the *Labiinæ*, is known to be represented in India; but it is quite probable that some member of the *Nesogastrinæ* may be discovered, probably towards the eastern bounds of the area.

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[1] For this reason, the generic definitions in this family must be regarded as purely provisional.

Subfamily I. LABIINÆ.

Table of Genera.

1. Body not strongly depressed.
  2. Antennæ with 15–20 segments; the fourth about half as long as the third, fifth also shorter than third.
    3. Penultimate ventral segment of ♂ subrectangular; first tarsal segment decidedly shorter than third. [p. 111. SPONGIPHORA, Serv.,
    3.3. Penultimate ventral segment ample, rounded; first tarsal segment about equal to third ..... EROTESIS, n. g., p. 114.
  2.2. Antennæ with 10–15 segments; fourth and fifth almost or quite as long as third; (penultimate ventral segment of ♂ rounded; first and second tarsal segments about equal) ..... LABIA, Leach, p. 115.

1.1. Body strongly depressed.
  2. Antennæ with 10–15 segments; third and fourth rather long (as in *Labia*). Abdomen with no lateral folds.... [p. 124. PLATYLABIA, Dohrn,
  2.2. Antennæ with 15–20 segments. Abdomen with lateral folds on second and third segments ..... [p. 127. SPHINGOLABIS, Borm.,

Genus **SPONGIPHORA**, *Serville.*

Spongiphora, *Serv.* (31) p. 31.
Spongophora, *Agassiz, Nom. Zool.* p. 439 (1846).
Psalidophora, *Serv.* (39) p. 29.—*Type,* Spongiphora croceipennis, *Serv.*

TYPE, *Spongiphora croceipennis*, Serv. (Brazil).

Antennæ with 15–20 segments; the first long and pear-shaped; second quite small; third long, cylindrical, more than half as long as the first; fourth and fifth small, not half as long as third; the remainder gradually lengthening, becoming more slender. Pronotum subquadrate, more or less rounded posteriorly. Elytra smooth, with no keels, perfectly developed. Wings well developed or abbreviated. Prosternum parallel-sided. Mesosternum rounded posteriorly. Metasternum truncate posteriorly, not produced between the posterior coxæ. Legs not very long, the femora rather thick; first tarsal segment decidedly longer than the third, the second cylindrical, not remarkably short; tarsi strongly pubescent beneath. Abdomen depressed, rather long, with distinct lateral glandular folds. Last dorsal segment of ♂ rectangular, narrowed posteriorly in the ♀. Penultimate ventral segment rectangular in ♂, slightly narrowed in ♀ and more or less rounded. Forceps in ♂ with branches remote at base, depressed, rather slender and elongate; in ♀ subcontiguous, straight, long, unarmed.

Serville replaced his original name, *Spongiphora*, by *Psalidophora* because the latter is more appropriate! *Psalidophora* was

accepted by Dohrn and all authors until Scudder restored the former name, with the amended orthography proposed by Agassiz; de Bormans retains the original spelling.

There is a strong resemblance between the smaller species of this genus and the larger ones of *Labia*, and in the smaller species the generic characters are often difficult to observe.

Table of Species.

1. Pygidium hidden; (elytra uniform brown; forceps of ♂ with 2–3 teeth on inner margin) ..... *lutea*, Borm., p. 112.
1.1. Pygidium prominent.
2. Elytra and wings unicolorous; pygidium trapezoidal, narrowed, truncate at apex. *nitidipennis*, Borm., [p. 112.
2.2. Elytra and wings spotted; pygidium broad, lanceolate, bifid at apex with pointed lobes ..... *semiflava*, Borm., [p. 113.

62. Spongiphora lutea, *Bormans.***

Spongophora lutea, *Borm.* (94) p. 386.
Spongiphora lutea, *Borm.* (00²) p. 60; *Kirby*, (04) p. 30.

Shining brown; antennæ with 15 segments; pronotum as broad as the head and a trifle longer. Elytra short, hardly longer than the pronotum, rounded posteriorly. Wings abortive. Last dorsal segment of both ♂ and ♀ rectangular, twice as broad as long; pygidium hidden. Forceps with the branches stout; in the ♂ long, remote at the base, nearly straight, with three teeth on each side on the inner margin; in ♀ shorter, subcontiguous, unarmed.

	♂	♀
Length of body	6–8 mm.	6·5–10 mm.
,, forceps	2·5–3 ,,	2–2·5 ,,

Burma: Palon, in August and September; Karen-ni, Geku Distr., 4300–4700 ft., in February and March; Karen-ni, Keba Distr., 3000–3700 ft., from April to December, 4000–4300 ft. (*Genoa Mus.*).

Type in the Genoa Museum.

This species is very distinct. The rather stout build and yellow colour render it easy to recognize; the wings appear to be always abbreviated.

63. Spongiphora nitidipennis, *Bormans.** (Fig. 80.)

Spongophora nitidipennis, *Borm.* (94) p. 382.
Spongiphora nitidipennis, *Borm.* (00¹) p. 454, (00²) p. 58; *Kirby*, (04) p. 30.
Chætospania jupiter, *Burr*, (00³) p. 94 (n. syn.); *Kirby*, (04) p. 22.

Size medium; general colour dull brown, pubescent. Antennæ brown, with 15 cylindrical segments, the fourth nearly as long as

the third. Head depressed, rather broad; eyes prominent. Pronotum longer than broad, sides parallel, gently narrowed posteriorly. Elytra and wings ample; the latter paler at the base. Legs brown; tarsi paler, long and slender, first and third segments equally long. Abdomen dull brown, finely rugulose. Last dorsal segment of ♂ ample, smooth, nearly square; narrow in ♀. Pygidium of ♂ forming a prominent rectilinear plate, narrowed towards the apex which is truncate; in ♀ square, faintly emarginate at apex. Forceps of ♂ remote at base, depressed, long and nearly straight, sometimes with a strong depressed triangular tooth near the base and several small teeth beyond; in ♀ not contiguous, straight, short at base then tapering, denticulate.

	♂	♀
Length of body	8–12 mm.	10·5–11·5 mm.
,, forceps ..	3·5–8 ,,	3·5–6 ,,

Burma: Karen-ni, Keba Distr., about 3000 ft. (*Genoa Mus.*).
Occurs also in Sumatra, Java, and Borneo.
Type in the Genoa Museum.
Easy to recognize by the uniform dull brown colour and the form of the pygidium and forceps.

64. **Spongiphora semiflava**, *Borm.* (Fig. 37.)

Spongophora semiflava, *Borm.* (94) p. 385.
Spongiphora semiflava, *Borm.* (00²) p. 59; *Kirby*, (04) p. 30.

Small; antennæ with 15 segments, brown, paler near the base. Head dark brown. Pronotum brown, trapezoidal, widened posteriorly. Elytra ample, brown, with a long discoidal yellow band and clothed with short stiff bristles. Wings brown, with a large yellow spot. Base of femora brown; rest of legs yellow. Abdomen blackish chestnut. Pygidium of ♂ broad and flat, rapidly narrowing towards the apex which is bifid, with sharp lobes. Forceps of ♂ with the branches testaceous, remote at the base, long and straight, rather depressed, the inner edge near the base is dilated in the form of a flattened plate · in the ♀ shorter, contiguous at the base, nearly straight.

	♂	♀
Length of body	8 mm.	8 mm.
,, forceps	3·5 ,,	1·75 ,,

Burma: Karen-ni, Keba Distr., 3000–3700 ft., v.–xii.; Karen-ni, Geku Distr., 4300–4700 ft., ii./iii. (*Genoa Mus.*); Thagatà, iii., Bhamò, viii. (*coll. Burr*).
Also recorded from Sarawak.
Type in the Genoa Museum.
Apart from the distinctive coloration, the form of the pygidium of this species renders it unmistakable.

Genus **EROTESIS**, n. g.

Type, *Spongiphora sphinx*, Burr (Sarawak).

Antennæ with about 20 segments, slender and cylindrical; third segment rather short, the fourth much shorter; fifth a little shorter than, or about as long as, the third; the sixth a little longer, the rest gradually lengthening. Pronotum rather long and narrow, gently widened posteriorly. Head depressed, smooth. Elytra well developed, long and smooth. Wings well developed. Prosternum long and parallel-sided, scarcely constricted. Mesosternum and metasternum truncate. Abdomen depressed, nearly parallel-sided, second and third segments with distinct pliciform tubercles. Legs slender; tarsi rather short and broad, the first and third segments about equally long, second segment small and cylindrical. Last dorsal segment of both ♂ and ♀ ample, quadrate. Penultimate ventral segment broad and well rounded in both sexes. Forceps of ♂ with branches slender, remote at the base, elongate and arcuate; in the ♀ straight and simple.

Range. Oriental Region.

This genus is evidently allied to *Spongiphora*, but differs in the well-rounded penultimate ventral segment of the male and the shorter first tarsal segment.

65. **Erotesis decipiens**, *Kirby*.*

Labidura? decipiens, *Kirby*, (91) p. 511.
Labidurodes decipiens, *Borm.* (00²) p. 39 *Kirby*, (04) p. 15.

Orange-red and yellowish. Antennæ with 21–22 segments, brownish. Head yellowish, shading to reddish above. Pronotum narrow, with a vague dusky median band and clear yellow sides. Elytra yellow, with the dusky band of the pronotum continued down the suture to the tip of the wings, which are otherwise yellow. Legs yellowish. Abdomen reddish; pliciform tubercles of the third segment very distinct. Last dorsal segment with four tubercles in the middle of the posterior margin and a few smaller ones at the sides. Forceps of ♂ with branches remote at the base, slender, gently and regularly arcuate and meeting at the apex; there are two or three small but sharp teeth about the middle on the inner margin and a stronger one just before the apex.

	♂
Length of body	11 mm.
,, forceps	3 ,,

Assam (*Brit. Mus.*).

Type in the British Museum.

Kirby first placed this species, with a query, in *Labidura*, but it is more nearly related to *Spongiphora*; in appearance it resembles

Proreus simulans and *P. ludekingi*, and also, as de Bormans suggested from the description, *Apterygida erythrocephala*; it also recalls *Elaunon bipartitus*. For this reason it is important to examine the tarsi, as the simple cylindrical second segment will at once remove all idea of its identity with any of the above-named species.

Perhaps the doubtful *Apterygida cingalensis*, Dohrn, should be referred here.

Genus **LABIA**, *Leach*.

Labia, *Leach*, (15) p. 118.
Copiscelis, *Fieb.* (55) p. 257.—*Type*, Forficula minor, *Linn*

Type, *Forficula minor*, Linn. (Palæarctic and Ethiopian).

Small insects. Antennæ with 10–15 segments; the first long and pear-shaped, the second very small, the third long, almost as long as the first, fourth nearly or quite as long as the third, the rest gradually lengthening, cylindrical or cylindro-conical. Pronotum as broad as the head. Elytra always, wings usually well developed; former with no keel. First tarsal segment hardly longer than the third, the second very small; the tarsi

Fig. 8.—Tarsus of *Labia pygidiata*, Dubr.

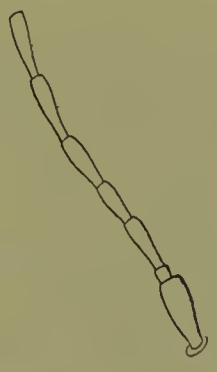

Fig. 9.—Antenna of *Labia curvicauda*, Motsch.

not strongly pubescent beneath. Abdomen depressed, sometimes rather widened in the middle. Last dorsal segment transverse. Penultimate ventral segment rounded in both sexes. Pygidium prominent or concealed. Forceps various, but generally remote at the base in the ♂, elongate or short, nearly straight or strongly curved, unarmed or toothed; in the ♀ simple, short, straight.

Range. Cosmopolitan.

About fifty species, from all parts of the world, are at present included in this genus; but it requires subdivision, and some members at least will be removed to other groups. A good many species are unrecognizable owing to insufficient description.

Table of Species.

1. Forceps of ♂ contiguous. (Pygidium hidden.) ..... *nigrella*, Dubr., p. 117.
1.1. Forceps of ♂ remote at base.
2. Branches of forceps of ♂ short and strongly curved. Pygidium not prominent.
3. Forceps of ♂ strongly arched at apex, not dilated ..... *luzonica*, Dohrn, p. 117.
3.3. Forceps of ♂ dilated near base, then bent inwards at a right angle .... *curvicauda*, Motsch., [p. 118.
2.2. Branches of forceps elongate.
3. Pygidium long and narrow.
4. Pygidium tongue-shaped or lanceolate ..... *mucronata*, Stål, p. 119.
4.4. Pygidium broad at base, long, narrowed apically, and truncate.... *pilicornis*, Motsch., [p. 120.
3.3. Pygidium short and broad.
4. Pygidium star-shaped ..... *pygidiata*, Dubr., p. 122.
4.4. Pygidium not lobed.
5. Pygidium square ..... *ridens*, Borm., p. 121.
5.5. Pygidium narrowed posteriorly, the apex sinuate ..... *arachidis*, Yers., p. 123.

The following supplementary key may be useful :—

1. Small, unicolorous species.
2. Brown or chestnut, with dilated and bowed forceps ..... *curvicauda*, Motsch., [p. 118.
2.2. Reddish yellow, with ring-shaped forceps in ♂ ..... *luzonica*, Dohrn, p. 117.
2.2.2. Testaceous; pygidium narrowed ..... *pilicornis*, Motsch., [p. 120.
1.1. Variegated species.
2. Elytra banded.
3. Elytra with pale transverse shoulder stripe ..... *nigrella*, Dubr., p. 117.
3.3. Elytra with a longitudinal band .... *mucronata*, Stål, p. 119.
2.2. Elytra unicolorous.
3. Pygidium of ♂ short and broad; elytra always short, usually black, sometimes brown, smooth; wings always absent ..... *arachidis*, Yers., p. 123.
3.3. Pygidium of ♂ square or star-shaped; elytra long, dark; wings usually long.
4. Pronotum yellow; wings blackish; legs yellow ..... *ridens*, Borm., p. 121.
4.4. Pronotum brown; wings with yellowish band; legs with darker shading ..... *pygidiata*, Dubr., p. 122.

66. **Labia nigrella**, *Dubrony.** (Fig. 81.)

Labia nigrella, *Dubr.* (79) p. 370; *Borm.* (00²) p. 68; *Kirby*, (04) p. 26.
Labia fasciata, *Borm.* (94) p. 387, (00²) p. 71; *Kirby*, (04) p. 25.

Small; blackish, not hairy. Antennæ with 11 segments, all rather short and thick; third short, gently clavate; fourth much shorter, oval, the rest gradually lengthening, fifth almost as long as third; first 5 or 6 yellowish, the rest dark. Head smooth, tumid, black, the sutures indistinct; eyes greyish. Pronotum a trifle narrower than the head, truncate anteriorly, the sides parallel; posterior margin rounded, about as long as broad; blackish brown, with an irregular whitish border, broadening out into a triangle in the middle. Elytra rather long and narrow; dull brown, usually with a transverse greyish-white band across the shoulders. Wings prominent, greyish. Legs short, blackish brown; the knees and first two tarsal segments rather paler. Abdomen typical, chestnut. Forceps with the branches alike in both sexes, but a little longer in the ♀ than in the ♂, chestnut, short, rather stout, trigonal, almost contiguous and straight as far as the points, which are slightly curved inwards and upwards.

	♂	♀
Length of body	5·5 mm.	5 mm.
,, forceps	0·5 ,,	0·65 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*Genoa Mus.*); Tenasserim: Thagatà, iv. (*Brit. Mus., coll. Burr*).

It also occurs in Java.

Type in the Genoa Museum.

This little earwig is easily recognizable by its simple form, tumid and globose head, small build, greyish-black colour, the very distinct transverse whitish stripe or broad spot usually present on the elytra near the base; the stripes on the elytra in earwigs are almost always longitudinal. It has a superficial resemblance to an ant.

67. **Labia luzonica**, *Dohrn.*

Labia luzonica, *Dohrn*, (64) p. 427; *Borm.* (88) p. 439, (94) p. 386, (00²) p. 70; *Kirby*, (04) p. 26.

Small, orange-yellow, pubescent. Antennæ brown, with 15 segments; third cylindrical, short; fourth not longer than broad; the others all short, scarcely longer than broad, cylindrical. Head tumid, smooth, chestnut; the suture obsolete. Pronotum orange, subquadrate; the posterior margin convex. Elytra ample, orange, darker along the suture. Wings of the same colour, hairy. Legs short, golden yellow; femora rather thick. Abdomen dark reddish chestnut, hairy. Last dorsal segment emarginate posteriorly, narrow. Forceps with the branches unarmed in both sexes, deep reddish chestnut, short,

stout, and trigonal at the base; in the ♂ subcontiguous, straight and strongly tapering towards the points, which are strongly incurved; in the ♀ straight, conical, contiguous.

	♂♀.
Length of body	6·5 mm.
,, forceps	1 ,,

Burma: Bhamò, viii. (*Genoa Mus.*).

Occurs also in Borneo and the Philippines.

Recognizable by its small size, simple form, and reddish-orange colour.

It is included in the Indian list on the strength of the single female reported by de Bormans from Burma; but further collecting will doubtless prove it to be fairly common in Further India, and its distribution is probably more extensive, as it is an indistinct little earwig which might be easily overlooked.

68. **Labia curvicauda**, *Motschulsky*. (Fig. 38.)

Forficesila curvicauda, *Motsch.* (63) p. 2, tab. 1. fig. 1.
Labia curvicauda, *Dohrn*, (64) p. 428; *Dubr.* (79) p. 364; *Borm.* (88) p. 440, (94) p. 387, (00²) p. 70; *Burr*, (01) p. 325, (08²) p. 33; *Kirby*, (04) p. 26.
Platylabia guineensis, *Dohrn*, (67) p. 348; *Borm.* (00²) p. 75; *Kirby*, (04) p. 22.
Platylabia dimidiata, *Dohrn*, (67) p. 348; *Borm.* (00²) p. 74; *Kirby*, (04) p. 22.
Platylabia camerunensis, *Borg*, (04) p. 570, pl. 26. fig. 4.
Platylabia bihastata, *Borg*, (04) p. 572, pl. 26. fig. 5.
Platylabia dimidiata, *Dohrn*, *var.* guineensis & *var.* camerunensis, *Borelli*, (07) p. 382.

Size small. Colour blackish brown or reddish chestnut, sometimes varied with yellowish. Antennæ blackish or reddish brown, with some segments pale or yellow; first segment clubbed; third cylindrical, not very long; fourth about equal to third, and a little thicker; fifth a little longer than fourth, the remainder gradually lengthening; ? 14 segments. Head rather tumid, gently emarginate posteriorly, black or dark brown. Pronotum longer than broad, narrower than the head, convex anteriorly, the sides parallel, rounded posteriorly; black, brown, or light yellow. Elytra black or deep brown, with a purplish sheen, pubescent. Wings prominent, of the same colour as the elytra. Legs testaceous, the femora usually ringed with blackish. Abdomen reddish-chestnut or blackish; rather elongate, depressed; parallel-sided in the ♂, broad about the middle and narrowed apically in the ♀. Last dorsal segment of ♂ transverse, with a median longitudinal depression; narrowed in ♀, the depression less marked. Pygidium of ♂ depressed, short and broad, nearly square, truncate posteriorly, not always very prominent; of ♀ hidden. Forceps of ♂ remote at base, straight, dilated on inner

margin in basal half, then abruptly and strongly curved inwards almost at a right angle; in ♀ contiguous, trigonal, straight, tapering, simple.

	♂ ♀.
Length of body	5·5 mm.
,, forceps	1 ,,

Ceylon: Nuwara Eliya, Galle (*coll. Bormans*), Peradeniya (*coll. Burr*); Burma: Shwegu, viii., Katha xi. (*Genoa Mus.*); Bhamò, viii. (*coll. Burr*); Karen-ni, Keba District, 3000–3700 ft.,, v./xii., 4000–4300 ft., xii., i.; Karen-ni, Geku District, 4300–4700 ft., ii./iii. (*Genoa Mus.*); Tenasserim: Meetan, iv.

All the names mentioned under this species are probably synonymous, though this cannot yet be said to be proved. The species appears to be as widespread and consequently as variable as the universal *Labidura riparia* itself. There are various distinctions quoted, but these are not sufficient to justify specific rank. Probably if *Platylabia guineensis*, Dohrn, as understood by de Bormans, has its pubescence worn and rubbed off, it becomes *Pl. dimidiata*, Dohrn. To Borelli belongs the credit of first suggesting, at least in part, this synonymy, and in his work on West African earwigs he discusses these two so-called species, and also *Pl. camerunensis* of Borg. *Pl. bihastata* of Borg may be distinct, as the form of the pygidium is somewhat different, but the coloration of the antennæ as a character has no value whatever.

In the same way, the relative abruptness of the curvature of the forceps of the male is a notoriously variable feature; it requires but little experience to make the Dermapterist sceptical as to the value of any species based upon slight differences in the armature of the forceps.

In the author's collection there are specimens from Burma, Ceylon, Java, Madagascar, Brazil, West Indies, and the Seychelles, and he cannot find any satisfactory reason for regarding any of them as specifically distinct; at the best they offer but slight variations of colour and armature which are even less marked than would be expected over so extensive a distribution.

69. **Labia mucronata**, *Stål*. (Fig. 39.)

Forficula mucronata, *Stål*, (60) p. 303.
Labia mucronata, *Dohrn*, (64) p. 423; *Scudd.* (76) p. 321; *Dubr.* (79) p. 363; *Borm.* (88) p. 439, (94) p. 386, (00²) p. 68; *Burr*, (01) p. 324, (02) p. 481.

Of medium size. General colour blackish, varied with tawny. Antennæ with 14 segments, rather slender, light brown, darker towards the apex; segments cylindrical; fourth about half as long as third; fifth also shorter than third; sixth about equal to third. Head black and smooth, sutures indistinct. Pronotum

narrower than the head apically but about as wide posteriorly, being noticeably dilated posteriorly; it is a trifle wider than long; the prozona tumid, the metazona broadly depressed, black, the sides all straight, the posterior angles rounded. Elytra ample, long, smooth, chocolate-brown, with a broad longitudinal yellow or orange dorsal band. Wings long, smooth, yellow, with a dark band along the suture. Femora stout, blackish brown, the knees yellowish; tibiæ yellowish, with a fuscous ring; tarsi pale. Abdomen smooth, deep chocolate-brown, elongate, parallel-sided in the ♂, somewhat narrowed posteriorly in the ♀. Last dorsal segment of ♂ transverse, simple, truncate posteriorly; in ♀ narrowed. Pygidium of ♂ prominently produced, generally lanceolate, pointed at the apex but sometimes blunt; in ♀ not prominent, black. Forceps red or black; in the ♂ the branches are remote at the base, slender, elongate and gently curved inwards towards the apex, with a long strong and sharp tooth pointing downwards on the inner margin near the base.

	♂	♀
Length of body	3–5·5 mm.	7 mm.
„ forceps	1–2 „	1·5 „

Ceylon: Colombo and Matale (*coll. Burr*); Burma: Bhamò; viii.; Shwegu, x.; Karen-ni, Geku Distr., 4300–4700 ft. (*Genoa Mus.*); Tenasserim: Meetan, Thagatà, iv.; hills between the rivers Meekalan and Khyeat, 3700–4700 ft., iii. (*Genoa Mus.*).

Type in the Stockholm Museum.

This species is abundant throughout the Oriental Region; it is easy to recognize by the orange spots on the elytra and wings, by the long-pointed pygidium, and by the slender forceps with the long sharp tooth pointing downwards near the base.

70. **Labia pilicornis**, *Motsch.* (Fig. 40.)

Forficula pilicornis, *Motsch.* (63) p. 2.
Labia pilicornis, *Dohrn*, (64) p. 437; *Borm.* (00²) p. 72; *Burr*, (01) p. 326; *Kirby*, (04) p. 26.

Small, greyish or yellowish brown. Antennæ with about 15 segments; third elongate, cylindrical; fourth and fifth nearly as long as third, subcylindrical, the rest slender, pyriform. Head smooth or tumid, sutures faint; brown or blackish. Pronotum as broad as the head and as broad as long, anterior margin and sides straight, posterior margin rounded; prozona somewhat tumid, metazona depressed. Elytra ample, smooth, greyish brown. Wings long, of the same colour. Legs slender, light brown. Abdomen reddish, sometimes passing to blackish; parallel-sided in ♂, narrowed apically in ♀. Last dorsal segment of ♂ transverse, rectangular; strongly narrowed in the ♀. Penultimate ventral segment of ♂ very ample and broadly rounded. Pygidium of ♂ depressed, rather broad at the base, about twice as long as the greatest breadth, suddenly narrowed before the apex, which is

truncate; in ♀ not prominent. Forceps with the branches in the ♂ remote, slender, nearly straight, gently arcuate, the inner margin crenulate; in ♀ short, conical, contiguous, and nearly straight.

	♂ ♀.
Length of body	3·5–4 mm.
„ forceps	1 „

Ceylon: Peradeniya (*E. E. Green*; *coll. Burr*).

This species, one of the smallest of the earwigs, was described by Motschulsky from a single female; so its true affinities remained unknown till Mr. Green found two males at Peradeniya which are undoubtedly referable to this species and were in company with the female.

It is at first glance almost indistinguishable from the common European *Labia minor*, L., but differs in the perfectly parallel-sided pronotum, and quite distinct, though small, pygidium, which resembles what is often mistaken for the pygidium in *L. minor*, but is really a spine on the penultimate ventral segment.

71. Labia ridens, *Borm.*** (Fig. 42.)

Labia ridens, *Borm.* (94) p. 388, (00²) p. 66; *Kirby*, (04) p. 26.
Labia ridens *var.* cyclolabia, *Borm.* (94) p. 389, (00²) p. 66; *Kirby*, (04) p. 26.

The whole body thickly pubescent, with long yellowish hairs and bristles. Relatively large; orange red, with blackish head and elytra. Antennæ brown, with apical segments pale; third segment rather short, subclavate; fourth segment rather thicker, as long as third; fifth as long as fourth. Head black or very dark brown, rather depressed, sutures not very distinct. Pronotum orange-yellow, nearly square, almost as broad as the head; anterior margin convex, sides parallel; posterior margin rounded. Elytra ample, long and broad, blackish brown, coriaceous; apical margins obliquely truncate. Wings long, prominent, of the same colour and consistency as the elytra. Legs yellow. Abdomen orange-yellow, elongate and parallel-sided, lateral tubercles strongly marked; slightly dilated in the middle in the ♀. Last dorsal segment ample, rectangular, transverse, smooth, with a pair of obsolete tubercles in the middle of the hinder margin. Pygidium of ♂ and ♀ prominent, depressed, forming a nearly square flattened plate; posterior margin truncate, the angles tuberculiform, the sides parallel. Forceps with the branches orange-red, remote at the base, depressed and elongate; of the ♂ there are two forms:—

(a) *macrolabia*, var. n. Branches very elongate, straight, gently curved inwards at the apex, the inner margin depressed and produced into an elongate, crenulate, flattened plate, terminating in a sharp tooth about two-thirds the way down.

(b) *cyclolabia*, Borm. The branches short, very gently diverging

in basal third, then sharply bowed inwards at an obtuse angle, attenuate and straight, converging to the points which are gently hooked; the inner margin near the base depressed, produced into a flattened triangular projection which terminates at the end of the pygidium. In the ♀ the branches somewhat similar, but shorter; the flattened plate is present but decidedly shorter, has no teeth, and the crenulations are very feeble.

	macrolabia.	*cyclolabia.*	
	♂	♂	♀
Length of body....	10–11 mm.	6–6·5 mm.	7·5–9·5 mm.
,, forceps..	4·5 ,,	2–2·5 ,,	3 –3·5 ,,

Burma: Rangoon, v./xii. (var. *cyclolabia*; *Genoa Mus.*); Karenni, Keba District, 3000–3700 ft., v./xii. (both forms, *Genoa Mus.*).

Type in the Genoa Museum.

Easily to recognize by the relatively great size, the form of the pygidium, and of the forceps, which differ in the two forms only in degree, the *macrolabia* being the result of the elongation of the *cyclolabia*, which is probably the original and normal form.

72. **Labia pygidiata**, *Dubr.*** (Fig. 41.)

Labia ? pygidiata, *Dubr.* (79) p. 364, fig. in text, ♂ ♀.
Labia pygidiata, *Borm.* (94) p. 387, (00²) p. 65; *Kirby*, (04) p. 26.

Relatively large; chocolate-brown. Antennæ with 15 segments, brown, the third segment rather short and subclavate; fourth pear-shaped, almost as long as the third; the rest about the same length, all pear-shaped. Head tumid, black, sutures indistinct. Pronotum chocolate-brown, a trifle wider posteriorly than anteriorly, sides straight, hinder border gently rounded, the angles rounded. Elytra ample, purplish brown, densely pubescent, coriaceous, about three times as long as the pronotum. Wings prominent, of the same colour and texture as the elytra, but with a transverse pale yellow band just beyond apex of the elytra. Legs yellowish, banded with brown. Abdomen elongate, parallel-sided, reddish brown, lateral tubercles distinct; slightly wider in the middle in the ♀. Last dorsal segment of ♂ large, square, smooth, with two tubercles at the roots of the forceps and a longitudinal median impression. Pygidium of ♂ large, broad and prominent, narrow at the base, then strongly widened, terminating in four depressed sharp triangular points; the median portion is tumid, the edges depressed; in the ♀ the pygidium is less prominent and quadrangular. Forceps of ♂ with the branches remote at the base, rather strong, depressed, elongate, gently arched, the inner margin with a double edge and with a sharp tooth just beyond the middle; in the ♀ the branches are also straight, elongate and remote at the base, the inner margin being slightly dilated in the middle to form an obsolete tooth; in colour the forceps are reddish or yellowish.

	♂	♀
Length of body	7·5 mm.	7 mm.
,, forceps	2·5 ,,	1·5 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., vi./xii., i./xii. (*Genoa Mus.*).

Also recorded from Java, Oahu (*coll. Burr*), and Hawaii (*Perkins, Brit. Mus., coll. Burr*).

Type in the Genoa Museum.

L. pygidiata is recognizable by the star-shaped pygidium, but probably two species are confused under one name. The Hawaiian specimens have the elytra much lighter in colour, and very decidedly shorter and the wings shortened, so that the transverse yellow band is hidden by the elytra, the pronotum is half yellow, the fifth antennal segment is more clubbed and the other segments more pyriform; the forceps of the female have the inner margin denticulate throughout their length. This is perhaps an insular form, an incipient species, which we may soon be able to discriminate accurately when we can critically examine more material from its entire geographical range.

73. **Labia arachidis**, *Yersin*. (Fig. 82.)

Forficula arachidis, *Yersin*, (60) p. 509, pl. x, figs. 33–35; *Scudder*, (76) p. 311.
Chelidura arachidis, *Brunner*, (82) p. 21.
Apterygida arachidis, *Burr*, (00²) p. 52, (01) p. 330, (07²) p. 209; *Borm.* (00²) p. 117; *Kirby*, (04) p. 44.
Forficesila nigripennis, *Motsch.* (63) p. 1; *Dohrn*, (65) p. 89.
Forficula wallacei, *Dohrn*, (65) p. 88 (type in Dohrn's collection); *Dubr.* (79) p. 337; *Scudder*, (76) p. 318.
Forficula (Apterygida) gravidula, *Gerst.* (73) p. 50, pl. 3, fig. 9.
Labia gravidula, *Borm.* (84²) p. 197.
Apterygida gravidula, *Borm.* (00²) p. 117.
Sphingolabis wallacei, *Borm.* (88) p. 448.
Sphingolabis arachidis, *Borm.* (94) p. 406; *Bol.* (97) p. 286.
Sphingolabis gravidula, *Borm.* (93) p. 407.

Dark brown or castaneous, hairless. Antennæ with 12–13 segments. Pronotum square, with the lateral margins paler, and the posterior margin straight. Elytra free, black or reddish, the hinder margin truncate. Wings abortive. Legs testaceous. Femora sometimes with a blackish band near the base. Abdomen glabrous, each segment with a very short pubescence at the hinder margin; segments 5–8 in the male, and sometimes also the forceps, slightly punctulated. In the male the anal segment is subquadrate, impressed in the middle, with no tubercles; the forceps have the branches remote at the base, short, slender, cylindrical, gently incurved, with a very small tooth on the inner margin at the base itself and another in the apical third. In the female the anal segment is the same as in the male; the branches of the forceps are short and curved in towards the apex.

	♂	♀
Length of body	8 mm.	8 mm.
„ forceps	2·25 „	1·75 „

Bengal: Calcutta (*Brussels Mus.*); Madras: Trichinopoli; Bombay: Surat (*coll. Burr*); Ceylon: Nuwara Eliya; Burma: Teinzo, iv./v., between Prome and Mandalay, iii., Rangoon, vi./viii, Bhamò, iii. (*Genoa Mus.*); Tenasserim: Meetan, iv. (*Genoa Mus.*).

This species is absolutely cosmopolitan and exists in swarms, under artificial conditions, in almost every part of the world. It is numerous in collections from all parts of tropical Asia, and if this is not its original home, it has at least become very effectually naturalized. It varies to some extent in intensity and shade of colour, as is to be expected, and consequently has been described under a variety of names, but they are all here referred with little hesitation to the same species.

De Bormans placed this species in *Apterygida*, but its affinities are entirely with *Labia*, in which Gerstæcker and Scudder placed it. De Bormans maintains that the second tarsal segment is lobed, but this structure is so minute that it cannot be regarded as a true bilobed forficuline tarsus.

Genus **PLATYLABIA**, *Dohrn*.

Platylabia, *Dohrn*, (67[2]) p. 347.
Labidophora, *Scudd.* (76) p. 297.—*Type*, Platylabia major, *Dohrn*.

Type, *Platylabia major*, Dohrn.

(Scudder suggested the name *Labidophora*, as he considered *Platylabia* to resemble too closely *Platylabus*, Wesmael, in Hymenoptera; but of course this objection does not stand, and Dohrn's original name holds good.)

Antennæ with 10–13 segments; third segment elongate and subclavate; fourth almost as long, ovate or pear-shaped; the rest ovate or elongate pear-shaped. Head depressed but smooth, sutures obsolete. Pronotum narrower than the head, more or less narrowed and convex anteriorly; sides parallel and hinder margin rounded. Elytra very flat and well developed. Wings prominent. Legs moderately long; first and second tarsal segments about equally long. Abdomen strongly flattened, elongate, parallel-sided, lateral glandular folds not present. Last dorsal segment ample, subquadrate, smooth. Penultimate ventral segment ample, rounded. Pygidium generally prominent in both sexes. Forceps elongate, variously armed; those of ♀ also elongate, generally dilated or laminate.

Range. Oriental Region.

Allied to *Labia*; differs in the strongly flattened body and the obsolete lateral abdominal folds; the pronotum is narrowed anteriorly, the fore-border being almost produced into a neck.

The colour is invariably bright orange or black; these two shade into one another insensibly or interchange, and so no weight can be attached to colour in this genus.

At first glance the single known species of *Palex* closely resembles this genus, owing to the black and chestnut coloration, build, and strongly depressed body.

The genus needs revision and a thorough comparison of types.

Table of Species.

1. Pygidium not prominent ..... *major*, Dohrn, p. 125.
1.1. Pygidium of ♂ prominent.
2. Pygidium of ♂ broad, bilobed at apex. *gestroi*, Dubr., p. 125.
2.2. Pygidium of ♂ elongate, more or less rectangular.
3. Pygidium of ♂ with one point at apex ..... *thoracica*, Dohrn, p. 126.
3.3. Pygidium with 3 points at apex.... *nigriceps*, Kirby, p. 127.

74. Platylabia major, *Dohrn.*

Platylabia major, *Dohrn*, (67²) p. 347; *Dubr.* (79) p. 371; *Borm.* (94) p. 380, (00²) p. 74; *Kirby*, (04) p. 22; *Burr*, (00²) p. 50.
Labidophora major, *Scudder*, (76) p. 321.

Head, pronotum, elytra and wings deep jet-black, the rest of the body orange-yellow. Pygidium not prominent. Branches of forceps of ♂ flat, with a strong depressed tooth just before the middle of the inner margin.

