

XIV. *Studies of the Blattidæ.* By R. SHELFORD, M.A.,
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[Read June 6th, 1906.]

PLATES XIV—XVI.

I.

REMARKS ON THE SUB-FAMILIES ECTOBIINÆ and PHYLLO-
DROMIINÆ.

A CAREFUL study of the genera composing the sub-families Ectobiinæ and Phyllodromiinæ has convinced me that the characters usually employed to discriminate the members of the respective sub-families are so diverse in structure even within generic limits that but little reliance can be placed on them as criteria of distinction. The short transverse supra-anal lamina, the presence of a triangular apical field in the wings or of a large reflected apical area, and the sparse armature of the femora are the so-called diagnostic features of the Ectobiinæ. Yet nearly all the species of the genus *Anaplecta*, and many species of the genus *Theganopteryx* have the supra-anal lamina produced and triangular; again, the triangular apical field appears in numerous species of Phyllodromiinæ, sometimes much reduced in size but often as large as in *Ectobia lapponica*, L.; now as the presence of this apical field is more or less a mechanical result of a peculiar method of wing-folding, it is a character that may be expected to re-appear in other sub-families of *Blattidæ*, and such indeed is found to be the case, too much importance therefore should not be attached to it alone as a diagnostic feature. The armature of the femora is also unsatisfactory; for though the posterior femora of *Ectobia* and of *Anaplecta* are armed with only two spines on the anterior margin beneath, in *Pseudectobia* and *Theganopteryx* they are frequently strongly spined, whilst in *Chrastoblatta* and *Caloblatta*, two Phyllodromiine genera, the femora are most sparsely armed. It will be

seen by the foregoing that the Ectobiinæ and Phyllodromiinæ possess features common to both sub-families, and the question arises as to whether there does exist a character that can be relied on as a diagnostic criterion of sub-family rank. I own to having been nearly completely baffled in my search for such a character, and I have seriously considered the advisability of transferring the genera *Ectobia* and *Hololampra* (= *Aphlebia*) to the Phyllodromiinæ, leaving in the depauperated Ectobiinæ—henceforth to be called, following de Saussure, the Anaplectinæ—only the genus *Anaplecta* and a new genus described below.

However, it is not necessary to make such a revolutionary change, for I believe that I have hit on a feature of great use in distinguishing the members of the two sub-families in question, namely, the form of the vena ulnaris of the wing. This vein is either simple or bifurcated or else ramose, and it is to be noted that when this vein is ramose a reduction in size of the triangular apical field generally ensues, the reduction leading on in many cases to entire obliteration. Moreover it is possible to trace a shifting backwards of the apical triangle; in *Ectobia lapponica*, L., this field is close to the anterior margin of the wing so that the median vein and ulnar vein impinge on its upper border, and do not attain the outer margin of the wing; in such a species as *Theganopteryx conspersa*, Sss., the apical triangle is shifted back so that the median vein and the upper branch of the bifurcated ulnar vein reach the outer margin of the wing, anterior to the apical triangle and only the lower branch of the ulnar vein impinges on it; in many species of *Phyllodromia* the median vein and the numerous branches of a ramose ulnar vein all reach the outer margin of the wing, the apical triangle having undergone a further backward shifting; finally we have those forms, such as the species of *Pseudomops* in which the apical triangle has disappeared entirely, and in these the anterior part of the wing projects beyond the posterior part, producing a marked sinuosity of the outer margin. Taking into consideration the great range of variation of these characters, I find it not possible to use them as criteria of sub-family rank, except to this extent, that all forms with a single or bifurcate ulnar vein and a conspicuous triangular apical field may be regarded as Ectobiinæ, and those forms with ramose ulnar vein as Phyllodromiinæ, whether the apical triangle is present reduced or absent.

Brief diagnoses of these two sub-families may be given as follows:—

ECTOBIINÆ.—*Femora spined beneath; sub-genital lamina of female not provided with valves; supra-anal lamina not quadrate or lobate; wings when present with a conspicuous triangular apical field or reflected apical area, the ulnar vein simple or bifurcate; tarsi without pulvilli.*

PHYLLODROMIINÆ.—*Femora spined beneath; sub-genital lamina of female not provided with valves; supra-anal lamina not quadrate or lobate; wings when present with or without a triangular apical field, never with a reflected apical area, the ulnar vein ramose; tarsi without pulvilli.*

In spite of this new importance attached to the form of the vena ulnaris of the wings only three changes of genera are necessitated, viz. *Pseudectobia* is transferred from the Ectobiinæ to the Phyllodromiinæ; *Hemithyrsocera*, Sss., and *Mallotoblatta*, Sss. and Zhntn., from the Phyllodromiinæ to the Ectobiinæ. *Pseudectobia* was considered by de Saussure as a division only of the genus *Theganopteryx*, Br., but such species as *P. insularis*, Sss., and *P. liturifera*, Stål., in their general facies are quite Phyllodromiine in appearance and moreover have the femora strongly spined, whilst the supra-anal lamina in some species is produced. *Hemithyrsocera nigra*, Br., and *H. histrio*, Burm., have been actually re-described by de Saussure (Mél. Orthopt. ii, pp. 50 and 52, 1869) as *Theganopteryx indica* and *Th. jucunda* respectively, surely sufficient testimony to the difficulty of discriminating between Ectobiinæ and Phyllodromiinæ, if no account is taken of the form of the vena ulnaris alarum. *Mallotoblatta* is placed by de Saussure and Zehntner with some doubt in the Phyllodromiinæ, and the sub-family Ectobiinæ is suggested by these authors as the correct resting-place for this interesting genus. If the form of the vena ulnaris alarum in conjunction with the extent of the triangular apical field is consulted by systematists, I believe that little or no difficulty will be experienced in deciding into which of the two sub-families a given species is to be placed. Some exceptions, it is true, must be noted; firstly, the new genus described below on page 247, which, though quite evidently closely allied to *Anaplecta*, nevertheless has the vena ulnaris alarum ramose; secondly, *Phyllodromia*

germanica, L., and allied species such as *P. parenthesis*, Gerst., *P. madecassa*, Sss., and *P. humbertiana*, Sss., which have the vena ulnaris alarum simple or bifurcate; in these species however the triangular apical field is much reduced, and for the present they must be regarded as forms transitional between the Phyllodromiinae and Ectobiinae. The species *difficilis*, Sss., and *massuæ*, Sss., I remove from the genus *Phyllodromia* to *Theganopteryx*; in these the supra-anal lamina is shortly produced or transverse, which character in conjunction with the prominent triangular field and simple or bifurcate vena ulnaris, renders their transfer only logical.

The genus *Pachnepteryx*, Br., I am unable to place with certainty since I have seen no examples and the wing-venation of the known species has never been described. It is quite evident that *Thyrsocera histrio*, Burm., cannot be referred to the genus *Pachnepteryx* as suggested by Brunner (Nouv. Syst. des Blatt., p. 116, 1865), it belongs to the genus *Hemithyrsocera*. I agree with de Saussure in relegating *Chorisoneura* to the sub-family Oxyhaloinæ (= Plectopterinae).

Genus MALLOTOBLATTA, Sss. and Zhntn.

Mallotoblatta obscura, n. sp.

♂. Head, pronotum and tegmina with sparse erect hairs. Rufo-castaneous. Vertex, antennæ at the base, abdomen, legs and cerci testaceous. Pronotum trapezoidal, sides deflexed with the lateral and anterior margins hyaline, disc rufo-castaneous with sometimes an irregular central macula testaceous in colour. Mediastinal and marginal fields of tegmina hyaline; wings hyaline with the veins rufo-fuscous. Tegmina with thirteen to fifteen costal veins, the most distal ones branched, radial vein bifurcated, discoidal field traversed by six longitudinal veins, anal vein reaching the sutural margin at one-third of its length. Wings with nine to ten costal veins, their extremities swollen, radial vein bifurcated, median vein simple, ulnar vein simple, first axillary vein bifurcated, triangular apical field prominent, projecting beyond the anterior part of the wing. Anterior femora armed on the anterior margin beneath in the proximal half with three long spines, in the distal half with numerous short spines (type A of de Saussure); the posterior femora are armed with five spines on each border beneath; the formula of the apical spines is $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{0}$; a genicular spine is absent from the

anterior femora. Supra-anal lamina slightly produced, trigonal; sub-genital lamina produced, irregular in shape, without styles; cerci mutilated. On each side of the middle line of the sixth abdominal tergum appears a mamilliform tubercle with a small orifice at the summit of each.

Total length 10 mm. ; length of tegmina 7 mm.

MADRAS. Five examples. (Oxford Museum.)

The specimens are in bad condition, and the erect hairs in some examples have been rubbed off. I have no doubt however of the correct generic position of the species.

Genus THEGANOPTERYX, Br.

Theganopteryx apicigera, Wlk.

Blatta apicigera, Walker, Cat. Blatt. B. M. p. 227 (1868).

♂ and ♀. Rufo-testaceous or flavo-testaceous. Head, antennæ, legs and cerci fusco-castaneous; abdomen testaceous above, darker below. Pronotum trapezoidal, sides not deflexed, with hyaline lateral margins. Tegmina with the apices fuscous, the part of the right tegmen overlapped by the left, hyaline, twelve costal veins, anterior ulnar vein quadri-ramose, posterior ulnar vein simple. Wings hyaline, apex infuscated, marginal field flavo-testaceous, ten to eleven costal veins, their extremities swollen, median vein simple, ulnar vein bifurcate, first axillary vein tri-ramose, triangular apical field conspicuous but not projecting beyond the anterior part of the wing. Anterior femora not spined beneath, mid- and posterior femora with two or three spines only on each margin beneath; formula of apical spines $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$; no genicular spine on anterior femora. Supra-anal lamina of male short, rounded, of female slightly produced; sub-genital lamina of male ample, with two styles. Ootheca with a longitudinal crest and carried with the crest uppermost, so that the eggs are vertically disposed. Cerci elongate.

Type (♀.) Total length 11 mm. ; length of tegmina 9.5 mm.

♂. " " 9 mm. ; " " 8 mm.

♀. " " 11 to 12 mm. ; length of tegmina 9 to 10 mm.

JAVA (*Wallace*—Type), SUMATRA (*Weyers*), SARAWAK, BORNEO (*Shelford*). Nine examples. (Oxford Museum.)

The position of the ootheca when carried by the female before deposition is not a character of sub-family import-

ance; in all the Ectobiinæ the ootheca is carried in the way described above, but it is so carried also by *Ellipsidium* and some species even of *Phyllodromia*.

Theganopteryx bouvieri, n. sp.

♂. Testaceous. Head rufous, antennæ testaceous; pronotum rufous, with hyaline borders, a central line and a broad crescentic macula in the hinder part of the disc, testaceous; tegmina pale testaceous, hyaline; wings hyaline with the veins testaceous; abdomen above rufous, beneath castaneous; legs and cerci rufous. Pronotum transversely hexagonal, the postero-lateral borders one-third the length of the posterior margin; the posterior margin obtusely angled. Tegmina with twenty-one costal veins; ulnar vein with eleven oblique branches, posterior ulnar not visible. Wings with seventeen costal veins, the last two or three bifurcate, their extremities slightly swollen, ulnar vein bifurcate before the middle, first axillary vein tri-ramose, triangular apical field large, but not projecting beyond the anterior part of wing. Anterior femora with no spines beneath, posterior femora with two spines on each margin beneath; formula of apical spines $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{1}$; genicular spines on all the legs. Supra-anal lamina produced, triangular, sub-genital lamina without styles.

Total length 12.5 mm.; length of tegmina 10 mm.

DIEGO SUAREZ, MADAGASCAR (*Alluaud*, April 1896). Seven examples. (Paris Museum.)

Named in honour of Professor Bouvier, to whom I am indebted for the opportunity of examining an interesting collection of *Blattidæ* in the Paris Museum.

Theganopteryx gambiensis, n. sp.

♂. Coloration almost the same as in *Ectobia lapponica*, L.; head piceous, antennæ fuscous; pronotum castaneous, anterior and lateral margins hyaline; tegmina flavo-testaceous, marginal field hyaline; wings infuscated; abdomen fuscous with testaceous lateral margins above and below, the last two segments and the supra anal lamina testaceous above; first pair of coxæ testaceous, second and third pairs tipped with testaceous, first pair of femora castaneous, second pair castaneous at apex and along lower margin the remainder testaceous, (third pair missing), tibiæ testaceous tipped with castaneous, spines testaceous; cerci fuscous. Tegmina with ten costal veins, radial vein ramose at extremity, anterior ulnar vein bifurcated, posterior ulnar multi-ramose. Wings as in *Ectobia*

lapponica, L. Supra-anal lamina shortly triangular; ante-penultimate segment with posterior border notched; sub-genital lamina produced, rounded, without styles, the sternum of the preceding segment represented by two lateral lappets, the central part concealed beneath the preceding sternum.

Total length 13 mm.; length of tegmina 11 mm.

GAMBIA. One example (Oxford Museum).

This species is remarkably like *Ectobia lapponica*, L., the resemblance extending to the wing structure; the venation of the tegmina is however sufficient to separate the species.

The following table shows the differences between the four known species of *Theganopteryx* from W. Africa:—

1. Pronotum bordered with hyaline.
2. Tegmina not black.
3. Tegmina with 20 to 22 costal veins, wing venation different from that of *E. lapponica* . . . *T. senegalensis*, Sss.
- 3'. Tegmina with 10 costal veins, wing venation exactly as in *E. lapponica* *T. gambiensis*, mihi.
- 2'. Tegmina black *T. æthiopica*, Sss.
- 1'. Pronotum not bordered with hyaline . *T. nitida*, Borg.

Blatta amæna, Wlk., ♂, appears to be the same as *T. senegalensis*, Sss., but the female is a species of *Temnopteryx*; a specimen from Natal under the same name in the British Museum is a distinct species of *Theganopteryx*. I doubt if *Blatta fulvipes*, Wlk., can be separated from *Blatta amæna*, Wlk., ♂.

Theganopteryx æthiopica, Sauss.

The form of the "titillator" is shown in Plate XV, fig. 3, it is almost identical in *Th. senegalensis*, Sauss.

Genus HEMITHYRSOCERA, Sss.

This is not a satisfactory genus, unless it is restricted to one species, *histris*, Burm., which has plumose antennæ in both sexes, and exhibits a remarkable form of sub-genital lamina in the male; in the other species the antennæ are inconspicuously pilose in the male sex and not pilose in the female, and there is really little to prevent the inclusion of

the species in the genus *Theganopteryx*; in some of the species the posterior ulnar vein of the tegmina is markedly angled, in others it is not. The form of the "titillator" in *H. lateralis*, Wlk. (= *H. major*, Br.) is shown in Plate XV, fig. 2, and is seen to be very different from that in *Th. æthiopica*, Sss.; unfortunately we know so little of the structure of this organ in the Blattidæ, that at present we can make no use of it in generic distinctions. The titillator of *H. histrio*, Burm., is almost the same as in *H. lateralis*, Wlk.

The synonymy of *Hemithyrsocera histrio*, Burm., is here given:—

Thyrsocera histrio, Burm., Handb. Ent. ii, p. 499, n. 7 (1838).

Blatta lateralis, Serv., Ins. Orth. p. 107 (1839).

Phyllodromia inversa, Br., Nouv. Syst. d. Blatt. p. 96, n. 8 (1865).

Pseudomops fissa, Wlk., Cat. Blatt. B. M., p. 213 (1868).

Theganopteryx jucunda, Sauss., Mel. Orth. ii, p. 52 (1869).

Thyrsocera lineaticollis, Bol., An. Soc. Españ. xix, p. 302 (1890).

The sub-genital lamina and adjacent parts in the male are figured on Plate XV, fig. 1.

Hemithyrsocera ignobilis, n. sp.

♀. Differs from *H. ferruginea*, Br., in its smaller size; the golden lateral margins of the pronotum reach the anterior margin, but are not curved inwards here to the extent that they are in *ferruginea*; the posterior legs and the tips of the cerci are ferrugineous.

Total length 12·5 mm.; length of tegmina 10 mm.

No locality. (An identical specimen in the British Museum comes from the Khasia Hills.)

One example (Oxford Museum).

Genus ESCALA, nov.

Allied to *Theganopteryx*, Br., but the sub-genital lamina of the male bearing an asymmetrical lobe which may be unarmed, or armed with a series of hooks or replaced by a stout hook; the right style sometimes absent, the left style acuminate. Supra-anal lamina produced, triangular, not projecting beyond the sub-genital

lamina; cerci elongate. Wings with median and ulnar veins simple, reaching the outer margin of the wing, anterior to the somewhat inconspicuous apical triangle.

Escala circumducta, Wlk. (Plate XV, fig. 4.)

Blatta circumducta, Walker, Cat. Blatt. B. M. Suppl. p. 142 (1869).

♂. Testaceous. Head rufo-castaneous; antennæ, palpi clypeus testaceous. Pronotum with the disc rufous, lateral and anterior margins hyaline and a central testaceous macula. Tegmina with twelve costal veins, mediastinal vein bifurcate, radial vein with extremity ramose. Wings clear hyaline, with ten costal veins, radial vein bifurcate near the apex, apical triangle elongate but narrow, first axillary vein tri-ramose. Posterior femora with three spines on anterior margin beneath, four on posterior margin; formula of apical spines, $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{1}$, no genicular spine on anterior femora. Supra-anal lamina produced, triangular, but doubled on itself so that in dorsal view the apex cannot be seen and the lamina appears then to be short and transverse. Sub-genital lamina ample, semi-circular in outline. The left style acuminate, the right absent, the lobe bearing five curved hooks bent over the edge of the sub-genital plate. Cerci elongate.

Total length 14 mm.; length of tegmina 11.5 mm.

ADELAIDE, S. AUSTRALIA. Five specimens, including the type (Oxford Museum).

Escala longiuscula, Wlk. (Plate XV, fig. 5.)

Blatta longiuscula, Walker, Cat. Blatt. B. M. Suppl. p. 143 (1869).

♂. Testaceous; head rufo-testaceous; lateral and anterior margins of pronotum hyaline. Tegmina with nineteen costal veins, radial vein not bifurcate, not ramose at extremity, anterior ulnar vein bifurcate, posterior ulnar multi-ramose. Wings as in preceding species. Posterior femora with five spines on each margin beneath, formula of apical spines $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{1}$, genicular spines on all the femora. Supra-anal lamina produced, trigonal; sub-genital lamina as in the preceding species, the right style absent, the lobe modified to form a stout double-pointed hook; cerci elongate, their apices curved downwards.

Total length 13 mm.; length of tegmina 11 mm.

ADELAIDE. Four examples, including the type (Oxford Museum).

Escala insignis, n. sp. (Plate XV, fig. 6.)

♂. Rufo-testaceous; head castaneous, anterior and lateral margins of pronotum hyaline; wings clear hyaline with rufous shading on either side of the apical triangle; abdomen and legs testaceous. Tegmina with thirteen costal veins, anterior ulnar vein bifurcate, posterior ulnar vein ramose. Wings with eleven costal veins, first axillary vein bifurcate, apical triangle larger than in the two preceding species. Supra-anal lamina not much produced, trigonal; sub-genital lamina ample with two acuminate styles and an asymmetrical lobe, covered with short setæ but not armed with hooks.

Total length 11.5 mm.; length of tegmina 9.5 mm.

AUSTRALIA. Two examples (Oxford Museum).

This species is structurally very close to *Theganopteryx* and may be regarded as the least highly modified species of the genus *Escala*. In general facies the species resemble each other closely, but the nature of the sub-genital lamina affords admirable specific characteristics, and if this is examined there can be no possible difficulty in distinguishing the species. I have seen no female examples of the genus.

Genus ANAPLECTA, Burm.

Anaplecta maculata, n. sp. (Plate XV, fig. 7.)

♀. Castaneous; head rufous, antennæ fuscous; lateral margins of the pronotum and tegmina pellucid; a testaceous macula in the centre of the pronotum but nearer the posterior than the anterior margin; wings infuscated; the ventral surface of the abdomen, the legs and cerci testaceous. Tegmina with seven parallel costal veins, the discoidal field traversed by four longitudinal veins, the anal vein impressed. Wings with five costal veins joined by oblique venulæ, the marginal field not dilated, the medio-discal field crossed by six transverse venulæ, the first of which is oblique, no longitudinal vein dividing the apical part of the medio-discal field, two transverse venulæ anteriorly connecting the median with the ulnar vein, the first axillary vein tri-ramose, apical area two-fifths of total wing-length.

Total length 6.5 mm.; length of tegmina 5 mm.

PUNDALOA, CEYLON (*E. E. Green* coll., Feb. 1897). Two examples (Oxford Museum).

This and at least two other species are in the British Museum under the label *Phyllodromia* (?) *gyrinoides*, Wlk. I have compared *A. maculata*, mihi, and the two

following species with Walker's type and find that they are quite different from it; *gyrinoides*, Wlk., also from Ceylon is undoubtedly a species of *Anaplecta*. The genus has not hitherto been recorded from Ceylon. *A. maculata* falls into the section of the genus that includes *A. major*, Sss. and Zhnt., *A. dohrniana*, Sss. and Zhnt.

Anaplecta zeylanica, n. sp. (Plate XV, fig. 8.)

♀. Small; rufo-castaneous; pronotum and tegmina with the lateral margins hyaline; legs and cerci testaceous. Tegmina with six costal veins, discoidal field with three longitudinal veins. Wings with the apical area, marginal field and veins pale fuscous, six costal veins, marginal field slightly dilated, medio-discal field crossed by four transverse venulæ and the median vein connected with the ulnar vein by two transverse venulæ near the apex, first axillary vein tri-ramose, apical area parabolic, its basal margin not angled, nearly one-half of total wing-length. Supra-anal lamina produced, trigonal.

Total length, 4 mm.; length of tegmina, 3.7 mm.

CEYLON (*Thwaites*, 1872). One example (Oxford Museum).

It is possible that the species is conspecific with *A. fulva*, Br., from Burma, but the description of that species does not include an account of the wing venation.

Anaplecta thwaitesi, n. sp. (Plate XV, fig. 9.)