	♂	
Length of body	10	mm.
,, forceps	1·75–2	,,

Burma: Karen-ni, Keba District, 3000–3700 ft., April to December (*Genoa Mus.*); Ceylon (*Brussels Mus.*).

According to de Bormans, this species is distinguished by the short pygidium of the male, which is not very prominent. It is recorded from Ceylon (Brussels Mus.), but the identification is doubtful; it is also recorded from Celebes and from Java.

75. Platylabia gestroi, *Dubr.*

Platylabia gestroi, *Dubr.* (79) p. 372, fig. in text; *Borm.* (88) p. 436, (94) p. 380, (00²) p. 74; *Burr*, (04) p. 300; *Kirby*, (04) p. 22.

Relatively large, with dense dark pubescence. Antennæ with 13 segments, the eight basal segments brown, the rest yellow; all cylindrical. Head black, posterior margin somewhat emarginate, sutures indistinct. Pronotum black, nearly as wide as the head and a little longer, posterior margin gently rounded; prozona tumid, sides and metazona flat. Elytra twice as long as the pronotum, black, finely punctulate, truncate posteriorly. Wings long, of the same colour and consistence as the pronotum. Femora fairly stout; legs yellowish, varied with fuscous. Abdomen reddish chestnut. Last dorsal segment ample, broader than

long, smooth, with a faint median impression, and a pair of small tubercles over the roots of the forceps. Ventral surface clear red. Penultimate ventral segment ample, quadrate. Pygidium broad and flat, prominent, depressed, posterior margin with a shallow emargination, the angles produced outwards into blunt triangular lobes. Forceps with branches dark brown, remote at the base, nearly straight, elongate and trigonal, tapering and recurved towards the apex; about one-third the way down, the inner margin is abruptly dilated to form a flat plate with a straight edge, which disappears just before the apex.

♀ resembles the male; pygidium of the same form, but forceps simpler, without the dilated plate.

Burma: Bhamò, viii. (*Genoa Mus.*); Tenasserim: Thagatà, viii. (*Genoa Mus.*).

Also recorded from New Guinea and doubtfully from Diego Suarez.

Type in the Genoa Museum.

Distinguished by the broad bilobed pygidium and the flattened straight-edged plate inside the forceps. Dubrony's figure, though marked a ♂, might well be a ♀, and probably the type of *P. gestroi* is only the ♀ of *Pl. thoracica* or *Pl. nigriceps*.

76. Platylabia thoracica, *Dohrn*. (Fig. 83.)

Platylabia thoracica, *Dohrn*, (67²) p. 348; *Dubr.* (79) p. 371; *Borm.* (88) p. 436, (94) p. 380, (00²) p. 73; *Burr*, (01) p. 76, (02) p. 482; *Kirby*, (04) p. 22.
Labidophora thoracica, *Scudd.* (76) p. 322.

Brown and black. Antennæ brownish, paler towards the apex. Head reddish brown. Pronotum brown and yellowish. Elytra and wings blackish brown. Abdomen reddish. Pygidium of ♂ quadrate, flat, posterior margin with a point in the middle; of ♀ similar, but posterior margin gently emarginate. Forceps of ♂ elongate, remote at the base, depressed and nearly straight; the inner margin armed with a strong tooth about the middle; of ♀ like that of the ♂, but without the tooth, the inner margin rather dilated and depressed.

Ceylon: Punduluoya and Peradeniya (*Green*; *coll. Burr*); Burma: Teinzò, v. (*Genoa Mus.*); Tenasserim: Kokarit, i./ii. (*Genoa Mus.*).

Also recorded from Penang, Sumatra, Aru Is., and Celebes.

The distinguishing feature of the male of this species is the rectangular pygidium with a single point in the middle of the posterior margin. Attributed to it are the females which have the inner margin of the forceps dilated and the pygidium with the posterior margin gently emarginate. There is nothing to distinguish these from the females of *Pl. nigriceps*, and very probably *Pl. nigriceps* is nothing more or less than a variety of *Pl. thoracica*, from which it appears to differ only in the presence of *three* points in the pygidium of the male.

It may be that the same type of female forceps and pygidium is

common to the two species, if they are distinct, for we find almost identically the same form in the females of *Sphingolabis* (*Chætospania*) *volcana*, Burr (Madagascar), and an approach to it in several species of *Sparatta* and an allied genus.

77. **Platylabia nigriceps**, *Kirby*.* (Fig. 43.)

Platylabia nigriceps, *Kirby*, (91) p. 518, (04) p. 27; *Borm.* (00[2]) p. 74.
Platylabia fallax, *Borm.*** (94) p. 380; *Kirby*, (04) p. 22.

Head blackish brown. Elytra and wings well-developed, shining black, coriaceous. Abdomen reddish chestnut. Pygidium of ♂ long and narrow, very prominent, posterior margin straight, with three little tubercles, one at each angle and one in the middle; ♀ similar to the ♂, but the apex is emarginate and only the tubercles at the angles remain. Branches of the forceps of the ♂ trigonal and remote at the base, nearly straight; just beyond the middle on the inner margin is a strong sharp tooth directed apically. In the ♀ the branches are parallel, the inner margin dilated into a flat plate, with a crenulated edge extending from one quarter of the length to about three-quarters.

	♂	♀
Length of body	7·5 mm.	7·5 mm.
„ forceps	2·5 „	2·25 „

Burma: Karen-ni, Keba District, 3000–3700 ft., v./xii. (*Genoa Mus.*).

Also recorded from New Guinea.

Type of *nigriceps* in the British Museum; of *fallax* in the Genoa Museum.

De Bormans at first discriminated *P. fallax* from *P. nigriceps*, but afterwards admitted their identity. The latter is here included as a distinct species because the case is not yet quite proven in favour of its inclusion as a varietal form of *P. thoracica*. From the description and from syntypes of *P. fallax* (=*nigriceps*) in the author's possession, it is impossible to discriminate the females of *P. nigriceps* from those of *P. thoracica*. The pygidium differs so little in the males, that it is almost certain that *P. fallax* and *P. nigriceps* are synonyms of *P. thoracica*, and very likely *P. gestroi* is the female.

Genus **SPHINGOLABIS**, *Bormans*.

Chætospania, *Karsch*, (86) p. 87 (nov. syn.).—*Type*: Ch. inornata, *Karsch* (Madagascar).

Type, *Sphingolabis furcifer*, Borm. (84[1]) p. 194 (= *Sparatta semifulva*, Borm.).

Body depressed. Antennæ with 12 segments; third segment gently clavate, fourth ovate, nearly as long as third, the rest pear-shaped. Head smooth, rather depressed, sutures obsolete. Pronotum nearly square. Mesosternum transverse, truncate.

Metasternal lobe narrow, truncate. Elytra and wings well developed. Legs moderately long, slender; third tarsal segment a trifle shorter than the first. Abdomen depressed, parallel-sided, with lateral tubercles. Last dorsal segment ample. Penultimate ventral segment ample, rounded. Pygidium various. Forceps elongate, various.

Range. Tropical Asia and Africa.

Approaches *Platylabia* in the form of the antennæ and the depressed body, but the depression is not so strongly marked, and the lateral abdominal tubercles are distinct. There are about a dozen species, but the genus needs a thorough revision.

S. furcifer, Borm., the type of the genus, is the male of *Sparatta semifulva*, Borm., which is congeneric with *Chætospania inornata*, Karsch, so the genus *Chætospania* coincides with *Sphingolabis*.

78. Sphingolabis feæ, *Borm.*** (Fig. 44.)

Chætospania feæ, *Bormans*, (94) p. 390, (00²) p. 76; *Kirby*, (04) p. 22.

Reddish testaceous, with long pale bristles. Antennæ with 12 segments, fuscous, the apical segment paler. Pronotum black, as broad as the head, a little longer than broad, subrectangular, with rounded angles. Elytra ample, black, coriaceous. Wings of the same colour and texture. Legs yellowish. Abdomen reddish shaded with blackish; lateral tubercles prominent; rectangular and parallel-sided in the ♂, slightly dilated in the middle in the ♀. Last dorsal segment ample, rectangular, with an indistinct triangular median depression and blunt tubercles over the roots of the forceps; posterior margin truncate. Pygidium of ♂ produced, of varying length, parallel-sided, with a deep triangular incision at the apex; in the ♀ quadrate, not so prominent. Forceps with the branches in the ♂ remote at the base, trigonal, depressed, elongate, nearly straight, gently curved inwards at the apex, with a sharp tooth a little beyond the middle on the inner margin; in the ♀ broader, thicker and shorter, nearer together than in the ♂, the inner margin somewhat dilated and crenulate.

	♂	♀
Length of body	6–7·5 mm.	6·5 –7·5 mm.
,, forceps	2·25–3·25 ,,	1·75–2·25 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., v./xii., 4000–4300 ft., i.; Karen-ni, Geku District, 4300–4700 ft. ii./iii. (*Genoa Mus., Brit. Mus., coll. Burr*).

Type in the Genoa Museum.

This species resembles some forms of *Platylabia*, especially in the female, but the body is less depressed and the form of the pygidium of the male is quite characteristic.

It occurs in Lombok and probably also in Java.

Family V. FORFICULIDÆ.

This important and extensive family contains the highest developed earwigs. It is well characterized by the form of the second segment of the tarsi, which is never simple, but invariably lobed, though the form of the lobe varies to some extent.

In the *Chelisochinæ* it is as narrow as the other segments, but is produced into a slender long lobe beneath the third segment.

In the other subfamilies it is broadened, dilated on each side, so as to assume somewhat the shape of a heart.

Table of Subfamilies.[1]

1. Second tarsal segment narrow, produced into a lobe beneath the third.	1. *Chelisochinæ*, [p. 129.
1.1. Second tarsal segment broad, dilated to form heart-shaped lobe on each side.	
2. Meso- and metasternal plates decidedly broad and transverse. (Abdomen broad, widest about the middle and narrower at the apex)	2. *Anechurinæ*, [p. 148.
2.2. Meso- and metasternal plates not decidedly transverse, subquadrate and narrow.	
3. Abdomen more or less depressed; (last dorsal segment transverse).....	3. *Forficulinæ*, p. 162.
3.3. Abdomen convex, little depressed; (last dorsal segment often tapering)	4. *Opisthocosmiinæ*, [p. 175.

Subfamily I. CHELISOCHINÆ.

This subfamily contains at present nine genera, of which all but two are known to be represented in British India.

Fig. 10.—Antenna of *Forficula beelzebub*, Burr.

Fig. 11.—Tarsus of *Exypnus pulchripennis*, Borm.

The characteristic of the family is the form of the second tarsal segment, which is not simple and cylindrical, as in the preceding

[1] Some of these definitions and distinctions are only provisional, as the classification of this group is still incomplete.

families, but is provided with a long narrow lobe, which is produced beneath the third segment. In the following subfamily, the *Forficulinæ*, the second tarsal segment is also lobed, but in a totally different manner, being broad and dilated on each side, and not produced beneath the third segment. In the *Chelisochinæ* this character is not visible from above, as the tarsus is uniformly narrow, but can only be distinguished from the side, and in the smaller species the lobe is often marked by a dense pubescence.

The *Chelisochinæ* are, as a rule, moderately sized insects, but some forms are quite large.

There are two general types of coloration : *Proreus* and *Hamaxas* are generally brown or reddish, varied with black, while *Chelisoches*, *Chelisochella*, *Exypnus*, and *Adiathetus* are black or dark brown, often with a metallic lustre which is sometimes very brilliant.

Table of Genera.

1. Elytra with a sharp keel running from the shoulder to the apex; (legs long and slender; elytra broad and rounded) .. [p. 131. CHELISOCHELLA, Verh.,
1.1. Keel of elytra absent or present only at shoulder, dying out long before reaching the apex.
2. Tibiæ flattened and furrowed above in the apical half.
3. Tarsi and tibiæ long and slender; (elytra and wings metallic) .... EXYPNUS, Burr, p. 132.
3.3. Tarsi and tibiæ short.
4. Antennæ with fourth segment clubbed or conical; (medium-sized and dark species) ..... [p. 134. CHELISOCHES, Scudd.,
4.4. Antennæ with fourth segment cylindrical or ovate; (size medium or small; brown or reddish).
5. Wings developed; abdomen rather depressed and dilated; forceps depressed and strongly toothed; elytra not excavate at basal angle ..... R REUS, Burr, p. 136.
5.5. Wings abortive; abdomen cylindrical; elytra rounded off at basal angle, exposing a small scutellum; forceps long and very slender ..... SOLENOSOMA, Burr, p. 140.
2.2. Tibiæ smooth above, not furrowed, flattened only at the apex itself.
3. Stout insects, dark or metallic in colour; pronotum trapezoidal, widened posteriorly ..... ADIATHETUS, Burr, p. 141.
3.3. Weaker insects; colour never metallic; forceps rather slender; pronotum ovate, not widened posteriorly ..... HAMAXAS, Burr, p. 147.

Genus **CHELISOCHELLA**, *Verhœff.*

Chelisochella, *Verhœff*, (02[1]) p. 196.
Lobophora, *Serv.*, (39) p. 32 (pars).
Chelisoches, *Scudder*, (76) p. 295 (pars).

Type, *Lobophora superba*, Dohrn.

Large, powerful; segments 4 and 5 of antennæ equally long, together longer than 3. Head tumid, sutures deep. Pronotum as wide as the head, not broadened posteriorly. Elytra ample, very broad, smooth and shining, with a distinct keel running the whole length of the costal fold. Wings long and prominent. Legs long and slender; tibiæ compressed, smooth above, not flattened or furrowed; tarsi long and slender. Abdomen stout, broad and depressed; last dorsal segment of ♂ large, smooth, and tuberculate. Pygidium small in both sexes. Forceps stout, depressed, elongate, toothed.

Range. Oriental Region.

This genus is very inaptly named by Verhœff, who gives it a diminutive termination, though it includes the largest species of the family, and one of the largest known species of earwigs. It is characterized by the broadened elytra with a sharp and distinct keel running the entire length of the costal fold.

It would appear that Verhœff was familiar only with the typical species, as it must have been by guess-work that he included *Chelisoches pulchripennis*, Borm., and *Ch. glaucopterus*, Borm., on the strength of their metallic coloration. As a matter of fact, those two species have only a very short keel on the elytra, and so are excluded from the genus by Verhœff's own characterisation.

The genus is monotypic, for the reception of *Lobophora superba*, Dohrn, of which *Chelisoches doriæ*, Borm. is evidently the male.

This is not the only member of the family in which the female has highly developed forceps, having all the appearance of a male.

79. **Chelisochella superba**, *Dohrn.* (Fig. 89, *a* & *b*.)

Lobophora superba, *Dohrn*, (65) p. 71; *Dubr.* (79) p. 373.
Chelisoches superbus, *Scudd.* (76) p. 309; *Borm.* (00[2]) p. 83; *Burr*, (08[3]) p. 115.
Chelisochella superba, *Verh.* (02[1]) p. 196; *Burr*, (05) p. 28, (07[1]) p. 128; *Kirby* (04) p. 35.
Chelisoches doriæ, *Borm.* (00[1]) p. 463; *Burr*, (01[1]) p. 95, (08[3]) p. 115.
Chelisochella doriæ, *Kirby*, (04) p. 35.

Large and powerful; black with a purple sheen. Antennæ blackish brown, with (?) 23 segments; the fifteenth or sixteenth segment often pale; third segment subclavate, fourth half as long as third, sixth equal to third. Head black, broad and depressed, somewhat sinuate posteriorly, sutures distinct; frons tumid. Pronotum purplish black, as broad as the head, longer than broad, anterior margin truncate, sides parallel, posterior margin rounded, reaching well over the elytra; prozona somewhat tumid, with

a median sulcus, and an impression on each side; metazona depressed. Sternal plates brown. Pronotum long, constricted posteriorly; mesosternum transverse, truncate posteriorly; metasternum with lobe short, broad and truncate. Elytra black with a shining purple sheen; ample, long, very broad, well rounded at the shoulders, the costa rounded, the apex truncate; a distinct keel runs the whole length of the costal fold from the shoulder to the apex. Wings prominent, shining purple-black, with an orange spot at the apex. Legs long, rather compressed, black; tibiæ smooth above, depressed only at the extreme apex on the upper margin. Abdomen broad, rather depressed, reddish black. Last dorsal segment of ♂ ample, transverse; posterior margin depressed in the middle, with a crenulated, transverse, crested tubercle on each side over the roots of the forceps, and the exterior angles produced to a point; in the ♀ as in the ♂, but the tubercles more tumid, less crenulate. Penultimate ventral segment of ♂ and ♀ ample, broad and rounded. Pygidium of ♂ very short, almost hidden; of ♀ short and broad, with a short quadrangular lobe on the posterior margin. Forceps with the branches reddish black, remote at the base, depressed, trigonal, elongated and robust; in the ♂ bent somewhat downwards and gently arcuate, enclosing an elongate oval area, with a pair of strong conical teeth near the base on the inner margin and a blunt crested tooth just beyond, then crenulate as far as a strong sharp tooth just before the apex; in the ♀ the branches are even more elongate, scarcely arcuate, gently converging, with a strong conical tooth near the base, another conical tooth at a quarter the length and another about half-way down the forceps; beyond this crenulate to the apex, which is hooked; the forceps are even more strongly depressed in the apical than in the basal half.

	♂	♀
Length of body	21–24 mm.	25–27 mm.
„ forceps ..	10·5–11 „	11–13 „

Sikkim (*coll. Burr*).

Also from Johore, Mentawei Island, Sumatra, and Borneo.

The original specimens are quoted as being in Dohrn's collection, Westermann's, and in the Berlin Museum. It is uncertain which is the true type.

This very fine species is easy to recognize from its great size, apart from the form of the forceps and the generic characters.

In 1900, de Bormans separated *Ch. doriæ*, but this is nothing more or less than the male of *Ch. superba*, Dohrn.

Genus **EXYPNUS**, *Burr*.

Exypnus, *Burr*, (07[1]) p. 128.
Chelisochella, *Verh.* (02[1]) p. 196 (pars).
Chelisoches, *Scudder*, (76) p. 295 (pars).

Type, *Chelisoches pulchripennis*, Borm.

In general appearance resembles the preceding genus. Antennæ with about 20 segments; third equal in length to fourth and fifth united. Head tumid, sutures distinct. Pronotum as broad as the head, rounded but not dilated posteriorly; sternal plates as in *Chelisochella*. Elytra broad, rather rounded, with a short costal keel only present at the shoulder. Wings well developed. Legs long and slender; anterior and middle tibiæ flattened and furrowed above in the apical third. Pygidium short. Forceps depressed, arcuate in ♂, straight in ♀.

Range. Oriental Region.

This genus is also monotypic, and was erected for the reception of a species which has been referred to *Chelisochella* and *Chelisoches*. It was included by Verhœff in the former, but probably without seeing specimens, since it has not the entire keel on the elytra, which is the essential character of that genus as defined by Verhœff himself.

80. **Exypnus pulchripennis**, *Borm.*** (Fig. 84.)

Chelisoches pulchripennis, *Borm.* (83) p. 78, pl. 3. fig 15, (88) p. 441, (94) p. 392, (00[2]) p. 84; *Burr*, (00[1]) p. 96, (02) p. 484; *Kirby*, (04) p. 33.
Chelisochella pulchripennis, *Verhœff*, (02[1]) p. 196.
Exypnus pulchripennis, *Burr*, (07[1]) p. 128.

Of medium size; brownish black, with a purple sheen. Antennæ brown, with about 20 segments; third cylindrical, fourth and fifth thickened, ovate, the remainder slender, clubbed at the apex. Head with frons tumid and occiput rather depressed, brownish black, sinuate posteriorly. Pronotum as broad as the head, parallel-sided, truncate in front, rounded posteriorly; blue-black; prozona tumid with a median sulcus and two impressions; metazona depressed. Elytra black with a brilliant purple sheen, broadened and rounded along the costal margin; keel on costal margin developed at the shoulder only. Wings long, purple-blue, with an orange apical spot. Legs long, slender, rather compressed, black, the tarsi paler; the tibiæ depressed and sulcate in the apical third. Abdomen parallel-sided, reddish black. Last dorsal segment of ♂ rectangular, ample, slightly broader than long; posterior margin depressed in the middle, with a transverse, crested, crenulate tubercle on each side over the root of the forceps; in the ♀ narrowed posteriorly, the tubercles more feebly developed. Pygidium of ♂ very short and broad, hidden; of ♀ very short and obtuse. Forceps with the branches in the ♂ depressed, remote at the base, but with a strong depressed bifid tooth at the base itself, the points of which almost meet; then rather bent downwards, gently arcuate, enclosing an elongate oval area, crenulate along the inner margin with a sharp tooth at the apical third; in the ♀ depressed, nearly straight, elongate, crenulate along the inner margin.

	♂	♀
Length of body	16·5 mm.	16 mm.
,, forceps ..	5 ,,	6 ,,

Burma: Senmyingyan, ii. (*Genoa & Brit. Mus.*), Karen-ni, Keba District, 3000–4300 ft., v/xii. (*Genoa Mus.*); Tenasserim: Thagatà, iv.

Also from Sarawak, New Guinea.

Type in Genoa Museum.

De Bormans reports an aberration of the male, in which the forceps are only of half the usual length and unusually thick and strong, with the powerful basal tooth situated at one third of the way down the forceps. In the author's collection, there is one of the females taken by Fea in Karen-ni in which the head is brick-red, the body orange-red, the forceps red, and the posterior femora orange. This is probably a form of xanthochroism due to deficient nourishment, as the forceps are weak and one branch is atrophied.

This species resembles a diminutive *Chelisochella superba*, but the keel on the elytra is very short, and the forceps of the female are quite simple. Otherwise the form and colour are almost exactly the same.

In the female the segments of the antennæ are less markedly clavate than in the male.

Genus **CHELISOCHES**, *Scudder*.

Chelisoches, *Scudder*, (76) p. 295.
Lobophora, *Serville*, (39) p. 32 (preoccupied in Lepidoptera, *Curtis*, 1825).—*Type*, Forficula morio, *Fabr.*

Type, *Forficula morio*, Fabr.

Size medium; antennæ with 15–20 segments; third fairly long, fourth clubbed or conical, about half as long as the third; fifth longer than fourth; fifth and fourth united slightly longer than third, the rest elongate, subconical. Head tumid, sutures fairly distinct. Pronotum as broad as the head, truncate anteriorly, the sides gently diverging as it is widened posteriorly; posterior margin broadly rounded. Elytra ample, smooth, no costal keel. Wings well developed. Prosternum parallel-sided, slightly constricted near the base. Mesosternum nearly square, truncate posteriorly. Metasternum transverse, truncate posteriorly. Legs rather short; femora not very stout; tibiæ flattened, furrowed in the apical half above; tarsi very short, very pubescent, rather broad. Abdomen parallel-sided, rather depressed, lateral tubercles distinct; last dorsal segment of ♂ transverse, rectangular; in the ♀ slightly narrowed. Penultimate ventral segment broadly rounded in both sexes. Pygidium of ♂ small, of ♀ larger, but not very prominent. Forceps with the branches in the ♂ depressed, remote at base, generally stout, more or less elongate, depressed, simple.

Range. Tropical Asia and Australia.

As now restricted this genus only contains about half a dozen species of which only one is known to occur in India.

81. Chelisoches morio, *Fabr.* (Fig. 45.)

Forficula morio, *Fabr.* (75) p. 270, (81) p. 341, (87) p. 225, (93) p. 5; *Oliv.* (92) p. 468; *Borm.* (38) p. 752.
Lobophora morio, *Dohrn*, (65) p. 71; *Dubr.* (79) p. 374.
Chelisoches morio, *Scudder*, (76) p. 308; *Borm.* (88) p. 440, (94) p. 391, (00²) p. 85; *Burr*, (00²) p. 51, (01) p. 327, (02) p. 484; *Kirby*, (04) p. 33; *Terry*, (05) pp. 164–171, pl. viii, figs. 1–6, pl. ix, figs. 1–6.
Forficula rufitarsis, *Serv.* (39) p. 33.
Forficula (Psalidophora) rufitarsis, *Haan*, (42) p. 241.
Lobophora nigronitens, *Stål*, (60) p. 305.
Lobophora tartarea, *Stål*, (60) p. 305.
Lobophora cincticornis, *Stål*, (60) p. 305.
Labidura nigricornis, *Kirby*, *in P. Z. S.* 1888, p. 546.
Chelisoches nigricornis, *Kirby*, (04) p. 34.
Chelisoches comprimens, *Scudd.* (76) pp. 252 & 308; *Kirby*, (04) p. 32.
Chelisoches stratioticus, *Rehn*, (05) p. 509 (n. syn.).

Of medium size; jet-black, varying to dull brown or umber. Antennæ with 20–21 segments, black, with a pale ring before the apex. Head, pronotum, elytra and wings dull black, smooth, shading to reddish-brown in some specimens. Legs black, the tarsi orange or yellowish. Abdomen umber, brownish black or jet-black, dull or feebly shining, the entire dorsal surface punctulate, the lateral tubercles distinct; whole of the ventral surface of the same colour as the dorsal surface, punctulate; last dorsal segment of ♂ smooth, transverse, rectangular, the posterior margin depressed in the middle with a pair of small compressed tubercles in the depression; rather tumid over the insertion of the forceps; in ♀ similar, but the tubercles less strongly marked. Pygidium of ♂ short, stumpy, broad, barely distinguishable; of ♀ more prominent, broad, short and tumid, the posterior margin produced into a rectilinear lobe, slightly dilated, the apex of which is greatly sinuate and each angle terminated in small tubercle or blunt point. Forceps of ♂ of two types: (1) branches remote at base, stout, rather short, very broad and flat, with strong prominent irregular teeth on the inner margin near the base or in the basal half; beyond this, gently arcuate with a few small teeth or smooth; (2) flattened, but less broad, and elongate, with a broad and flat denticulated dilation near the base on inner margin, beyond which gradually incurved, the inner margin smooth, with one or more small teeth; in the ♀ the branches are less depressed, subcontiguous, trigonal, elongate, nearly straight at first, then gently incurved, the inner margin crenulate.

The larvæ are black, with pale legs, and pale bands on the thoracic plates.

	♂	♀
Length of body	12–17·5 mm.	14–18·5 mm.
„ forceps ..	3–7·5 „	4–8 „

Bengal: Calcutta (*Brussels Mus.*); Madras: Travancore (var. *stratioticus*; *coll. Burr*), Trichinopoli (*coll. Bolivar*); Ceylon: Kottanda (*Willey*; *coll. Burr*), Galle, x. (*Fletcher*; *coll. Burr*); Burma: Bhamò, viii.; Karen-ni, Keba Distr., 3000–3700 ft., v./xii. (*Genoa Mus.*).

This species is abundant throughout the Oriental Region; it is continually reported from islands in the Malay Peninsula, and has extended its distribution, doubtless through shipping, to the east coast of Africa and New Zealand; it has even been taken at Kew Gardens in England.

It varies considerably in size and in colour, and intermediate forms are continually met with. The large, umber-coloured form has been described as distinct by Rehn under the name *stratioticus*.

Ch. morio is abundant in wet districts in the sugar plantations in the Sandwich Islands, and an interesting account is given by Terry in the report of the work of the Experimental Station of the Hawaiian Sugar Planters' Association (05) (see Introduction, p. 16). It is an extremely active species and appears to be diurnal, Terry describing it as running over the leaves in search of insect food during the hottest part of the day. In Hawaii it abounds in the moist mountain ridges and valleys and also in many of the elevated plantations. It is scarce in the dry and irrigated cane-areas.

Genus **PROREUS**, *Burr*.

Proreus, *Burr*, (07[1]) p. 129.
Chelisoches, *Scudder*, (76) p. 295 (pars).

Type, *Forficula simulans*, Stål.

Closely related to *Chelisoches*, but the antennæ are more slender, and the fourth segment is ovate or cylindrical, and not thickened or clubbed. The species are smaller and weaker, and the colour is almost invariably some shade of red or brown. The forceps are of the same type as in *Chelisoches*, but in the typical species the branches are slender.

Table of Species.

1. Forceps elongate and slender.
   2. Head brick-red; elytra yellow, with fuscous stripes ..... *simulans*, Stål, p. 137.
   2.2. Head blackish; elytra tawny .. *melanocephalus*, Dohrn, *var.*, [p. 138.
1.1. Forceps short, broad and flat.
   2. Head blackish; elytra tawny.. *melanocephalus*, Dohrn, p. 138.
   2.2. Head and elytra uniform dull brown ..... *ritsemæ*, Borm., p. 139.

82. **Proreus simulans**, *Stål.* (Fig. 85.)

Forficula simulans, *Stål*, (60) p. 302.
Lobophora simulans, *Dohrn*, (65) p. 74; *Dubr.* (79) p. 376.
Chelisoches simulans, *Scudd.* (76) p. 309; *Borm.* (88) p. 440, (94) p. 391, (00[2]) p. 87; *Burr*, (02) p. 484, (07[2]) p. 209, (08[3]) p. 116; *Kirby*, (04) p. 34.
Chelisoches ludekingi, *Burr*, (nec *Dohrn*, nec *Borm.*) (00[2]) p. 51.
Forficula modesta, *Stål*, (60) p. 302.
Lobophora modesta, *Dohrn*, (65) p. 74.
Chelisoches modestus, *Scudd.* (76) p. 308; *Kirby*, (04) p. 33.
Chelisoches simulans, *subsp.* modestus, *Borm.* (00[2]) p. 88.
Proreus simulans, *Burr*, (07[1]) p. 131.

Of medium size and slender build; general colour orange-red varied with tawny. Antennæ brown, slender, with 20 segments; third long and cylindrical, fourth decidedly shorter than third, cylindrical; fifth almost as long as third, the rest long, all cylindrical and slender. Head clear brick-red, smooth, tumid, the sutures distinct. Pronotum a little narrower than the head, truncate anteriorly, slightly widened posteriorly, hinder margin broadly rounded; prozona somewhat tumid, orange-red; sides and metazona depressed, clear yellow. Elytra long, rather narrow, smooth, clear orange-yellow, with a narrow dark band along the suture and the costal fold. Wings prominent, of the same colour as the elytra (abortive in the var. *modestus*). Legs rather short, orange-yellow; tibiæ furrowed only in apical third. Abdomen broad, depressed and parallel-sided, deep chestnut-red, darker near the base; lateral tubercles distinct; finely punctulate. Last dorsal segment of ♂ ample, rectangular, smooth, clear red, posterior margin truncate and darkened, with two small compressed tubercles in the middle, and crenulated obtuse tubercles on each side; in the ♀ similar but somewhat narrowed, the tubercles obsolete. Penultimate ventral segment of ♂ broadly rounded. Pygidium of both sexes very short, obtuse, transverse, not prominent. Forceps with the branches in the ♂ remote at the base, depressed but not dilated, rather slender, with a sharp triangular tooth on the inner margin at one-third from the base (occasionally obsolete) and sometimes a second smaller tooth near the apex; elongate and gently arched inwards; in the ♀ remote at base, almost straight, the whole of inner margin crenulate.

	♂	♀
Length of body	10–12 mm.	8·5–10 mm.
,, forceps	3 ,,	5 ,,

Bombay: Pusa (*Pusa coll.*); Bengal: Calcutta, "at light," xi. (*Annandale, Ind. Mus.*); Burma: Kokarit, i./ii., Rangoon, xii. (*Fea, Genoa Mus.*).

Widely distributed throughout the Oriental Region.

Type in the Stockholm Museum.

Easy to recognize by the colour of the forceps. *P. ludekingi*, Dohrn, is a Malayan species that may occur in India; it resembles *P. simulans*, but has a pale ring on the antennæ and the tooth of the forceps is weaker and nearer the apex; it may be a variety or race of *P. simulans*. De Bormans separates *P. modestus* as a subspecies; in this the wings are abortive and the tooth of the forceps often obsolete.

83. **Proreus melanocephalus**, *Dohrn*. (Fig. 86.)

Lobophora melanocephala, *Dohrn*, (65) p. 75.
Chelisoches melanocephalus, *Scudd.* (76) p. 308; *Borm.* (88) p. 440, (94) p. 392, (00[2]) p. 89; *Burr*, (99) p. 258 (nec *Ann. Mag. N. H.* (6) xx. p. 315, 1897), (05[3]) p. 28, (07[2]) p. 209; *Burr*, (08[3]) p. 116; *Kirby*, (04) p. 33.
Proreus melanocephalus, *Burr*, (07[1]) p. 130.

Of small size; general colour tawny. Antennæ with (?) 15 segments, brown, sometimes paler near the base; segments rather thick; third not very long; fourth half as long as third, cylindrical; fifth shorter than third; sixth equal to third; all cylindrical. Head very dark brown or black; smooth, rather depressed, sutures fairly distinct. Pronotum slightly longer than wide, truncate anteriorly, sides straight, hinder border broadly rounded, slightly broader posteriorly than anteriorly; deep orange-yellow. Elytra ample, long, smooth, tawny. Wings long, smooth, tawny. Legs tawny; tibiæ with upper surface flattened and furrowed about the apical third. Abdomen smooth, blackish red, lateral tubercles distinct. Last dorsal segment of ♂ transverse, posterior margin truncate and finely crenulate; in ♀ narrower, smooth. Penultimate ventral segment of ♂ and ♀ broadly rounded. Pygidium of ♂ very short, transverse, depressed, posterior margin incrassate, darkened and gently emarginate in the middle; in ♀ short, obtuse. Forceps with branches reddish tawny; in the ♂ of two types: (*a*) short, broad, depressed, gently incurved and blunt at the points, with a sharp tooth in the middle; (*b*) more slender and elongate, with a short conical sharp tooth quite near the base; straight at first, then gently arched inwards, with a blunt tooth in the apical third; in the ♀ simple, straight and contiguous.

	♂	♀
Length of body	8–9 mm.	8 mm.
„ forceps	1–2·5 „	1·5 „

Tranquebar; Bombay: Mahim, "under plantain roots" (*Pusa coll.*); Bengal: Barisol, Munshiganj, Pusa, "in roots of a cane, 6/ii./05" (*Pusa coll.*); Sikkim: Darjiling (*Paris Mus.*); Upper Assam: (*Ind. Mus.*); Burma: Teinzo, v. (*Genoa Mus.*).

The type was in Westermann's collection; where it is now is not certain.

Differs from its congeners in its small size and uniform tawny

coloration with black head. Superficially resembles *Hamaxas fece*, Borm. In the small size and coloration and short antennæ it approaches *Hamaxas*.

84. **Proreus ritsemæ**, *Bormans*.* (Fig. 87.)

Chelisoches ritsemæ, *Borm.* (84[1]) p. 185, (94) p. 393, (00[2]) p. 86; *Burr*, (99) p. 254, (02) p. 484, (08[3]) p. 116; *Kirby*, (04) p. 34.
Proreus ritsemæ, *Burr*, (07[1]) p. 130.

Of medium size; general colour dull earthy brown. Antennæ dull brown, with about 20 segments; third not very long, fourth only a little shorter, fifth about equal to third, fourth is rather ovate, the others gradually lengthening; all rather thick, cylindrical. Head tumid, dull chestnut. Pronotum rather short, gently widened posteriorly, dull yellowish brown. Elytra and wings prominent, well developed, dull yellowish brown. Legs dull yellowish brown; femora rather thick; furrow on tibiæ quite distinct. Abdomen deep brown-red, finely punctulate. Last dorsal segment of ♂ ample, quadrangular, punctulate, with a median posterior depression, and a pair of compressed tubercles in the middle, tumid over the root of the forceps; in the ♀ similar but less developed. Pygidium of ♂ short, transverse, truncate; of ♀ short, transverse, obtuse, with a rectangular truncate lobe on posterior margin. Forceps of ♂ with branches stout, depressed and broad, rather short, straight; armed on the inner margin near base with one or two strong conical teeth or a denticulate strong depressed projection, and often another tooth nearer the apex; in the ♀ simple, slender, nearly straight, with a conical tooth near the base, denticulate along inner margin.

	♂	♀
Length of body	9·5–12 mm.	12·5 mm.
,, forceps	2·25–4 ,,	4 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., April to December, v./xii. (*Genoa Mus.*).

Type in Leyden Museum.