♀. Head castaneous; pronotum castaneous with broad hyaline lateral margins; tegmina flavo-hyaline, wings with the apical area, marginal field and veins fuscous; abdomen fuscous; legs and cerci testaceous. Tegmina with eleven costal veins, the ulnar vein multi-ramose, the bases of the mediastinal and median veins and the anal vein strongly marked with castaneous. Wings with six costal veins, their extremities swollen, the marginal field dilated, the first bifurcated and connected with the humeral branch of the radial vein by an oblique venula, a transverse venula joins the humeral and discoidal branches of the radial vein near their point of origin, medio-discal field crossed by five transverse venulæ, ulnar vein bifurcate, first axillary vein quadri-ramose, apical area parabolic, its base slightly obtusely angled, two-fifths of total wing-length. Supra-anal lamina produced, trigonal, slightly emarginate.

Total length 6 mm.; length of tegmina 5 mm.

CEYLON (*Thwaites*). One example (Oxford Museum).

Anaplecta malayensis, sp. n. (Plate XV, fig. 10.)

♂ and ♀. Fusco-castaneous, lateral margins of pronotum and tegmina hyaline. Tegmina with seven costal veins, discoidal field traversed by four longitudinal veins, anal vein impressed. Wings with marginal field and apical area fuscous, with five costal veins, marginal field not dilated, radial vein bifurcate, medio-discal field crossed by three to four transverse venulæ, ulnar field half as broad, first axillary vein tri-ramose, apical area two-fifths of total wing-length, its basal margin obtusely angled.

♂. Total length 5 mm.; length of tegmina 4 mm. ♀. Total length 5 mm.; length of tegmina 4·8 mm.

MALAY PENINSULA (*Errington de la Croix* and *P. Chapé*, 1899). Three examples (Paris Museum).

Anaplecta obscura, sp. n. (Plate XV, fig. 12.)

♀. Fusco-castaneous, smooth, shining. Head piceous, maxillary palpi testaceous, antennæ fuscous; lateral margins of pronotum and mediastinal fields of tegmina hyaline; centre of abdomen beneath, legs and cerci testaceous; wings with the marginal field and most of the apical area infuscated, an oblique pale fascia crosses the upper half of the apical area. Wings with the marginal field dilated, seven costal veins, median vein obsolescent, curving from the apex of the radial vein to join it again near its middle, thus forming a trapezoidal areolet, 1st axillary vein bi-ramose, a short branch being given off from the transverse bar joining the two rami, apical area equals half the total wing-length, its basal margin straight.

Total length 4 mm.; length of tegmina 3·5 mm.

MALAY PENINSULA (*Errington de la Croix* and *P. Chapé*, 1899). One example (Paris Museum).

The great reduction in the extent of the wing-venation is alone sufficiently diagnostic of this interesting little species.

Anaplecta borneensis, n. sp. (Plate XV, fig. 11.)

♀. Fusco-castaneous; lateral margins of pronotum and tegmina hyaline. Tegmina with eight costal veins, discoidal area traversed by three longitudinal veins, reticulated. Wings hyaline, apical area slightly infuscated; four costal veins, the last obsolescent, radial vein bifurcated, medio-discal area crossed by two transverse venulæ near the middle and by two short oblique venulæ at the apex, first axillary vein tri-ramose, apical area divided unequally by one longitudinal

vein, apex incised, basal margin very obtusely angled, about two-fifths of total wing-length. Supra-anal lamina slightly produced. Legs testaceous.

Total length 4.8 mm. ; length of tegmina, 4 mm.

KUCHING, SARAWAK. Three examples. [No. E.] (Oxford Museum.)

The following table will help to show the differences between the various Oriental species :—

1. Rufo-castaneous or fulvous.
 2. Medio-discal field of wing with five transverse venules, ulnar vein bifurcated, ulnar field without transverse venules *A. thwaitesi*, mihi (Ceylon)
 - 2'. Medio-discal field of wing with four transverse venules, ulnar vein simple, ulnar field with two transverse venules *A. zeylanica*, mihi (Ceylon)
- 1'. Fusco-castaneous.
 2. Disc of pronotum with pale central macula *A. maculata*, mihi (Ceylon)
 - 2'. Disc of pronotum without pale central macula.
 3. Median vein of wing obsolescent at its distal end *A. obscura*, mihi (Malay Peninsula)
 - 3'. Median vein of wing not obsolescent at its distal end.
 4. Medio-discal field of wing with four venules.
 5. These venules transverse, apex of apical area not incised *A. malayensis*, mihi (Malay Peninsula)
 - 5'. Two proximal venules, very oblique, apex of apical area incised *A. borneensis*, mihi (Borneo)
 - 4'. Medio-discal field of wing with two transverse venules . . . *A. javanica*, Sss. (Java)

I have not been able to examine critically *A. gyrioides*, Wlk., from Ceylon, the type of which is in the British Museum, however it enters into Sect. 1' in the above table but can be readily distinguished by the fulvo-testaceous pronotum. *A. fulva*, Br., from Burma belongs to Sect. 1 in

the table, but as the wing venation of the species has not been described, it is not possible to show how it differs from the two Ceylon species.

Anaplecta pulchra, sp. n.

♀. Flavo-testaceous. Antennæ fuscous, except the two basal joints, and five joints close to the apex which are flavo-testaceous; pronotum with hyaline lateral margins; tegmina transparent; wings deeply infuscated, the anterior border of the marginal field, the proximal halves of the radial, ulnar and first axillary veins yellow; apex of abdomen beneath castaneous, the remainder bright flavous. Tegmina with eight costal veins, discoidal field with six longitudinal veins, anal vein impressed, axillary veins obsolete. Wings with six costal veins, the radial vein bifurcated, the median vein curved distally up towards the radial vein, the medio-discal field crossed by one proximal transverse venule, first axillary vein tri-ramose, apical area nearly half the total wing-length. Supra-anal lamina produced, trigonal.

Total length 6 mm.; length of tegmina 4.5 mm.

FERNANDO PO (*L. Conradt*, 1901). One example (Paris Museum).

Anaplecta dahomensis, n. sp. (Plate XVI, fig. 2.)

♂ and ♀. Fusco-castaneous. Labrum and clypeus rufous; apical seven joints of antennæ testaceous, the last tipped with fuscous. Prothorax piceous, its lateral margins broadly bordered with semi-opaque white. Tegmina entirely fusco-castaneous, with eight to nine costal veins, the discoidal field traversed by four longitudinal veins which are strongly marked. Wings hyaline, the marginal field and apical area infuscated, the axillary area iridescent fuscous; six to seven costal veins, the radial vein bifurcated but the branches soon reunite forming an areolet which is crossed by a transverse venule, the median vein obsolescent proximally where it is joined by a transverse venule to the radial vein, the ulnar vein simple, the first axillary vein tri-ramose, apical area nearly one-half of total wing-length, its basal margin straight. Second and third pairs of legs and cerci testaceous, first pair of legs fuscous, except the distal extremity of the tibiæ and tarsi.

Total length 5 mm.; length of tegmina 4.2 mm.

ATHIÉMÉ, DAHOMEY. A long series (Oxford Museum).

The species differs from *A. cincta*, Gerst., by the absence of a white border to the tegmina, by the strongly-marked veins of discoidal field of the tegmina, by the different colour of the legs.

Anaplecta brunneri, n. sp. (Plate XVI, fig. 1.)

♂ and ♀. Rufo-testaceous, vertex of head darker; antennæ fuscous except at the base. Lateral margins of pronotum and of tegmina as far as termination of mediastinal vein hyaline; legs and cerci testaceous. Tegmina with ten to eleven costal veins, the last two or three irregular, discoidal field with three longitudinal veins, anal vein well marked. Wings infuscated, with seven costal veins, their ends slightly swollen, the medio-discal field crossed by three venulæ, the proximal one bifurcated, the median vein obsolescent proximally, distally bent up to join the radial vein before its apex, anterior ulnar vein simple, posterior ulnar obsolescent distally, first axillary vein quadri-ramose, apical area as long as broad, two-fifths of total wing-length, its basal margin straight. Supra-anal lamina produced, its posterior border rounded, sub-genital lamina of male with one style, the left.

Total length 6 mm.; length of tegmina 5 mm.

RIO GRANDE DO SUL, BRAZIL. Three examples (Oxford Museum).

The only two species with which this can possibly be confused are *A. pallida*, Bol., from Ecuador, and *A. fulgida*, Sss., from Mexico; from the former it differs by the narrow costal margin of the tegmina, by the smaller apical area of the wings, and by the smaller number of transverse venulæ in the medio-discal field of the wings; from *A. fulgida*, Sss., by the longitudinal discoidal veins of the tegmina, and by the different wing-venation.

Anaplecta pavida, n. sp. (Plate XVI, fig. 3.)

♀. Flavo-testaceous; pronotum almost orbicular with broad hyaline margins; abdomen fusco-testaceous; legs and cerci testaceous. Tegmina hyaline with an irregular fuscous macula at base of the median vein; ten costal veins, discoidal field with four longitudinal veins. Wings slightly infuscated, ten costal veins, medio-discal field crossed by two transverse venulæ, the distal one giving off an oblique longitudinal branch, one-fourth the length of the medio-discal field, first axillary vein quadri-ramose, apical area a little broader than long, one-fifth of total wing-length, basal margin obtusely angled. Supra-anal lamina produced, rounded.

Total length 6 mm.; length of tegmina 5 mm.

CACHABI, ECUADOR (*W. F. H. Rosenberg* coll., Dec. 1896). One example (Oxford Museum).

The species is allied to *A. nahua*, Sss., from Mexico, but differs in coloration.

Anaplecta fusca, n. sp. (Plate XVI, fig. 4.)

♀. Minute; fusco-castaneous. Head piceous; pronotum elliptical, entirely dark castaneous-brown. Tegmina castaneous, with ten highly irregular costal veins connected with each other by transverse venulæ, discoidal field with two longitudinal veins, reticulated. Wings dark fuscous, five costal veins, radial vein with a humeral and a discoidal branch, median vein approximated to the radial vein and the very narrow medio-discal field crossed by two transverse venulæ, an oblique transverse venula runs from the apex of the ulnar vein to the median vein and from this two short obliquely longitudinal venulæ are given off, first axillary vein quadri-ramose. Apical area more than two-fifths of total wing-length, basal margin straight. Cerci golden-yellow, supra-anal lamina rounded.

Total length 4 mm.; length of tegmina 3.5 mm.

CACHABI, ECUADOR (*W. F. H. Rosenberg* coll., Dec. 1896). One example (Oxford Museum).

The venation of the tegmina and wings in this species is highly characteristic, and unlike that of any other known species.

Anaplecta varipennis, n. sp. (Plate XVI, figs. 5, 6.)

♀. Closely allied to *A. parvipennis*, Sss. and Zhnt., but differs in the following particulars:—the lateral borders of the pronotum and the mediastinal field of the tegmina are opaque white not hyaline, the clypeus is testaceous, the discoidal field of the tegmina is reticulated, the medio-discal field of the wings is crossed by two transverse venulæ, the sub-genital lamina is deeply cleft and has almost a valvular appearance. The tegmina vary in length from 4.8 mm. to 4 mm., the wings from 6 mm. to 3 mm., in the latter case the most notable reduction is that of the apical area which ranges in size from two-fifths of the total wing-length to one-sixth.

Total length 6.2 mm.

PARAMBA, ECUADOR, 3500 feet (*W. F. H. Rosenberg* coll., May 1897). Five examples (Oxford Museum).

In spite of the variation in size of the wings, their venation remains practically unaltered; as already noted, the most marked range of size is shown by the apical area

and the variation is almost an epitome of the changes whereby the small triangular apical field of such genera as *Ectobia* and *Theganopteryx* has become modified into the large parabolic apical area of the genus *Anaplecta*.

Anaplecta chrysoptera, n. sp. (Plate XVI, fig. 7.)

♀. Very convex. Rufous. Antennæ testaceous; third joint of maxillary palpi black; pronotum with lateral margins rufo-testaceous; abdomen and cerci castaneous, the apical joint of the latter yellow. Marginal field of tegmina nearly half the total breadth, thirteen parallel costal veins; the tegmina strongly overlap, veins of discoidal field of left tegmen obsolete, strongly marked in that part of the right tegmen which is covered by the left, the ulnar vein sends six branches to the sutural margin, anal vein strongly marked, axillary veins obsolete. Wings with the apical area and marginal field golden-yellow, fourteen costal veins, their ends slightly swollen, radial vein straight, medio-discal field crossed by eight transverse venulæ, ulnar vein simple, first axillary vein quadri-ramose, apical area two-fifths of total wing-length, its basal margin obtusely angled. Supra-anal lamina transverse, sub-genital lamina large, its posterior border shortly cleft and compressed laterally in the centre simulating a valvular appearance.

Total length 7.5 mm.; length of tegmina 6 mm.

AMAZONS (*H. W. Bates*). One example (Oxford Museum).

This somewhat remarkable species is most nearly allied to *A. flabellata*, Sss. and Zhnt. The unique example was labelled in Walker's handwriting "*Riatia* sp."; the genus *Riatia* (type *R. pallicornis*, Wlk.) is too close to *Anaplecta* to be entitled to separate rank.

Genus ANAPLECTOIDEA, nov.

Differs from *Anaplecta*, Burm., in the branching of the ulnar vein of the wing. Elliptical, smooth, shining; vertex of head reaching anterior border of pronotum; eyes less remote than the insertions of the antennæ; pronotum transversely elliptical. Tegmina with marginal field very broad occupying almost half the total breadth. Ulnar vein multi-ramose, anal vein deeply impressed, axillary veins obsolete. Wings with numerous costal veins, medio-discal field crossed by numerous transverse venulæ, ulnar vein multi-ramose, the veins being given off towards the dividing vein, apical area small.

Supra-anal lamina slightly produced; sub-genital lamina large, spoon-shaped; cerci moderate.

The genus bears the same relation to *Anaplecta*, that *Pseudectobia* does to *Theganopteryx*.

Anaplectoidea nitida, n. sp. (Plate XVI, figs. 8, 9.)

♀. Rufo-castaneous; antennæ, tarsi and cerci rufo-testaceous. Lateral borders of the pronotum and mediastinal field of tegmina hyaline. Tegmina transparent, thirteen costal veins, ulnar vein with six branches. Wings infuscated, with twelve costal veins, their extremities swollen, medio-discal field crossed by eight transverse venulæ, ulnar vein with six branches, apical area broader than long, one-fifth total wing-length, its basal margin obtusely angled.

Total length 11 mm.; length of tegmina 9 mm.

BATCHIAN (*W. Doherty*), MACASSAR (*W. Doherty*). Two examples (Oxford Museum).

II. The genera PSEUDOMOPS, Serv., and THYRSOCERA, Burm., of the sub-fam. PHYLLODROMIINÆ.

There has been considerable confusion regarding those species of Phyllodromiinae with incrassated antennæ and angulate ulnar veins in the tegmina. The steps whereby this confusion has grown may be summarized shortly as follows:—

The genus *Pseudomops* was founded in 1831 by Serville for the reception of the *Blatta oblongata* of Linnæus, though whether Serville's determination of the Linnæan species is correct is not certain. Burmeister in 1838 included in his genus *Thyrsochera* the species *spectabilis*, *crinicornis*, *cincta*, *affinis*, *flavipes*, *laticornis* (Perty), *histrion*, *oblongata* (Linn.), *annulicornis* and *hirticornis*; of these ten species eight are Neotropical, two (*spectabilis* and *histrion*) are Oriental; *spectabilis* must be selected as the type of the genus. Brunner, de Saussure, and other authors have ignored Serville's name *Pseudomops* and have employed *Thyrsochera* instead; however de Saussure in 1893 created the genus *Hemithyrsochera* for those Oriental species with a triangular apical triangle to the wings and with a simple or bifurcated vena ulnaris alarum; of this genus *jucunda* is

the type. Kirby (1904) employs the name *Pseudomops* for all the South American species placed by various authors in the genus *Thyrsocera*, six Oriental species are placed in the genus *Thyrsocera* and fourteen in the genus *Hemithyrsocera*. Rehn (1904) also applies *Pseudomops* to the Neotropical species, but sinks *Hemithyrsocera* as a synonym of *Thyrsocera*, *spectabilis* being selected as the type of that genus. An examination of most of the species on which these conclusions are based brings to light the following facts:—i. *Thyrsocera spectabilis*, Burm., is a Periplanetine, as shown by the valvular character of the last ventral segment of the female and by the wing-structure; *Ellipsidium speciosum*, Wlk., the type of which is in the Oxford Museum, is closely allied. Dr. A. Brauer, director of the Berlin Zoological Museum, has kindly favoured me with a drawing of Burmeister's type and a sketch of the sub-genital lamina of that example, and there can be no doubt but that *Thyrsocera*, Burm., is a ditypic genus of the sub-fam. Periplanetinae.

Thyrsocera may be re-described as follows:—

THYRSOCERA, Burm.

Antennæ incrassated in the basal half and hirsute, the hairs being longer and more dense on eight to ten joints just beyond the middle of the antennæ forming here a conspicuous tuft; third joint not longer than second. Head projecting slightly beyond the vertex; eyes and antennal sockets equally widely separated. Pronotum, smooth, trapezoidal, sides deflexed. Tegmina extending considerably beyond the abdomen with the marginal field broad, the veins in the basal part indistinct, marked by series of punctures. Wings with the basal half of the marginal field coriaceous, both radial and ulnar veins multi-ramose. Front femora with a serried series of short spines on the anterior margin beneath, with one or two spines only on the posterior margin, the other femora sparsely armed, all with apical spines on both margins and genicular spines. Tibiæ with spines in three rows above. Metatarsus equal in length to the remaining joints. Supra-anal lamina quadrate, cucullate with a median carina, its posterior border emarginate; sub-genital lamina of usual Periplanetine type. Cerci of moderate length, flattened and spatulate. Males unknown.

The two species may be distinguished as follows:—

Three joints beyond the antennal tuft white. Pronotum broadly

margined with yellow all round its border leaving a trefoil-shaped black centre.

Th. spectabilis, Burm. (NEPAL, CEYLON, MALACCA.)
(Type in Berlin Museum.)

Two joints beyond the antennal tuft white. Pronotum with posterior margin and with two antero-lateral spots yellow, the black of the disc forming a cruciform figure. Ante-penultimate segment of abdomen beneath yellow.

Th. speciosa, Wlk. (E. INDIAN ARCHIPELAGO.) (Type in Oxford Museum.) (Plate XIV, fig. 5.)

ii. The Oriental species exclusive of *spectabilis*, hitherto included in the genus *Thyrsocera*, belong to two different genera, viz. one in which the vena ulnaris alarum is simple or ramose and an apical triangle present, *Hemithyrsocera*, Sss., another in which the vena ulnaris alarum is ramose and an apical triangle absent: for the latter species a new genus is created and may be diagnosed as follows:—

PSEUDOTHYRSOCERA, gen. nov.

Similar to *Pseudomops*, Serv., but with the anterior ulnar vein of the tegmina bifurcated instead of simple, and the pronotum truncate behind instead of produced. Antennæ more or less incrassated and plumose in both sexes, whereas in *Pseudomops* the antennæ are not always plumose in the male. Rami of the posterior ulnar vein of the tegmina angulate; ulnar vein of the wings ramose, but sending no branches towards the dividing vein.

The species to be included in this genus are:—

1. *P. scutigera*, Wlk.

Pseudomops scutigera, Walker. Cat. Blatt. B. M. p. 212
(1868). (SARAWAK, BORNEO.)

2. *P. pica*, Walker.

Pseudomops pica, Walker. Cat. Blatt. B. M. p. 213
(1868). (SUMATRA and SINGAPORE.)

3. *P. xanthophila*, Walker.

Blatta xanthophila, Walker. Cat. Blatt. B. M. p. 230
(1868). (MENADO, CELEBES.)

The types of these are in the Oxford Museum.

4. *P. montana*, n. sp.

♂. Piceous. Head piceous, a triangular ochreous spot below the eyes, basal joints of maxillary palpi rufous, antennæ slightly incrassated, black. Pronotum trapezoidal, not covering the vertex, sides deflexed, posterior margin rounded, slightly produced. Tegmina piceous, apex of mediastinal field testaceous, sixteen to seventeen costal veins, discoidal field with six longitudinal sectors. Wings infuscated, ulnar vein tri-ramose. Abdomen, coxæ and femora rufous; cerci, apices of femora, tibiæ and tarsi black, tibial spines rufous. Supra-anal lamina produced, trigonal, sub-genital lamina trapezoidal, with one style.

Total length 16 mm.; length of tegmina 12.5 mm.

MT. MATANG, 3000 feet, SARAWAK, BORNEO.

Two examples (Oxford Museum).

The species in general facies approaches the genus *Pseudomops*.

5. *P. ruficollis*, n. sp. (Plate XIV, fig. 6.)

♂. Head and pronotum bright rufous; eyes, antennæ (mutilated) and maxillary palpi black. Tegmina black, a white spot on each mediastinal area and at the base of each anal field. Wings fuscous. Abdomen black. Coxæ with their distal ends and outer borders testaceous-white; the remaining joints of the legs are missing.

Total length 16 mm.; length of tegmina 13.2 mm.

PENANG (*Cantor*). One example.

The arrangement of the veins of the tegmina is the same as in *P. pica*, Wlk., and to that species this one is most nearly allied, and I expect that the antennæ when perfect specimens are taken will be found to be plumose in the basal half as in *P. pica*. The insect is remarkably fusiform and both in colour and in shape is very like an Elaterid beetle.

iii. The genus *Hemithyrsocera*, Sss., for reasons already given, has been transferred to the sub-fam. *Ectobiinæ*; the type species is *H. histrio*, Burm., since with this *H. jucunda*, Sss., is synonymous (*vide antea*).

The determination of the species of the genus *Pseudomops* is attended with some difficulty owing to the brevity of the diagnoses of the older authors and to the great variability of some of the species. I have been at some

trouble to determine with accuracy those species that are contained in the Oxford Museum, and I think that the subjoined list and notes made in the course of my labours may be of assistance to other workers in this order of Insects. I should like to record here my grateful thanks to Dr. O. Taschenberg of the Halle Museum who kindly lent me the type of *P. affinis*, Burm., and one or two other interesting examples of the genus; also to Dr. A. Brauer of Berlin for admirable drawings of the types of *P. flavipes*, Burm., *P. annulicornis*, Burm., *Blatta discoidalis*, Burm., and *B. discicollis*, Burm.

LIST OF SPECIES OF THE GENUS PSEUDOMOPS, Serv.

I. CERCI not spatulate.

1. *P. oblongata*, L. (SURINAM.)

Blatta oblongata, Linnæus, Syst. Nat. (ed. x), i, p. 425, n. 9 (1758); De Geer, Mém. Ins. iii, p. 541, pl. 44, ff. 11, 12 (1773).