The uniform dull brown colour of this species, together with its sturdy build, and the powerful strongly toothed forceps of the male, render it easy to recognize. The details of the dentition of the male forceps vary a good deal; sometimes there is a pair of stout conical teeth near the base, and sometimes they are fused into one dilated and depressed projection, having a strongly dentate edge.

In the sturdy build, rather thick antennæ and strong forceps, this species approaches *Ch. morio*.

It is widely distributed throughout the Oriental Region.

P. fuscipennis, Haan, from Borneo and Sumatra, appears to be related to it, and is perhaps only a race or variety, but the forceps are weaker, the head is red, and the antennæ have a pale ring.

Genus **SOLENOSOMA**, *Burr.*

Solenosoma, *Burr*, (07[1]) pp. 126 & 131.
Auchenomus, *Bormans*, (nec *Karsch*) (88) p. 436.
Chelisoches, *Bormans*, (00[2]) p. 82 (pars).

Type, *Auchenomus birmanus*, Borm.

Body slender and cylindrical. Antennæ with (?) segments; the first long and swollen in the apical half; third long and slender, fourth half as long as third, subovate; the rest elongate and cylindrical (11 segments remain in the type). Head depressed, hinder margin truncate. Pronotum narrower than the head anteriorly, somewhat wider posteriorly, rectilinear, with rounded angles. Elytra short, truncate, with no costal keel; humeral angle not rounded; axillary angle rounded off, thus exposing a small triangular scutellum. Wings absent; sternal plates narrow. Legs rather short, slender; tibiæ flattened above in the apical third, not strongly furrowed; second tarsal segment slender, short and cylindrical, produced into a narrow lobe beneath the third, which is a little over half as long as the first. Abdomen slender, depressed, parallel-sided and elongate; lateral tubercles distinct; last dorsal segment square; penultimate ventral segment of ♂ ample and square. Pygidium small. Forceps of ♂ very long and slender.

Range. Burma.

This genus is monotypic and was erected in 1907 for the aberrant form described by de Bormans under the name of *Auchenomus birmanus*. In the very slender body and long slender forceps it approaches *Auchenomus*, but the anteriorly truncate and trapezoidal pronotum separates it readily. In the rather long gently widened pronotum and in the structure of the legs, it approaches *Chelisoches* and *Proreus*. The complete disappearance of the wings is emphasised by the reduction of the elytra, which are short and truncate, and the axillary angle is rounded off, so as to expose a scutellum, an unfailing sign of the degeneration of these organs, as are also the narrow shoulders. There is a more or less distinct humeral angle in all normally winged forms, but in this genus the outline is an unbroken line from the side of the pronotum down the costal fold of the elytra to the abdomen.

85. **Solenosoma birmanum**, *Borm.**

Auchenomus birmanus, *Borm.* (88) p. 426, (94) p. 391.
Chelisoches birmanus, *Borm.* (00[2]) p. 85; *Kirby*, (04) p. 33.
Solenosoma birmanum, *Burr*, (07[1]) p. 131.

Deep reddish chestnut. Head a little paler, depressed, longer than broad, sutures distinct; hinder margin truncate, sides gently diverging anteriorly. Eyes small. Pronotum with sides narrowly pale; trapezoidal, rectilinear, decidedly longer than

broad, narrower than the head anteriorly, as wide as the head posteriorly; posterior angles gently rounded. Elytra quite smooth, red-brown. Legs testaceous. Abdomen parallel-sided, finely punctulate, lateral tubercles distinct. Last dorsal segment smoother than the abdomen, quadrangular, decidedly broader than long, the hinder margin sinuate with a row of small compressed tubercles. Pygidium small, thick and obtuse, with a short, narrow, parallel-sided lobe terminating in two short sharp points. Forceps with the branches remote at the base, depressed and slightly dilated at the base itself, then attenuate, bent gently downwards and elongate, very slender, almost straight, slightly converging and gently hooked at the apex; the inner margin near the base has a few minute denticulations. The female is unknown.

	♂
Length of body.....	9–10 mm.
„ forceps.....	4·5–6 „

Assam: Silicuri, in Cachar (1 ♂, *Ind. Mus.*); Burma: Bhamò (1 ♂, *Genoa Mus.*).

Type in Genoa Museum.

This is a rare insect, and the two specimens, quoted above, both males, are the only ones known to exist in collections.

It can be recognized at a glance by its dark red chestnut colour, elongate and slender build, the very long and sleuder forceps, and the form of the elytra, taken in conjunction with the form of the legs and pronotum, which show that its proper place is in the *Chelisochinæ*.

The type has only 11 segments left in the antennæ, and the specimen in the Calcutta Museum has lost both the antenuæ.

Genus **ADIATHETUS**, *Burr*.

Adiathetus, *Burr*, (07[1]) pp. 126 & 132.
Chelisoches, *Borm.*, (00[2]) p. 82 (pars).

Type, *Chelisoches shelfordi*, Burr.

Size medium or large. Antennæ with 20 segments, the third long, but shorter than the fourth and fifth united; fourth half as long as third, clavate; fifth clavate, nearly as long as third; the rest elongate, subconical. Head tumid, sutures distinct. Prouotum nearly square, slightly wider posteriorly than anteriorly. Elytra ample, with no keel on the costal fold, smooth or granulous, often metallic. Wings like the elytra. Legs rather slender; tibiæ not flattened nor furrowed above except at the extreme apex. Abdomen convex, parallel-sided, lateral folds distinct. Last dorsal segment of ♂ ample, smooth, often with some strong tubercles; in the ♀ ample, simpler. Pygidium of ♂ and ♀ various. Forceps of ♂ stout, depressed and broad; of ♀ elongate and less stout.

Range. Oriental Region.

This genus is formed for the reception of those species hitherto included in *Chelisoches*, which are characterized by the smooth upper surface of the tibiæ; otherwise the species agree with true *Chelisoches*.

It is noteworthy that in this genus the female often has well-marked characters in the pygidium and forceps.

Table of Species.

1. Last dorsal segment of ♂ with two strong prominent crested tubercles; forceps of ♀ elongate, with two sharp teeth	*shelfordi*, Burr, p. 142.
1.1. Last dorsal segment of ♂ with no prominent tubercles; forceps of ♀ without strong teeth.	
2. Pronotum parallel-sided; head strongly sinuate posteriorly	*dravidius*, sp. n., p. 143.
2.2. Pronotum widened posteriorly; head not strongly sinuate posteriorly.	
3. Elytra and wings with brilliant green metallic sheen; pygidium of ♀ lanceolate, acute	*glaucopterus*, Borm., p. 144.
3.3. Elytra and wings dull black; pygidium of ♀ truncate or bifid.	
4. Pygidium of ♀ bifid at apex ..	*nigrocastaneus*, sp. n., p. 145.
4.4. Pygidium of ♀ truncate at apex	*tenebrator*, Kirby, p. 146.

86. **Adiathetus shelfordi**, *Burr*.

Chelisoches shelfordi, *Burr*, (00[3]) p. 96, pl. 4. fig. 4, (05) p. 496.
Chelisochella shelfordi, *Kirby*, (04) p. 35.
Chelisoches hercules, *Burr*, (00[3]) p. 97, pl. 4. figs. 2, 2 *a*, (08[3]) p. 116.
Adiathetus shelfordi, *Burr*, (07[1]) p. 133.

Large and robust; general colour reddish black; the whole body clad with a golden pubescence; the elytra bright purple. Antennæ with 20 segments; third almost cylindrical; fourth ovate, about half as long as third; fifth cylindrical, as long as third; the rest gradually lengthening; black, with two or three yellowish segments before the apex. Head quadrate, tumid, sutures fairly distinct; reddish black. Eyes prominent, black. Pronotum almost square, anterior margin and sides straight, hinder margin rounded, brownish black; prozona tumid, with an impression on each side and a median sulcus; metazona depressed, with a faint median line. Sternal plates brown, rather broad, truncate posteriorly. Elytra ample, strongly rounded at the shoulders, finely granulose, with a brilliant purple sheen. Wings like the elytra in texture and colour. Legs long and slender; femora and tibiæ dark brown, the tarsi paler; tibiæ smooth above; tarsi long, third

segment nearly as long as the first; lobe of second segment long and prominent; all the legs strongly pubescent. Abdomen parallel-sided, convex, deep chestnut-brown, very finely punctulate; lateral tubercles distinct. Venter brown. Last dorsal segment of ♂ ample, smooth, nearly square; in the middle of the posterior margin there is a pair of strong, parallel, compressed, prominent tubercles, obliquely truncate at the apex, directed upwards and backwards and densely hairy; in the ♀ shorter than in the ♂ and slightly narrowed, with a tumid tubercle over the root of the forceps. Penultimate ventral segment of ♂ and ♀ broadly rounded. Pygidium of ♂ stout, obtuse, almost hidden, bifid at the extremity; that of ♀ short and thick, the posterior margin emarginate, the angles produced into obtuse triangular tubercles. Forceps: branches in the ♂ very strongly flattened and broadened in the basal half, the inner margin of this part being strongly serrate; halfway down the dilation disappears and the apical half is attenuate, but still robust and gently incurved, denticulate on the inner margin; in the ♀ the branches are remote at the base, rather depressed and trigonal, sinuously elongate with a prominent sharp tooth one-third the way down, and another at two-thirds; the double edge in the trigonal basal part on the inner margin is crenulate. In both sexes the forceps are dull reddish brown, and densely clad with thick golden pubescence.

	♂	♀
Length of body	15·5–21 mm.	18·5–21 mm.
„ forceps	4·5 „	11–12 „

Sikkim (*coll. Bolivar*); Borneo (*coll. Burr*).

Type in the Sarawak Museum.

A very striking species; the brilliant purple elytra, the dense golden pubescence, and the remarkable form of the forceps in both sexes make this earwig unmistakable.

87. **Adiathetus dravidius**, sp. n. (Fig. 46.)

General colour deep brownish black. Antennæ with 17 segments, black, the basal segments brownish; third not very long, cylindrical; fourth about two-thirds as long as the third, a little thicker, ovate; the remainder regularly lengthening. Head smooth, brownish black, shining, the frons very tumid; sutures deep and well marked; occiput depressed in the middle, tumid on each side behind the eyes; posterior margin decidedly sinuate. Pronotum smooth, brown-black, anterior margin convex in the middle, the angles rectangular; sides parallel, posterior margin rounded; prozona tumid, metazona depressed, sides reflexed. Elytra smooth, dull blackish brown with a bright orange spot on the posterior margin. Wings long, black, with a bright orange basal spot, being the continuation of the spot on the elytra. Legs uniform dull greenish brown; tarsi long, the first segment longer than the third. Abdomen parallel-sided,

brownish black; lateral tubercles of third and fourth segments very distinct. Last dorsal segment of ♂ transverse, smooth, shining, brownish black, depressed in the middle, tumid over the roots of the forceps; in the ♀ similar, but less tumid and furnished with a short, blunt, compressed, oblique ridge or crest at the exterior angles. Penultimate ventral segment of ♂ broad, rounded, gently emarginate in the middle of the posterior border; in the ♀ shorter, the posterior margin rounded and entire. Pygidium of ♂ short, quadrangular, obtuse, the sides slightly concave and posterior margin slightly convex; in the ♀ a little longer, depressed, tapering in basal half, rectangular, posterior margin slightly emarginate. Forceps of ♂ with the branches remote at the base, stout, depressed, rather long, straight at first, arcuate apically, with a strong tooth near the base and another beyond the middle; in ♀ a little less stout, elongate, nearly straight, very gently curved inwards near apex, the inner margin crenulate. The forceps are yellow or reddish.

	♂	♀
Length of body	9–11 mm.	13–13·5 mm.
,, forceps	3·5–4·5 ,,	6·5 ,,

Madras: Travancore; Tenmalai, on the Western sides of the Western Ghats, xi. (*Dr. N. Annandale*, under rotten wood, *Ind. Mus.*).

Type in the Indian Museum, Calcutta.

This species approaches *A. nigrocastaneus*, Burr, and *A. glaucopterus*, Borm., but differs from both in the strongly sinuate posterior border of the head, the parallel-sided pronotum, and the longer tarsal segments.

It also differs in colour. In *A. glaucopterus* the elytra and wings are of brilliant metallic green-black, with a minute yellow spot at the apex of the latter. In *A. nigrocastaneus* the elytra and wings are black, the latter having a broad yellow band along the suture. In *A. dravidius* the elytra and wings are black with a bright orange-yellow spot common to the apex of the elytra and base of the wings; also the legs are uniform dull greenish brown and the antennæ not ringed.

88. **Adiathetus glaucopterus**, *Borm.*** (Fig. 47.)

Chelisoches glaucopterus, *Borm.* (88) p. 441, (94) p. 392, (00[2]) p. 84; *Kirby* (04), p. 33; *Burr*, (05[3]) p. 28, (07[1]) p. 129, (08[3]) p. 115.

Size medium; general colour metallic green and bright chestnut-red. Antennæ with 16 segments (? or more), black, with a pale ring before the apex; third segment gently clavate; fourth subclavate, about half as long as the third; fifth ovate, longer than fourth but shorter than third; sixth about equal to third; the rest elongate, subcylindrical. Head dull black, smooth and tumid, especially posteriorly; occipital suture well marked; eyes small.

Pronotum black with a copper-green lustre, nearly square, very slightly broader posteriorly than anteriorly, anterior margin gently convex, posterior broadly rounded and sides straight; prozona tumid with a faint median sulcus and an impression on each side; metazona depressed. Elytra ample, well rounded at the shoulders, broad, gently emarginate at the apex, with no keel on the costal fold; perfectly smooth, of a brilliant, lustrous, metallic green. Wings prominent, of the same colour as the pronotum, with a small orange spot at the extreme apex. Legs blackish; the tarsi somewhat paler; tibiæ with the upper surface only flattened and furrowed at the apex itself. Abdomen bright chestnut-red, shaded with blackish, lateral tubercles distinct; the whole surface punctulate; venter shining, deeper red. Last dorsal segment of ♂ ample, smooth, black, shaded with red, somewhat broader than long, posterior margin tumid over the roots of the forceps, depressed in the middle, with a pair of small tubercles in the depression; exterior angles sharply rectangular; in the ♀ similar but a trifle narrowed and the tubercles less developed. Penultimate ventral segment of ♂ and ♀ broadly rounded. Pygidium of ♂ very short, transverse and obtuse; of ♀ very prominent, red, acute, lanceolate. Forceps with the branches red, depressed, rather broad, and remote at the base; in the ♂ rather short, stout, gently arcuate, with a strong tooth on the inner margin in the basal third; in the ♀ elongate, nearly straight, gently curved inwards at the apex, the inner margin denticulate.

	♂	♀
Length of body.....	10–14·5 mm.	10–12 mm.
„ forceps....	2·5–3 „	5–8·75 „

Upper Assam (*Ind. Mus.*); Burma: Kachin Hills, viii., Karen-ni, Geku District, 4300–4700 ft., v. (*Genoa Mus.*); Tenasserim: Meetan, iv. (*Genoa Mus.*).

Also recorded from Tonkin (Paris Mus., coll. Burr).

Type in the Genoa Museum.

The contrast between the brilliant green elytra and bright red abdomen and forceps renders this a very handsome and conspicuous species, which is not likely to be confused with any other, except perhaps the following. The details, shading and armature of the forceps are of course variable features.

Verhœff ranged this species in *Chelisochella*, evidently by guess-work, for if he had ever seen a specimen he would have noticed the absence of the costal keel of the elytra by which he himself characterizes that genus.

89. **Adiathetus nigrocastaneus**, sp. n. (Fig. 48.)

Of medium size; black, varied with chestnut. Antennæ with 19 segments, black, with two pale segments before the apex; the third not very long and second shorter than the third, ovate; fifth

a trifle longer, but not equal to the third, ovate; sixth equal to the third in length but a little thicker, elongate ovate; the rest more slender and long. Head smooth and black, tumid, the sutures deep. Pronotum black, with a distinct median suture and an impression on each side in the prozona; about as broad as long, truncate anteriorly, rounded posteriorly, scarcely if at all broader posteriorly than anteriorly. Prosternum rather long, constricted; mesosternum truncate; metasternum with lobe short, scarcely passing the posterior coxæ, broad, truncate. Elytra smooth, jet-black, broad, with no keels. Wings prominent, clear orange, with a fuscous outer margin. Legs not very long; femora reddish chestnut, blackish at the base; tibiæ blackish, smooth above, depressed only at the apex itself; tarsi not very long, with dense golden pubescence. Abdomen broad and depressed, parallel-sided, blackish chestnut, lateral tubercles strong. Last dorsal segment of ♂ transverse ample, smooth, with a short folded ridge at each angle, tumid over the insertion of the forceps, depressed in the middle, with two parallel compressed longitudinal ridges; in the ♀ narrower, the ridges and elevations feebler than in the ♂. Venter tawny. Penultimate ventral segment of ♂ ample, broad, the posterior margin rounded, with a slight median excision; similar in the ♀ but not emarginate. Pygidium of ♂ not prominent; in the ♀ produced into a depressed plate, slightly widened apically and deeply emarginate, thus forming a pair of triangular lobes. Forceps reddish in both sexes; in the ♂ short, stout, remote at base, depressed, straight, incurved apically, blunt, with three small teeth on the inner margin; in the ♀ depressed, elongate, and nearly straight.

	♂	♀
Length of body.....	9·5 mm.	8·5 mm.
„ forceps	2 „	2·75 „

Bombay: Kanara, August (*Pusa coll.*).

Type in the Pusa Collection.

This species closely resembles *A. glaucopterus*, but differs in the bright orange wings, with only the outer border blackish, in the dull black elytra with no metallic sheen, in the chestnut legs, and blacker abdomen; the last dorsal segment and forceps of the male are almost exactly similar, but the pygidium of the female is totally different, being much shorter, somewhat broadened apically and deeply fissured, thus forming two triangular lobes.

90. **Adiathetus tenebrator**, *Kirby*.*

Chelisoches tenebrator, *Kirby*, (91) p. 521, pl. 12. fig. 5 (♀), (04) p. 33; *Borm.* (00²) p. 85; *Burr*, (07¹) p. 129.

Size medium; colour blackish brown. Antennæ with 15 segments, with a pale ring before the apex; fourth little over half

as long as third, fifth about equal to third, the rest elongate, all cylindrical. Head depressed, sutures distinct, tumid behind the eyes. Pronotum gently widened posteriorly. Elytra and wings ample, blackish brown, smooth; no costal keel to elytra. Legs short; tibia flattened only at the apex itself tarsi long, pale, strongly pubescent. Abdomen gently dilated, densely punctulate, lateral tubercles distinct; segments smooth at the posterior margin except the seventh (♀) which is crenulate. Last dorsal segment ample, transverse, smooth, depressed in the middle, with a pair of small tubercles in the depression, and tumid over the forceps. Pygidium deflexed, triangular, with the apex truncate and reflexed, and a small tubercle on each side. Forceps with the branches remote at the base, trigonal, nearly straight; incurved at the apex itself, the inner margin with a strong tooth near the base and a small tooth beyond the middle.

The ♂ is unknown.

	♀
Length of body.....	17 mm.
„ forceps	9 „

India (*Brit. Mus.*).

Type in the British Museum.

This species has a strong superficial resemblance to *Chelisoches morio*, but the pygidium is different, the fourth, fifth and sixth segments of the antennæ are longer and cylindrical; the tibiæ are not depressed or sulcate above except at the extreme apex, and the tarsi are long and compressed instead of short and depressed.

Owing to the structure of the tibiæ it is here placed in *Adiathetus*, but it is highly desirable that the male be discovered and its true affinities defined.

The only known specimen is Kirby's type in the British Museum.

Genus **HAMAXAS**, *Burr*.

Hamaxas, *Burr*, (07[1]) pp. 126 & 133.
Chelisoches, *Borm.* (94) p. 393, (00[2]) p. 86 (pars).

Type, *Chelisoches fecæ*, Borm.

Size small; colour red, varied with black. Antennæ with 19 segments; third rather short, subconical; fourth and fifth ovate, together equalling third; the rest elongate, subconical. Head smooth, depressed, sutures obscure. Pronotum as broad as the head, a little longer than broad, subovate, not broadened posteriorly, all margins subconvex or rounded. Elytra and wings well developed; the former with no costal carina. Legs short, very pubescent; tibiæ smooth above. Abdomen pubescent, depressed, parallel-sided, lateral tubercles distinct; last dorsal segment of ♂ ample, of ♀ narrow. Pygidium of ♂ and ♀ very small. Forceps depressed, arcuate; straight in the ♀.

Range. Burma, Malay Archipelago, and New Zealand.

This genus includes four species, all small in size and red or black in colour. It is well separated from *Chelisoches* by the smooth tibiæ, ovate pronotum, and shorter antennæ.

The only known Indian species is the type of the genus, *H. feæ*, Borm.

91. **Hamaxas feæ**, *Borm.*** (Fig. 88.)

Chelisoches feæ, *Bormans*, (94) p. 393, (00[2]) p. 86; *Burr*, (99) p. 260 (02) p. 484; *Kirby*, (04) p. 33.
Hamaxas feæ, *Burr*, (07[1]) p. 134.

Small; black, shading to orange; pubescent. Antennæ with 19 segments, black with a pale ring before the apex. Head black. Pronotum black, the sides narrowly bordered with orange. Elytra ample and long, well rounded at the shoulders, very finely and densely punctulate, black. Wings of the same colour and texture as the elytra. Legs tawny orange; tibiæ smooth above. Abdomen dark red, shading to blackish. Last dorsal segment of ♂ transverse, smooth, with a transverse oval depression near the posterior margin, rugulose; in ♀ narrowed. Pygidium of ♂ short, transverse, tumid, posterior margin sinuate, the angles pointed; in the ♀ scarcely visible. Forceps with branches reddish; in the ♂ remote at the base, slender, elongate, gently arcuate, with a short sharp tooth near the base; in ♀ short, simple, straight, and contiguous.

	♂	♀
Length of body	8 mm.	7–9 mm.
„ forceps	3·5–4·5 mm.	1·25–1·75 mm.

Burma: Karen-ni, Keba District, 3000–3700 ft., v./xii. (*Genoa Mus.*).

Also known from New Guinea, New Zealand, and Mentawei Is.

Type in the Genoa Museum.

This species may be recognized by the uniform black of the head, pronotum, elytra and wings, with rust-red body. It is only the distribution of the colours which separates the four species of the genus, and very likely it will be necessary to unite them into one.

H. feæ has a superficial likeness to *Proreus melanocephalus*, from which it differs in the form of the forceps, among other things.

Subfamily II. ANECHURINÆ.

This group contains a number of sturdy mountain-loving earwigs, with broad sternal plates, dilated abdomen, forceps remote at the base and often curiously curved and twisted. Most of the genera are confined to the Old World (except Australia) but some aberrant forms occur in America.

Table of Genera.

1. Elytra with a strong keel along the costal fold ..... ALLODAHLIA, Verh., [p. 149.
1.1. Elytra not keeled.
2. Second tarsal segment long, scarcely dilated; (pronotum widened posteriorly) ..... HOMOTAGES, Burr, [p. 155.
2.2. Second tarsal segment short, strongly dilated.
3. Elytra ovate; penultimate ventral segment of ♂ gently rounded.... PTERYGIDA, Verh., [p. 157.
3.3. Elytra parallel-sided; penultimate ventral segment of ♂ convex.... ANECHURA, Scudd., [p. 159.

Genus **ALLODAHLIA**, *Verh.*

Allodahlia, *Verhœff*, (02[1]) p. 194.
Anechura, (partim) *Scudder*, (76) p. 289.—*Type*, Forficula bipunctata, *Fabr.*

TYPE, *Forficula scabriuscula*, Serv.

Antennæ with 13 segments; the first stout, clubbed; third subconical, shorter than the first; fourth and fifth shorter than third. Head with sutures distinct. Pronotum short, broader than long, truncate or concave anteriorly, rounded posteriorly, often crescent-shaped. Elytra ample, broad, the shoulders prominent; costal margin convex, with a strongly marked keel running the entire length of the elytra; surface of the elytra rough, granulose or punctulate. Wings generally prominent, sometimes smooth, sometimes resembling the elytra in texture; sternal plates broad and short. Legs long and slender. Abdomen depressed, dilated about the middle, and narrowed again at the apex; lateral tubercles very distinct. Last dorsal segment of ♂ very short and broad; of ♀ narrowed. Pygidium of ♂ short, transverse, tumid, often armed with a spine; of ♀ short, tumid. Forceps with the branches in the ♂ remote at the base, slender, elongate, often sinuate in the ventral plane and variously armed; in the ♀ simple, straight, slender.

Range. Oriental Region.

This genus was erected by Verhœff for *Anechura hugeli* and *brachynota*; a separate subfamily was actually formed for its reception, which is not justifiable, as the keel of the elytra is the only true character which really distinguishes it from *Anechura*.

All the known species occur in India.

Table of Species.

1. Elytra scabrous; pygidium of ♂ with a spinule at each angle; (all dull black).. *scabriuscula*, Serv., [p. 150.
1.1. Elytra rugose, or coarsely or finely punctate; pygidium of ♂ with a single central spine.

2. Anterior margin of pronotum subsinuous; tubercle at angle of last dorsal segment of ♂ prominent; all black or brown; (entirely coarsely punctate; forceps strongly undulating) ..... *macropyga*, Westw., [p. 151.

2.2. Anterior margin of pronotum truncate; tubercle at angle of last dorsal segment of ♂ feeble; colour black and red.

3. Elytra rugose; abdomen punctulate; forceps of ♂ strongly diverging at base and undulated ..... *coriacea*, Borm., [p. 153.

3.3. Elytra finely punctulate; abdomen more finely punctulate; forceps of ♂ horizontal and nearly straight .. *ahrimanes*, Burr, p. 154.

92. **Allodahlia scabriuscula**, *Serville*. (Fig. 49.)

Forficula scabriuscula, *Serv.* (39) p. 38; *Scudd.* (76) p. 317.
Anechura scabriuscula, *Borm.* (88) p. 444, (94) p. 402, (00²) p. 103, *Sharp* (95) p. 207, fig. 108; *Burr*, (00¹) p. 99, (00²) p. 52, (02) p. 486, (08³) p. 118; *Kirby*, (04) p. 41.
Forficula brachynota, *Haan*, (42) p. 243, pl. 23, fig. 10; *Scudd.* (76) p. 312; *Dohrn*, (65) p. 94; (nec *Dubr.* (79) p. 383).
Allodahlia scabriuscula, *Verh.* (02¹) p. 194; *Burr*, (05) p. 28.

Stature large, strongly built, legs and forceps slender. Colour dark dull blackish chestnut, glabrous, the whole body more or less scabrous. Antennæ with 12 or 13 segments, black, rather elongate. Head tumid, convex, punctulate, sutures very distinct, posterior margin sinuate. Pronotum transverse, anterior margin sinuate, anterior angles sharp and produced forwards, sides and posterior margin broadly rounded, sides slightly reflexed; prozona with five blunt longitudinal tubercles; the whole disc densely punctulate. Elytra ample, strongly rounded at the shoulders, convex, posterior margin sinuate; the exterior carina is very sharp and distinct, dying out just before the posterior margin; the disc of the elytra is covered with a dense mass of small tubercles and a few scattered larger points, so that it is entirely rough and scabrous; the lateral portion is densely rugose without the larger points. Wings rugose and scabrous. Tarsi elongate, with dense reddish pubescence beneath; femora punctulate. Prosternum somewhat attenuate posteriorly. Abdomen somewhat flattened, constricted at the base, dilated about the middle and attenuate apically; the whole dorsal surface is densely and finely punctulate, the ventral surface still more finely; lateral tubercles distinct, the posterior pair very strong; segments six to nine somewhat convex at the sides; in the ♀ the apical attenuation is stronger and more marked. Last dorsal segment of ♂ short, transverse, slightly sloping; posterior margin incrassate and slightly reflexed and smooth; the exterior angles produced, the margin itself gently and obliquely truncate over the base of the forceps; in the ♀

attenuate, hinder margin convex, angles obsolete. Pygidium of ♂ short and transverse, posterior margin truncate, very obtuse, with a small blunt tubercle at each corner, terminating in a short sharp point; in the ♀ the pygidium is a short obtuse tubercle. Forceps of ♂ with the branches very remote at the base and trigonal there, not very stout, diverging strongly at the base itself and almost immediately bowed inwards, elongate, slender and gradually converging; the inner lower margin is finely denticulate near the base; somewhat flattened, with a strong, rather long, sharp tooth on the inner margin about two-thirds from the base; the apices are gently incurved; in the ♀ subcontiguous, straight, slightly excavate at the base itself to admit the pygidium, quite straight and parallel for two-thirds of their length, then suddenly attenuate and very gently arcuate, the points crossing.

	♂	♀
Length of body	11–14 mm.	11–13 mm.
„ forceps	8–15 „	6–7 „

Bhutan: Maria Basti (*Paris Mus.*); Sikkim: Mungphu, Dunsiri Valley (*Ind. Mus.*); Darjiling (*Brit. Mus.*); Assam: Sibsagar (*Ind. Mus.*); Burma: Kachin Hills, viii.–xi. (*Genoa Mus.*); Karen-ni, Keba District, 3000–4300 ft., v.–xii. (*Genoa Mus.*); Tenasserim: Thagatà, iv.

Also recorded from Java, Sumatra, Borneo, Southern China and Tonkin.

Type in the Vienna Museum.

This is an exceedingly well-marked species, owing to its dull black colour, strongly concave anterior margin of the pronotum, with its sharply projecting angles, and the exceedingly coarse texture of the well-rounded elytra. It is moreover the only species in which the pygidium of the male has a minute spinule at each angle, instead of a strong spine in the middle.

93. **Allodahlia macropyga**, *Westwood.** (Fig. 50.)

Forficula macropyga, *Westwd.* (39) p. 53, pl. 9, fig. 12; *Dohrn*, (65) p. 93; *Scudd.* (76) p. 315.
Forficula hugeli, *Dohrn*,* (65) p. 92; *Scudd.* (76) p. 314; *Kirby*, (04) p. 41.
Anechura hugeli, *Verh.* (02[1]) p. 194.
Forficula ancylura, *Dohrn*, (65) p. 91; *Scudd.* (76) p. 331.
Anechura ancylura, *Borm.* (83) p. 88, pl. 2, fig. 22, (88) p. 445, (94) p. 402, (00[2]) p. 102; *Burr*, (05) p. 27, (08[3]) p. 118.
Allodahlia ancylura, *Burr*, (07[2]) p. 209.
Anechura macropyga, *Borm.* (00[2]) p. 103; *Kirby*, (04) p. 41.

Colour dark reddish brown. Antennæ . , . ? Head convex, smooth, black, sutures distinct. Pronotum transverse, about $1\frac{1}{2}$ times as broad as long, anterior margin subsinuate, the anterior angles slightly produced; lateral margins somewhat incrassate,

subconvex; posterior margin slightly convex; the surface is depressed and finely rugulose, the prozona not tumid, the median line obsolete, with no impressions at the sides. Elytra dark reddish chestnut, not dilated, finely punctulate, the carina extending almost to the posterior margin, which is truncate. Wings resembling elytra in colour and texture, but more finely punctulate. Sternal plates smooth and black; prosternum distinctly narrowed posteriorly, the posterior border itself incrassate and bounded by a transverse impression. Legs fairly long; femora and tibiæ with a few bristles, apical part of tibiæ and tarsi pubescent. Abdomen depressed, somewhat dilated towards the apex, with upper surface punctate; lateral tubercles distinct; ventral surface smoother and shining, punctation much finer. Last dorsal segment short and transverse, hinder margin thickened, with a slight and shallow emargination in the middle, so that the hinder border forms two very obtuse rounded lobes; external angles produced outwards into a conical pointed fold. Pygidium short, obtuse, thick, conical, the apex being produced into a sharp and slender compressed spine. Forceps with the branches widely remote at the base, rather stout and compressed at the base itself, bent near the base slightly outwards and strongly upwards; at a third of their length bent abruptly downwards as far as two-thirds; then the under margin is thickened and armed with two strong teeth; the apical third is again bent sharply upwards and the points also inwards; seen from the side the branches are very strongly undulated; seen from above bowed outwards and then gently inwards.

	♂	♀
Length of body	10–13 mm.	9·5 mm.
„ forceps	5–6 „	5 „

Thibet: Tsekon (*Paris Mus.*); Punjab: Simla; United Provinces: Bhim Tal in Kumaon, 4500 feet, ix., "feeding on the flowers of stinging nettles" (*Ind. Mus., coll. Burr*); Sikkim: Darjiling (*Paris Mus., coll. Burr*); Bhutan: Pedong (*Paris Mus.*); Assam: Nongpoh in Khasi Hills, 3000–5000 ft. (*Pusa coll.*); Naga Hills (*Ind. Mus.*); Burma: Bhamò, iv., Teinzo, v., Karen-ni, Keba Distr., 3000–3700 ft., v.–xii. (*Genoa Mus.*); Tenasserim: Mt. Mulaiyit, 3300–6000 ft., v. (*Genoa Mus.*).

Also occurs in China.

Type in the University Museum, Oxford.

Dohrn's type of *A. ancylura* not having been examined, it is not possible to discriminate it from the earlier described *A. macropyga* of Westwood, but Dohrn's type is recorded from the Philippines and is therefore probably distinct. It is probable that de Bormans' Burmese specimens are referable to the true *A. macropyga* of Westwood, whose type in the Oxford Museum has been lent to me, thanks to the courtesy of Professor Poulton, and compared

with Dohrn's type of *A. hugeli* in the Vienna Museum. There is no doubt that de Bormans was right in sinking *A. hugeli* as a synonym of *A. macropyga*. The various Indian specimens which have been examined are not specifically distinguishable from Westwood's type, and so are all referred to *A. macropyga*.

The sculpture of the body, the coarseness of the punctulation, the depth of the sutures of the head, and of the sulcus of the pronotum all vary to a certain degree, but not enough to justify the separation into species. De Bormans records a variety from Burma in which the forceps are nearly horizontal, armed with a single tooth, and the wings are smooth and clear yellow. In the Paris Museum there is also a male of this variety from Bhutan.

The anterior margin of the pronotum is far less strongly concave than in the preceding species, the colour deeper and richer, often with a greenish sheen, the elytra punctate and not scabrous, and the pygidium with a strong central spine.

From the two following species it differs in the absence of any red coloration, the punctate elytra, and concave anterior margin of the pronotum.

The forceps seem to be peculiarly liable to malformation and ill-developed specimens are quite common.

94. **Allodahlia coriacea**, *Bormans*.** (Fig. 51.)

Anechura coriacea, *Bormans*, (94) p. 403, (00²) p. 102, fig. 37 ; *Burr*, (00¹) p. 99, (02) p. 486 ; *Kirby*, (04) p. 41.
Forficula brachynota, *Dubrony*, (79) p. 383 (nec *Haan*, nec *Dohrn*).
Allodahlia coriacea, *Burr*, (07²) p. 209.

Size large ; stature not very robust. Colour dark chestnut, varying from all dull black to reddish black ; clear red in parts. Antennæ black, sometimes with one or two segments pale yellowish, with stiff, short bristles ; segments long and nearly cylindrical. Head clear brick-red, blackish red, or all black, tumid and convex, the sutures very distinct ; posterior margin sinuate. Pronotum reddish black, rectangular, somewhat broader than long, anterior margin truncate, anterior angles rather sharp ; lateral margins quite straight, gently reflexed, very slightly converging posteriorly, so that the pronotum is very slightly narrower posteriorly than anteriorly ; posterior margin very faintly convex ; prozona tumid, with an impressed spot on each side of the median line, which is visible as a faint carinula in the metazona; the metazona is flattened and coriaceous. Elytra ample and broad at the shoulders, dark reddish black, often clear red at the shoulders ; humeral carina very distinct and continued to the posterior margin, which is truncate. Wings with punctulation almost obsolete, almost smooth ; black with a yellowish spot at the apex. Legs long and slender ; femora brick-red, smooth, with a black band at

the apex; tibiæ dark red, pubescent towards the apex; tarsi long and slender, reddish testaceous, with dense yellowish pubescence. Abdomen black, somewhat depressed, the whole surface densely and finely punctulate; lateral tubercles very distinct; ventral surface almost smooth; in the female slightly, in the male more strongly, dilated about the middle, narrower towards the apex. Last dorsal segment very short, transverse, strongly punctulate, sloping, the posterior border somewhat incrassate, reflex and convex in outline; external angles thickened into a crest-like fold, rather acute. In the female this segment is attenuate and narrow, sloping, the posterior margin incrassate, but the external angles not produced. Pygidium of ♂ short, transverse and rectangular, with a median longitudinal impression and somewhat tumid on each side, produced in the middle of the posterior margin into a short, compressed, protruding lobular fold; in the ♀ short and obtuse. Forceps with the branches in the ♂ very remote at the base and trigonal there, not very stout, diverging at first and directed upwards and outwards, then suddenly bent rather strongly downwards, attenuate, slender, smooth and unarmed; armed on the under surface, at about two-thirds from the base, with two teeth, the first short and blunt, the second longer and sharp; then nearly horizontal and arched inwards; in the ♀ the branches are subcontiguous, excavate at the base on the inner margin to admit the pygidium, nearly straight, elongate, simple and unarmed, the apices crossing.