Thyrsocera oblongata, Burmeister, Handb. Ent. ii, p. 449, n. 8 (1838).

In spite of de Geer's admirable description and readily recognizable figure, subsequent authors have confused another species, *P. intercepta*, Burm., with this, explaining discrepancies in appearance as due to variability; the pattern of the pronotum is so different in the two species that I see no valid reason for confounding them. The general colour of the insect is fulvous and the disc of the pronotum is marked by two dark points which may be joined and by a crescentic dark band near the posterior margin.

2. *P. intercepta*, Burm. (MEXICO, GUATEMALA, HONDURAS.)

Blatta intercepta, Burmeister, l. c. p. 497, n. 10 (1838); de Saussure, Mém. Mex. Blatt, p. 113 (1864).

Pseudomops oblongata, Serville, Ins. Orth. p. 115 (1839).

Thyrsocera oblongata, Brunner, Nouv. Syst. d. Blatt. p. 121, n. 8, pl. iii, f. 11 (1865); de Saussure, Miss. Mex. Orth. p. 50, pl. i, f. 29 (1870); de Saussure and Zehntner, Biol. Centr.-Amer. Orth. i, p. 32, n. 3 (1893).

Thyrsochera tolteca, de Saussure, Rev. Zool. (2) xiv, p. 168 (1862); Mém. Mex. Blatt. p. 124, pl. i, f. 21 (1864); Brunner, l. c. p. 125, n. 18 (1865).

I agree with Kirby in regarding this as quite distinct from *P. oblongata*, L.; de Saussure and Zehntner on the other hand sink it as a synonym of *P. oblongata*, L. Good figures of the species have been published, so that it can be readily recognized.

3. *P. inclusa*, Wlk. (BRAZIL, PERNAMBUCO.)

Pseudomops inclusa, Walker, Cat. Blatt. B. M. p. 212 (1868).

Thyrsochera amæna, de Saussure, Mém. Orthop. fasc. iv, p. 97 (1872).

The species can easily be distinguished by the horseshoe-shaped dark mark on the pronotum. In some specimens this may be considerably reduced, but it is never entirely absent; the dark shadings on the tegmina are subject to considerable variation. The type of *inclusa* is in the Oxford Museum.

4. *P. laticornis*, Perty. (BRAZIL.)

Blatta laticornis, Perty, Del. Anim. Art. p. 117, pl. 23, f. 4 (1834); Serville, l. c. p. 116 (1839).

Thyrsochera laticornis, Burmeister, l. c. p. 499, n. 6 (1838); Brunner, l. c. p. 123, n. 11 (1865); de Saussure, Miss. Mex. Orth. p. 51 (1870).

Thyrsochera dubia, de Saussure, Rev. Zool. (2), xiv, p. 168 (1862); Mém. Mex. Blatt. p. 123 (1864); Brunner, l. c. p. 124, n. 12 (1865).

Pseudomops concinna, Walker, l. c. p. 82, n. 20 (1868).

Perty's excellent figure is a valuable aid to the identification of this species; from the Halle Museum I received two examples which I was able to identify without much doubt. The following is a short description of them:

♂. Head red, shading to darker on the labrum, antennæ black with a testaceous annulus occupying eight joints, base scarcely incrassated; pronotum rufous shading to fuscous posteriorly, borders testaceous; tegmina fuscous, distal half of mediastinal field and centre of marginal field testaceous; abdomen rufo-fuscous, cerci

fuscous broadly tipped with testaceous; legs rufo-fuscous, coxæ tipped with testaceous. Length of pronotum 2·8 mm.; of tegmina 10·5 mm. ♀. Vertex only of head red, antennæ incrassated at base, the testaceous annulus occupying fourteen joints; pronotum rufous with a fuscous curved line posteriorly; tegmina fuscous with a broad testaceous vitta extending from distal half of mediastinal field and occupying the whole of the marginal field to near the apex of the tegmina, posteriorly the tegmina are fusco-hyaline; abdomen fuscous, cerci and legs as in the male. Length of pronotum 3 mm.; of tegmina 10 mm. Perty describes the head of this species as black, but his figure shows it to be red.

5. *P. annulicornis*, Burm. (BRAZIL, Bahia.)

Thyrlocera annulicornis, Burmeister, l. c. p. 500, n. 9 (1838); Brunner, l. c. p. 125, n. 16 (1865).

Pseudomops deceptura, Walker, l. c. p. 82, n. 21 (1868).

The type is at Berlin, and from a sketch of it made for me by Dr. Brauer I am of opinion that *P. deceptura*, Wlk., is synonymous; the insect is testaceous-rufous with an infuscated patch on the posterior part of the pronotum, the white band on the antennæ occupies ten joints. The species is undoubtedly very closely allied to *P. laticornis*, Perty, but as Burmeister was acquainted with that species and yet described *annulicornis* as new, it seems advisable to keep them separate. *Blatta annulicornis*, Wlk., the type of which is in the Oxford Museum, is a species of *Phyllodromia*.

6. *P. aurantiaca*, Sss. and Zhntn. (PANAMA.)

Thyrlocera aurantiaca, de Saussure and Zehntner, l. c. p. 32, n. 6, pl. 3, ff. 6, 7 (1893).

I have compared the type of this with the type of *P. deceptura*, Wlk., and find that the two are distinct.

7. *P. grata*, Rehn. (COSTA RICA.)

Pseudomops grata, Rehn. Trans. Am. Ent. Soc. xxix, p. 260 (1903).

The species is unknown to me.

8. *P. americana*, Sss. (ARGENTINE REPUBLIC.)

Thyrsocera americana, de Saussure, Rev. Zool. (2), xxi, p. 111 (1869); Miss. Mex. Orth. p. 51 (1870).

The type is in Paris. This is another rufous species, perhaps not distinct from *P. annulicornis*, Burm.

9. *P. mimica*, Wlk. (BRAZIL, Para.)

Pseudomops mimica, Walker, l. c. p. 80, n. 17 (1868).

♀. Head black, antennæ mutilated, pronotum rufous, with a fuscous crescentic band on the hind margin. Tegmina dark fuscous, mediastinal area and a small spot at the base of the marginal field hyaline-testaceous. Abdomen black, the fifth tergum with two lateral testaceous spots; cerci mutilated; supra-anal lamina produced, quadrate. Legs dark castaneous, apices of coxæ and trochanters testaceous. Length of body 8 mm.; length of tegmina 10 mm.

Type in the British Museum.

The dark tegmina and the rufous pronotum render this a sufficiently conspicuous insect.

10. *P. cincta*, Burmeister. (MEXICO, GUATEMALA, NICARAGUA.)

Thyrsocera cincta, Burmeister, l. c. p. 499, n. 3 (1838); Brunner, l. c. p. 122, n. 9 (1865); de Saussure, Mém. Mex. Blatt. p. 50, pl. 1, f. 28 (1870); de Saussure and Zehntner, l. c. p. 32, n. 1 (1893).

Thyrsocera mexicana, de Saussure, l. c. p. 122 (1864).

Thyrsocera sallei, de Saussure, l. c. p. 123 (1864).

Pseudomops sallei, var., Walker, l. c. p. 77, n. 4 (1868).

Thyrsocera cincta, var., de Saussure, Miss. Mex. Orth. p. 51 (1870).

The species exhibits a great range of variation, the extreme forms are very different in coloration, but as de Saussure has examined a considerable series of specimens which help to bridge over the differences, I accept his conclusion that *P. sallei* is merely a rufous variety of *cincta*.

11. *P. neglecta*, n. sp. (BRAZIL, Rio Grande do Sul.)

♀. Head and mouth parts piceous; antennæ black with a testaceous band beyond the middle occupying six joints, incrassated at base and pilose. Pronotum as long as broad, anteriorly truncate, not covering the vertex of the head, posteriorly produced, obtusely angled, dark fuscous, all the margins bordered with yellow, broadest laterally. Tegmina fuscous or rufo-fuscous, mediastinal field hyaline or testaceo-hyaline, marginal field partially hyaline; seventeen to eighteen costal veins, discoidal field with six longitudinal sectors. Wings infuscated. Abdomen fuscous, segments laterally bordered with testaceous, apex rufo-fuscous; supra-anal lamina triangular, produced, sub-genital lamina ample, semi-orbicular, rufous, posteriorly margined narrowly with fuscous; cerci fuscous. Legs black, the tibial spines rufous, the coxæ margined with testaceous.

Total length 10.5 mm.; length of tegmina 8 mm.; pronotum 3 mm. × 3 mm.

Three examples labelled in Brunner's handwriting "*Thyrsocera* sp. n." (Oxford Museum).

The species is allied to *P. cineta*, Burm., and may be distinguished from it chiefly by its smaller size, shorter tegmina, broader pronotum and by the colour of the legs. A similar example from Monte Video in the Paris Museum stands under the name *P. cineta*.

12. *Pseudomops affinis*, Burm. (SURINAM, BRAZIL, Para.)

Thyrsocera affinis, Burmeister, l. c. p. 499, n. 4 (1838);
Brunner, l. c. p. 124, n. 14 (1865).

Thyrsocera hirticornis, Burmeister, l. c. p. 500, n. 10
(1838); Brunner, l. c. p. 124, n. 14 (1865).

Dr. Taschenberg of Halle having kindly lent me the type of *P. affinis* I have been able to compare it with Brunner's description and find that it agrees admirably with that account. The type of *P. hirticornis* is apparently in Brunner's collection and is considered by Brunner to be the male of *P. affinis*.

13. *Pseudomops flavipes*, Burm. (BRAZIL, Rio de Janeiro.)

Thyrsocera flavipes Burmeister, l. c. p. 499, n. 5 (1838);
Brunner, l. c. p. 125, n. 16 (1865).

Pseudomops flavipes, var., Walker, l. c. p. 79, n. 10 (1868).

Pseudomops walkeri, Kirby, Ann. Mag. Nat. Hist. (7), xii, p. 273 (1903).

As shown by a drawing of the type now at Berlin this species is very closely allied to *P. affinis*, and the arrangement of colours on the pronotum is identical, however *flavipes* has flavid legs and the abdomen and tegmina appear to be paler.

14. *P. angusta*, Wlk. (SANTAREM, COLOMBIA.)

Pseudomops angusta, Walker, l. c. p. 81, n. 19 (1868).

♀. Head shining black with a round yellowish spot on the frons; clypeus yellow, labrum black; maxillary palpi luteous, apical joint black. Antennæ with the basal half incrassated, black, a white band at the base of the apical half occupying eight joints. Pronotum with the posterior border strongly produced, black, bordered all round with bright yellow, the lateral borders at one point on each side produced inwards to form two broad projections which do not meet. Tegmina ferruginous at the base, at the apex flavo-hyaline, the costal margin testaceous between the veins, the mediastinal field hyaline; a slender fuscous humeral stripe. Wings flavo-hyaline. Abdomen, cerci and legs luteous-yellow; bases of the coxæ black. Cerci long, not spatulate. Supra-anal lamina, produced, quadrate.

Total length 13 mm.; length of tegmina 10 mm.

This description is taken from a specimen in the Hope Museum, Oxford; it differs a little from the type which is in the British Museum, but is too close to be separated.

The species is allied to *P. flavipes*, Burm., but differs by the broader testaceous band on the antennæ, by the greater extent of the yellow margins of the pronotum, the black disc of the pronotum being almost divided into two by the inward projections of the yellow lateral borders; the intervenular stripes of opaque testaceous on the tegmina are variable characters.