	♂	♀
Length of body	12–14 mm.	14 mm.
,, forceps	7 ,,	7 ,,

United Provinces: Bhim Tal, 4500 ft., in Kumaun, ix., "feeding on flowers of stinging nettles" (*Ind. Mus.*); Bhutan: Maria Basti (*Paris Mus.*); Burma: Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*Genoa Mus.*); Tenasserim: Mt. Mulaiyit (*Brit. Mus.*).

Also occurs in Tonkin and Borneo.

Type in Genoa Museum.

This species resembles *A. scabriuscula* in general appearance, but the colour is quite different; the elytra are uniformly punctulated and coriaceous, and lack the little tubercles which characterize that species; the elytra are also wider, the forceps less stout and less abruptly curved; in *A. scabriuscula* the forceps have one tooth, but in *A. coriacea* they have two.

95. **Allodahlia ahrimanes**, *Burr.** (Fig. 98.)

Anechura ahrimanes, *Burr*, (00[1]) p. 79, pl. iv, fig. 5; *Kirby*, (04) p. 41.

Head deep red; eyes black; sutures indistinct; antennæ dark red (seven segments remain). Pronotum black, broader than the

head; anterior margin straight, posterior margin rounded; the sides parallel; nearly quadrate, slightly broader than long; prozona tumid. Elytra broad, finely punctulated; deep red, shaded with black towards the apex and the margins, obliquely truncate at the apex; humeral carina distinct and complete. Wings prominent, black, with a yellow spot near the base. Legs deep red, the knees and tibiæ darker or black; tarsi darker. Abdomen deep dark red, somewhat dilated in the middle, narrowed towards the extremity; lateral tubercles black, very distinct; the whole abdomen is finely punctulate; last dorsal segment transverse, hinder margin straight, with a faint median depression, a reddish blunt elevation over the insertion of the forceps and a small tubercle on the outside angles; penultimate ventral segment of ♂ ample, rounded. Pygidium of ♂ strongly depressed, triangular; two small pale obtuse lobes are visible below the apex of the pygidium, projecting beyond the border of the produced penultimate segment, and visible from below. Forceps of ♂ with the branches slender, long, remote at the base and tricarinate there, slightly diverging at first, then subsinuate until the apices meet and cross; there is at the end of the first and second third of the total length a strong triangular depressed tooth; the forceps are red at the base, darker towards the apex: the inner margin of the basal third is finely crenulate. ♀ unknown.

	♂
Length of body	12–14·5 mm.
,, forceps	9 ,,

Sikkim (*coll. Burr*); Assam: Kurseong.

Type in the author's collection.

This handsome species resembles the preceding in colour, but the elytra are more strongly shaded with red; they are also finely punctulate and not rugose, and the forceps are nearly straight, horizontal, with two strong teeth which are not near each other.

Genus **HOMOTAGES**, *Burr*.

Homotages, *Burr*, (09) p. 327.
Anechura, *Bormans* (partim).

Type, *Anechura fœ*, Borm.

Antennæ with 15 segments (?), fourth subconical, more than half as long as third, which is subconical, the rest elongate, becoming cylindrical. Head smooth, sutures obsolete. Pronotum trapezoidal, sides straight and angles rounded, broader posteriorly than anteriorly. Elytra ample, not strongly rounded at the shoulders, smooth and with no keel. Wings ample, smooth. Sternal plates truncate, less broad than in the other genera. Legs long, slender; tarsi long, first segment equal to the other two united; second long, scarcely dilated, more than half as long as the third. Pygidium of ♂ nearly rectangular. Forceps of ♂

remote at the base, elongate, sinuous and strongly toothed ; simple in the ♀.

Range. India and Burma.

This genus is monotypic. It is well characterized by the form of the tarsi ; in the form of the pronotum and tarsi it approaches the *Chelisochinæ*.

96. Homotages feæ, *Bormans.*** (Fig. 101.)

Anechura feæ, *Bormans*, (88) p. 445, (94) p. 34, (00[2]) p. 104 ; *Kirby*, (04) p. 41 ; *Burr*, (07[2]) p. 209, (08[3]) p. 118.
Homotages feæ, *Burr*, (09) p. 327, fig. 7.

Size medium, variable ; not very robust. Colour deep black or dark reddish black, elytra and forceps reddish. Antennæ with 15 segments, which are rather short and nearly black. Head smooth and convex, quite black, posterior margin truncate, sutures obsolete ; eyes black. Pronotum transverse, broader than long, broader posteriorly than anteriorly, all margins straight, posterior angles rounded, sides slightly reflexed ; prozona tumid, with median sulcus and impressions on each side very distinct ; metazona flattened, smooth, dull black. Elytra ample, smooth, dark

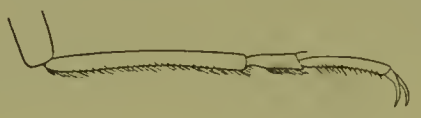

Fig. 12.—Tarsus of *Homotages feæ*, Borm.

reddish black, with a clear but ill-defined bright red spot at the shoulders. Wings long, black. Legs rather long, black, paler towards the apex ; apical part of tibiæ and the tarsi with yellow pubescence. Prosternum angustate posteriorly ; sternal plates smooth and black. Abdomen convex, slightly dilated posteriorly, dark chocolate-black ; basal segments smooth, apical segments with an extremely fine rugulose sculpture. Ventral segments blackish red, smooth in the middle, striated towards the sides ; sides of the dorsal segments convex and striated. Last dorsal segment of ♂ large, smooth, transverse, posterior margin straight, with a tumid elevation over the roots of the forceps ; in the ♀ more attenuate, the tubercles nearly obsolete. Pygidium of ♂ nearly rectangular, in the form of a nearly vertical plate, posterior margin truncate, the angles produced into a spine ; in the ♀ horizontal, depressed, angustate posteriorly ; the posterior margin slightly emarginate and the angles sharp. Forceps of ♂ with the branches rather stout, elongate, but slightly incurvate ; viewed laterally, strongly sinuate downwards, then upwards ; armed on the inner margin beneath with a pair of strong sharp teeth (one sometimes obsolete) ; about the apical third there is another strong sharp tooth beneath, beyond which the branches are straight, unarmed, incurved at the apex itself. In the ♀ the

branches are remote, elongate, nearly straight, gently sinuate, not contiguous.

	♂	♀
Length of body	10·5–14 mm.	12–13 mm.
,, forceps ..	4–8 ,,	3–3·5 ,,

Sikkim: Darjiling, vi. (*Paris Mus., colls. Burr & Gadeau*); Nepal: Chitlong (*Ind. Mus.*); United Provinces: Kumaun, Naini Tal, 6400 ft., x. (*Ind. Mus.*); Tenasserim: Thagatà, iv. (*Genoa Mus.*).

Type in the Genoa Museum.

In the type of coloration this species resembles *Allodahlia coriacea* and *A. ahrimanes*, but differs in the generic characters.

The species is easy to recognize as it does not closely resemble any other species; its general dull black colour with reddish elytra and forceps are quite distinctive, apart from the peculiar form of the pygidium and the armature of the forceps.

Variation.

This species varies considerably in size, and also in the form and armature of the forceps. The description as given above refers to the typical well-developed form; but in the author's collection there is a small male (length of body 10 mm., of forceps 4 mm.) in which the forceps are quite horizontal when viewed laterally, gently converging, with one small tooth near the base, and a nearly obsolete tooth about the middle: this is from Nepal; in another male, from the same locality, the posterior tooth is strong but there is only one basal tooth and that is weak; this appears to be the case in the majority of specimens: the largest specimen seen is also from Nepal (see dimensions as given above), and in this there are two teeth in the basal half on each branch of the forceps. This discrepancy does not warrant a separate varietal name, nor justify the use of the term dimorphism; it is probably due to accidental conditions affecting the growth of the individual.

Genus **PTERYGIDA**, *Verhœff.*

Pterygida, *Verhœff*, (02[1]) p. 197.
Anechura, *Scudder*, (76) p. 289 (pars).

Type, *Forficula jagori*, Dohrn.

Body broad and depressed. Antennæ with third segment long and cylindrical, fourth the same and nearly as long as third, the rest elongate, cylindrical. Head depressed, truncate posteriorly. Pronotum slightly longer than wide, anterior margin truncate, posterior margin rounded. Elytra ample, broad, costal margin not keeled, dilated and well rounded at the shoulders. Wings long; coloured. Legs rather long and slender. Abdomen strongly depressed and dilated about the middle, oval and narrowed towards the apex. Last dorsal segment of the male transverse, short.

Pygidium transverse. Forceps of ♂ with the branches horizontal, elongate, slender and arcuate.

Range. India and Philippines.

This genus is characterized by the depressed body, dilated elytra, oval dilated abdomen; the elytra have no costal keel. Two species are known, both Oriental, one of which occurs in India.

97. Pterygida circulata, *Dohrn.* (Fig. 96.)

Forficula circulata, *Dohrn*, (65) p. 95; *Scudder*, (76) p. 313.
Apterygida circulata, *Bormans.* (00²) p. 116.
Pterygida circulata, *Verhœff*, (02¹) p. 196; *Kirby*, (04) p. 44.

Stature medium, strongly flattened and dilated. Colour dark chestnut; elytra and wings yellowish. Antennæ . . . ?, segments dark brown. Head depressed, black, posterior margin truncate, sutures obsolete, somewhat tumid between the eyes, with two small impressions. Pronotum black, somewhat longer than broad, slightly broader anteriorly than the head, anterior margin truncate, posterior convex; prozona somewhat tumid; metazona flat. Prosternum somewhat narrowed; sternal plates smooth and black. Elytra yellowish chestnut, ample and broad, with no keel, widened at the shoulders and narrower posteriorly, quite smooth. Wings ample; the scale is of the same colour as the pronotum; the membranous portion is of a yellowish colour in the basal third, with a very broad smoky blackish band occupying almost the whole of the remainder, except the margin itself which is lighter but smoky. Femora black; anterior pair rather thickened; middle and posterior pair more slender and longer; tibiæ and tarsi slender, elongate, reddish brown. Abdomen flat and broad, oval, reddish black; finely granulate; the sides of the segments somewhat convex; lateral tubercles not very pronounced; ventral plates paler, reddish; the penultimate segment ovate, with a median fold at the posterior margin. Last dorsal segment very short, transverse, rectangular, smooth, with a broad, very obtuse, tumid, smooth shining tubercle at each side. Pygidium short, transverse, obtuse, with a median sulcus, dividing into two very obtuse lobes when viewed from above. Forceps with the branches widely remote at the base, slender, unarmed, brownish red, regularly bowed, enclosing a regular oval area.

	♂
Length of body	14–14·5 mm.
„ forceps	6 „

Northern India (*Brit. Mus., coll. Burr*); Madras (*Vienna Mus.*).

Type in the Vienna Museum.

This species is easy to recognize by the shape and by the slender and arcuate forceps of the male.

In the Oxford University Museum, there is a specimen with wings expanded, and these have the scale of the same colour as the pronotum; but the membranous portion is yellowish near the base, the rest occupied by a broad smoky black band, the apex itself

being clearer. This specimen is labelled in Westwood's handwriting "*F. rufipennis*, Westw.", but this appears to be a manuscript name that was never published.

Genus **ANECHURA**, *Scudder*.

Anechura, *Scudder*, (76) p. 289.

Type, *Forficula bipunctata*, Fabr. (Europe).

Size medium. Antennæ with about 13 segments; third long and subcylindrical, fourth about two-thirds as long as third, fifth nearly as long as third, rather thick and cylindrical. Head tumid, sutures indistinct. Pronotum broad, truncate anteriorly, convex posteriorly, the sides straight. Elytra ample, smooth, broad, rounded at the shoulders but the sides parallel; no keel. Wings smooth, often abbreviated. Sternal plates transverse. Legs long and slender; second tarsal segment distinctly lobed; first longer than second and third united. Abdomen depressed and dilated about the middle, narrowed again before the apex. Last dorsal segment of ♂ transverse, with tubercles; of ♀ simple, narrow. Penultimate ventral segment of ♂ broadly rounded; round in ♀. Pygidium of ♂ very short and broad; in ♀ very small, obtuse. Forceps of ♂ with the branches remote at base and strongly bowed, sinuous and undulating, variously toothed; simple in the ♀.

Range. Europe, Northern and Central Asia.

This genus, as now restricted, contains a few European and Asiatic species, of which two are known to occur in India.

Table of Species.

1. Colour black and red; forceps simply arcuate; last dorsal segment of ♂ with two large pointed mammiform tubercles ..... *calciatii*, Bor., p. 159.

1.1. Colour chestnut or pale yellowish; forceps variously bowed and strongly undulating; last dorsal segment of ♂ with a short conical tubercle at each angle ..... *zubovskii*, Sem., p. 160.

98. **Anechura calciatii**, *Borelli*.** (Fig. 95.)

Anechura calciatii, *Borelli*, (09) p. 3.

General colour black. Antennæ with 11 segments, black or brown, sometimes tinged with reddish; third cylindrical, slightly swollen near the apex; fourth about two-thirds as long as third subconical; fifth as long as, and remainder slightly longer than, the third, subconical passing into cylindrical. Head clear brick-red, shaded with blackish on the frons, tumid and smooth, sutures faint. Pronotum brownish black, broader than long, anterior margin straight, sides parallel and gently reflexed, posterior margin gently rounded; prozona slightly tumid, with an impression on each side; median suture very faint. Elytra smooth, dull black,

with no keel. Wings abbreviated, scarcely visible beyond the elytra. Sternal plates black; pronotum rather broad anteriorly and strongly constricted before the base; meso- and metasterna broad, rounded posteriorly. Legs long and slender; femora yellowish red, black towards the apex; tibiæ and tarsi yellowish; the latter long and slender, second segment short and broad, first about as long as second and third united. Abdomen dull reddish black, smooth, naked above, with bristles at the sides; tubercles of third and fourth segments distinct; rather broad, slightly broader about the middle, and narrowed apically in ♀. Last dorsal segment of ♂ smooth, transverse, reddish in basal half, the rest black, inflated basally, depressed posteriorly, posterior margin straight; on each side, above the forceps, there is a large, mammiform, conical tubercle, terminating in a sharp point; in the ♀ narrowed, depressed posteriorly, the tubercles obsolete. Penultimate ventral segment of ♂ and ♀ broadly rounded. Pygidium of ♂ prominent, in the form of a broad, short, transverse plate; the posterior margin slightly reflexed, the edge itself crenulate; in ♀ narrow and blunt. Forceps of ♂ with the branches remote at the base, somewhat depressed, elongate and regularly arcuate, with a strong sharp tooth on the under surface near the base; in the ♀ the branches are subcontiguous, stout, straight, tapering, incurved at the apex itself, the inner margin depressed, the forceps reddish (clear red in the ♂) and darker apically.

	♂	♀
Length of body.....	12·5 mm.	13 mm.
,, forceps....	4 ,,	4 ,,

N.E. Kashmir: road from Srinagar to Gilgit, v., about 8000 ft (*Turin Mus.*).

Type in the Turin Museum.

This handsome species is well characterized by the sharp pointed mammiform tubercles of the last dorsal segment of the ♂, and the simple arcuate forceps. Its nearest ally perhaps is *A. japonica*, Borm., which, however, has a prominent laminated tooth on the forceps. The pygidium coloration is also quite different.

99. **Anechura zubovskii**, *Sem.* (Fig. 52.)

? Forficula biguttata, var., *Saussure*, (74) p. 4 (partim).
Anechura zubovskii, *Semenov*, (01) p. 188; *Jacobson & Bianchi*, (05) p. 25; *Borelli*, (09) p. 4.

Antennæ with (?) 12 segments, typical. Head tumid, smooth, black, the sutures fairly distinct. Pronotum transverse, truncate on anterior margin, convex posteriorly, the sides parallel; black with yellowish sides. Elytra rather short, not surpassing and scarcely equalling the posterior femora in length, dull brown; pale straw-yellow outside the costal fold (not visible from above) and marked with a pale straw-yellow spot on the disc; this spot is relatively small and does not extend backwards beyond the

middle of the elytra. Wings not projecting more than half the length of the elytra, pale straw-yellow, with fuscous margin and apex. Abdomen yellowish brown, with darker shading towards the base, very broad and depressed in the ♂. Last dorsal segment short and transverse, black basally and fulvous apically; at each exterior angle armed with a strong conical tubercle pointing outwards. Pygidium of ♂ short and obtuse. Forceps of ♂ with the branches very remote at the base, rather stout, roundly trigonal, with a short conical tooth near the base on the upper margin; they are directed at first gently upwards and outwards, and then, at one quarter of their length, bowed strongly downwards; at about three-quarters of their length, horizontal and almost parallel as far as the points which are gently hooked; in colour reddish tawny; at the point where their direction changes from the downward to the horizontal on the under margin there is a very blunt projection (this represents a sharp tooth in another form).

	♂	♀
Length of body	9·5–11 mm.	11–13 mm.
„ forceps	5·5–6 „	3·6–4 „

Kashmir: Ladak, Valley of the River Dras, between 9000 and 10,000 ft., vii. (*coll. Semenov*); Scinde Valley, at 7000 ft. (*Brit. Mus., coll. Burr*); road from Srinagar to Gilgit, at 8300 ft., v. (*Turin Mus.*).

Type in the collection of Mr. A. P. Semenov Tian-Shansky, St. Petersburg.

The specimens from Tibet, in the British Museum, are probably to be referred to this species.

This is the only known Indian earwig that has this peculiar form of forceps and yellow-spotted elytra, and so cannot be confused with any other species.

It is really the local race of *A. bipunctata*, which is essentially palæarctic in distribution; the typical form occurs in the mountains of Europe, in the Pyrenees, Alps and Balkans; as its distribution extends westwards (Asia Minor, Urals) it tends to pass into the variety *orientalis* of Krauss (*nec* Semenov), which is recorded from the Crimea, Persia and Caucasus (de Bormans' record from Tibet refers probably to *A. zubovskii*, which had not yet been discriminated). This variety overlaps *A. asiatica*, Sem. (=*A. orientalis*, Sem.), which occurs throughout Northern and Western Asia, as far east as the Urals and lower reaches of the Volga, and as far south as Persia.

These four forms are nothing more or less than local races of what we might call "overspecies," but as they have all been treated as species by Semenov, it is more convenient to continue to regard them as such, rather than to reduce them to the rank of varieties.

It may be useful to give the distinguishing characters.

1. Head pale, at least on the occiput; femora dark only at the apex; body broader and stouter.
   2. Colour dark; spots orange red; forceps strongly sinuate and stout ..... *bipunctata*, Fabr.
   2.2. Colour paler; spots yellower; head testaceous; wings paler; spot on elytra larger; forceps more slender, less strongly sinuate .. *bipunctata*, var. *orientalis*, Krauss (*nec* Sem.).

1.1. Head all dark; femora with dark spots, but not dark at the ends; body rather longer.
   2. Length of elytra equal to that of posterior femora; pale spot of elytra large, extending beyond middle of disc; tooth beneath forceps beyond middle sharp .... *asiatica*, Sem.
   2.2. Length of elytra less than that of posterior femora; light spot on elytra not passing middle of the disc; tooth of forceps nearer the middle and very obtuse or obsolete ..... *zubovskii*, Sem.

Subfamily III. FORFICULINÆ.

This subfamily contains few genera, but one is the typical genus of the Dermaptera, namely *Forficula*, Linn., which contains about 40 species and is represented throughout Europe, Asia, and America.

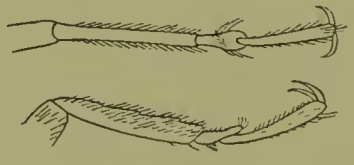

Fig. 13.—Tarsus of *Forficula lucasi*, Dohrn.

The typical species is *Forficula auricularia*, Linn., the common earwig of Western Europe, which has now established itself in New Zealand and the United States.

Table of Genera.

1. Abdomen of ♂ almost parallel-sided; forceps of ♂ not dilated or depresed near base ..... Elaunon, Burr, p. 163.
1.1. Abdomen of ♂ more or less dilated about the middle and narrower towards the apex; forceps of ♂ strongly dilated and depressed near the base ..... Forficula, Linn., p. 164.

Genus **ELAUNON**, *Burr*.

Elaunon, *Burr*, (07[1]) p. 123.
Forficula, *Dohrn, Scudd.* (partim).
Sphingolabis, *Kirby* (partim).
Apterygida, *Borm., Burr* (partim).

Type, *Sphingolabis bipartita*, Kirby.

Body depressed. Abdomen almost parallel-sided; fourth antennal segment transverse; tarsi short, first segment rather broad, but little longer than the third. Forceps of ♂ slender.

Range. India and Africa.

Owing to the presence of a flattened triangular tooth near the base of the forceps, the single Indian species of this genus has somewhat the appearance of *Forficula*, but the almost parallel-sided abdomen and short tarsi distinguish it.

Originally formed for *E. bipartita* only, the genus should also include the African species *E. erythrocephala* and *E. bonchampsii*, formerly ranged in *Diaperasticus*.

100. Elaunon bipartitus, *Kirby*.* (Figs. 53 & 102.)

Sphingolabis bipartita, *Kirby*, (91) p. 526, (04) p. 46.
Apterygida bipartita, *Borm.* (00[2]) p. 112; *Burr*, (01) p. 331, (05) p. 29, (08[3]) p. 119.
Apterygida bipartita, *var.* macrolabia, *Burr*, (07[2]) p. 209.
Elaunon bipartita, *Burr*, (07[1]) p. 123.

Chestnut and yellow; slender; not very hairy. Antennæ brown; fourth segment nearly as long as the third, all cylindrical. Head deep orange, smooth, tumid. Pronotum orange, the sides paler; truncate anteriorly, rounded posteriorly, sides parallel, rather flattened, about as broad as long. Elytra long, narrow, parallel-sided, smooth, bright straw-yellow, with a narrow indistinct fuscous band down the suture and costal margin. Wings long, clear yellow. Legs yellow, rather short. Abdomen parallel-sided, elongate, reddish chestnut; lateral tubercles darker, well developed; finely and densely punctulate. Last dorsal segment of ♂ rectangular, transverse, punctulate; posterior margin straight, depressed in the middle, with tumid elevation on each side over the roots of the forceps. Penultimate ventral segment of ♂ and ♀ obtusely convex. Pygidium of ♂ short, blunt. Forceps with branches in the ♂ depressed, elongate, nearly straight, the inner margin near the base itself dilated to form a tooth-like broad triangular projection, the point of which is sometimes acute, sometimes blunt, sometimes truncate; beyond this projection very slender and elongate, almost straight, gently hooked at the apex; in ♀ short, simple, straight, contiguous.

	♂	♀
Length of body	9–11 mm.	7–9 mm.
„ forceps	2·75–6·75 „	2·25–3 „

United Provinces: Mussoorie (*Pusa coll.*); Madras: Bangalore (*Ind. Mus.*); Ceylon: Punduluoya and Ambegammoa (*coll. Burr*); Madulsima, xii. (*T. B. Fletcher*; *coll. Burr*).

Also in Annam (*Paris Mus.*).

Type in the British Museum.

This elegant species is easy to recognize by the clear yellow colour of the organs of the anterior half of the body. It appears to be common in India and Ceylon, though it was not taken by Fea in Burma. Mr. Green commonly took it at light at Punduluoya, and to one of his specimens attached a note, that it "when handled, gave off a pungent odour like that of the Bombardier Beetle."

The *macrolabia* form, with very long forceps, appears to be more numerous than the *cyclolabia* form.

Genus **FORFICULA**, *Linn.*

Forficula, *Linn.* (1758) p. 423.

Type, *Forficula auricularia*, Linn.

Body convex. Head smooth, tumid, sutures fairly distinct. Antennæ with from 10 to 15 segments; third long, nearly as long as the first, gently clubbed or cylindrical; fourth generally shorter than third, often much shorter; fifth a little longer than fourth; the rest gradually lengthening; all the segments almost or entirely cylindrical. Pronotum more or less rectangular; truncate anteriorly; posterior margin truncate or rounded, the hinder angles rectangular or rounded. Elytra well developed; smooth, ample, with no keel. Wings prominent and abbreviated or abortive. Legs moderately slender. Abdomen rather depressed, broader about the middle; gently narrowed apically in the ♂, more strongly in the ♀, lateral tubercles distinct. Last dorsal segment of ♂ transverse, posterior margin smooth or tuberculate; in ♀ simple, narrowed. Pygidium of ♂ small and globose or strongly produced and prominent. Branches of forceps of ♂ always depressed and always dilated in the basal portion, beyond which attenuate and arcuate; dilated basal portion short or long and variously armed; in ♀ simple, straight, contiguous.

Range. This is a large and homogeneous genus, containing about forty species distributed throughout Europe, Africa, and Asia; it is well represented in India, but it is not known to occur in the Malay Archipelago.

The dilation of the forceps near the base in the male is the chief generic character, and the extent and armature of this dilation offers valuable specific characters. The length of the forceps varies remarkably, and the appearance of the *macrolabia* forms is often very different from that of the *cyclolabia* forms.

Table of Species.

(Males only.)

1. Pronotum trapezoidal or rectangular, evidently broader than long.
   2. Forceps dilated only quite near the base.
      3. Forceps strongly bowed, generally broader than long; (colour dull black) ..... *schlagintweiti*, Burr, [p. 166.
      3.3. Forceps nearly straight ..... *mogul*, Burr, p. 167.
   2.2. Forceps dilated through at least one-quarter of their length.
      3. Pronotum strongly rounded posteriorly; dilated part of forceps ending in an obtuse tooth ..... *beelzebub*, Burr, p. 167.
      3.3. Pronotum gently rounded posteriorly; dilated part of forceps ending in a sharp tooth ..... *aceris*, Burr, p. 168.
1.1. Pronotum as broad as long or slightly transverse, crescent-shaped or subquadrate, generally rounded posteriorly.
   2. Pronotum crescent-shaped, sides not parallel, strongly rounded posteriorly. (Size small, elytra spotted.)
      3. Strongly pubescent; forceps feebly dilated and gradually attenuated. *ornata*, Borm., p. 169.
      3.3. Nearly hairless; forceps strongly dilated and abruptly attenuated. *greeni*, Burr, p. 170.
   2.2. Pronotum subquadrate, sides parallel (except in *F. interrogans*), hinder margin straight or gently rounded.
      3. Forceps dilated near base only .... *ambigua*, Burr, p. 171.
      3.3. Forceps dilated through at least one-third of their length.
         4. Elytra and wings with big pale spot ..... *lucasi*, Dohrn, p. 172.
         4.4. Elytra and wings not spotted.
            5. Pronotum large, well produced over elytra; (elytra and wings long, testaceous; dilatation of forceps ending in sharp tooth) ..... *celeris*, Burr, p. 172.
            5.5. Pronotum short, scarcely produced over elytra.
               6. Abdomen nearly parallel-sided; forceps nearly straight ..... *interrogans*, Burr, p. 173.
               6.6. Abdomen dilated about middle; forceps strongly bowed ..... *planicollis*, Kirby, p. 174.

101. **Forficula schlagintweiti**, *Burr.** (Fig. 54.)

Anechura schlagintweiti, *Burr*, (04) p. 313, (08[3]) p. 118.
Forficula schlagintweiti, *Burr*, (07[1]) p. 110.

Stature rather stout, large. Colour entirely deep black, smooth and shining. Antennæ with 12 segments, fourth segment not very much shorter than third, the fifth equal to third; remaining segments subcylindrical, elongate. Head quite smooth, tumid, the sutures obsolete. Pronotum nearly 1½ times as broad as long, anterior margin truncate, lateral and posterior margins subrotundate, very slightly convex; general outline rectangular, but the angles themselves rounded; prozona somewhat tumid, with clear median sulcus, metazona and sides flattened. Elytra ample, quite smooth, the humeral fold well marked, but no trace of a keel. Wings long, quite smooth. Legs intense black, including even the tarsi, which are clothed with a dense reddish pubescence; femora rather long; tarsi long, the first segment as long as the other two united, the second segment longer than usual, but very distinctly lobed. Abdomen quite smooth, broadest about the middle; lateral tubercles fairly distinct. Anal segment of ♂ smooth, transverse, short, depressed, the posterior margin truncate and somewhat reflexed, with a tumid tubercle over each root of the forceps; in the ♀ similar but angustate. Pygidium of ♂ forming a very short blunt tubercle; similar in ♀. Forceps of ♂ with the branches flattened throughout their length, but only dilated at the base itself, with a strong depressed prominent blunt tooth; strongly diverging at first, then halfway down strongly bent inwards; in the ♀ simple, straight, attenuate.

	♂	♀
Length of body	9–16·5 mm.	12–14·5 mm.
,, forceps	3– 3·75 ,,	3·5 ,,

Sikkim: Darjiling (*Paris Mus., coll. Burr*); Tibet: Lahol (*Schlagintweit, coll. de Bormans*).

Type in the Paris Museum.

This species varies to a considerable extent in stature and curvature of the forceps; the author possesses a small male from Sikkim in which the body is only 9 mm. long; the forceps are proportionately longer than in the typically well developed forms, as they are less bowed and only gently arched; they are 3·75 mm. long, but their greatest breadth is only 2 mm. In the finest male the forceps are only 3 mm. long, but they attain a breadth of 5·5 mm. In the small variety, the basal tooth of the forceps is absorbed by the dilated portion, which extends considerably further down the arms of the forceps; this form more nearly resembles the pattern of typical *Forficula*, but there exists every gradation up to the extreme form, which seems to represent a transition towards the *Anechurinæ*, especially as the fourth antennal segment is somewhat longer than is usual in *Forficula*.

The species is easy to recognize by its intense uniform black colour, with no variation from the tip of the antennæ to the tarsi and the forceps.

102. Forficula mogul, *Burr.** (Fig. 55.)

Forficula mogul, *Burr*, (04) p. 321, (07[1]) p. 111, (08[3]) p. 121.

Stature large and robust. General colour dark reddish castaneous. Antennæ (?). Head depressed, the sutures distinct, posterior margin somewhat sinuate; ferruginous, varied with blackish. Pronotum transverse; the four sides parallel and straight, the angles rounded; deep blackish chestnut, the sides translucent yellow; prozona somewhat tumid, with fairly distinct median sulcus; metazona flattened; sides flat. Elytra smooth and ample, deep chestnut brown. Wings long and smooth, dark brown, shaded with blackish towards the apex where there is a minute yellowish dot. Legs brown, rather slender; tarsi slim and elongate. Abdomen deep chocolate-brown, very finely punctulate, the posterior margins of the segments somewhat incrassate in the ♂; ventral surface paler and smoother; lateral tubercles distinct. Anal segment of ♂ rectangular, distinctly broader than long, smooth; posterior margin truncate and tumid over the insertion of the forceps; in the ♀ similar, but slightly narrower apically. Pygidium of ♂ depressed, obtuse, parallel-sided, very small. Forceps of ♂ with the branches depressed throughout their length, but only dilated near the base, this dilated part short and gradually dying out; inner margin denticulate near the base, then attenuate, very long, almost straight and unarmed; in the ♀ simple, straight and unarmed.

	♂	♀
Length of body	16 mm.	16 mm.
,, forceps	11 ,,	4 ,,

Sikkim: Darjiling (*Paris Mus.*).

Type in the Paris Museum.

This species somewhat resembles *F. ruficollis* from the western shores of the Mediterranean, but the head is not entirely black, the pronotum not so broad, the wings well developed, the elytra not spotted, and the dilated part of the forceps shorter and not ending abruptly, but gradually.

103. Forficula beelzebub, *Burr.*** (Fig. 56.)

Chelisoches beelzebub, *Burr*, (02[2]) p. 51; *Kirby*, (04) p. 33.
Forficula beelzebub, *Burr*, (04) p. 322, (05) p. 29, (07[1]) p. 111, (07[2]) p. 210, (08[3]) p. 121.

Stature smaller and more slender. Colour uniform, deep blackish red. Antennæ blackish brown, the segments proportionately short. Head smooth, convex, sutures obsolete, posterior margin truncate; clear red or almost black. Pronotum

transverse, anterior margin truncate, sides straight, posterior margin gently rounded; flat, the prozona scarcely tumid. Elytra and wings well developed, smooth, shining, uniform blackish chestnut. Legs rather short, blackish. Abdomen densely punctulate, the posterior margins of the segments milled in the ♂; lateral tubercles fairly distinct. Anal segment of ♂ rectangular, broader than long, rather smoother than the abdomen; posterior margin truncate, with no tumid elevations over the forceps; in the ♀ similar, but attenuate and narrow. Pygidium of ♂ elongate, depressed, parallel-sided, truncate at the apex; in ♀ similar but shorter. Forceps elongate; dilated on inner margin in first third, this dilated part ending suddenly in an obtuse tooth; unarmed, elongate and slender beyond this part; in the ♀ simple, straight.

	♂	♀
Length of body	9–11 mm.	10 mm.
,, forceps....	4·5–8 ,,	3 ,,

Nepal: Chitlong and Katmandu (*Ind. Mus.*), Nagorkote (*coll. Burr*); Sikkim: Darjiling (*Ind. Mus., Paris Mus., colls. Burr & Gadeau*); Assam: Kurseong (*Brussels Mus.*).

Type in the Brussels Museum.

This species is easy to recognize by the uniform red-black colour, combined with the elongate truncate pygidium and the form of the forceps. The blacker forms have a certain superficial resemblance to *Chelisoches morio*, Fabr.

104. Forficula aceris, *Burr*.* (Fig. 57.)

Forficula aceris, *Burr*, (05) p. 30, (07[1]) p. 111, (07[2]), p. 210.

Stature moderate. Colour dark reddish chestnut, blackish in places. Antennæ nearly black; fourth segment nearly two-thirds as long as the third; the segments not proportionately short. Head smooth and globose, sutures obsolete; deep red, shaded with blackish. Pronotum pale, much broader than long; anterior margin truncate, posterior rounded, sides straight; reddish black; flat; sides reflexed. Elytra and wings deep blackish chestnut, long. Legs deep blackish brown. Abdomen blackish red, covered with a dense punctulation, which becomes more dense and coarse towards the apex; edges of segments not milled. Anal segment of ♂ punctulate, transverse, rectangular, hinder margin truncate, with a tumid elevation over root of the forceps. Pygidium of ♂ elongate, parallel-sided, depressed, truncate at the apex. Forceps of ♂ with the branches elongate; dilated part fairly long, its inner margin crenulate, terminating abruptly in a strong sharp tooth, directed apically; then attenuate, unarmed and elongate.

	♂
Length of body	8·5 mm.
,, forceps	8·5 ,,

Sikkim: Mungphu (*Ind. Mus.*), Darjiling (*coll. Burr*); United Provinces: Mussoorie (*Ind. Mus.*).

Type in the Indian Museum.

This species closely resembles *F. beelzebub*, but may be easily distinguished by the stronger sculpture of the abdomen, the more reddish colour, somewhat longer segments of the antennæ, and especially by the form of the dilated part of the forceps of the male, which is crenulate along the inner margin and terminated by a prominent sharp tooth. The pygidium almost exactly resembles that of *F. beelzebub*, and the two form a natural group together.