15. *P. burri*, n. sp. (ECUADOR, Cachabi.) (Plate XIV, fig. 1.)

♀. Allied to *P. angusta*, Wlk., but smaller, prothorax not so markedly produced behind. Head orange-yellow with the vertex and frons black or entirely black with orange lines above the antennal sockets and at base of clypeus; two orange lines behind the eyes; the

antennæ with basal half incrassated, black, a luteous band occupying five joints beyond the middle. Prothorax luteous with a pyriform black central marking, the point directed backwards. Tegmina ferruginous at the base; the mediastinal field hyaline, the marginal field flavo-hyaline with intervenular streaks of opaque testaceous; apex of tegmina flavo-hyaline, the veins ferruginous. Wings flavo-hyaline. Legs, abdomen, and cerci bright luteous, the coxæ at their extreme bases outwardly tipped with black and with pale borders. Cerci elongate. Supra-anal lamina triangular, produced.

Total length 12 mm.; length of tegmina 10 mm.

Three examples (*W. F. H. Rosenberg* coll., Dec. 1896). (Oxford Museum.)

Named after Mr. Malcolm Burr to whose generosity the Oxford Museum owes a magnificent collection of exotic Orthoptera.

The species differs from *P. angusta*, Wlk., in the following points:—The less extent of the white band on the antennæ, the different shape of the black disc of the pronotum, the testaceous stripes on the tegmina.

16. *P. discicollis*, Burm. (MEXICO.) (Plate, XIV, fig. 2.)

Blatta discicollis, Burmeister, l. c. p. 1012 (1838); de Saussure, Mém. Mex. Blatt. p. 114 (1864).

Thyrsocera discicollis, Brunner, l. c. p. 123, n. 10 (1865).

Thyrsocera laticornis, var., de Saussure and Zehntner. Biol. Centr.-Amer. Orth. i, p. 32, n. 2 (1893).

This is a very well-marked species, and the most robust of the genus. The type, of which I have a drawing, is at Berlin; another example is in the collection of Central American Orthoptera in the British Museum, and stands under the name of *P. laticornis*, Perty; a third, from which the following description is drawn up, is in the Oxford Museum.

♀. Head and mouth parts black, antennæ mutilated (in the type, very long, black at base with a testaceous annulus occupying nineteen joints about the middle of total length, beyond the middle fuscous). Pronotum almost orbicular, but truncate in front, not covering the vertex and produced behind, disc piceous with broad lateral borders of orange-yellow, the posterior border margined with a fine yellow line; the black of the disc which just fails to meet the yellow anterior margin is narrowed anteriorly. Tegmina

dark fuscous, mediastinal field at apex testaceous, fifteen costal veins, discoidal field with nine longitudinal sectors, wings fuscous. Abdomen, cerci and legs dark fuscous, coxæ outwardly margined with whitish. Supra-anal lamina quadrately produced.

Total length 19·5 mm.; length of tegmina 15 mm.; pronotum 5 mm. × 6 mm.

17. *P. gueriniana*, Sss. (MEXICO.)

Thyrsocera gueriniana, de Saussure, Rev. Zool. (2) xiv, p. 168 (1862); Mém. Mex. Blatt. p. 124 (1864); Miss. Mex. Orth. p. 50 (1870); Brunner, l. c. p. 126, n. 19 (1865).

The type is in the Paris Museum.

18. *P. obscura*, Sss. (BOLIVIA, SANTA CRUZ.)

Thyrsocera obscura, de Saussure, Miss. Mex. Orth. p. 52 (1870).

The type is in the Paris Museum.

19. *P. magna*, n. sp. (ECUADOR, Paramba.)

♂. Entirely black, except a testaceous band on the antennæ beyond the basal incrassated portion and the testaceous terminal three joints of the cerci which are not spatulate; an orange patch in the middle of the ventral surface of the abdomen. The borders of the coxæ are not white, and the mediastinal area of the tegmina is not hyaline. Body depressed. Posterior border of prothorax obtusely rounded. ♀. Like the male but without the orange patch on the abdomen; the supra-anal lamina is triangular, its apex slightly incised.

| | Total length. | Length of body. | Length of tegmina. |
|----|---------------|-----------------|--------------------|
| ♂. | 18 mm. | 15·6 mm. | 14 |
| ♀. | 18 mm. | 14 mm. | 13·5 |

One male and two females (*W. F. H. Rosenberg* coll. February and May 1897). (Oxford Museum.)

20. *P. albostrata*, n. sp. (ECUADOR, Cachabi.)

♀. Black; antennæ beyond the penicillation, with a testaceous band occupying nine joints. Pronotum quite black except for a very narrow border of testaceous, not occurring on the front margin; the

pronotum is strongly produced backwards. Tegmina with the mediastinal area, except at the base, and eight oblique costal streaks, testaceous. The sub-genital lamina and the discs of the sterna of the three preceding segments bright rufous. Coxæ white-edged. Cerci black, not spatulate.

Total length 12 mm. ; length of tegmina 10 mm.

One example (*W. F. H. Rosenberg* coll. Nov. 1896). (Oxford Museum.)

The species appears to be quite distinct from all the other black species of this genus; it approaches *P. luctuosa*, Sss., more closely than any other.

21. *P. bicolor*, n. sp. (ECUADOR, Paramba.) (Plate XVI, figs. 12, 12a; and Plate XIV, fig. 7.)

♂. Head and antennæ (mutilated) black. Pronotum orange-red with some very obscure darker markings. Tegmina fuscous with the costal margin narrowly fulvous for two-thirds of its length. Wings fusco-hyaline. Abdomen bright luteous except the last five terga and the sub-genital lamina which are black; on the 6th tergum is a prominent mamillary tubercle covered with an orange pubescence and with a small opening on each side. Cerci black with the two terminal joints white. Coxæ and trochanters bright luteous; the 2nd and 3rd pairs of femora bright luteous with the apices fuscous; the 1st pair of femora, the tibiæ and tarsi fuscous; the tibial spines rufous.

Length of body 13.5 mm. ; length of tegmina 14 mm.

One example (*W. F. H. Rosenberg* coll. Mar. 1897).

This species is quite distinct from all the known forms. The opening of the so-called repugnatorial glands on the 6th abdominal segment is remarkable and unlike any other known to me. The 7th abdominal tergum is almost entirely covered by the 6th tergum, the posterior border of which is incised.

II. CERCI spatulate.

22. *P. femoralis*, Wlk. (BRAZIL, Rio de Janeiro.)

Pseudomops femoralis, Walker, l. c. p. 81, n. 18 (1868).

Thyrsochera crinicornis, Brunner, l. c. p. 126, n. 21 (1865).

Brunner's description of *P. crinicornis* applies with great exactitude to this species, four examples of which

are in the Hope Museum, Oxford; one example was sent to Berlin for comparison with Burmeister's type of *crinicornis* and was found to be quite distinct; nor was it found to agree with the other species described by Burmeister in that collection.

23. *P. brunneri*, Sss. (SURINAM.)

Thyrsochera brunneri, de Saussure, Rev. Zool. (2) xxi, p. 111 (1869); Miss. Mex. Orth. p. 49 (1870).

Thyrsochera crinicornis, var. *fulva*, Brunner, l. c. p. 127 (1865).

I have examined the type at Paris, and in my opinion the species is distinct from *P. femoralis*, Wlk.

24. *P. crinicornis*, Burm. (BRAZIL, Para.)

Thyrsochera crinicornis, Burmeister, l. c. p. 499, n. 2 (1838); de Saussure, Rev. Zool. (2) xxi, p. 111 (1869); Miss. Mex. Orth. p. 48 (1870); de Saussure and Zehntner, l. c. p. 33, n. 7 (1893).

Pseudomops affinis, Walker, l. c. p. 79, n. 9 (1868).

De Saussure has identified this species correctly, and his description of it should render its determination easy; a drawing of an example in the Hope Museum, Oxford, was sent to Berlin, and found to correspond closely with Burmeister's type.

25. *P. luctuosa*, Sss. (SURINAM.)

Thyrsochera luctuosa, de Saussure, Rev. Zool. (2) xx, p. 99 (1868); Miss. Mex. Orth. p. 48, pl. 1. ff. 27, 27a (1870).

The species is quite distinct from *P. crinicornis*, Burm.

26. *P. tristicula*, Stål. (BRAZIL, Rio de Janeiro.)

Pseudomops tristicula, Stål. Freg. Eugenie's Resa, Zool. v. p. 310 (1858).

Thyrsochera tristicula, Brunner, l. c. p. 125, n. 17 (1865).

An entirely black species with a testaceous vitta on each side of the abdomen beneath.

27. *P. puiggarii*, Bol. (BRAZIL, San Pablo.)

Thyrsocera puiggarii, Bolivar, An. Soc. Españ. x, p. 354 (1881).

This is possibly conspecific with *P. tristicula*, Stål., but the description of the latter is so inadequate that certainty on this point is not possible without comparison of types.

28. *P. nigrita*, Sss. (BRAZIL.)

Thyrsocera nigrita, de Saussure, Rev. Zool. (2) xxi, p. 111 (1869); Miss. Mex. Orth. p. 52 (1870).

This species was described from a specimen lacking the abdomen and antennæ, and on the strength of the different colour of the legs was held to be different from *P. tristicula*, Stål. A perfect example of what appears to be undoubtedly this species was sent to me by Dr. Taschenberg of Halle and shows that the species is quite distinct from *tristicula*, the abdomen being orange-red above and below. In the male the supra-anal lamina is triangularly produced and deeply notched, the sub-genital lamina is ample and orbicular, bearing two short acuminate styles; the cerci are orange and broadly spatulate; the ante-penultimate tergum has the posterior margin notched in the middle, whilst the preceding tergum is very broadly and deeply emarginate, exposing nearly the whole of the following tergum.

29. *P. melana*, Wlk. (BRAZIL.)

Pseudomops melana, Walker, l. c. p. 80, n. 16 (1868).

Distinguished by a luteous band on the abdomen above.

30. *P. simulans*, Stål. (BRAZIL.)

Pseudomops simulans, Stål. l. c. p. 310 (1858).

Thyrsocera simulans, Brunner, l. c. p. 124, n. 13 (1865).

This species, owing to the inadequacy of the description, cannot be recognized with certainty; it may not even enter into the section of the genus with spatulate cerci.

Pseudomops melandryoides, Wlk. (l. c. p. 84, 1868) is a species of *Phyllodromia*.

TABLE OF SPECIES INCLUDED IN THE GENUS
PSEUDOMOPS, Serv.

A. Cerci not spatulate.

1. Pronotum not unicolorous, margins paler than disc.
2. Ground colour of pronotum some shade of rufous.
3. Lateral pale margins of pronotum inwardly produced *intercepta*, Burm.
- 3'. Lateral pale margins of pronotum not inwardly produced.
4. Disc of pronotum with definite darker markings.
5. Two dark spots on the disc of the pronotum *oblongata*, L.
- 5'. A horseshoe-shaped mark on the disc of the pronotum. *inclusa*, Wlk.
- 4'. Disc of pronotum without definite darker markings.
5. General colour of tegmina rufous.
6. Fusco-rufous *laticornis*, Burm.
- 6'. Testaceo-rufous *annulicornis*, Burm.,
americana, Sss.
- 5'. General colour of tegmina orange.
6. Tegmina with apex only infuscated *aurantiaca*, Sss. and Zhnt.
- 6'. Tegmina with apical three-fifths infuscated . . . *grata*, Rehn.
- 5''. General colour of tegmina fuscous *mimica*, Wlk.
- 2'. Ground colour of pronotum fuscous.
3. Lateral yellow borders of pronotum not broad.
4. Lateral yellow borders not inwardly produced.
5. Pronotum longer than broad *cincta*, Burm.
- 5' Pronotum not longer than broad *neglecta*, mihi.

- 4'. Lateral yellow borders inwardly produced.
- 5. Legs not entirely yellow . . . *affinis*, Burm.
- 5'. Legs entirely yellow.
- 6. Lateral yellow borders of pronotum strongly produced inwards *angusta*, Wlk.
- 6'. Lateral yellow borders of pronotum less strongly produced inwards . . . *flavipes*, Burm.
- 3'. Lateral yellow borders of pronotum broad.
- 4. Yellow border of pronotum nearly equally broad throughout *gueriniana*, Sss.
- 4'. Yellow border of pronotum narrowed anteriorly and posteriorly.
- 5. Of large size *discicollis*, Burm.
- 5'. Smaller *burri*, mihi.
- 1'. Pronotum unicolorous.
- 2. Pronotum red *bicolor*, mihi.
- 2'. Pronotum black or fuscous.
- 3. Abdomen not orange in the male.
- 4. Tegmina without white streaks . . . *obscura*, Sss.
- 4'. Tegmina with white streaks . . . *albostriata*, mihi.
- 3'. Abdomen orange in the male . . . *magna*, mihi.

B. CERCI SPATULATE.

- 1. Pronotum with broad yellow borders.
- 2. Tegmina fuscous *femoralis*, Wlk.
- 2'. Tegmina fulvous *brunneri*, Sss.
- 1. Pronotum with narrow yellow borders or none.
- 2. Abdomen orange *nigrita*, Sss.
- 2'. Abdomen black.
- 3. Abdomen entirely black.
- 4. No white lines on the tegmina . . . *crinicornis*, Burm.
- 4. Tegmina with white lines . . . *luctuosa*, Sss.
- 3'. Abdomen not entirely black.
- 4. Abdomen rufous at base . . . *puiggari*, Bol.
- 4'. Abdomen not rufous at base.

5. Abdomen with transverse
testaceous band above . . . *melana*, Wlk.
5'. Abdomen with longitudinal
vittæ below *tristicula*, Stål.

III. SOME NEW *BLATTIDÆ* FROM SARAWAK, BORNEO, IN THE HOPE DEPARTMENT, OXFORD UNIVERSITY MUSEUM.

Mr. J. Hewitt, Curator of the Sarawak Museum, recently forwarded to me for determination a small collection of cockroaches; thirteen of the species appear to be new to science and are described below. The re-discovery of the species described by Serville as *Blatta decorata* is of some interest. The numbers attached by Mr. Hewitt to his specimens are quoted in square brackets.

Genus *ISCHNOPTERA*, Burm.

Ischnoptera excavata, n. sp. (Plate XVI, fig. 11.)

♂. Fulvo-ferruginous. Eyes closer together than the antennal sockets. Pronotum trapezoidal, sides deflexed, posterior margin obtusely angled. Tegmina with the radial vein bifurcated near base, seventeen costal veins, seven discoidal sectors. Wings hyaline, marginal field and veins ferruginous, mediastinal vein with five branches, radial vein bifurcated, eleven costal veins, ulnar vein sending four rami to apex, two to dividing vein, first axillary vein tri-ramose. Anterior femora with anterior margin beneath strongly spined, the proximal spines longer than the distal; all the femora with apical spines on both margins and with genicular spines. Supra-anal lamina profoundly modified, proximally it is deeply depressed with a median elevated carina, so that two wide pits are formed which are directed forwards beneath the preceding tergum, posterior margin of the lamina rounded, slightly emarginate. Sub-genital lamina of normal shape, but without styles. Cerci moderate.

Total length 21 mm.; length of tegmina 17 mm.

KUCHING (March 1899). One example [No. 32].

I know of no other species of Blattid in which so extensive a modification of the supra-anal lamina occurs;

the opening of the so-called "repugnatorial" glands in many species leads to modifications of the penultimate or antepenultimate terga, but not to that of the supra-anal lamina.

Ischnoptera montis, n. sp. (Plate XVI, fig. 10.)

♂. Head castaneous, antennæ rufo-fuscous. Pronotum trapezoidal, castaneous, sides deflexed. Tegmina testaceous-hyaline, thirteen to fourteen costal veins, anterior ulnar vein quadri-ramose, posterior ulnar tri-ramose. Wings hyaline, mediastinal vein long with two branches, radial vein unbranched, eight costal veins, the four proximal ones incrassated, median vein simple, ulnar vein giving off five veins to apex and three to the dividing vein. Abdomen castaneous, the first few segments paler; the first segment above with a median deep depression, the anterior wall of which is fimbriated with rufous hairs that appear to conceal a minute orifice, from the posterior wall projects a blunt tooth covered with a rufous pubescence. The middle of the seventh segment is depressed and the middle of the posterior margin of the sixth segment is slightly elevated, forming a wide-mouthed tube in which can be seen numerous hairs. Supra-anal lamina trapezoidal; subgenital lamina asymmetrical with two acuminate styles asymmetrically placed, the right being almost median, the left lateral. Cerci castaneous, mutilated. Legs rufo-castaneous, front femora with several spines along the anterior margin beneath, the distal members of the series shorter than the proximal.

Length of body 13 mm.; length of tegmina 14 mm.

MT. MATANG, 3000 feet. One example [No. 21].

The secondary sexual characters of the Oriental species of *Ischnoptera* appear to be most diverse in character, and a careful anatomical study of the structures whose presence is revealed by openings to the exterior and modifications of the overlying terga is much to be desired. The modification of the first abdominal tergum described above appears to be unusual amongst the Blattidæ.

Genus PSEUDOPHYLLODROMIA, Br.

Pseudophyllodromia pulcherrima, n.sp. (Plate XIV, fig. 3.)

♂. and ♀. Piceous. Head large and broad projecting beyond the pronotum, with a narrow golden line between the eyes; antennæ fine, setaceous, longer than the body. Pronotum trapezoidal, sides

not deflexed, bordered all round with a narrow golden line, the line is marginal on the anterior and posterior margins of the prothorax but submarginal on the lateral margins. Tegmina with the mediastinal area, a horseshoe-shaped vitta astride the radial vein near its base, and an elongate vitta in the apical part of the marginal field, golden (faded to white in dried specimens). The surface of the tegmina is somewhat rugulose; marginal field broad, nine costal veins, ulnar vein with nine oblique branches, no division of the vein into an anterior and posterior trunk, anal vein strongly impressed. Wings infuscated, especially strongly in marginal field and at apex, a clear hyaline spot in marginal field; nine somewhat irregular costal veins, ulnar vein with four rami, no apical triangle, first axillary tri-ramose. Abdomen piceous; supra-anal lamina of male transverse, of female slightly produced, emarginate; abdomen beneath piceous, the centre of the last few segments rufous, sub-genital lamina of the male short, transverse, of the female large, ample; cerci moderate, piceous, apical three joints golden above. Legs piceous, apices of coxæ and trochanters golden, tarsi and tibial spines rufous. Front femora unarmed beneath, mid-femora with two spines on anterior margin, three on posterior margin, hind femora with two on anterior margin and four on posterior margin, all the femora with apical spines on both margins and with genicular spines. The genital apparatus of the male appears to be very complicated. The ootheca is almost cylindrical, longitudinally finely striated, with a longitudinal serrulate crest, it is carried by the female with the crest uppermost and the contained eggs vertically disposed. The larvæ have the anterior and lateral margins of the pronotum, the lateral margins of the meso- and metanotum, two spots on the metanotum and on the fourth and fifth abdominal terga, golden.

Total length 10 mm.; length of tegmina 6 mm.

KUCHING. Several examples [No. 12].

This little cockroach is abundant in decayed wood; in general appearance it is unlike the South American species of the genus, but I can find no character of sufficient importance to entitle it to separate generic rank, unless the undivided trunk of the ulnar vein of the tegmina can be so regarded. An allied species occurs in Penang, but the unique example before me is in such bad condition that I prefer to await additional material before describing it. *Phyllodromia laticeps*, Wlk., and *P. laticaput*, Br., should also be referred to the genus *Pseudophyllodromia*.

Genus ALLACTA, Sss. and Zhntn.

Allacta parva, n. sp.

♂. Head and antennæ testaceous, two pyriform vittæ on the frons castaneous. Pronotum transversely elliptical, castaneous, with a triangular testaceous mark on the centre of the anterior margin. Tegmina castaneous, mediastinal area and a transverse spot just before the middle of the tegmen continuous with it, hyaline; ten costal veins, anterior ulnar vein with three longitudinal rami, posterior trunk simple. Wings hyaline, six costal veins, the third, fifth and sixth bifurcate, their extremities swollen; radial vein bifurcate, ulnar vein with four branches. Femora moderately armed. Supra-anal lamina transverse, sub-genital lamina orbicular, with two styles. Cerci elongate.

Total length 8 mm. ; length of tegmina 6 mm.

KUCHING. Two examples [No. 23].

Genus EPILAMPRA, Burm.

Epilampira saravacensis, n. sp.

♀. Allied to *E. inclarata*, Wlk., but larger, the ocelliform spots on the tegmina smaller and less numerous, the part of the right tegmen overlapped by the left not marbled or ocellated, marginal field of wings not so strongly marked with rufescent.

Pale fulvous; head with darker points densely arranged; pronotum not covering the vertex of the head, its posterior margin obtusely angled, covered with densely arranged fuscous and rufous points, but not punctate. Tegmina with a few small white ocelliform spots, except on that part of the right tegmen overlapped by the left, which is uniform fulvous. Wings with apex slightly fulvous. Abdomen flavo-testaceous above, rufous below. Front femora with six stout spines on the middle of anterior margin beneath, three on posterior margin in distal half, mid- and hind-femora with three spines on anterior, four on posterior margin; formula of apical spines $\frac{2}{1}$, $\frac{1}{1}$, $\frac{1}{0}$; genicular spines on mid- and hind-femora, none on the front pair; pulvilli margined with spines, the second joint with spines beneath in addition.

Total length 56 mm. ; length of body 43 mm. ; length of tegmina 48 mm.

LINGGA, BATANG LUPAR RIVER. One example [No. 15].

Epilampra goliath, n. sp.

♂. Allied to *E. moloch*, Rehn., from Siam, of the same dark vinaceous brown above and of the same elongate ovate shape. It differs as follows: Head not projecting beyond the pronotum, vertex and a broad stripe extending to the clypeus fuscous, the front of the head and antennæ testaceous; pronotum with two crescentic impressions on the disc. Marginal field of tegmina very broad, almost equalling half the total breadth, mediastinal vein with five branches. Wings with anterior part suffused with rufous, strongest at apex. Subgenital lamina broad, asymmetrical with two flattened styles. Abdomen flavo-testaceous above, rufo-fuscous below with paler margins, a dark stigma on each side of each segment. Front femora with five spines on median part of anterior margin, three on posterior margin, mid- and hind-femora with three to five spines on each margin, all the femora with genicular spines, formula of apical spines $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{1}$; pulvilli of posterior tarsi not margined with spines.