105. **Forficula ornata**, *Bormans*.**

Forficula ornata, *Bormans*, (84[1]) p. 192, (88) p. 448, (94) p. 408, (00[2]) p. 124; *Bol.* (97) p. 286; *Kirby*, (04) p. 53; *Burr*, (07[1]) p. 111, (08[3]) p. 120.

Stature small, densely pubescent. Colour reddish varied with testaceous. Antennæ with 12 segments, pale, the segments rather thick and short. Head tumid, smooth, sutures obsolete; reddish testaceous; posterior margin somewhat sinuate. Pronotum semicircular; anterior margin truncate; lateral and posterior margins together strongly rounded; dark brown in the centre, yellowish at the edges; flat, the prozona slightly tumid. Elytra long, fuscous, with a broad, rather long, paler yellowish band down the disc. Wings long, testaceous, faintly banded with fuscous. Abdomen dark reddish, parallel-sided, densely punctulate and very hairy; lateral tubercles distinct. Last dorsal segment short and broad, scarcely tumid in the ♂, hinder margin truncate; in the ♀ similar but narrowed. Pygidium of ♂ and ♀ exceedingly small, short and obtuse. Forceps of ♂ with the branches rather convex and stout, subcontiguous, nearly straight, crenulate along the inner margin, attenuate towards the apex, where they are very gently arcuate; in the ♀ conical, simple, straight, contiguous.

	♂	♀
Length of body.....	7·75–8·25 mm.	10·5 mm.
„ forceps....	2·5 –2·75 „	2–2·5 „

Madras: Trichinopoli (*coll. Bolivar*); Burma: Kachin Hills, viii./xi. (*Genoa Mus.*); Tenasserim: Mt. Mulaiyit, 6000–6300 ft., iv. (*Genoa Mus.*).

Also occurs in Sumatra and Tonkin.

Type in the Genoa Museum.

This species with the two following form a natural group characterized by the small size, semicircular pronotum, and pale colouring.

F. ornata is remarkable for its strong pubescence and the form of the forceps of the male, which are scarcely different from those of the typical females of this genus; they are scarcely depressed,

so that the dilated portion consists only of a considerable strengthening near the base, which gradually disappears as the branches become more slender. The forceps of the two sexes are very similar; in the male they are very slightly bowed towards the apex, and are crenulate along the inner margin; in the female they are perfectly straight and not crenulate.

106. **Forficula greeni**, *Burr*.* (Fig. 103.)

Chelisoches pulchellus, *Burr* (nec *Gerst.*), (01) p. 327; *Kirby*, (04) p. 32 (partim).
Forficula greeni, *Burr*, (07[1]) pp. 111 & 113.

Small, rather stout. Colour dark reddish castaneous, passing into blackish; elytra and wings with large pale spots. Antennæ with 12 segments, pale, the segments short. Head globose, smooth, clear red and shining, sutures obsolete; posterior margin truncate; eyes black and prominent. Pronotum semicircular, anterior margin truncate; sides and posterior margin strongly rounded, forming a single curve; reddish chestnut, the sides paler; disc scarcely tumid. Elytra ample and smooth, fuscous, with a large clear pale yellowish spot in the centre. Wings long, clear straw-yellow. Legs short; femora rather stout; tarsi very short, yellowish. Abdomen parallel-sided, deep reddish black, exceedingly finely punctulate and shining; lateral tubercles distinct. Last dorsal segment quadrate, rather broader than long, posterior margin truncate, tumid over the insertion of the forceps; in the ♀ rather sloping, somewhat narrowed and less tumid over the forceps. Pygidium of ♂ very short, obtuse; hidden in ♀. Forceps of ♂ with the branches depressed, dilated in the basal third, with the inner margin of this part denticulate or crenulate; the dilation ends rather gradually and then the branches are elongate, attenuate, unarmed, smooth and gently incurved; in the ♀ the branches are depressed, rather stout, straight, unarmed and contiguous, the inner margin finely crenulate.

	♂	♀
Length of body	9 mm.	8 mm.
,, forceps	2 ,,	1·5 ,,

Ceylon: Punduluoya and Ambegammoa (*coll. Burr*), Talawakelle (*Willey*; *coll. Burr*).

Type in the author's collection.

This species seems to be fairly common where it occurs. Mr. Green has sent several specimens from Punduluoya, but the females outnumber the males, only one of the latter being sent, and that was taken inside a hollow gall on *Antidesma* at Punduluoya in February; the other specimens are dated February and December.

This species was originally confused with *Chelisoches pulchellus*, Gerst., and reported as such in a paper on the Earwigs of Ceylon; some specimens were sent to de Bormans, who also identified them as *Ch. pulchellus*. That West-African species was then, however, not properly known, and the name has since been shown to be synonymous with *Elaunon erythrocephalus*, Oliv.

F. greeni, which is dedicated to Mr. E. E. Green, resembles *F. ornata*, Borm. in build and colour, but differs in the less pubescent body and more strongly dilated and abruptly attenuated forceps of the male. It is easy to recognize by the dark colour and the straw-coloured wings and spot on the elytra.

107. **Forficula ambigua**, *Burr*.* (Fig. 58.)

Forficula ambigua, *Burr*, (04) p. 321, (07[1]) p. 112, (08[3]) p. 121.

Size small, rather slender. Colour castaneous, elytra and wings testaceous. Antennæ with fourth segment comparatively long and subconical. Head deep red, globose, smooth, sutures nearly obsolete. Pronotum quadrate, anterior margin truncate, sides and posterior margin very slightly convex; dark castaneous, the sides paler and flat, scarcely reflexed; prozona slightly tumid, median sulcus obsolete; metazona flat. Elytra and wings ample, long, smooth, testaceous. Legs short, clear testaceous. Abdomen parallel-sided, dark reddish chestnut; each segment darker basally than apically; very finely punctulate. Last dorsal segment of ♂ quadrate, rather sloping, slightly wider than long, posterior margin truncate, impressed in the middle and tumid on each side; typically angustate and simpler in the ♀. Pygidium of ♂ very short, conical. Forceps of ♂ with branches not very depressed, dilated at the base for a short distance, this part crenulate then attenuate, elongate, gently arched and unarmed; in the ♀ short, typical.

	♂	♀
Length of body	9·5 mm.	8·25–9 mm.
,, forceps ..	2·5–3 ,,	2 ,,

Sikkim: Darjiling (*Paris Mus., colls. Burr & Gadeau*).
Also occurs in Tonkin.
Type in the Paris Museum.

This species resembles two other species which also occur in Northern India; one is *F. planicollis*, Kirby, which is smaller, more thick-set, darker, with more bowed forceps, less flat pronotum, and more dilated abdomen; the other is *F. interrogans*, in which the forceps are much shorter and stouter, the dilated part relatively longer, and the attenuated part straight, stouter and shorter.

108. **Forficula lucasi**, *Dohrn*. (Fig. 59.)

Forficula lucasi, *Dohrn*, (65) p. 98; *Scudd.* (76) p. 315; *de Bormans*, (88) p. 448, (94) p. 408, (00²) p. 121; *Krauss*, (95) p. 99, fig. 2; *Jacobson & Bianki*, (03) p. 27; *Semenov*, (02) p. 195; *Kirby*, (04) p. 51; *Burr*, (07¹) p. 113, (08³) p. 120.

Size medium, fairly stout. General colour deep reddish chestnut; the head, pronotum, discal spot of elytra, and wings reddish or yellow. Antennæ with 11 segments, rather thick, brownish yellow. Head tumid, posterior margin of occiput somewhat emarginate, smooth, reddish or yellowish, sutures indistinct. Pronotum slightly broader than long, the anterior margin truncate, sides straight and posterior border widely rounded; red or yellow; depressed, with no distinct prozona; sides flat. Elytra ample, truncate apically, deep red with a large oval pale yellow, or pale reddish, spot on the disc. Wings long, yellow or reddish. Legs testaceous. Abdomen reddish chestnut, exceedingly minutely punctulate. Last dorsal segment of ♂ transverse, rectangular, finely punctulate, not granulose, the hinder border incrassate in the middle; that of ♀ typical, angustate. Penultimate ventral segment of ♂ strongly convex, rounded. Pygidium of ♂ very short, blunt, tubercular. Forceps of ♂ with the branches reddish, shaded with black, strongly depressed, elongate; dilated part extending for half the length, the inner margin quite straight, finely denticulate, terminated with a small, blunt, almost obsolete tooth; beyond this strongly attenuate, regularly arcuate, the apices meeting; in the ♀ contiguous, straight, unarmed, incurved at the apex.

	♂	♀
Length of body	12–14 mm.	11–12 mm.
,, forceps	5–6 ,,	2·5–3·5 ,,

Burma: Teinzo, v. (*Genoa Mus.*).

Also occurs in Persia, Syria, Arabia, Egypt, and the Sahara.

Type undefined, in Paris or Vienna.

In the Oxford Museum there is an undoubted male of this species labelled, obviously incorrectly, "Brazil" and "*Forficula bimaculata*, Pal.-Beauv.=*elegans*, Burm." The colour of these two earwigs is the same, but the forceps etc. are totally different.

109. **Forficula celeris**, *Burr*.* (Fig. 60.)

Forficula celeris, *Burr*, (05) p. 31, (07¹) p. 113.

Size small, but rather stout. General colour dark reddish castaneous; the elytra and wings uniform testaceous. Antennæ?; the first five segments reddish brown. Head tumid, smooth, dark red, sutures fine but distinct. Pronotum slightly broader than long, ample, black, edged with reddish; anterior margin truncate; sides straight and parallel, reflexed; posterior margin widely rounded; prozona somewhat tumid; metazona flattened. Elytra

long and ample, uniform testaceous. Legs dark red; femora somewhat stout. Abdomen deep red, finely punctulate. Last dorsal segment transverse, rectangular, punctulate, posterior margin truncate, with a tumid elevation on each side. Forceps of ♂ with the branches straight; dilated part extending halfway down the forceps, the inner margin quite straight and denticulate, the dilated part ends abruptly, the angle itself being almost a small tooth, somewhat incrassate and sharp; beyond this elongate, straight, almost parallel, only slightly incurved at the apex itself; in the ♀ straight, simple, elongate.

	♂	♀
Length of body	9 mm.	8 mm.
,, forceps	4 ,,	2·25 ,,

Assam: Khasi Hills (*Ind. Mus.*).

Type in the Indian Museum.

The type of this species is unfortunately in rather bad condition; the species somewhat resembles *F. ambigua*, but is stouter in build, and the dilated part of the forceps is different. Unfortunately the specimen is not in sufficiently good condition to admit an examination of the pygidium, which is important. The females of these two species are barely distinguishable; in this species the branches of the forceps of the female are somewhat longer and more gradually attenuate; in *F. ambigua* they are more suddenly attenuate near the base.

It also somewhat resembles *F. davidi*, but is smaller; the pygidium may be different; the dilated part of the forceps is proportionately shorter in *F. davidi* and ends gradually, sloping gently, whereas in this species it ends in an abrupt angle; the last dorsal segment in *F. davidi* is smoother.

The pronotum is almost of the same shape in all three species.

110. **Forficula interrogans**, *Burr*.* (Fig. 61.)

Forficula interrogans, *Burr*, (05[1]) p. 85, (07[1]) p. 114, (08[3]) p. 122.

Size small. General colour dark chestnut and testaceous. Head dark reddish, smooth, tumid, sutures indistinct. Pronotum with anterior margin truncate, sides and posterior margins broadly rounded; dark reddish chestnut; prozona somewhat tumid, metazona flat. Elytra and wings long, ample, dark testaceous. Legs testaceous. Abdomen parallel-sided, dark reddish chestnut, blackish at the base, densely punctulate; lateral tubercles black and distinct. Last dorsal segment of ♂ rectangular, transverse and somewhat sloping; simple, the elevations scarcely formed; posterior margin straight. Pygidium of ♂ very short, conical, obtuse. Forceps of ♂ with the branches short and straight, dilated for half their length; inner margins of this part straight, unarmed and very finely crenulate, gradually dying out; beyond this attenuate, straight, rather stout, very gently incurved apically, not meeting at the apex.

	♂
Length of body	7·5 mm.
,, forceps	1·5 ,,

Sikkim: Darjiling (*Paris Mus.*).

Type in the Paris Museum.

Resembles the common European *F. auricularia* in colour, but different in structure and much smaller. The nearly straight forceps with the straight unarmed dilated part distinguish it. The antennæ are missing in the unique type specimen.

111. Forficula planicollis, *Kirby*.*

Forficula planicollis, *Kirby*, (91) p. 526, (04) p. 63; *Burr*, (04) p. 230, (07[1]) p. 115, (07[2]) p. 210, (08[3]) p. 121.

Small and not stout. General colour dark castaneous and black. Antennæ dark fuscous, with 12 segments, the fourth not very short. Head dark reddish or black, smooth, tumid and shining; sutures indistinct. Pronotum slightly transverse, anterior margin truncate, sides parallel, posterior margin rounded; smooth, median sulcus fairly distinct; prozona tumid; metazona flat; black, the sides paler. Elytra and wings long and ample, the latter nearly as long as the former; dark testaceous. Legs reddish testaceous. Abdomen fairly broad, densely punctulate, dark chestnut; lateral tubercles black and distinct; narrowed towards the apex in the ♂, typical in the ♀. Last dorsal segment of ♂ short, transverse, rather narrowed apically, depressed, with the tumid elevations depressed and indistinct. Penultimate ventral segment convex. Pygidium indistinguishable. Forceps of ♂ with the branches flattened but not sulcate; dilated part short, only extending through a quarter the length of forceps, the inner margin straight and unarmed, ending gradually as the branches are attenuate, then strongly arched; the branches are bowed from the base itself, the apices meeting; in the ♀ typical.

	♂	♀
Length of body	7·9 mm.	7·9 mm.
,, forceps	2–2·75 ,,	2 ,,

Bhutan: Maria Basti (*Paris Mus.*); Sikkim: Sandakhu, 11,900 ft. (*Ind. Mus.*), Darjiling (*Paris Mus.*); United Provinces: Bhim Tal, Kumaun, 4500 ft., "feeding on the flowers of stinging nettles" (*Ind. Mus.*).

Type in the British Museum.

Kirby's type is in poor condition; the small size and black head help to distinguish it; the rather broad body, simple last dorsal segment of the male, and above all, the simple and strongly bowed forceps, which are quite unarmed, with short dilated part, also easily distinguish it.

Dr. Annandale took this species sweeping in grass and low herbage, at an elevation of 6000 feet at Darjiling, in September.

Subfamily IV. OPISTHOCOSMIINÆ.

This subfamily was originally erected by Verhœff and included only two genera—*Opisthocosmia* and *Cosmiella*; it was recast in 1907 by the author, but was too much split up and the genera too scattered. The last dorsal segment of the male is narrowed in the majority of cases; but it so happens that in the type of *Opisthocosmia* it is transverse, and consequently this is not a true character of the group. Nor can the length of the leg be sufficient, as in some forms undoubtedly related these are quite short. The relative length of the third and fourth segment of the antennæ is not sufficiently constant to be of more than specific or generic value.

It is therefore accordingly now proposed to include in the subfamily those earwigs in which the abdomen is scarcely or not at all depressed, so that the surface is convex and a cross-section circular. It will therefore absorb the subfamilies *Eparchinæ*, *Neolobophorinæ*, *Skendylinæ*, and *Eudohrninæ*, regarded as of subfamily rank by the author in 1907. Under this new arrangement the subfamily contains about sixteen genera, represented in all parts of the world. There are two well-marked groups, characterized by the presence or absence of a distinct keel down the costal fold of the elytra.

The carinate genera are five in number, of which three are American and the rest Oriental, two being represented in India. Of the non-carinate genera, those with narrow pronotum are represented in India by *Cordax*, as true *Opisthocosmia* is so far only known in the Malay Archipelago.

The forms with broad pronotum fall into two groups, according to the length of the first tarsal segment: of the long-legged genera one is American, the other three are represented in India; of those with short tarsi, apart from the three Indian genera, there is one in America (*Sarcinatrix*) and one in Java (*Rhadamanthus*). *Eudohrnia* is well characterized by the tricarinate basal segment of the antennæ.

A peculiar group consists of *Cordax ceylonicus*, *Obelura* (two species), *Syntonus* (one species), and *Sondax* (one species), all of which have a strong superficial resemblance, although they are rather widely separated by the structure of the elytra, pronotum, tarsi, and last dorsal segment. They are discussed in the observations on *Sondax repens* (p. 177).

Table of Genera.[1]

1. Entirely apterous (resembles *Obelura* and *Syntonus*) ..... SONDAX, n.g., p. 177.
1.1. Elytra present, sometimes abbreviated.
2. First segment of antennæ bicarinate; (pronotum broad; elytra with a very short keel; tarsi long) ..... EUDOHRNIA, Burr, [p. 178.
2.2. First segment of antennæ smooth.
3. Elytra with keel on costal margin.
4. Elytra perfect, free; wings abortive ..... EMBOROS, Burr, [p. 180.
4.4. Elytra rudimentary.
5. Last dorsal segment of male very wide at base, strongly narrowed at apex..... LIPARURA, Burr, [p. 181.
5.5. Last dorsal segment of male narrow at base itself, slightly angustate, almost square .... OBELURA, Burr, [p. 183.
3.3. Elytra not keeled (but well developed).
4. Pronotum narrower than the head, longer than broad ..... CORDAX, n.g., p. 184.
4.4. Pronotum as broad as the head or as broad as long.
5. First tarsal segment twice as long as the third.
6. Abdomen not very strongly convex, the sides of the segments, seen from above, recurved; forceps of male horizontal, not contiguous at the base, unarmed on the upper surface ..... HYPURGUS, Burr, [p. 187.
6.6. Abdomen decidedly convex; sides not recurved; forceps of male undulating, contiguous at base and toothed or crested above ..... EPARCHUS, Burr, [p. 190.
5.5. First tarsal segment equal to third or scarcely longer.
6. Abdomen dilated beyond the middle and attenuate towards the apex.
7. Last dorsal segment of male transverse, nearly rectangular; anterior femora thick..... TIMOMENUS, Burr, [p. 194.
7.7. Last dorsal segment of male strongly attenuate; anterior femora slender ..... SYNTONUS, n. g., [p. 199.
6.6. Abdomen of male scarcely dilated, almost cylindrical .. KOSMETOR, Burr, [p. 200.

[1] The genus *Lipodes* (p. 203) cannot yet be ranged in this table.

Genus **SONDAX**, n. g.

Type, *S. repens*, sp. n.

Entirely apterous; build slender. Antennæ cylindrical. Head broad, smooth and tumid. Pronotum as broad as the head, broader than long, slightly wider posteriorly than anteriorly; sides all straight, almost rectangular. Mesonotum smooth. Legs slender and long; first and third tarsal segments about equally long. Abdomen with glandular folds prominent, dilated before the apex and then narrowed. Last dorsal segment sloping, trapezoidal, strongly narrowed posteriorly. Forceps with branches contiguous at the base, long and slender.

Range. Madras.

This genus is founded on a single male in the Oxford Museum. It has a strong superficial resemblance to *Obelura*, *Syntonus*, and *Cordax ceylonicus*, but differs from all known *Opisthocosmiinæ* in the entire absence of any discernible vestige of elytra.

In the form of the last dorsal segment it approaches *Syntonus*, but the pronotum is much broader.

112. **Sondax repens**, sp. n. (Fig. 63.)

Small, slender, of a uniform light reddish ochraceous. Head reddish, smooth and tumid. Last dorsal segment strongly sloping and strongly narrowed posteriorly, smooth; posterior margin with a slight tumid elevation on each side. Penultimate ventral segment rounded. Forceps with the branches very slender and long, contiguous at the base with a vertical spine or tooth directed somewhat backwards, then slender, elongate, and arcuate, enclosing a long elliptical area.

	♂
Length of body	7 mm.
,, forceps	4 ,,

Madras (*Oxford Mus.*).

Type in the Oxford University Museum.

This remarkable species may be at once distinguished by the entire absence of elytra and the very broad pronotum. In the form of the last dorsal segment, of the tarsi and of the forceps (excepting the vertical tooth) it approaches *Syntonus neolobophoroides*; the forceps resemble those of *Cordax ceylonicus*, and, to a certain extent, those of *Obelura asiatica* and *O. tamul.* In build and colour all these species have a strong superficial resemblance. The structure of the pronotum, elytra, legs, and last dorsal segment, however, is so important that it seems to point to a converging specialisation from different sources, giving a false appearance of close relationship. The general form of the forceps is very similar in all these cases, and the differences between them are less than is often the case in several species of one genus. In *Obelura tamul* and *S. neolobophoroides* we see the beginnings of the

erect crested tooth which is so well developed in *C. ceylonicus* and *S. repens*; a similar structure occurs in some American forms.

This particular artificial group is, so far as is at present known, confined to Southern India and Ceylon, no similar species having been recorded from any other countries.

Genus **EUDOHRNIA**, *Burr*.

Eudohrnia, *Burr*, (07[1]) p. 97.
Forficula, *Dohrn* (partim).
Anechura, *Bormans*, *Kirby* (partim).

Type, *Forficula metallica*, Dohrn.

Body cylindrical, elongate. Antennæ rather strong; the first segment strong, cylindrical, long, and distinctly bicarinate; third segment elongate, rather clubbed at the apex; fourth rather long and thick; fifth longer, the rest gradually lengthening, subconical. Head smooth, globose, the sutures obsolete. Pronotum

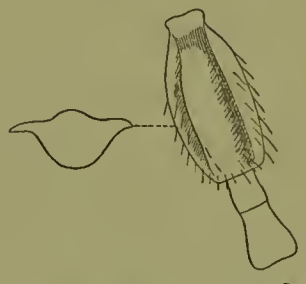

Fig. 14.—Basal segments of antenna of *Eudohrnia metallica*, Dohrn.

nearly square, rounded posteriorly. Elytra rugulose, with a fairly sharp costal keel, which is, however, very short. Wings and legs long. Abdomen cylindrical. Last dorsal segment of ♂ smoother than the abdomen, short, broad, impressed in the middle, scarcely tuberculate; in ♀ narrow and sloping. Pygidium of ♂ short, broad; in ♀ narrow and small. Branches of forceps of ♂ elongate, horizontal, nearly straight, slender; in ♀ similar but shorter and simpler.

Range. Northern India and Burma.

This genus, which is monotypic, is well characterized by the cylindrical body and bicarinate compressed basal segment of the antennæ.

113. Eudohrnia metallica, *Dohrn*.

Forficula metallica, *Dohrn*, (65) p. 90; *Scudd.* (76) p. 315.
Anechura metallica, *Borm.* (88) p. 444, (94) p. 402, (00[2]) p. 104, figs. 39, *a–c*; *Kirby*, (04) p. 41; *Burr*, (05[3]) p. 29.

Stature large but not stout. Colour reddish chestnut, the pronotum and abdomen metallic bronze-green; not pubescent. Antennæ reddish chestnut, with long, cylindrical, very slightly conical segments; basal segment bicarinate. Head large, smooth,

bright reddish chestnut; the sutures distinct; eyes black. Pronotum metallic greenish bronze; anterior margin truncate, the anterior angles incrassate and sharp; posterior margin very obtusangular; lateral margins straight, so that the whole pronotum is pentagonal; prozona somewhat tumid, as is also the metazona, separated by an indistinct transverse impression; in the prozona the lateral impressions are distinct; median suture obsolete; the surface of the pronotum faintly punctulate. Elytra ample, dull reddish chestnut, fairly strongly and very densely punctulate; lateral carinæ very short; hinder border truncate. Wings ample: the wings themselves are smoky black; the scales are metallic greenish bronze with sparse punctulations, the apices paler. Legs long and slender, dark red, the joints darker; tarsi with a yellowish pubescence, which extends a short way up the tibiæ; the tarsal segments are long and slender. Abdomen elongate, cylindrical, greenish metallic bronze, coarsely punctulate; lateral tubercles very distinct. Last dorsal segment of ♂ transverse, punctulate, somewhat attenuate in the ♀, transversely impressed, rectangular; the hinder border somewhat convex, tumid over the insertion of the forceps. Sternum black, very finely punctulate. Pygidium of ♂ short, transverse, smooth, with a short blunt tubercle at each posterior angle; each tubercle terminated by a sharp point; in ♀ short, blunt. Forceps of ♂ with the branches remote at the base, very long and slender, nearly straight; trigonal at the base itself; the nearly obsolete keels covered with a row of small tubercles; inner margin denticulate; halfway down there is a small but sharp and distinct tooth, beyond which the branches are unarmed, nearly straight, smooth, and incurved at the apex; the whole forceps are faintly punctulate; in the ♀ the branches are subcontiguous, excavate at the base itself on the inner margin to admit the pygidium, then nearly straight, very gently sinuate, elongate, unarmed, and smooth.

	♂	♀
Length of body	13–18 mm.	12–16 mm.
,, forceps	8·5–17 ,,	6– 7 ,,

Bombay: Bombay (*Pusa coll.*); United Provinces: Bhim Tal, 4500 ft.; Nepal: Sundrijal, Gauchar, Nagorkoti, "feeding on flowers of stinging nettles" (*Ind. Mus.*); Sikkim: Darjiling (*Brit. Mus.*); Assam: Khasi Hills, Dumpel to Cherapunji, 3000–5000 ft., Gauhati, Shillong (*Pusa coll.*), Kurseong (*Ind. Mus*); Burma: Karen-ni, Keba Distr., 3000–3700 ft., v.–xii. (*Genoa Mus., coll. Burr*); Tenasserim: Thagatà, v. (*Brit. Mus., Genoa Mus., coll. Burr*).

Occurs also in Tonkin.

Syntypes in Berlin and Dohrn's collection; actual type uncertain.

This striking species is easy to recognize, apart from the characteristic first antennal segment, by its elongate form, long slender forceps, and bronze-green metallic lustre.

Genus **EMBOROS**, *Burr*.

Emboros, *Burr*, (07[1]) p. 103.
Opisthocosmia, *Dohrn* (partim).
Cosmiella, *Verhaff*, *Kirby* (partim).

Type, *Opisthocosmia dubia*, Borm.

Small and slender. Antennæ with 10 segments, cylindrical; fourth relatively long. Head smooth and tumid. Pronotum slightly narrower than the head and decidedly longer than broad, rectangular. Metasternal lobe transverse, rectangular. Elytra complete and free, with a keel running the whole length of the costal fold, rather short. Wings abortive. Legs not very long; tarsi rather short, first segment hardly longer than the third. Abdomen of ♂ but slightly dilated, convex, second pliciform tubercle very strong. Last dorsal segment of ♂ a little longer than broad, but slightly angustate. Penultimate ventral segment of ♂ rounded, transverse. Forceps of ♂ with branches not contiguous at the base, cylindrical, nearly straight.

Range. Burma and Diego Suarez.

This genus is characterized by the keeled elytra and short tarsi, together with the long narrow pronotum, thus differing from *Liparura*, *Lipodes* and *Obelura*, the only other known Indian genera with keeled elytra.

114. **Emboros dubius**, *Borm*.

Opisthocosmia dubia, *Borm*. (94) p. 399, (00[2]) p. 98; *Burr*, (08[3]) p. 117.
Cosmiella dubia, *Verh*. (02[1]) p. 195; *Kirby*, (04) p. 38.
Opisthocosmia (Cosmiella) dubia, *Burr*, (04) p. 303.
Emboros dubius, *Burr*, (07[1]) p. 104.

Dark chestnut, small and slender. Antennæ with the five basal segments greyish testaceous. Head shining chestnut. Pronotum chestnut-brown, shining, a little narrower than the head, a little longer than broad; posterior margin rounded, rather convex; prozona and metazona separated by a transverse depression; two impressions on prozona; sides straight, pale testaceous, reflexed. Elytra dull brown, one and a half times as long as the pronotum, well rounded at the shoulders, sides parallel, posterior margin truncate. Wings absent. Legs long and slender, greyish testaceous, apical half of femora darker. Abdomen dark chestnut, shining, oval, dilated at about three-quarters of the length. Last dorsal segment about twice as broad at the base as at the apex, strongly sloped. Pygidium not discernible. Forceps reddish testaceous, unarmed, slender, elongate, trigonal, nearly straight, not contiguous but very nearly so, points curved in.

	♀
Length of body	7·5 mm.
„ forceps	3·5 „

Burma: Karen-ni, Geku District, 4300–4700 ft., ii./iii. (*Genoa Mus.*, 1 ♀).

Type in the Genoa Museum.

The above description is adapted from the original text of de Bormans. In the Paris Museum there is a pair of earwigs from Diego Suarez which have been referred to this species, as from the description above they cannot be distinguished from the Burmese specimen; but it is probable that the two are distinct, as their localities are so widely separated.

The genus *Emboros* was erected for de Bormans' *O. dubia*, but characterized from that pair from Diego Suarez. This characterization agrees in every particular with the description of de Bormans, except that he does not refer to the keel of the elytra. As he never made use of this character in any of his work, it is probable that he overlooked it, and there is little doubt that the specimens from Diego Suarez belong to the same genus as *E. dubia*, but it is likely that they will be shown to be specifically distinct when the true male of the latter is discovered. In order to settle this point, collectors in Further India should look out for a small dark Opisthocosmiine earwig with long narrow pronotum, keeled elytra and no wings. A careful comparison with the male from Diego Suarez will then probably show a specific distinction.

In these circumstances it is advisable to give a brief account of the features of this male:—

It agrees in every respect with the description of *E. dubius* except where the sexual characters are involved. The abdomen is not very strongly dilated and consequently the last dorsal segment is not very strongly angustate, being only slightly narrower posteriorly than at the base; its length is about equal to its smallest width; it is smooth and sloping, but not remarkably so; the posterior margin is gently convex, and tumid over the roots of the forceps; the latter are rather strong, horizontal, swollen at the extreme base but not contiguous, cylindrical and converging in the basal third, where they almost meet, and then straight as far as the apex which is hooked; the inner margin is very finely denticulate, otherwise they are unarmed; in colour deep reddish black. The pygidium is just visible as a small obtuse tubercle. Length of body, 8 mm.; forceps, 2·5 mm.

Of course, should the true Burmese *E. dubius* prove to be specifically distinct, this pair from Diego Suarez will require a new name.

Genus **LIPARURA**, *Burr*.

Liparura, *Burr*, (07[1]) p. 119.

Type, *L. punctata*, Burr.

Size medium or small. Antennæ unknown. Head smooth and tumid, but sutures distinct. Pronotum square, nearly as broad as the head. Elytra trapezoidal, not free, weak at the axillary angle, exposing a transverse scutellum; anal margin of

elytra short; posterior margin oblique; costal fold with an entire and strongly-marked keel. Wings absent. Legs long and slender; first tarsal segment longer than the second and third united. Abdomen strongly dilated and strongly attenuate at the apex. Last dorsal segment short, small, and transverse, gently attenuate and strongly sloping. Penultimate ventral segment broad, rounded. Pygidium not distinct. Forceps of ♂ with the branches subcontiguous, rather depressed at the base, elongate; simple in the ♀.

Range. India.

This genus is based on a pair of earwigs from Northern India which are related to *Obelura tamul*, Burr, from Ceylon, and to *O. asiatica*, Borm., from Southern India. But the keel of the elytra, with the square pronotum and long tarsi, are very distinctive features.

115. **Liparura punctata**, sp. n. (Fig. 64.)

Neolobophora asiatica, *Burr*, (08[3]) p. 117.
Liparura asiatica, *Burr*, (07[1]) p. 119 (nec *Borm.*, nec *Kirby*).

Size small, deep reddish chestnut. Antennæ unknown. Head tumid, sutures feeble. Pronotum about as broad as the head, square; prozona tumid, with a median suture and impression on each side; metazona depressed, sides strongly reflexed. Scutellum short, as broad as the pronotum, rounded posteriorly, smooth. Elytra abbreviated, trapezoidal, the posterior margin being oblique, so that the axillary (sutural) margin is much shorter than the costal margin; costal keel very sharp and well defined. Legs very long and slender. Abdomen punctate, strongly dilated and convex in both sexes. Last dorsal segment of ♂ trapezoidal, narrowed posteriorly, strongly sloping; in ♀ similar, but still more strongly sloping. Penultimate ventral segment of ♂ transverse, rounded. Pygidium of ♂ and ♀ indistinguishable. Forceps of ♂ with the branches subcontiguous at the base, slender, elongate, somewhat compressed, almost crested above, contiguous and nearly straight through half their length, then attenuate and gently arched, enclosing an elongate ellipse, the points meeting; in the ♀ the branches are slender, subcontiguous, straight, elongate, only meeting at the apex.

	♂	♀
Length of body	7·5 mm.	7·5 mm.
„ forceps	4·5 „	2·75 „

Sikkim: Darjiling (*Paris Mus.*); Bhutan: Pedong (*Paris Mus.*).

Type in the Paris Museum.

There is nothing in de Bormans' description of *Neolobophora asiatica* which excludes the two specimens in the Paris Museum, but the entire omission of any reference to the strongly punctulate body and the fact that his type was from the south of India —whereas these are from Darjiling and Bhutan, a difference especially important in apterous forms such as these—render it

probable that these are not identical with de Bormans' specimens, which would appear to fall into the genus *Obelura* with *O. tamul.*

Accordingly, the remark that *N. asiatica* is the type of *Liparura* (Burr, Tr. Ent. Soc. London, p. 119, 1904) must be read as referring to these specimens, then regarded as *N. asiatica*, and not to the true *N. asiatica* of de Bormans.

Genus **OBELURA**, *Burr.*

Obelura, *Burr*, (07[1]) p. 118.
Neolobophora, *Burr* (partim).

Type, *Neolobophora tamul*, Burr.

Size small; build slender. Antennæ as in *Opisthocosmia.* Head smooth. Pronotum as broad as the head, square. Elytra rudimentary, trapezoidal, keeled along the outer margin; inner margin shorter than the outer, thus forming a small scutellum; hinder margin obliquely truncate. Wings abortive. Legs long and slender. Abdomen with lateral tubercles very distinct, smooth; last dorsal segment very narrow, smooth, sloping. Forceps with branches subcontiguous at base, very elongate and slender.

Range. Southern India and Ceylon.

The two known members of this genus are easy to recognize by their slender build, uniform testaceous colour, rudimentary elytra, and long slender forceps.

Table of Species.

1. Elytra with axillary margin very short, thus exposing a broad scutellum; penultimate ventral segment of ♂ with a spine on each side ..... *asiatica*, Borm., p. 183.
1.1. Elytra with axillary margin scarcely shorter than costal margin, scutellum very small; penultimate ventral segment of ♂ unarmed ..... *tamul*, Burr, p. 184.

116. Obelura asiatica, *Borm.*

Neolobophora asiatica, *Borm.* apud *Bolivar*, (97) p. 285, pl. 1, fig. 2; *Borm.* (00[2]) p. 100; *Kirby*, (04) p. 29.
Liparura asiatica, *Burr*, (07[1]) p. 119.

Reddish chestnut, shining, all the legs dirty testaceous. Frons depressed, occiput convex, almost circumvallate. Elytra small, nearly triangular, showing a scutellum. Wings absent. Abdomen convex, dilated a little beyond the middle. Last dorsal segment strongly narrowed posteriorly, especially in ♀, and sloping. Penultimate ventral segment of ♂ with a sharp spine at each side. Branches of the forceps of ♂ subcontiguous at the base, depressed and compressed, with an erect tooth on the upper surface; cylindrical as far as a strong spine, directed backwards, situated about

the middle; then gently arcuate, slender; in ♀ long, slender, nearly straight, unarmed and contiguous, points hooked.

	♂	♀
Length of body	7 – 9·25 mm.	3·5–7·5 mm.
„ forceps	8·5–10·5 „	3·5 „

S. Madras: Kodaikanal.

The above description is adapted from that of de Bormans, given by Bolivar.

Workers on the spot must decide the true relations between this and *O. tamul.*

117. **Obelura tamul**, *Burr.** (Fig. 65.)

Neolobophora tamul, *Burr,* (01) p. 67, pl. B, fig. 1; *Kirby,* (04) p. 29.
Obelura tamul, *Burr,* (07[1]) p. 120.

Slender and small; entirely testaceous. Antennæ with twelve very slender segments. Head rather broad, smooth, and tumid. Pronotum square, as broad as the head, flat. Elytra trapezoidal, rudimentary, not free; costal fold sharp, forming a keel; hinder margin truncate; axillary angle rounded off, thus exposing a short, transverse, triangular scutellum and rendering the anal margin (along the suture) shorter than the costal margin. Legs slender, not very long; tarsi rather short. Abdomen smooth, dirty yellow. Last dorsal segment very narrow, longer than broad, smooth, sloping, simple. Forceps with the branches slender and cylindrical, dirty yellow, contiguous at the base (owing to the narrowness of the last dorsal segment), rather compressed and straight in the basal quarter, then very long and slender, gently diverging and arched in to form a long ellipse, which is not complete as the points do not meet; about the middle, on the inner margin, there are three or four small sharp teeth. ♀ unknown.

	♂
Length of body	6·75–9 mm.
„ forceps	5–7 „

Ceylon: Nuwara Eliya.

Type in the author's collection.

The species cannot be confused with anything except *O. asiatica,* from which it may not really be specifically distinct.

Genus **CORDAX**, n. g.

Opisthocosmia, *Dohrn,* (65) p. 76 (partim).

Type, *Forficula armata,* Haan.

Build slender and graceful. Antennæ with 10–12 segments, all long, slender and cylindrical; fourth a little longer than third, and fifth than the fourth. Head tumid, sutures distinct.

Pronotum narrow and long, not so broad as the head. Elytra smooth, well rounded at the shoulders, with no keel. Wings generally well developed. Legs long and slender; femora scarcely thickened; tibiæ compressed, first tarsal segment longer than second and third united. Abdomen convex, rather dilated beyond the middle, then tapering to the apex; lateral tubercles well developed. Last dorsal segment attenuate and sloping in both sexes. Pygidium indistinct. Forceps of ♂ long and slender, the branches remote or subcontiguous at the base, straight or sinuate, variously armed; in ♀ straight, simple, contiguous.

Range. Oriental Region.

This new genus is erected for those species in which the pronotum is long and narrow, as in *Opisthocosmia*, but the last dorsal segment narrowed and sloping, as in *Hypurgus*. The narrowing of this last segment has always been regarded as the chief distinctive character of *Opisthocosmia*, but unfortunately in the type-species, *O. centurio*, this segment is very decidedly transverse. Numerous species, formerly included in *Opisthocosmia*, are now consequently removed to the newer genera, *Cordax* and *Hypurgus*.

Table of Species.

1.	Elytra orange or red, with narrow dark band; size medium (15 mm.)	*armatus*, Haan, p. 185.
1.1.	Elytra testaceous, indistinctly banded with fuscous; size small (12·5 mm.) ..	*ceylonicus*, Motsch., p. 186.

118. **Cordax armatus**, *Haan*. (Fig. 66.)

Forficula armata, *Haan*, (42) p. 243, pl. 23. fig. 12.
Opisthocosmia armata, *Dohrn*, (65) p. 81; *Borm.* (88) p. 444, (94) p. 394, (00²) p. 96; *Burr*, (99) p. 260, (04) p. 304, (07¹) p. 100; *Kirby*, (04) p. 39.

General colour dark reddish chestnut; abdomen red; elytra and wings red, with narrow dark bands. Antennæ with (?) 10 segments, dark fuscous; segments 8–9 whitish, very slender. Head dark reddish, somewhat tumid, especially between the eyes. Pronotum narrower than the head and longer than broad, dark chestnut, smooth; anterior border truncate, sides subparallel; hinder border and hinder angles rounded; prozona distinctly tumid; metazona flat; sides distinctly raised. Elytra ample, broadly rounded at the shoulders, the costal fold strongly marked, almost forming a ridge; brick-red, with a narrow dark band along the costal margin, narrowed apically; hinder border subemarginate. Wings long, of the same colour as the elytra. Legs very dark, long and slender, the tarsi somewhat paler. Abdomen dark red, blackish near the base and the apex; very narrow at the base and very convex, strongly attenuate near the apex; pliciform tubercles black, very strongly marked. Last dorsal segment smooth, typical, sloping and attenuate. Forceps with the

branches in the ♂ subcontiguous at the base, long and slender; dark chestnut; subtrigonal near the base; seen from the side, horizontal and straight; seen from above, gently sinuate for the first half of their length; on the upper margin, at the end of the basal third, there is a compressed short sharp tooth; from this point gently diverging, with a small sharp tooth on the inner margin; then gently arcuate, slender and unarmed, enclosing an oval area, the points meeting.

	♂	
Length of body	10 – 11	mm.
,, forceps	6·75– 7·75	,,

Burma: Metanja, viii., Karen-ni, Keba District, 3000–3700 ft., v./xii. (*Genoa Mus.*).

Also occurs in Borneo, Sumatra, the Celebes, and Macassar.

Type in the Leyden Museum.

The slender and elongate build, brick-red elytra and long slender forceps, taken in conjunction with the narrow pronotum and angustate last dorsal segment of the male, render this elegant species unmistakable.

In "Das Tierreich," de Bormans describes the elytra as "braungelb" (p. 96), and again as "ganz gelb." This is due to the fact that the original manuscript was written in French and translated into German, for in every specimen seen by the author the elytra are brick-red, with a narrow dark band down the suture and down the costal margin; the original manuscript is in the author's possession; "braungelb" is a translation of "fauve" which might be applied to this colour; "ganz gelb" is a translation of "entièrement fauve," but the author has yet to see a specimen to which this remark applies.

119. **Cordax ceylonicus**, *Motsch.* (Fig. 67.)

Labia ceylonica, *Motschulsky*, (63) p. 4.
Opisthocosmia ceylonica, *Dohrn*, (65) p. 83; *Borm.* (00²) p. 96; *Burr*, (01) p. 335, (04) p. 305, (07¹) p. 100; *Kirby*, (04) p. 38.

Small, slender, brown. Antennæ with 12 segments, brown. Pronotum narrower than the head, hinder border rounded, anterior border straight, the sides strongly reflexed, shining brown. Elytra twice as long as the pronotum, uniform brown, truncate at the apex. Wings projecting well beyond the elytra, brown, with a faint yellow spot on the outer side at the base and at the apex of the suture. Abdomen darker brown, the glandular folds very prominent, black. In the ♂ the antepenultimate dorsal segment is armed on each side with a short tooth, the penultimate and ultimate segments are narrowed, the latter with a deep impression in the middle; the penultimate ventral segment semicircular, covering only half the last segment. The forceps are long, with the branches

contiguous at the base, parallel, then curved moderately outwards, incurved to meet at the apex, flat beneath, the upper surface with a long, narrow, crest-shaped lump near the base, and two teeth in the middle, the first fairly long, the second shorter. In the ♀ the abdomen is simple, narrowed posteriorly, unarmed, the penultimate ventral segment as in the ♂, the forceps with the branches slender, straight, contiguous, crossing at the apex. The sternum and legs are paler than the abdomen, the latter very long and slender, the first tarsal segment as long as the third. The whole body is shining, only the antennæ, legs, underside of the body, and the forceps of the ♂ pubescent.

	♂	♀
Length of body	7·5 mm.	7·5 –8 mm.
„ forceps	5 „	2·25–2·5 „

Ceylon: Punduluoya, Peradeniya, iv./v., Maskeliya (*coll. Burr*).

Mr. Green found females of this species commonly at light, in bungalows, and also in bamboos, but the males appear to be less numerous.

It may be easily recognized by the slender and delicate stature, and the narrow pronotum and last dorsal segment.

Genus **HYPURGUS**, *Burr*.

Hypurgus, *Burr*, (07[1]) p. 101.
Opisthocosmia, *Burr* (partim).

Type, *Opisthocosmia humeralis*, Kirby.

Insects of medium size and build. Antennæ with (?) 12 segments, all cylindrical, the fourth and third about equal in length; fourth sometimes a little longer, sometimes a little shorter than third. Head smooth and convex, sutures not very well marked. Pronotum almost as wide as the head, as broad as long or a little longer than broad; metasternal lobe short, transverse, rectangular. Elytra ample, smooth, well rounded at the shoulders and narrow posteriorly, with no costal keel. Wings well developed. Legs slender and long; first tarsal segment slender, considerably longer than second and third together. Abdomen convex, dilated about the middle and then attenuate; lateral tubercles of second and third segments distinct; sides of segments five or six to nine, seen from above, recurved, acute. Last dorsal segment of ♂ and ♀ ample, longer than broad, decidedly attenuate and sloping. Pygidium not distinct. Forceps of ♂ with branches not contiguous at the base, cylindrical, sometimes slightly depressed, more or less elongate and bowed, rather stout, horizontal, with no teeth on upper surface; those of ♀ subcontiguous, simple, straight and slender.

Range. Oriental and Ethiopian Regions.

The species were formerly included in the comprehensive genus *Opisthocosmia*, but their pronotum is by no means narrow and long, and the last dorsal segment is decidedly sloping and narrowed.

There are about half a dozen species, all occurring in the Oriental Region.

In the recurved abdominal segments of the male, the somewhat less convex abdomen, and the generally bowed forceps, this genus shows the beginning of a transition towards the ancistrogastrine type.

Fig. 15.—Tarsus of *Hypurgus humeralis*, Kirby.

Table of Species.

1. Elytra with an orange spot at the shoulders; forceps of ♂ with a strong tooth before the apex ..... *humeralis*, Kirby, [p. 188.
1·1. Elytra uniform reddish; forceps of ♂ with one blunt tooth, often obsolete..... *simplex*, Borm., [p. 189.

120. **Hypurgus humeralis**, *Kirby*.* (Fig. 68.)

Opisthocosmia humeralis, *Kirby*, (91) p. 523, (04) p. 38; *Borm.* (94) p. 400, (00²) p. 95; *Burr*, (01) p. 333, pl. B, fig. 9, (04) p. 334.
Hypurgus humeralis, *Burr*, (07¹) p. 102.

Size small; build rather stout; general colour deep chestnut with orange-red spots. Antennæ with 11 segments, all cylindrical and slender; third and fourth rather short, about equal in length, the fifth and following distinctly longer; dark brown, the tenth segment often pale. Head shining orange-red, smooth. Pronotum about as broad as long, a trifle wider in the ♂ than in the ♀, anterior border truncate; sides parallel or very gently convex, posterior border broadly rounded; deep reddish brown, the sides broadly orange. Elytra ample, smooth, well rounded at the shoulders, truncate posteriorly; deep brown, with a prominent oval orange spot at the shoulders. Wings prominent and long, basal half of scale bright orange-red, apical half deep brown. Legs deep yellow, rather long, slender; first tarsal segment longer than the second and third combined. Abdomen deep red-brown, broadest about the middle and narrowed apically, especially in the ♀; lateral tubercles very distinct; in the ♂ the sides of segments five to nine, seen from the side, are convex, seen from above, acute. Last dorsal segment ample, smooth, sloping and narrowed

posteriorly, especially in the ♀; posterior margin straight, angles rounded, tumid over the roots of the forceps. Penultimate ventral segment of ♂ and ♀ broad, ample, gently convex. Pygidium hidden in the ♂, short, sharp and conical in the ♀. Forceps with the branches in the ♂ nearly contiguous at the base, stout, rounded but rather depressed in the basal third, which is straight and crenulate along the inner margin; then attenuate and arched gently inwards to a sharp strong tooth on the inner margin; beyond this tooth strongly tapering and hooked; the area enclosed before the tooth is pear-shaped; in the ♀ the branches are contiguous, simple, very slender, and rather long; yellowish red in both sexes.

	♂	♀
Length of body	7–10 mm.	6·5–8 mm.
„ forceps	2·5–3 „	2 „

Ceylon: Peradeniya, Kandy, x. (*coll. Burr*); Burma: Palon, viii.–ix. (*Genoa Mus.*).

Type in the British Museum.

This species is apparently common in Ceylon, where Mr. Green took it flying round a lamp, and under stones.

It is easy to recognize by the very characteristic coloration and the form of the forceps.

121. **Hypurgus simplex**, *Borm.***

Opisthocosmia simplex, *Borm.* (94) p. 396, (00[3]) p. 39; *Bol.* (97) p. 286; *Burr*, (01) p. 334, (04) p. 306; *Kirby*, (04) p. 39.
Hypurgus simplex, *Burr*, (07[1]) p. 102.

Size rather large; general colour brown-red. Antennæ with 11 segments, brown, the apical or anteapical segment pale; all slender and cylindrical, the fourth a trifle shorter than the fifth; fifth about equal to third. Head smooth, red, with darker shading. Pronotum longer than broad, about as wide as the head; anterior margin straight, the angles sharp, somewhat produced; sides gently rounded, posterior margin well rounded; dull red-brown, the sides paler. Elytra ample, smooth, well rounded at the shoulders, with a row of short stiff bristles down the costal fold (but no keel); dull dark chestnut-red, with an ill-defined light red band down the costal fold. Wings prominent, dark chesnut-red, with a prominent orange-red spot at the base of the scale and a smaller light red spot at the apex of the suture; these two spots are sometimes almost confluent. Legs brown, long and slender. Abdomen smooth, dull, brown-red, stouter in the ♂ than in the ♀; sides of segments five to nine in the ♂, seen from the side, roundly convex, seen from above, recurved and sharp. Last dorsal segment trapezoidal, narrowed towards the apex, strongly sloping, especially in the ♀, smooth, posterior margin straight and angles rounded, tumid over

the roots of the forceps. Penultimate ventral segment of ♂ and ♀ broad, transverse, very obtusely convex. Forceps with the branches in the ♂ subcontiguous at the base, rather stout, rounded, somewhat depressed; gently diverging at first, the inner margin at the base itself convex and denticulate; gently tapering; just before half their length bowed inwards at an obtuse angle and thickened on the inner margin; from this point straight, converging, finely crenulate on the inner margin, tapering, hooked at the points; in the ♀ simple, slender, subcontiguous and straight; red-brown in colour.

	♂	♀
Length of body	11–14 mm.	10–11·5 mm.
,, forceps	4·75–5·5 ,,	4–4·5 ,,

Burma: Karen-ni, Keba District, 4000–4300 ft., i., Geku District, 4300–5000 ft., ii.–iv. (*Brit. Mus.*, *Genoa Mus.*); Madras: Trichinopoli; Ceylon (one mutilated female, referred with doubt to this species, *Oxford Mus.*).

Also from Mentawei in the Malay Archipelago.

Type in the Genoa Museum.

This species resembles the preceding but is decidedly larger and the elytra are not spotted.

The thickening on the inner margin of the forceps of the male represents an obsolete tooth, which is discernible in some specimens.

Genus **EPARCHUS**, *Burr*.

Eparchus, *Burr*, (07[1]) p. 120.
Opisthocosmia, *auctt.* (partim).

Type, *Forficula insignis*, Haan.

Antennæ with 12 segments, slender and cylindrical; third and fourth segments of about the same length. Head smooth. Pronotum about as broad as long, as broad as the head, truncate anteriorly, and generally rounded posteriorly. Elytra ample, smooth, no costal keel, well rounded at the shoulders and tapering apically. Wings prominent. Legs long and slender; tarsi slender, first segment longer than second and third united. Abdomen spindle-shaped, narrow at the base, dilated about the middle, strongly convex and attenuate apically; fifth or sixth to ninth segments not recurved (viewed from above) but often provided with tubercles at the sides. Last dorsal segment longer than wide, decidedly narrowed. Forceps of ♂ contiguous at the base (owing to the narrowness of the last dorsal segment), slender and cylindrical, elongate, more or less arcuate, and more or less undulating in a vertical plane, variously armed, but almost always with a strong vertical process or tooth on the upper surface near the base; in ♀ simple, slender and cylindrical.

Range. Oriental Region.

This genus was formerly separated by the relative length of the fourth and third segments of the antennæ, but further study has shown that this character is inconsistent and untrustworthy.

It agrees with *Hypurgus* in the narrowing of the last dorsal segment, and in this and the nearly square pronotum it differs from *Opisthocosmia*. The long tarsi and slender femora separate it from *Timomenus*, and the subquadrate pronotum from *Cordax*.

It differs from *Hypurgus* in appearance, owing to the more strongly convex abdomen and consequently more strongly sloping and narrowed last dorsal segment of the male; the sides of the abdomen, as seen from above, are not recurved and sharp, as in *Hypurgus*, but are sometimes furnished with tubercles.

We find a totally different type of forceps; instead of the horizontal, rather stout forceps of *Hypurgus*, not contiguous at the base and unarmed above, we find undulating slender branches, contiguous at the base and armed on the upper surface with a strong tooth or other projection.

Table of Species.

1. Forceps of ♂ very strongly undulating; vertical tooth obsolete; (sides of abdomen tuberculate)	*dux*, Borm., p. 191.
1.1. Forceps of ♂ undulate, but gently and only near the base; upper surface with prominent teeth or projections.	
2. Forceps of ♂ with rounded clubbed tubercles above; (sides of abdomen tuberculate)	*insignis*, Haan, p. 192.
2.2. Forceps of ♂ with sharp tooth above; sides of abdomen not tuberculate ..	*tenellus*, Haan, p. 193.

122. Eparchus dux, *Borm.*

Opisthocosmia dux, *Borm.* (94) p. 395, (00[2]) p. 98; *Burr*, (02) p. 485, (04) p. 305; *Kirby*, (04) p. 39.
Eparchus dux, *Burr*, (07[1]) p. 121.

Size medium; build slender; general colour chestnut with yellowish markings. Antennæ with 10 segments, dark with a pale ring before the apex. Head tumid, brown, shading posteriorly to red; depressed posteriorly. Pronotum chestnut-brown, the sides paler, as broad as the head, nearly semicircular; anterior margin straight, with sharp angles; prozona tumid, metazona and sides depressed. Elytra ample, smooth, well rounded at the shoulders, chestnut-brown. Wings prominent, chestnut-brown, with a round yellowish spot at the base, and a little narrow yellow line at the apex. Legs long and slender, clear chestnut. Abdomen smooth, chestnut, strongly dilated, lateral folds very distinct; sides of fifth and sixth segments produced into a strong obtuse triangular lobe; the seventh segment has a long spine at the side, the point

of which is recurved. Last dorsal segment trapezoidal, strongly narrowed and sloping, smooth, the sides finely denticulated. Last ventral segment transverse. Pygidium hardly discernible. Forceps with branches rounded, nearly contiguous at the base, slender, strongly undulating in a vertical plane; in the basal half they are strongly curved upwards and meet about the middle; then they abruptly become horizontal; from this angle they diverge and gradually thicken down to two-thirds of their length; here they are curved in a short oval and taper to the sharp hooked points which almost meet. ♀ unknown.

	♂
Length of body	13 mm.
,, forceps.....	7 ,,

Burma: Karen-ni, Keba District, 3000–3700 ft., v./xii.; Karen-ni, Geku District, 4600–4900 ft., iii./iv. (*Genoa Mus.*).

Type in the Genoa Museum.

This species may be known by the unarmed strongly undulating and sinuating forceps, and the armature of the sides of the abdomen in the male. The female has not been described.

123. Eparchus insignis, *Haan*. (Fig. 99.)

Forficula insignis, *Haan*, (42) p. 243, pl. 23. fig. 14.
Opisthocosmia insignis, *Dohrn*, (65) p. 81; *Dubr.* (79) p. 377; *Borm.* (88) p. 444, (94) p. 394, (00²) p. 96; *Bol.* (97) p. 286; *Burr*, (00²) p. 53, (02) 485, (04) p. 305, (08³) p. 117; *Kirby*, (04) p. 39.
Eparchus insignis, *Burr*, (07¹) p. 121.

General colour dark reddish chestnut, somewhat varying to almost black. Head smooth, sutures very faint; traces of obsolete tubercles just visible on posterior margin, which is truncate. Antennæ with 12 segments, long, thin, and cylindrical; segments nine or ten often much paler. Pronotum about as wide as the head, slightly longer than broad; anterior border truncate, sides almost parallel, and posterior border broadly rounded; prozona fairly strongly elevated and metazona depressed; sides raised; chestnut or very dark reddish. Elytra broad, well rounded at the shoulders, chestnut, generally paler and reddish at the shoulders, or almost testaceous. Wings long and prominent; yellow with brown markings, sometimes almost obsolete, sometimes strong and pronounced, in the form of a dark band crossing obliquely from the base of the suture to the extreme apical corner; if very broad the yellow colour is only seen as a pair of small round spots. Legs blackish red. Abdomen black or very dark reddish brown, somewhat paler in the middle of the dorsum; strongly dilated about the middle and strongly attenuated basally and apically; pliciform tubercles strong and black; at the sides of segments six, seven, eight, and sometimes also of five, there is a strong conical stout

tubercle, projecting at right angles to the body; those on segments six and seven are always the strongest; in the female there are no traces of these tubercles. Last dorsal segment of ♂ typical, strongly attenuate, very strongly sloping, smooth, with two blunt elevations above the roots of the forceps. Penultimate ventral segment almost entirely covering the last ventral segment, rounded. Pygidium of ♂ short, blunt, obtuse. Forceps of ♂ with the branches subcontiguous at the base, fairly stout, and gradually converging; quite near the base, on the upper surface, there is on each branch a vertical knob, blunt and rounded at the apex and thicker there than at the base; from this point, the branches curve outwards and then inwards, thus enclosing an oval space; the inner margin is finely crenulate and towards the apex there is a sharp short tooth; in the ♀ simple, straight, slender, and unarmed.

	♂	♀
Length of body	9·5–11·75 mm.	9–11·5 mm.
„ forceps	4–5·75 „	3·75–4·5 „

Madras: Trichinopoli (*coll. Bolivar*); Burma: Kachin Hills, viii./xi.; Karen-ni, Keba District, 3000–4300 ft., Geku District, 4300–5000 ft. (*Brit. Mus.*, *Genoa Mus.*).

Also common in Java, Borneo, Sumatra, and Celebes.

Type in the Leyden Museum.

Variation.—There appear to be two well-marked forms of this species; in one, apparently the typical form, the general colour is deep dark red, with the wings almost entirely yellow, with very faint dark markings, or with none, the abdomen having three lateral tubercles on each side, and the antennæ with a paler ring near the apex. This is the form described by de Bormans from Burmese specimens. In some specimens taken in Java by Rouyer, the whole colour is black, the dark oblique band of the wings has swamped the yellow, leaving only a tiny orange dot at the base of the suture and externo-apical corner of the wing; the elytra are very deep red, almost black, but always paler at the shoulders.

Sometimes the antennæ have one or two pale segments before the apex.

The species is easy to recognize by the vertical processes on the upper surface of the forceps of the male, near the base; these are clubbed and perfectly round on the top.

124. Eparchus tenellus, *Haan.* (Fig. 100.)

Forficula tenella, *Haan*, (42) p. 243.

Opisthocosmia tenella, *Dohrn*, (65) *Stett. Ent. Zeit.* xxvi. p. 82 (1865); *Dubr.* (79) p. 377; *Borm.* (88) p. 444, (94) p. 394; (00²) p. 97; *Burr*, (99) p. 260, (04) p. 305; *Kirby*, (04) p. 39.

Size small; build slender; colour black, varied with yellowish markings. Antennæ with 10–12 segments, brown, cylindrical and slender; one or two segments before the apex pale; third

segment not very long, fourth as long or longer, the others longer still. Head smooth, black, tumid, sutures obsolete. Pronotum about as broad as the head and about as long as broad; anterior margin truncate, posterior margin broadly rounded, black, the sides yellowish. Elytra ample, smooth, well rounded at the shoulders, tapering posteriorly, black, with an ill-defined, often obsolete, reddish spot, very variable in size, at the shoulder angle. Wings long, black, with a yellowish stripe down the suture. Legs long and slender, blackish, the base of the femora, apex of the tibiæ, and the tarsi yellowish. Abdomen black and slender at the base, strongly dilated about the middle, decidedly convex and tapering towards the apex; sides of the segments unarmed. Last dorsal segment of ♂ and ♀ longer than broad, ample, smooth, slender, black, strongly sloping and decidedly narrowed posteriorly, especially in the female; posterior margin straight, tumid over the roots of the forceps. Forceps of both sexes with the branches slender, cylindrical, black, contiguous at the base; in ♂ straight; seen from the side, curved gently upwards in the basal third, at the end of which, on the upper surface, there is a long, strong, sharp, vertical tooth; beyond this tooth the forceps are horizontal, unarmed and gently arcuate; in the ♀ straight and simple.

	♂	♀
Length of body.....	7·5 mm.	8–9 mm.
,, forceps.....	4·5–5 ,,	2 ,,

Burma: Bhamo, vi. (*Genoa Mus.*).

Also recorded from Java, Sumatra, Borneo, and Celebes.

Type in the Leyden Museum.

The slender build and peculiar forceps easily distinguish this elegant little earwig. It is only likely to be confused with *E. burri*, Borm., which is common throughout the Malay Archipelago, but has not yet been recorded from India, though it will probably be discovered in Burma. *E. burri* is a little larger, but the coloration is the same and the forceps are very similar; there is this difference, that in *E. burri* the branches are quite decidedly arcuate and have a sharp tooth on the inner margin at the base of the oval enclosed area.

The females of these two species are practically indistinguishable.

Genus **TIMOMENUS**, *Burr.*

Timomenus, *Burr*, (07[1]) p. 96.
Opisthocosmia, *Burr* (olim) (partim).

Type, *Opisthocosmia oannes*, Burr.

Build rather stout and strong. Antennæ with 12–13 segments; first segment long, thick, clubbed, remaining segments thinner, rather long, cylindrical, fourth about as long as third, the fifth distinctly longer. Head tumid, smooth. Pronotum rather broad, truncate anteriorly, strongly rounded posteriorly; prozona tumid, distinctly standing up against the flattened metazona.

Elytra smooth and ample, shoulders strongly rounded. Legs rather short; femora rather thick, especially the anterior pair; tibiæ rather thick, straight, somewhat flattened above in the apical portion, especially in the anterior and middle pairs; tarsi rather short, but second segment broad, flat, and rounded; third segment equal to the first, which is short and rather broad. Abdomen convex, robust, slightly dilated near the apex and then narrowed; lateral tubercles distinct; sides of seventh, eighth, and ninth segments convex in ♂. Last dorsal segment of ♂ rectangular, transverse. Pygidium of ♂ short and tumid. Forceps of ♂ with branches remote at base, elongate, stout, or slender, cylindrical and variously armed.

Range. Oriental Region.

This genus includes a few Oriental earwigs of robust build, with thick femora, strong straight toothed forceps, and a strongly dilated second tarsal segment.

Table of Species.

1.	Colour dull red or black.	
2.	Forceps straight and stout.....	*oannes*, Burr, p. 195.
2.2.	Forceps arcuate and slender	*æsculapius*, Burr, p. 196.
1.1.	Colour black with brilliant lustre; build graceful and forceps slender.	
2.	Lustre brilliant green	*nevilli*, Burr, p. 197.
2.2.	Lustre brilliant blue-black.....	*lugens*, Borm., p. 198.

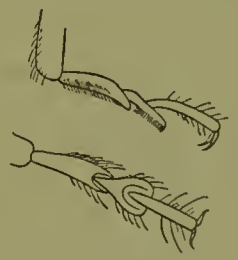

Fig. 16.—Tarsus of *Timomenus lugens*, Borm.

125. **Timomenus oannes** *Burr.** (Figs. 69 & 104.)

Opisthocosmia oannes, *Burr*, (00[1]) p. 85, (05[3]) p. 29, (04) p. 306; *Kirby*, (04) p. 38.

Timomenus oannes, *Burr*, (07[1]) p. 93, pl. iv, fig. 1.

Size medium; general colour reddish and black. Antennæ with 13 segments, the basal segment black, the rest reddish; elongate and cylindrical, not very thick, fourth segment equal to third. Head black, shining, smooth, tumid, sutures indistinct. Pronotum as broad as the head, almost semicircular, black with clear tawny margin. Elytra ample, smooth, uniform reddish orange or with two indistinct blackish bands. Wings reddish orange, bordered with blackish. Legs black, tibiæ and tarsi inclining to reddish. Abdomen punctulate, black or blackish chestnut, the

sides of the seventh, eighth, and ninth segments convex in ♂ and strongly punctulate. Last dorsal segment transverse, rectangular, narrower than the abdomen, tumid, depressed in the middle, tumid over the roots of the forceps, hinder border straight. Pygidium very short, transverse, obtuse. Forceps with branches remote at base, rather stout, cylindrical, nearly straight, elongate, gently arched inwards towards the apex; on the upper surface in the basal third there is a strong conical tooth directed upwards and on the inner margin, about two-thirds from the base, there is a smaller sharp tooth. ♀ unknown.

	♂
Length of body	12–14 mm.
,, forceps.....	4·5–7 ,,

Assam: Khasi Hills (*Ind. Mus., coll. Burr*).
Also occurs in Tonkin (coll. Burr).
Type in the author's collection.

Recognizable by the red-black colour, with red-orange wings, sturdy build, and the form of the forceps.

The only closely allied species is *T. komarowi*, Sem., from Korea. *T. bicuspis*, from Java, is easily distinguished by the uniform black colour and the presence of a pair of long spiny processes on the last dorsal segment of the male.

126. **Timomenus æsculapius**, *Burr*.* (Fig. 70.)

Opisthocosmia æsculapius, *Burr*, (05[4]) p. 236.
Eparchus æsculapius, *Burr*, (07[1]) p. 121.

Of medium size, graceful build, and reddish-brown colour. Antennæ with 12 segments, red-brown; basal segment very thick, clubbed; the rest slender and cylindrical; fourth segment slightly shorter than third, fifth equal to the third. Head smooth and tumid, sutures obsolete. Pronotum about as broad as the head and about as broad as long or a very little broader; anterior margin straight, somewhat convex at the middle, angles rounded; hinder margin somewhat narrower than anterior and rounded; prozona tumid, with a well-marked suture; metazona depressed. Elytra ample, smooth, broad, dull. Wings long and smooth. Legs rather short; femora thick, especially the anterior pair; tarsi with first segment rather broad, no longer than the third, which is very slender; second strongly dilated. Abdomen typical, smooth; sides of segments six to nine produced into small, depressed, recurved, hooked tubercles. Last dorsal segment subquadrate, smooth, ample, strongly sloping, slightly narrowed; posterior margin truncate. Pygidium short, obtuse, truncate. Forceps with the branches subcontiguous at the base, rather slender, rounded but somewhat depressed in the basal third which is crenulate along inner margin; seen from the side, the branches are undulating in the basal third, at the end of which on the upper surface there is a strong, sharp, compressed vertical triangular

tooth; beyond this tooth the branches are horizontal; seen from above, the branches diverge regularly from the base and are arcuate in the apical half; beyond the middle there is a short sharp tooth on the inner margin. ♀ unknown.

	♂
Length of body.....	11 mm.
,, forceps.....	7 ,,

Bhutan: Maria Basti.
Type in Madrid.

127. **Timomenus nevilli**, *Burr*.* (Fig. 71.)

Opisthocosmia nevilli, *Burr*, (04) pp. 305 & 309, (08[3]) p. 117.
Eparchus nevilli, *Burr*, (07[1]) p. 121.

Size medium or large; build slender and elongate; colour varying from deep brown to rich brilliant shining greenish black. Antennæ with 12 segments, brown or black, elongate and cylindrical, the fourth almost as long as the third. Head tumid, shining, brown or black, with a green lustre; sutures not very distinct. Pronotum brown or shining black, with a green lustre, about as broad as long, anterior margin truncate, rounded posteriorly; prozona tumid, metazona flat, sharply distinct; median suture distinct. Sternal plates rather broad; lobe of metasternum quite short, rectangular, transverse. Elytra ample, well rounded at the shoulders, smooth, reddish brown, not shining, with no costal keel, smooth, rather short and broad, truncate posteriorly. Wings prominent, shining, greenish black, with an orange spot at the apex of the suture. Anterior femora short and thick; posterior pair rather long and slender; tibiæ proportionate to the femora, smooth above; tarsi short; first segment rather thick, about as long as the third; second segment very broad. Abdomen dark brown, with a green metallic lustre; finely punctulate, lateral tubercles distinct; sides of segments four to nine convex, produced into a short depressed obtuse triangular tubercle; in ♀ simple. Last dorsal segment of ♂ transverse, sloping, slightly narrower posteriorly than anteriorly, smooth, posterior margin straight, tumid over the roots of the forceps; narrower and more strongly sloping in the ♀. Penultimate ventral segment of ♂ broadly rounded; of ♀ a little less broad. Pygidium indistinct in both sexes. Forceps of ♂ with the branches subcontiguous at the base and cylindrical, rather slender, very long, horizontal, almost straight, gently curved in at the apex; the inner margin is denticulate in the basal quarter, at the end of which there is on the upper margin a sharp compressed triangular tooth; about two-thirds from the base there is a short sharp tooth on the inner margin; in the ♀ the branches are nearly straight, subcontiguous, simple, cylindrical, elongate, and denticulate all along the inner margin.

	♂	♀
Length of body....	11·5–15·5 mm.	10–12·5 mm.
„ forceps..	8·5–11·5 „	6– 7 „

Bhutan: Maria Basti (*Paris Mus.*); Sikkim (*coll. Bolivar*). *Type* in the Paris Museum.

This is a fine species and easy to recognize by the green lustre and elongate forceps; in structure it approaches *T. lugens*, but the lustre is green, not blue; the female somewhat resembles that of *Eudohrnia metallica*, but may be at once distinguished by the smooth elytra, these organs being granulated in that species.

A female in the Paris collection is almost entirely dull red in colour, with little or none of that brilliant metallic sheen which is so characteristic in all the other specimens.

128. **Timomenus lugens**, *Borm.** (Fig. 72.)

Opisthocosmia lugens, *Borm.* (94) p. 398, (00[2]) p. 98; *Kirby*, (04) p. 38, nec *Burr*, *Ann. Mag. N. H.* (7) vi. p. 101 (1900); *Burr*, (04) p. 305 (nec (00[1]) p. 101).
Eparchus lugens, *Burr*, (07[1]) p. 121.

Size medium or large; build slender and elongate; colour brilliant lustrous blue-black. Antennæ with 13 segments, black, with two pale segments before the apex; segments long, slender and cylindrical, the fourth almost equal to the third. Head tumid, sutures indistinct, lustrous blue-black. Pronotum lustrous blue-black, slightly narrower than the head, very slightly narrower than broad, anterior margin truncate, strongly rounded anteriorly; prozona tumid, sharply distinct from the depressed metazona. Sternal plates rather broad; lobe of metasternum rectangular, short, transverse. Elytra ample, smooth, well rounded at the shoulders, with no costal keel, broad, not very long, truncate at the posterior margin, *dull* black. Wings shining blue-black, with a yellowish spot at the apex of the suture. Legs shining jet-black; anterior femora thick and short, posterior pair long and slender; tarsi short; first segment broad and short; second very broad, third as long as the first. Abdomen smooth, black with a brilliant blue-black lustre; sides of the segments, five to eight in the ♂, convex, and produced into short, obtuse, depressed, triangular lobes; in ♀ simple. Last dorsal segment of ♂ transverse, sloping, posterior margin straight, tumid over the roots of the forceps. Penultimate ventral segment of ♂ rounded, broad. Pygidium hidden. Forceps of ♂ with the branches elongate, subcontiguous at the base, cylindrical, gently diverging at first, then gently arcuate; points curved inwards; seen from the side, curved gently upwards in the basal quarter, then straight; the inner margin is denticulate in the basal quarter, at the end of which on the upper surface there is a strong, sharp, triangular, compressed tooth;

a little beyond the middle there is a second tooth, short and small but very sharp; in the ♀ almost straight, gently diverging, denticulate along inner margin, then gently curved in at the points.

	♂	♀
Length of body....	10–13 mm.	10·5–11·5 mm.
„ forceps..	6–11 „	6– 7 „

Burma: Karen-ni, Keba District, 3000–4300 ft. (*Genoa Mus., coll. Burr*); Assam: Nongpoh, in Khasi Hills (*Ind. Mus., coll. Burr*).

Type in the Genoa Museum.

This handsome earwig is very closely related to *T. nevilli*. Structurally it agrees almost exactly; in both the whole body is black with a brilliant lustre, but whereas this is green in *T. nevilli*, it is blue-black in this species, and this very brilliant blue-black lustre renders it unmistakable. In both species the elytra are dull, and in both the forceps are very similar; but in *T. nevilli* the latter organs are perfectly horizontal, while they are undulate near the base in *T. lugens*; they are also more strongly arcuate in the latter and the first tooth is larger, higher and sharper.

Genus **SYNTONUS**, n. g.

Opisthocosmia, *Burr* (olim).

Type, *Opisthocosmia neolobophoroides*, Burr.

Small and slender. Antennæ with 12–13 segments, slender and cylindrical, the fourth segment relatively long. Head smooth, tumid, sutures indistinct. Pronotum slightly narrower than the head, nearly square, rectangular. Metasternum proportionately narrower than in most allied genera; posterior lobe rounded. Elytra short and broad, no humeral angle. Wings rudimentary. Legs not very long, slender; femora not thickened; tarsi short, the first segment only as long as the third. Abdomen with first pliciform tubercle very weak; the second very prominent, decidedly convex, dilated about the middle and narrowed apically; less convex in the ♀. Last dorsal segment of ♂ narrow, longer than broad, decidedly narrowed posteriorly, and distinctly sloping. Forceps of ♂ contiguous at base, then arcuate, very slender; those of ♀ cylindrical.

Range. Ceylon.

This genus is characterized by the short tarsi together with the square pronotum, dilated convex abdomen, and strongly angustate last dorsal segment.

Superficially there is a resemblance to *Obelura*, but the free and perfect though short elytra and the short tarsi distinguish it at a glance.

129. **Syntonus neolobophoroides**, *Burr*.* (Fig. 62.)

Opisthocosmia neolobophoroides, *Burr*, (01) p. 335.
Cosmiella neolobophoroides, *Kirby*, (04) p. 38.

Of small and graceful build; general colour yellowish red, shading to darker. Antennæ very slender; fourth segment a little shorter than third. Head smooth, rather broad, reddish or blackish. Pronotum slightly narrower than the head, almost square, anterior margin truncate, sides parallel, posterior margin truncate, rather tumid in the middle, the sides depressed; prozona not separated from metazona, median suture faint; brown, the sides paler. Elytra short, not rounded at all at the shoulders, hardly longer than broad, truncate posteriorly, yellowish brown, smooth; axillary angle weak, so that a very short transverse space is visible as a small scutellum between the base of the elytra and the pronotum. Wings abortive. Legs slender, yellowish. Abdomen smooth, shining, reddish brown; pliciform tubercles black. Last dorsal segment smooth; posterior margin straight, tumid over the insertion of the forceps. Forceps of ♂ with the branches contiguous at the base, and for the first quarter of their length slender and somewhat depressed, with a small obsolete crested tooth on the upper surface; then very slender, elongate and gently arcuate, unarmed, with a few obsolete denticulations on the inner margin; in the ♀ simple, straight and cylindrical.

	♂	♀
Length of body.....	7·25 mm.	8 mm.
„ forceps....	4·35 „	3 „

Ceylon: Kudaga, Hatton, vii. (*coll. Burr*), Hakgala (*Willey, coll. Burr*).

Type in the author's collection.

Superficially like *Obelura tamul* and *Sondax repens*, but easily recognizable by the short but complete and free elytra, and by the generic characters.

Genus **KOSMETOR**, *Burr*.

Kosmetor, *Burr*, (07[1]) pp. 120 & 122.
Opisthocosmia, *Burr* (olim).

Type, *Opisthocosmia annandalei*, Burr.

Size medium; form elongate; stature slender. Antennæ with about 12 segments; third rather short, subclavate to subcylindrical; fourth a little thicker than third and almost as long; fifth cylindrical, elongate. Head smooth, tumid. Pronotum about as wide as the head, nearly square, truncate anteriorly, rounded posteriorly. Elytra long, smooth, parallel-sided, well rounded at the shoulders. Wings long. Legs not very long, tibiæ not sulcate above; tarsi rather short, third segment nearly as long as the first. Prosternum rather broad; mesosternum short, transverse, truncate. Abdomen

elongate, slender, scarcely depressed, almost cylindrical, gently widened at about two-thirds of its length; lateral tubercles distinct. Last dorsal segment of ♂ transverse or subquadrate, scarcely sloping or narrowed. Pygidium of ♂ short, obtuse, not prominent. Forceps of ♂ with branches remote at base, very slender, elongate, nearly straight, armed with one or more pairs of sharp teeth; in ♀ contiguous, slender, straight, simple.

Range. Oriental Region.

The members of this genus have a slight superficial resemblance to some *Opisthocosmiinæ*, and in other respects approach the *Forficulinæ*.

It is recognizable by the elongate and graceful body, almost cylindrical and scarcely dilated abdomen, and long thin toothed forceps of the male.

Of the five known species all are Oriental, and three are known in India.

Table of Species.

1.	Forceps of ♂ with two pairs of teeth ..	*temora*, Burr, p. 201.
1.1.	Forceps of ♂ with one pair of teeth.	
2.	Forceps almost straight; elytra black; head orange	*brahma*, Burr, p. 202.
2.2.	Forceps of ♂ forming an elongate ellipse; elytra yellowish-brown; head brown	*vishnu*, Burr, p. 202.

130. **Kosmetor temora**, *Burr*.* (Fig. 73.)

Opisthocosmia temora, *Burr*, (04) pp. 307 & 312 : (08[3]) p. 117.
Kosmetor temora, *Burr*, (07[1]) p. 123, pl. iv. fig. 10.

Blackish brown. Antennæ (5 segments remain) brown; basal segment very long, gently clavate; third segment scarcely more than half as long as the first, cylindrical; fourth equal to third, cylindrical. Head shining blackish brown, sutures distinct. Pronotum slightly narrower than the head, almost square, gently rounded posteriorly, the anterior border and sides quite straight; blackish brown, the sides somewhat paler. Elytra yellowish brown. Wings prominent, dull yellow, shaded with brown. Legs dark testaceous. Abdomen smooth, black; very slightly dilated about the seventh segment. Last dorsal segment about as broad as long, sloping downwards to the posterior margin which is simple, somewhat incrassate, truncate in the middle and obliquely truncate at the angles; depressed in the middle, but tumid over the roots of the forceps. Penultimate ventral segment broadly widened. Pygidium indistinguishable. Forceps with branches gently bowed in the basal third, then nearly straight to the points which are hooked; two pairs of sharp, upward-pointing teeth on the inner margin divide the length of the forceps into three equal parts; the branches are slender, cylindrical, black and hairy. ♀ unknown.

	♂
Length of body	9·7 mm.
,, forceps	6 ,,

Sikkim: Darjiling (*Paris Mus.*).

Type in the Paris Museum.

The type is unique, but other specimens ought to be found and recognized without much difficulty.

131. **Kosmetor brahma**, *Burr.**

Opisthocosmia brahma, *Burr*, (04) p. 310, (08[3]) p. 117.
Kosmetor brahma, *Burr*, (07[1]) p. 123, pl. iv, fig. 12.

Blackish brown; head and legs yellow; slender. Antennæ with 12 segments, fourth as long as third; brown, with two pale segments before the apex. Head smooth, depressed, sutures indistinct, yellowish brown. Pronotum about as wide as the head and about as long as wide; anterior border truncate, sides parallel, posterior border rounded; prozona tumid; metazona depressed, brownish black, the sides reflexed and clear testaceous. Elytra smooth, parallel-sided, long, black. Wings long, smooth and black, with a small yellowish spot at the apex of the suture. Legs rather short, slender, yellowish. Abdomen punctulate, deep blackish chestnut, gently dilated before the apex. Last dorsal segment of ♂ transverse, almost rectangular; posterior margin straight; the corners distinctly rectangular, with a pair of low tumid elevations over the roots of the forceps. Pygidium forming a short stumpy tubercle. Forceps with the branches remote at the base, cylindrical, elongate and nearly straight, very gently sinuate, incurved at the apex, armed at the middle of the inner margin with a flattened, strong, sharp tooth directed posteriorly. ♀ unknown.

	♂
Length of body	11–12 mm.
,, forceps	5·5–6 ,,

Sikkim: Darjiling (*Paris Mus.*); Bhutan: Maria Basti (*Paris Mus.*).

Type in the Paris Museum.

The straight slender forceps with a strong sharp tooth in the middle are very characteristic, and the species is easy to recognize.

132. **Kosmetor vishnu**, *Burr.** (Fig. 74.)

Apterygida vishnu, *Burr*, (04) p. 319, (08[3]) p. 119.
Kosmetor vishnu, *Burr*, (07[1]) p. 123.

Slender, dull chestnut-brown. Antennæ black, with 10 segments; fourth a little shorter than third; fifth equal to third. Head smooth, brown or blackish, sutures indistinct. Pronotum

as broad as the head, slightly broader than long, anterior margin truncate, sides parallel, posterior margin rounded, black or deep brown, sides testaceous. Elytra yellowish brown, ample, smooth. Wings orange, with a big fuscous spot. Legs rather longer than in the other species of the genus, slender, dark brown or black. Abdomen deep chestnut, punctulate, spindle-shaped, gently tapering to the apex in ♂ as well as in ♀. Last dorsal segment of ♂ rectangular, transverse, punctulate, with a pair of low tumid elevations over the roots of the forceps; exterior angle sharply marked; in ♀ similar but narrowed towards apex. Pygidium in the form of a short stumpy tubercle in both sexes and less distinguishable in ♀ than in the ♂. Forceps of ♂ with branches remote at the base, elongate, cylindrical and very slender, gently arched to form a regular elongate ellipse, with a very distinct tooth in the middle; in the ♀ contiguous, straight, elongate, hooked at the apex.

	♂	♀
Length of body	8·5–10 mm.	10·5 mm.
„ forceps	5–8 „	3·5 „

Sikkim: Darjiling (*Paris Mus.*).

Type in the Paris Museum.

This graceful species resembles the preceding, but the regular ellipse of the forceps of the male is very distinctive.

Genus **LIPODES**, *Burr.*

Lipodes, *Burr*, (07[1]) p. 100.

Type, *Lipodes vivax*, Burr.

Build robust; antennæ missing. Head broad; sutures very deep, dividing the head into three wide, markedly tumid portions; the frons deeply impressed. Pronotum ample, as broad as the head, anterior border truncate, sides gently converging posteriorly, posterior margin rounded, about as long as broad. Prosternum short, broad, hardly longer than wide. Mesosternum broad, rounded. Metasternum transverse, its entire width being greater than its length; lobe short, transverse, truncate, nearly four times as wide as long, rectangular. Elytra ample, granulose, with a costal keel. Legs missing. Abdomen broad, depressed, smooth, broadest about the middle, lateral tubercles very distinct. Last dorsal segment narrower than the body, transverse, rectangular. Pygidium prominent. Forceps elongate, remote at the base, cylindrical.

Range. India.

This genus is monotypic; its true affinities cannot be satisfactorily determined until more material is forthcoming. In general appearance it seems related to *Hypurgus*, but the antennæ and legs are entirely missing in the unique specimen. The form of the sternal plates is peculiar, as also are the deep sutures of the head and the granulose elytra.

133. **Lipodes vivax**, *Burr.**

Opisthocosmia vivax, *Burr*, (05[3]) p. 30.
Lipodes vivax, *Burr*, (07[1]) p. 101.

Large and robust; general colour tawny brown. Pronotum with very distinct median suture; prozona tumid, deeply impressed on each side. Elytra ample, well rounded at the shoulders, truncate posteriorly, darker behind. Abdomen smooth, with hinder edges of segments fringed with pale hairs. Pygidium parallel-sided, prominent, with a deep triangular incision at the apex, the lobes pointed. Forceps remote at base, punctulate, cylindrical, elongate, gently sinuate, inner margin denticulate, incurved at the apex.

	♀ sex.
Length of body	18 mm.
„ forceps	9·5 „

India: Dikrang Valley, Nanangs (*Ind. Mus.*).
Type in the Indian Museum, Calcutta.

In spite of the broken abdomen, missing antennæ and missing legs, this curious earwig has such well-marked characters that its identity can be established by the description, though its affinities cannot yet be determined. On account of the abdomen being broadest about the middle and the forceps simple, it would appear to be a female, but the characters are so distinctive that it might equally well be a male.

Further material is urgently needed.

Species of Uncertain Position.

Forficula? pulchripes, *Borm.*

Forficula? pulchripes, *Borm.* (94) p. 408, (00[2]) p. 128; *Kirby*, (04) p. 53.

General colour dark chestnut, varied with black. Antennæ with 12 segments, typical [? of *Forficula*], brown, with the exception of the tenth which is pale. Head shining dark chestnut-brown. Mouth parts yellow; palpi brown. Pronotum nearly square, the angles blunt, posterior margin rounded, somewhat convex anteriorly, bright shining black, with pale yellowish sides. Elytra smooth, dull chestnut, four times as long as the pronotum, the shoulders rounded, sides parallel, truncate posteriorly. Wings one and a half times as long as the pronotum, bright orange-yellow, with an irregular black, oblique band passing from the base of the suture to the apex of the exterior margin. Legs typical [? of *Forficula*], orange-yellow, the apical half of the

femora and basal third of the tibiæ black. Abdomen chestnut, rather dull, punctulate, elongate, attaining the greatest width at the base of the last dorsal segment. Last dorsal segment trapezoidal, about twice as broad at the base as at the apex, strongly sloping to the apex, with a median depression near the posterior margin which is rugose and sinuous. Pygidium globular, not prominent. Forceps with the branches clear chestnut, not quite contiguous at the base, nearly straight, slightly diverging as far as the apex where they are arched inward, the points meeting.

	♀
Length of body	11 mm.
,, forceps.....	8·5 ,,

Burma : Karen-ni, Keba District, 3000–3700 ft., v.–xii. (*Genoa Mus.*).

Type in the Genoa Museum.

This is a good instance of the disadvantage of describing new species from females alone. De Bormans remarks:—" This species seems to me so well characterized by its coloration that I describe it here, though a solitary female, hoping that it will be easy to associate its male with it, if discovered later, and then its genus can be determined."

It is to be hoped that collectors in Burma will keep a sharp look-out for the male and note the characteristic coloration given in the above description, translated from de Bormans.

The pattern seems suggestive of the genus *Adiathetus*, somewhat approaching *A. nigrocastaneus* and *A. dravidius*, but de Bormans makes no reference to Chelisochine tarsi, which he would hardly have overlooked.

Forficula ? cingalensis, *Dohrn.*

Forficula cingalensis, *Dohrn*, (65) p. 89 ; *Borm.* (00²) p. 128.
Apterygida cingalensis, *Burr*, (01) p. 332.
Sphingolabis cingalensis, *Kirby*, (04) p. 46.

Golden yellow, the abdomen less brilliantly coloured ; the prothorax and elytra posteriorly dilated, with the sides not deflexed ; forceps almost straight, the branches remote at the base, with an obsolete tooth on the inner margin beyond the middle. ♀.

Long. 8½, lat. 2½, forc. long. 3½ mill.

Head arched without impressed lines, shining ; the antennæ with 15 segments, yellow. Hinder margin of the head slightly emarginate in the middle. Pronotum narrower anteriorly, as broad as the head, posteriorly broadened, the sides not reflexed, transparent horn colour ; hinder border round, shining, smooth. Elytra scarcely longer than the prothorax, slightly broadened posteriorly, the hinder border rounded, smooth and shining like the head and prothorax. Abdomen slightly narrowed posteriorly, the tubercles

of the second and third segments very small, the last dorsal segment fairly large, with a central line, the penultimate ventral segment entirely covering the ultimate. Branches of the forceps slightly separated, nearly straight at the base, incurved at the apex, with a blunt tooth on the inside beyond the middle. Abdomen and forceps reddish brown, pubescent. Sternum yellow. Legs like the head, fairly long, the femora and tibiæ slightly, the tarsi strongly pubescent; the first and third tarsal segment of the same length, the second very short, barely lobed."

CEYLON (*Nietner*; *Berlin Mus.*).

The type is recorded as being in the Berlin Museum, but the author was unable to find it on the occasion of a visit in 1907, and so Dohrn's description is quoted in detail. Dohrn includes it in his section of *Forficula* which corresponds to *Apterygida*, but until the male is discovered it is impossible to locate its position with accuracy; the most noticeable points in the description are the form of the forceps (♀), the pronotum and elytra more or less dilated posteriorly, the absence of wings, and the small size of the glandular folds.

APPENDICES.

A.

On Collecting and Preserving Earwigs.

The ordinary methods for collecting beetles and such creatures may be generally applied to Earwigs. As may be seen in the chapter on Habits (*ante*, p. 14), they occur almost everywhere. When found, they may be best seized in the fingers, care being necessary to avoid crushing them, for they are delicate insects.

The most convenient instrument for catching them is a sweep-net; a few vigorous strokes in nettles, grass, rough herbage, or any suitable situation, will often bring several specimens into the net. The ordinary sweep-net, as generally sold by dealers, is not usually a satisfactory instrument; the handle is nearly always too rigid, and quickly breaks under the severe strain to which it is exposed; a slightly flexible strong cane handle is preferable. The material is usually too coarse, and so is quickly torn into holes; a dense heavy canvas or jean, preferably glazed, makes a suitable net; this should be attached to the metal ring in such a way that the wearing edge of the ring itself is subjected; otherwise the exceedingly rough use to which it is exposed quickly wears out the material, however strong, if bound round the ring; the best form of ring is a flat strip of elastic metal, with a series of holes punched in it; the material may then be sewn on to the ring by these holes in such a way that the cutting edge of the metal is exposed to the grass or shrubs; this not only increases the efficiency, but greatly prolongs the life of the net.

Earwigs may be killed in an ordinary cyanide killing-bottle, or by dropping them into boiling water; perhaps the most convenient way is to drop them into tubes of spirits of wine; any alcohol, such as brandy, whiskey, or gin, will do for this purpose.

Earwigs may be preserved wet or dry. The former is more convenient for temporary purposes, and has several advantages for permanent preservation, but the latter is generally preferable for a collection.

A 3 per cent. solution of formalin preserves most colours but

hardens the specimens. Alcohol (65 per cent.) preserves these insects well, without hardening them too much, but, after some time, bleaches the colours; it also distends the body, so that the segments of the abdomen tend to become detached.

For dry preserving, the fresh insects may be pinned or staged and placed directly into the cabinet. In larger specimens the pin is generally driven through one of the elytra; long pins are preferable to short ones, in order to allow space for labels beneath. Small specimens may be attached with fine silver or nickel pins to a stage of pith or card, which in its turn is held by a strong long pin which carries the labels.

It is necessary to arrange them on the pins or stages so that the ventral surface may be examined, on account of the important characters afforded by the sternal plates and ventral surface of the anal region.

Dry earwigs are among the most fragile of insects, the heavy abdomen constantly tending to fall off. Very frequently the forceps and last dorsal segment fall off together; in such cases, care must be exercised in repairing them, as it is quite common in Museums to see the forceps and last dorsal segment cemented on upside down. Serville, indeed, founded a genus upon such a specimen.

It is important that the antennæ and legs be extended to permit easy examination of these important organs.

Every possible information should of course be given on the labels which should be attached to each specimen.

For packing, it is best to keep the specimens in little tubes of alcohol; the delicate organs nearly always break off when they are packed in papers like butterflies.

Finally, the general principles which experience teaches in dealing with other insects, such as Coleoptera or Rhynchota, apply equally well to Dermaptera.

B.

Authors referred to and their Abbreviation.

Annandale, Dr. N.	
Baer, G. A.	
Bolivar, Dr. Ignacio.	Bol.
Borelli, Dr. Alfredo.	Bor.
Borg, Hjalmar.	
Bormans, A. de.	Borm.
Brunner von Wattenwyl, Dr. Hofrath K.	Br.

Burmeister, H.	Burm.
Burr, M.	
Dohrn, Dr. H.	
Dubrony, A.	Dubr.
Dufour, Léon.	Duf.
Fabricius, J. C.	Fabr.
Fieber, Fr. X.	Fieb.
Fischer, L. H.	Fisch.
Gadeau de Kerville, H.	Gadeau.
Geer, Baron Carl de.	
Géné, Giuseppe.	
Gerstæcker, A.	Gerst.
Green, E. Ernest.	
Guérin-Méneville, F. E.	Guer.
Haan, Dr. W. de.	
Jacobson, G. G., & Bianki, V. L.	Jacobson.
Karsch, Dr. F.	
Kirby, W. F.	Kirb.
Krauss, Dr. H.	Kr.
Leach, W.	
Linnæus, C.	Linn.
Lucas, H. F.	Luc.
Motschulsky, Victor.	Motsch.
Olivier, A.	Oliv.
Pallas, P. S.	Pall.
Rehn, J. A. G.	
Saussure, H. de.	Sauss.
Scudder, J. H.	Scudd.
Semenov Tian-Shansky, A. P.	Sem.
Serville, Audinet.	Serv.
Sharp, Dr. D.	
Stål, C.	
Stephens, J. Fr.	Steph.
Terry, F. W.	
Verhœff, Dr. K. W.	Verh.
Westwood, Prof. J. O.	Westw.
Yersin, Alexandre.	Yers.

C.

GLOSSARY.

Abbreviated.—Of the wings, when they do not project beyond the elytra in repose.

Abortive.—Of the wings or elytra, when only present as rudiments.

Anterior.—Generally speaking, that part of the body, or any organ, which is situated forwards, regarding the mouth as the front of the insect. Contrasted with *posterior*.

Apex, apical.—Generally speaking, that part of an organ which is most remote from the centre of the body. In contrast to *base, basal*.

Base, basal.—Speaking generally, that part of an organ which is nearest to the centre of the body; contrasted with *apex, apical*.

Bifid.—Applied to the pygidium, or to a lobe, when cleft, divided, or forked.

Carina.—A sharp ridge or keel.

Carinate.—Having a carina.

Caudal setæ.—The segmented processes occupying the position of the forceps in larvæ of *Diplatys* and certain other genera.

Centre.—For the conventional centre of the insect, to which the terms anterior, posterior, base, apex, etc. are relative, it is convenient to take the scutellum or base of the suture of the elytra, or, in apterous forms, the mesonotum.

Clavate.—Shaped like a club, *i. e.*, abruptly thickened at or near the apex.

Compressed.—Applied to *lateral* compression only.

Conical.—Applied to segments which gradually increase in thickness from base to apex where the maximum thickness is attained.

Costal.—The costal margin is that edge of the elytra which is in front when the wing is expanded, and external when in repose.

Co-type.—The same as syntype, *q. v.*

Crenate.—Furnished with a row of teeth like a comb.

Crenulate.—Similar to *crenate*, but finer.

Crest.—An elevated compressed fold or ridge in the integument.

Cyclolabia.—Term applied to the shorter forms of forceps when these organs are of variable length.

Dentate.—Toothed.

Denticulate.—Having fine teeth.

Depressed.—Flattened, in a horizontal plane.

Disc.—The flat dorsal portion of the elytra.

Dorsal.—Applied to the upper surface of the body or of an organ.

Emarginate.—Applied to the edge of a plate when the outline is broken or excavate.

Entire.—Applied to the edge of a plate when not broken.

Fold.—See "*glandular folds.*"

Frons.—That part of the head which is situated between the eyes, in front of the transverse suture (p. 2).

Fuscous.—Applied to a colour approaching a smoky, dirty black or brown.

Glandular folds.—Name sometimes applied to the projecting orifices of the stink-glands at the sides of the third and fourth abdominal segments in some genera.

Granulose.—Applied to a surface covered with minute lumps or granules.

Length.—The *length of the body* is measured from the mouth to the end of the last segment of the abdomen; the *length of the forceps* is the actual length of the exposed portion of these organs.

Lobe.—An appendage or short prolongation, rounded or pointed.

Longitudinal.—Parallel to the longer axis of the body, *i. e.* from head to forceps; contrasted with *transverse.*

Macrolabia.—Term applied to the longer forms of forceps where these organs are of variable length.

Metazona.—The posterior portion of the pronotum (p. 3).

Obsolete.—As conventionally used by Dermapterists: obscure; of a tooth or spine, only just descernible; nearly absent.

Occiput.—The posterior portion of the head, behind the transverse suture, (p. 2).

Ovate.—Egg-shaped; the arc at one end being larger than that at the other.

Paratype.—A specimen which has been compared with the *type* of a species.

Posterior.—Generally speaking, applied to that part of an organ or of the body which is situate behind, regarding the mouth as the front of the insect. Contrasted with *anterior.*

Prozona.—The anterior portion of the pronotum (p. 3).

Pulvillus.—A small pad sometimes present between the claws of the tarsi.

Punctate.—Covered with small depressions; pitted.

Punctulate.—Similar to *punctate*, but finer.

Pygidium.—A horny, chitinous organ, of very diversified shape, situate between the last dorsal and ventral sclerites, between the branches of the forceps (p. 8).

Pyriform.—Pear-shaped; applied to segments which are slender at the basal end and gradually become thicker towards the apex which is rounded, so that the maximum thickness is attained just before the apex.

Quadrate.—Approximately square.

Remote.—Of the forceps, when the branches are not contiguous or sub-contiguous.

Rugose.—Covered with small irregular wrinkles.

Rugulose.—Covered with finer wrinkles.

Scabrous.—Very rough.

Scales.—See "*squamæ.*"

Scutellum.—A small, hardened, chitinous portion of the mesonotum, which is sometimes exposed between the elytra, when in repose, at the anal angle or base of the suture (p. 6).

Segment.—A unit of a jointed organ or member; applied to the abdomen, antennæ, feet, etc.

Serrate.—Having an edge like a saw.

Setæ.—See "*caudal setæ.*"

Sinuate.—Of a margin, gently concave.

Squamæ.—The horny, chitinous part of the wings, often protruding like flaps beyond the elytra in repose.

Squamopygidium.—A name sometimes employed for anal process.

Striate.—Having a series of finely impressed lines.

Striolate.—Similar to *striate*, but having finer lines.

Sub.—A prefix having a diminutive force; e. g. *sub-contiguous*, nearly contiguous.

Sulculus.—A smaller furrow.

Sulcus.—A furrow.

Sutural.—The *sutural margin* of the elytra and wings is that margin along which, in repose, the elytra and wings are more or less in contact.

Suture.—Literally, a seam; a line marking the division between two plates or segments; the line of junction of the elytra and wings when in repose.

Syntype.—All the specimens, except the *type*, upon which a species is based and described.

Testaceous.—A colour-term loosely applied by various authors for different shades of orange, yellow, or ochre, assumed by many yellowish tints on drying.

Transversal.—At right angles to the long axis of the body; in contrast to *longitudinal.*

Transverse.—Broader than long, or at right angles to the long axis.

Trapezoidal.—Having four sides, of which two are obviously unequal.

Tricarinate.—Having three keels.

Trigonal.—Having three edges, *i. e.* having a triangular cross-section.

Truncate.—Abruptly cut off.

Tubercle.—An elevated lump, knob, or projection; more or less blunt.

Tuberculate.—Furnished with tubercles.

Tumid.—Swollen.

Type of a genus.—The first described species of a genus, or else the first species specially designated by any author, as the type of the genus.

Type of a species.—One individual specially designated by the author as the original specimen upon which a species is based and described.

Ventral.—The under surface of the body or of an organ.

Wing-scales.—See "*squamæ*" (also p. 6).

Wings.—The posterior pair of the organs of flight; generally speaking applied only to the wing-scales or *squamæ*.

ALPHABETICAL INDEX.

(Names marked * are synonyms.)

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PLATE I.

Fig. 1. *Apachyus feæ*, Borm., ♂. Burma ; p. 33. Anal process and forceps, from above. × $1\frac{1}{2}$.

1 *a*. Id. from below. × $1\frac{1}{2}$.

1 *b*. Id. Tarsus.

2. *Apachyus feæ*, Borm., ♀. Anal process and forceps, from above. × $1\frac{1}{2}$.

2 *a*. Id. from below. × $1\frac{1}{2}$.

3. *Dendroiketes corticinus*, Burr, ♂. Type. Ceylon ; p. 36. × $2\frac{1}{4}$.

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6 *a*. Id. Penultimate ventral segment and forceps, from below. × 4.

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7 *a*. Id. Penultimate ventral segment, from below. × 6.

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8 *a*. Id. Penultimate ventral segment, from below. × $4\frac{1}{2}$.

PLATE I.

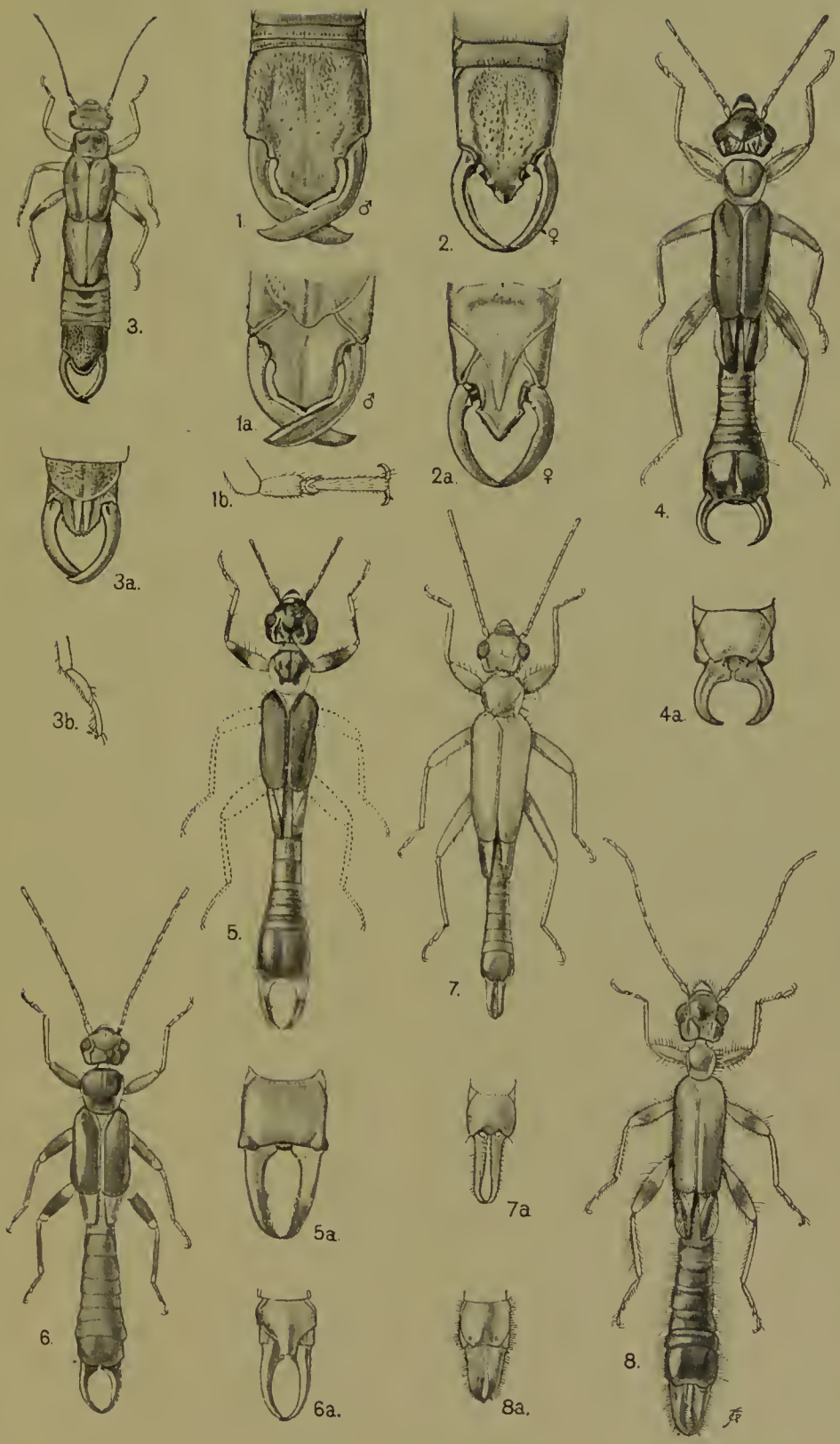

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PLATE II.

Fig. 9. *Diplatys ernesti*, Burr, ♂. Type. Ceylon; p. 48. × 4½.
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10. *Pygidicrana picta*, Guer., ♂. India; p. 55. × 1½.
10 *a*. Id. Penultimate ventral segment. × 1½.

11. *Pygidicrana pallidipennis*, Haan, ♂. Java; p. 57. × 1½.
11 *a*. Id. Penultimate ventral segment. × 3.

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13. *Pygidicrana siamensis*, Dohrn, ♂. Penang; p. 59. × 1½.

14. *Cranopygia cumingi*, Dohrn, ♂. Ceylon; p. 62. × 1½.
14 *a*. Id. Penultimate ventral segment. × 1½.

15. *Cranopygia nietneri*, Dohrn, ♂. Ceylon; p. 63. × 2.

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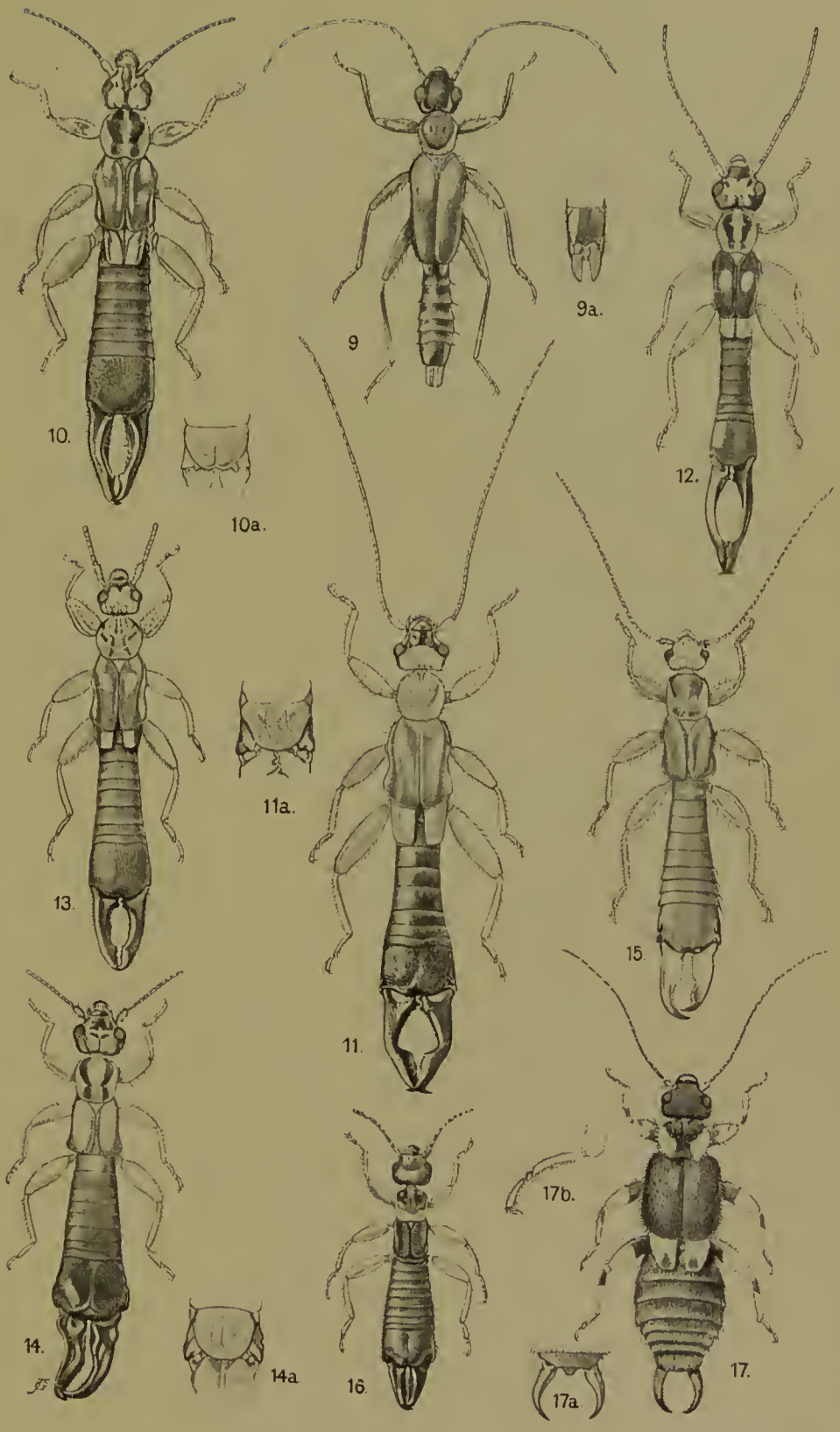
17 *a*. Id. Apex of abdomen from below. × 3.
17 *b*. Id. Tarsus. × 7½.



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20. *Psalis lefroyi*, Burr, ♂. Bombay; p. 77. × 4.

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21 *a*. Id. Apex of abdomen from below. × $4\frac{1}{2}$.

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22 *a*. Id. Tarsus.

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25. *Forcipula decolyi*, Borm., ♂. Bengal; p. 91. × $1\frac{1}{2}$.

25 *a*. Id. Abdominal spine.

26. *Forcipula trispinosa*, Dohrn, ♂. Nepal; p. 92. × $1\frac{1}{2}$.

26 *a*. Id. Var. *minor*, Burr, ♂. Nepal. Apex of abdomen. × $1\frac{1}{2}$.

26 *b*. Id. Abdominal spine.

27. *Forcipula pugnax*, Kirby, ♂. Bengal; p. 93. × $1\frac{1}{2}$.

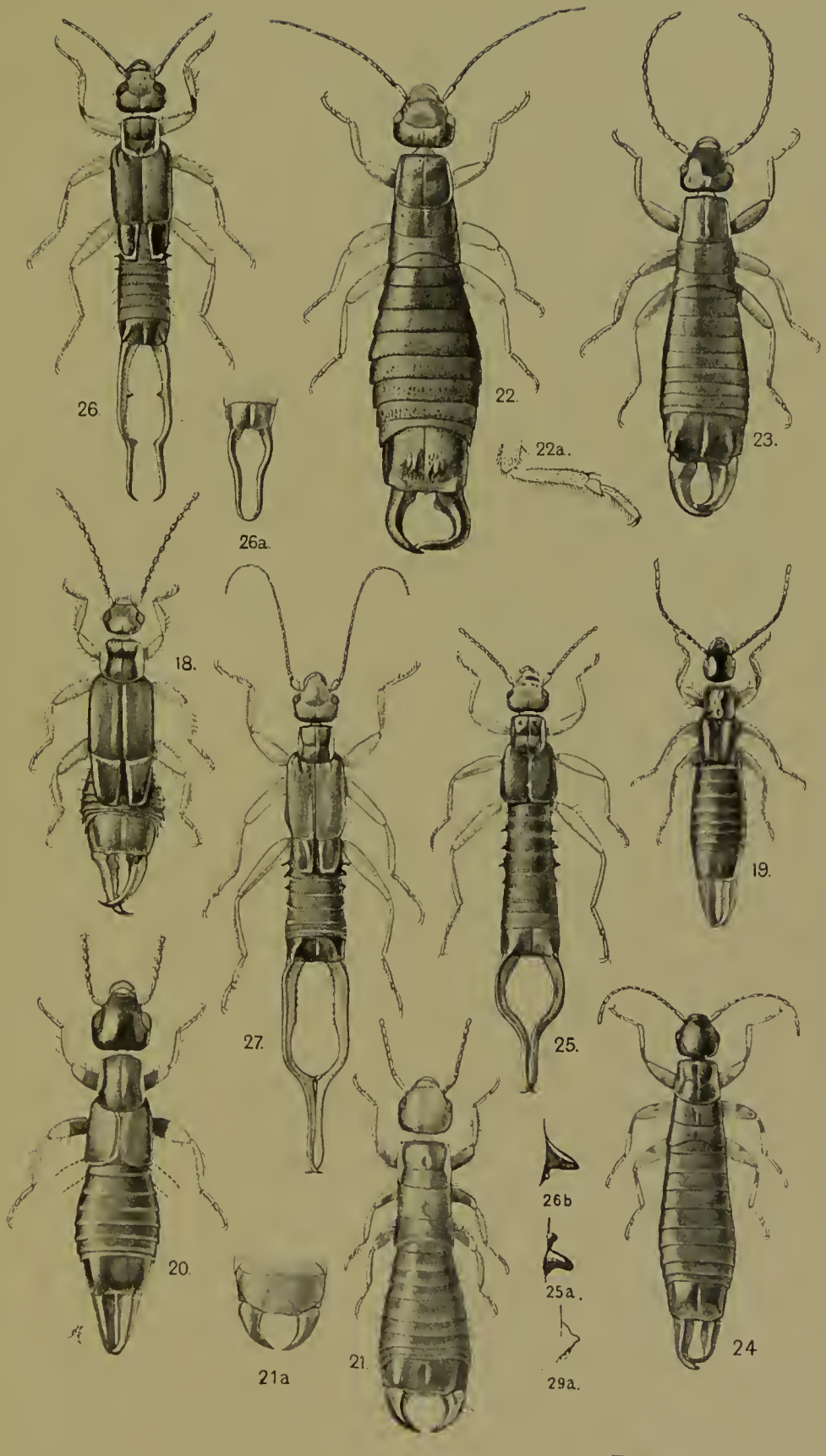

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PLATE IV.

Fig. 28. *Forcipula quadrispinosa*, Dohrn, ♂. Annam; p. 94. × 2.

28 *a*. Id. Apex of abdomen, ♀. × $1\frac{1}{2}$.

29. *Forcipula lurida*, Bol., ♂. Madras; p. 94. × $1\frac{1}{4}$.

29 *a*. Id. Abdominal spine.

30. *Labidura nepalensis*, Burr, ♂. Type. Nepal; p. 96. × 3.

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31 *a*. Id. Var. *vicina*, Luc., ♂; apex of abdomen. × 3.

32. *Labidura bengalensis*, Dohrn, ♂. Bengal; p. 98. (Nat. size.)

32 *a*. Id. ♀; apex of abdomen. (Nat. size.)

33. *Labidura riparia*, Pall., ♂. East Africa; p. 99. (Nat. size.)

33 *a*. Id. ♀; apex of abdomen. (Nat. size.)

33 *b*. Id. Tarsus.

34. Id. Var. *inermis*, Brunner, ♂. Bengal; p. 101. × 3.

35. *Pseudisolabis burri*, Borelli, ♂. Syntype. Kashmir; p. 103. × 3.

35 *a*. Id. Tarsus.

35 *b*. Id. Antenna.

36. *Pseudisolabis tenera*, Burr, ♂. Type. Punjab; p. 104. × 3.

PLATE IV.

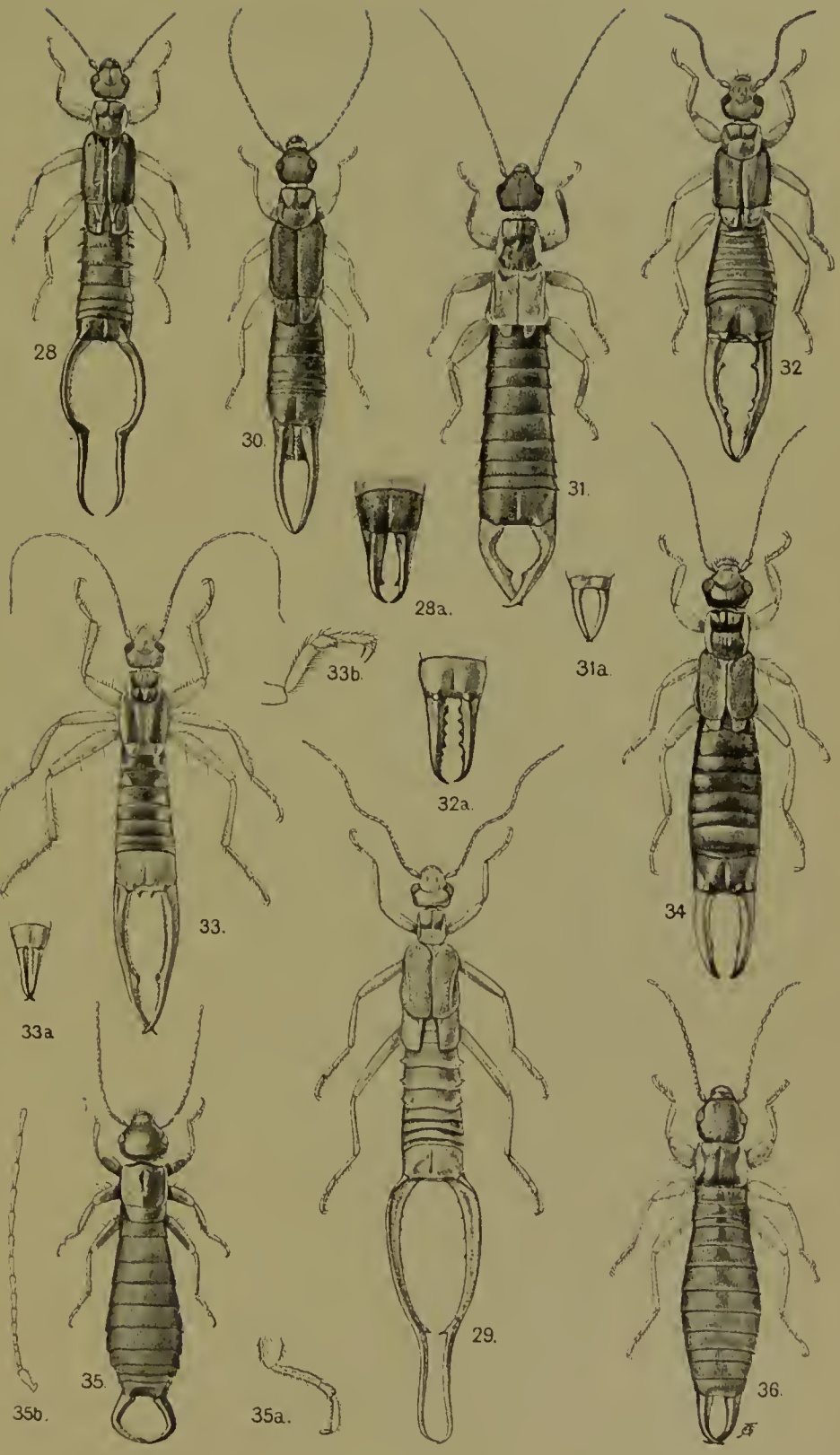

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PLATE V.

Fig. 37. *Spongiphora semiflava*, Borm., ♂. Burma; p. 113. ×4½.

37 *a*. Id. Apex of abdomen. × 6.

38. *Labia curvicauda*, Motsch., ♂. Burma; p. 118. × 6.

39. *Labia mucronata*, Stål, ♂. Annam; p. 119. × 6.

40. *Labia pilicornis*, Motsch., ♂. Ceylon; p. 120. × 6.

41. *Labia pygidiata*, Borm., ♂. Sandwich Is.; p. 122. ×4½.

42. *Labia ridens*, Borm., var. *cyclolabia*, Borm., ♂. Syntype. Burma; p. 121. × 4½.

42 *a*. Id. Var. *macrolabia*, Burr. Forceps. × 3½.

43. *Platylabia nigriceps*, Kirby, ♂. Sumatra; p. 127. ×6.

44. *Sphingolabis fœe*, Borm., ♂. Burma; p. 128. × 4.

45. *Chelisoches morio*, Fabr., ♂. Java; p. 135. × 2½.

45 *a*. Id. Var. *stratioticus*, Rehn, ♂. Java. End of abdomen. × 2.

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46. *Adiathetus dravidius*, Burr, ♂. Type. Travancore; p. 143. × 2¼.

47. *Adiathetus glaucopterus*, Borm., ♂. Tonkin; p. 144. × 2¼.

47 *a*. Id. ♀; end of abdomen. × 2.

PLATE V.

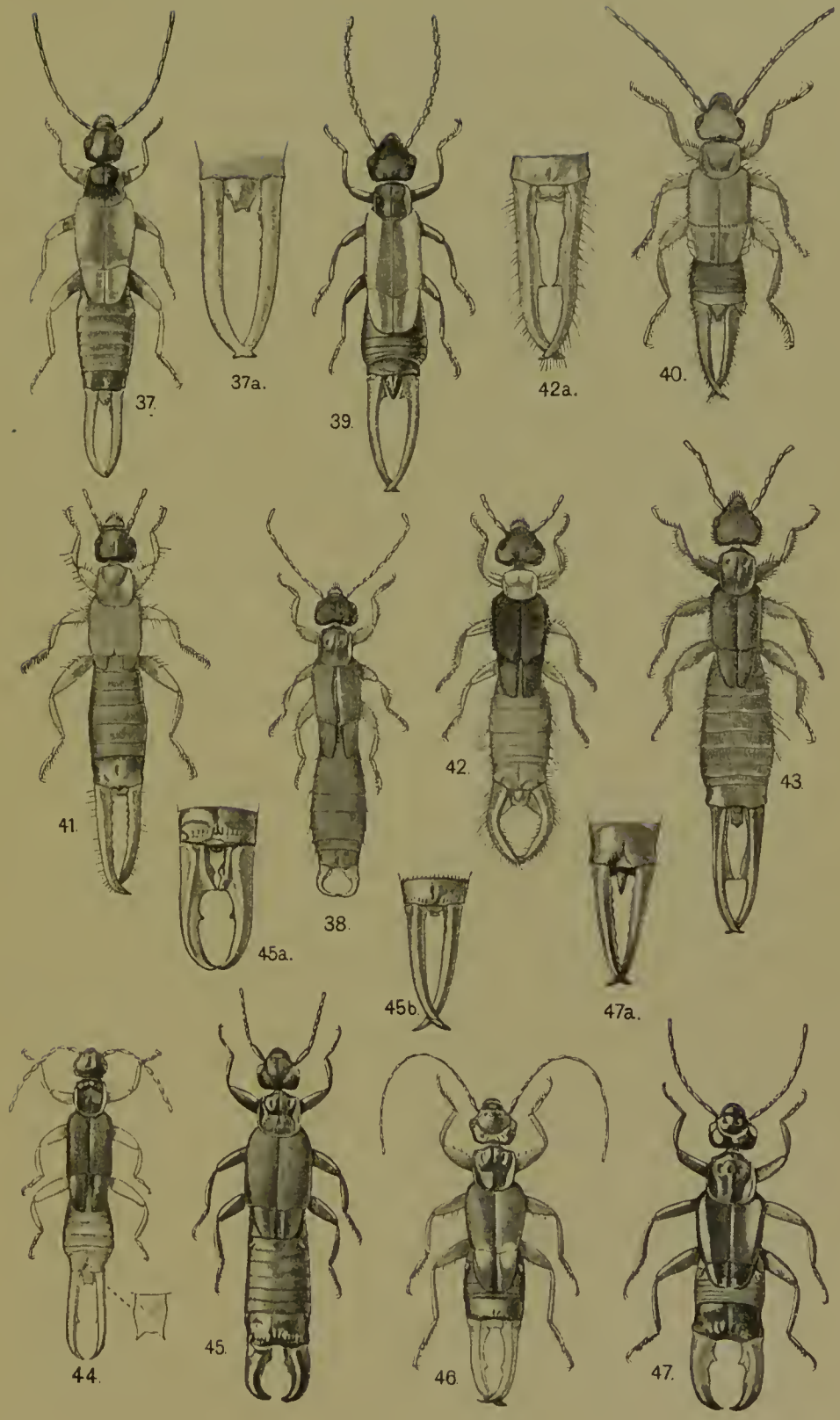

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Fig. 48. *Adiathetus nigrocastaneus*, Burr, ♂. Type. Bombay; p. 145. × $2\frac{1}{4}$.

49. *Allodahlia scabriuscula*, Serv., ♂. Borneo; p. 150. × $2\frac{1}{4}$.

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50 *a*. Id. ♂ forceps, from side.

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52. *Anechura zubovskii*, Sem., ♂. Kashmir; p. 160. × 2.

52 *a*. Id. ♂ forceps, side view. × 2.

53. *Elaunon bipartitus*, Kirby, ♂. Ceylon; p. 163. × 3.

53 *a*. Id. Tarsus. × 9.

54. *Forficula schlagintweiti*, Burr, ♂. Sikkim; p. 166. × $1\frac{1}{2}$.

54 *a*. Id. Var., forceps. × $1\frac{1}{2}$.

55. *Forficula mogul*, Burr, ♂. Type. Darjiling; p. 167. × 2.

56. *Forficula beelzebub*, Burr, *macrolabia* form, ♂. Darjiling p. 167. × $2\frac{1}{4}$.

56 *a*. Id. Forceps of *cyclolabia* form. × 2.

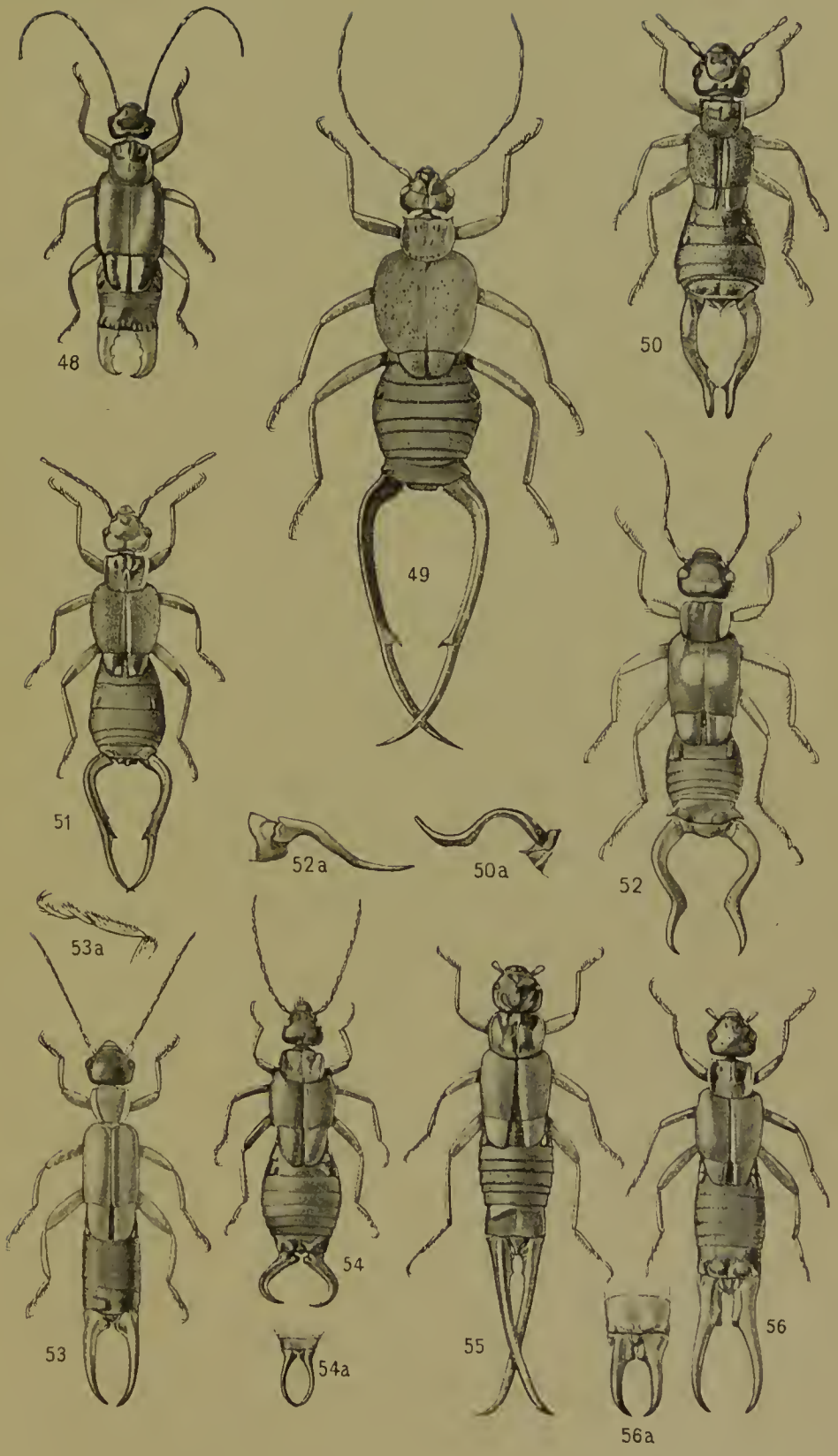

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PLATE VII.

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60. *Forficula celeris*, Burr, ♂. Type. Assam; p. 172. × 3.

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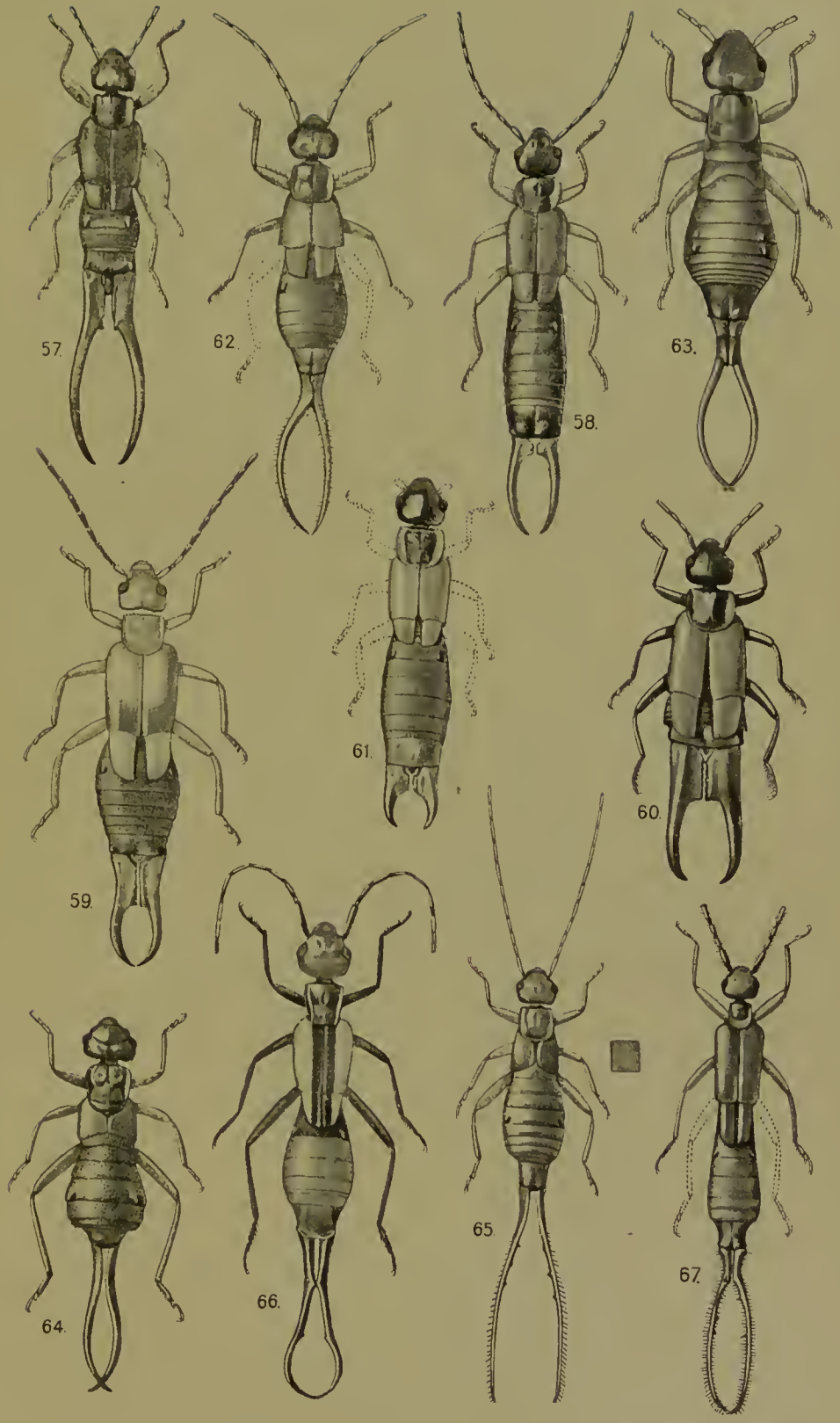
67. *Cordax ceylonicus*, Motsch., ♂. Ceylon; p. 186. × 3.



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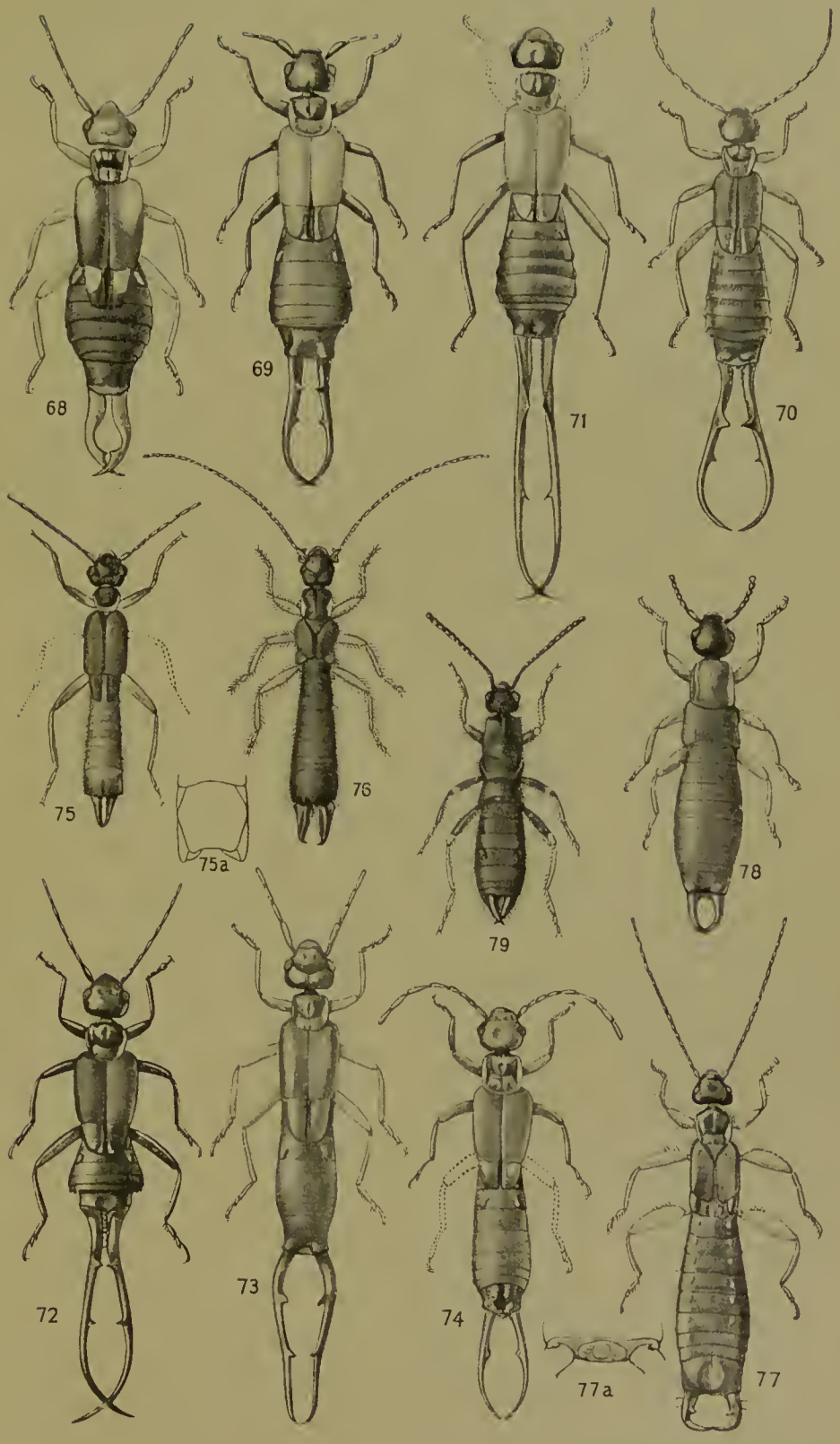

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PLATE IX.

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81. *Labia nigrella*, Dubr., var. *fasciata*, Borm., ♀. Burma; p. 117. × $7\frac{1}{2}$.

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89 *b*. Id. Tarsus.

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90 *a*. Id. Penultimate ventral segment. × 6.

91. *Diplatys bormansi*, Burr, ♂. Type. Burma; p. 45. × $4\frac{1}{4}$.

91 *a*. Id. Penultimate ventral segment and forceps, from below. × 7.

PLATE IX.

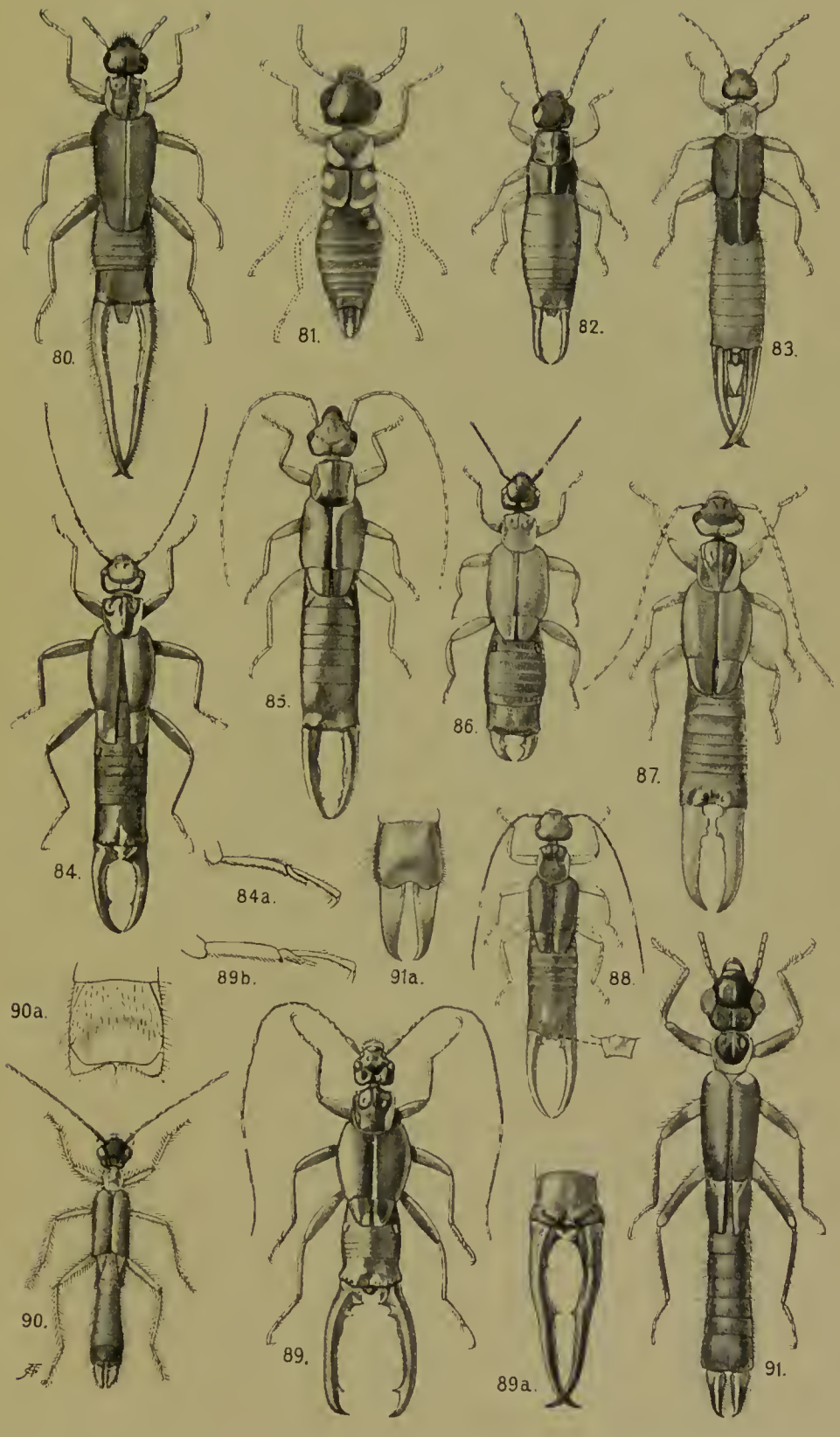

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PLATE X.

Fig. 92. *Forcipula lurida*, Bol., ♂. Madras; p. 94. (Nat. size.)

93. *Apachyus feæ*, Borm., ♂. Burma; p. 33. (Nat. size.)

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100. *Eparchus tenellus*, Haan, ♂. Java; p. 193. × 3.

101. *Homotages feæ*, Borm., ♂. Nepal; p. 156. × 2.

102. *Elaunon bipartitus*, Kirby, ♂. Ceylon; p. 163. × 2.

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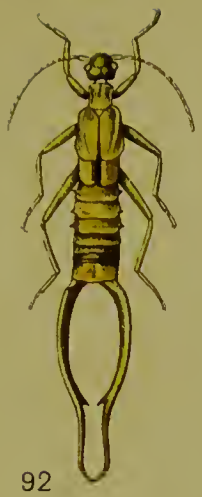
104. *Timomenus oannes*, Burr, ♂. Type. Assam; p. 195. × 2.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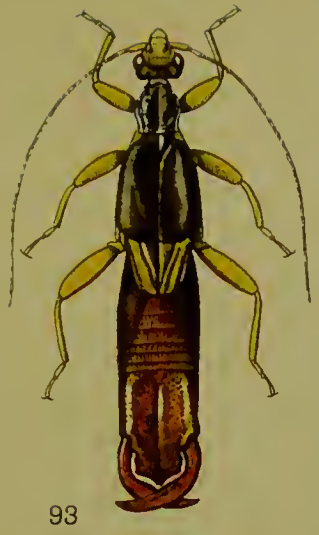
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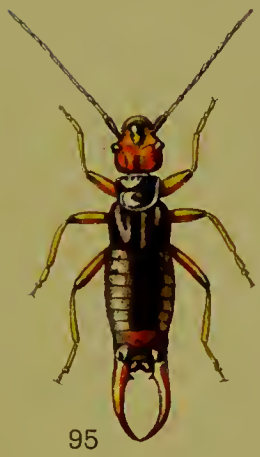
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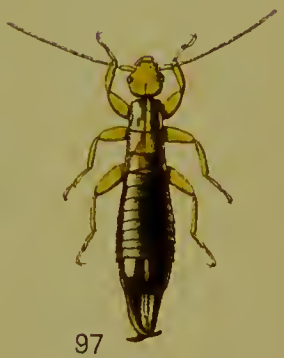
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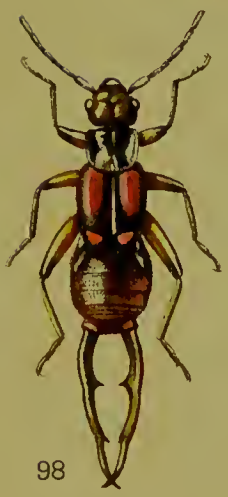
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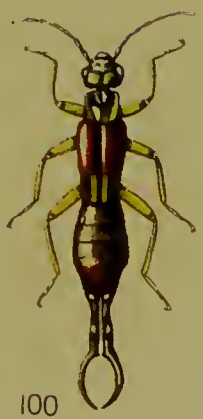
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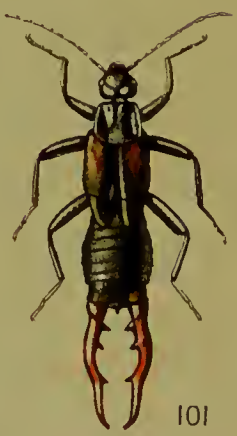
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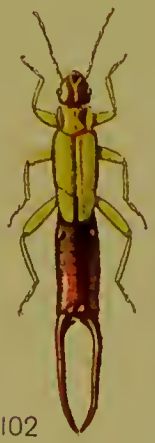
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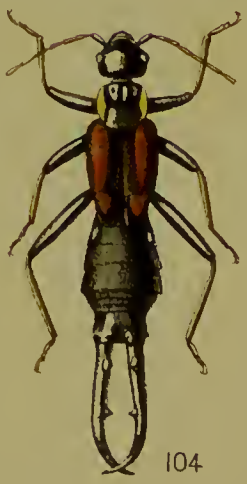
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