Total length 58 mm.; length of body 50 mm.; length of tegmina 50 mm.

MT. MATANG, 3000 feet. One example [No. 14]; N. BORNEO opposite LABUAN. One example.

If the admirably detailed description of *E. moloch*, Rehn (Proc. U.S. Nat. Mus., xxvii, p. 550, 1904), be compared with the foregoing description it will readily be seen in what features the two insects differ; I have omitted descriptions of those features wherein the two species resemble each other. Both species bear a marked resemblance to *Molytria badia*, Br.

Epilampra miranda, n. sp.

♂. Allied to the preceding species. Fulvo-testaceous. Head with very convex front, eyes more remote than ocellar spots, vertex with three longitudinal stripes. Pronotum shaped as in *E. moloch*, Rehn, and *E. goliath*, mihi, but somewhat more cucullate, only just covering the vertex of the head, with scattered punctures and with two crescentic impressions on the disc. Tegmina with marginal field equal to half the total breadth, mediastinal vein with seven branches; speckled with paler spots, radial vein at base fuscous. Wings hyaline, veins flavo-testaceous. Supra-anal lamina bilobate, not extending beyond the sub-genital lamina which is quadrate and slightly asymmetrical (styles mutilated); cerci moderate, acuminate; ventral segments with a black stigma on each side. Front femora with

seven spines on anterior margin beneath, mid- and hind-femora with three to four spines on anterior margin, two on posterior margin; formula of apical spines $\frac{2}{1}$, $\frac{1}{1}$, $\frac{1}{0}$, no genicular spine on front femora. Posterior metatarsus barely equal in length to remaining joints, which are not spined beneath, pulvilli not margined with spines.

Total length, 55 mm.; length of body, 44 mm.; length of tegmina, 42 mm.; pronotum, 18 mm. \times 11 mm.

MT. PENRISSEN, 3500 feet (*R. Shelford coll.*). One example [No. 16].

Epilampra flavomarginata, n. sp.

♂ and ♀. Rufous. Head testaceous with minute rufous points, antennæ fuscous except at base. Pronotum not covering the vertex, sides deflexed, posterior margin obtusely angled, covered with small confluent dots darker than the ground-colour, except on the anterior and posterior margins which are flavo-testaceous. Tegmina with mediastinal area flavo-testaceous, the rest rufous with fine yellow streaks on the veins, the right tegmen where covered by the left is infuscated; branching of mediastinal vein very obscure. Wings with the marginal field luteous, the apex and veins infuscated. Abdomen flavo-testaceous. Supra-anal lamina bilobate, strongly produced in the female; sub-genital lamina in the male sub-quadrate, asymmetrical, in the female ample, semi-orbicular. Front femora with three to four spines on the proximal half of the anterior margin beneath, with close-set minute spines in the distal half, mid- and hind-femora with four to five spines on anterior margin, three on posterior margin, apical spines on both margins on all the femora, all the genicular spines present. Posterior metatarsus much longer than succeeding joints, second joint spinose beneath, pulvilli margined with spines.

Total length, 21 mm.; length of body, 17 mm.; length of tegmina, 17 mm.

KUCHING; several examples [No. 17].

This species falls into the same group that includes *E. papua*, Sss., *E. lævicollis*, Sss., *E. puncticollis*, Wlk., *E. plena*, Wlk., etc. Its coloration alone ought to render it easy of recognition.

Genus HOMALOSILPHA, Stål.

Homalosilpha decorata, Serv. (Plate XIV, fig. 8.)

Blatta decorata, Serville, Ins. Orth. p. 99 (1839).

This species of unknown habitat has been ignored in

the lists of Blattidæ described by earlier authors; neither Brunner nor Kirby mention it. The type specimen from the Marchal collection is in the Hope Museum, Oxford, and from an examination of it I am able to place it without a doubt in the genus *Homalosilpha*. An identical example from Mt. Penrissen, Sarawak [No. 28] gives the habitat of this species that has for so long been unrecognized. It may be mentioned that another of Serville's types of Blattidæ, viz. *Blatta alcarazzas*, is also in the Oxford Museum.

Genus MIROBLATTA, nov.

Head covered by the pronotum, eyes closer together than the antennal sockets; antennæ very long, third joint twice as long as second. Pronotum longer than broad, anterior border arcuate, posterior border truncate, exposing the scutellum; markedly cucullate and narrowed anteriorly, anterior and lateral margins reflected, disc with symmetrically disposed elevated ridges. Tegmina broad, oval, barely reaching extremity of abdomen, overlapping considerably, apex obtusely rounded; corneous, densely reticulated, venation obscured, no anal vein or anal field, radial vein strongly elevated at base, mediastinal field on under surface elevated, keeled, space between mediastinal and radial veins broad, inflexed, forming with mediastinal field an epipleuron, the outer margin of which is the anterior margin of the tegmen, the inner margin formed by the mediastinal vein. Wings broadly ovate, of same length as tegmina, coriaceous, anterior part nearly twice as broad as posterior part, the outer margin deeply indented at the point of division between the two parts, the wing appearing bilobate; mediastinal and radial veins fused, their base elevated forming a prominent ridge, six ramose branches given off to apex and outer margin, ulnar vein reduced with three ramose branches only, numerous transverse venules between all the veins; posterior part of wing not folding in fan-like manner but merely doubling under anterior part. Supra-anal lamina of male broadly transverse, slightly emarginate. Sub-genital lamina of male subquadrate, styles minute. Cerci long, very sharply pointed. Legs long, slender; femora unarmed beneath; spines on posterior tibiæ in two rows. Posterior tarsi with metatarsus longer than remaining joints, no spines beneath, pulvilli large, the second occupying whole length of joint. Female not known, probably apterous.

The affinities of this highly remarkable genus appear to

be with *Archiblatta*, Vollenh., as shown by the unarmed femora and the structure of the tarsi; the form of the "epipleuron" is very different, in *Archiblatta* this is formed by a simple deflexion of the anterior part of the tegmen, whereas in *Miroblatta* the area between the mediastinal and radial veins is deflexed, but the mediastinal field itself is in the same plane as the disc of the tegmen, forming in repose a sort of flange; I know of no parallel modification of the tegmina in other Blattidæ. The method of wing-folding in *Miroblatta* is met with again only amongst the Corydiinæ.

Miroblatta petrophila, sp. n. (Plate XIV, figs. 4, 4a.)

♂. Elongate ovate; dark castaneous. Head fuscous, front concave, lower face rugose, clypeus flavo-testaceous, mouth parts castaneous; antennæ longer than total length of body, a broad white annulus before the middle, occupying twenty-one joints. Pronotum castaneous, disc with strong elevated ridges in the form of a horseshoe, giving off anteriorly two short diverging branches and laterally two backwardly directed branches which are less strongly marked, a median carina on the anterior cucullate part of the pronotum; area between the limbs of the horseshoe rugose, ridges and adjacent parts black, a pair of orange spots on each side of the anterior carina and another pair on each side of the limbs of the horseshoe-shaped ridge; scattered about the surface of the pronotum are numerous small tubercles bearing erect setæ. Tegmina castaneous, the radial vein black. Wings flavo-hyaline, marginal field and apex suffused with flavo-castaneous. Abdomen dark castaneous, paler at the base above. Legs dark castaneous, apices of femora flavo-castaneous; formula of apical spines $\frac{2}{1}$, $\frac{1}{1}$, $\frac{1}{1}$, no genicular spines on anterior femora.

Total length 40 mm.; length of tegmina 26 mm.; pronotum 13 mm. \times 16 mm.

MT. SANTUBONG, 2500 feet, amongst rocks. One example.

About half-a-dozen specimens of this cockroach were captured by a native collector in August 1900; he stated that they ran with great activity and that they were incapable of flight.

Genus CORYDIA, Serv.

Corydia cærulea, n. sp.

♂. Brilliant blue with metallic reflections. Head, pronotum and anterior margins of tegmina and wings pubescent, antennæ fuscous,

moniliform. Pronotum transversely elliptic, punctate with two deep impressions on the disc, humeral angles well marked. Tegmina blue, with purplish reflections and some obscure orange maculæ on the disc, an orange streak on the margin of the tegmen just beyond the mediastinal field; the right tegmen where covered by the left reddish-purple. Wings hyaline, marginal field infuscated, with purplish reflections, four bifurcated costal veins, ulnar vein with seven rami. Meso- and metanotum purple. Abdomen orange, the last two segments blue. Supra-anal lamina transverse, widely emarginate; sub-genital lamina quadrate with acuminate and pubescent styles. Cerci stout, fuscous. Legs dark blue, tarsi fuscous.

Total length, 13.5 mm. ; length of tegmina 10 mm.

MT. MATANG, 3000 feet (*Shelford coll.*). One example [No. 9].

The species appears to be most closely allied to *C. dasytoides*, Wlk.

Genus AREOLARIA, Br.

Areolaria signata, n. sp.

♂ and ♀. Head black, vertex with a testaceous patch on which occur two short black lines, maxillary palps testaceous, antennæ black, incrassated in the basal half and plumose, the apical half with sixteen joints testaceous and the terminal three joints fuscous. Pronotum almost quadrangular, broader than long, sides deflexed slightly, disc closely punctate, black with a central testaceous vitta incompletely divided longitudinally, posterior margin narrowly testaceous, lateral margins testaceous-hyaline. Tegmina corneous, mediastinal field hyaline, the remainder griseo-testaceous with a broad fuscous stripe running along the radial vein then turning at right angles to cross the apex of the anal field and to meet its fellow of the opposite tegmen, left tegmen with a fuscous stripe on the sutural margin, the portion of the right tegmen that is overlapped by the left is black and shining; all the veins marked by lines of punctures. Scutellum prominent, black, punctate. Wings hyaline, marginal field infuscated, thirteen costal veins, strongly incrassated and connected by transverse venulæ, median vein simple, medio-discal area crossed by nine transverse venulæ, ulnar vein tri-ramose, first axillary vein quadri-ramose, triangular apical field very large, unequally divided by a longitudinal vein. Abdomen of male flavid above, fuscous below, supra-anal lamina, shortly produced, triangular, sub-genital lamina narrower, apex deeply and triangularly cleft with two short styles, cerci flavid. Abdomen of female broader fuscous

above and below, supra-anal lamina more produced with a median carina, sub-genital lamina very large, its surface with shallow confluent punctures. Front legs and all the coxæ fuscous, all the tarsi, the mid and posterior tibiæ testaceous with the bases fuscous, the mid and posterior femora testaceous at base, fuscous at apex.

Total length, 9 mm. ; length of tegmina 6.5 mm.

KUCHING. Four examples [No. 7].

The incrassated and plumose antennæ in both sexes will serve to distinguish this species from those already described.

Genus HOMOPTEROIDEA, nov.

Head as in *Latindia*, Stål, antennæ elongate. Pronotum elliptic, sides not deflexed, with arcuate sulci, with a sparse erect pubescence. Tegmina membranous, slightly exceeding the abdomen in length, or much longer, venation irregular, apical part of discoidal area reticulate, no oblique vein. Wings as long as tegmina in both sexes. Supra-anal lamina produced, triangular, sub-genital lamina in the female deeply cleft. Cerci elongate. Femora unarmed beneath ; tibiæ sparsely spined, spines in two rows ; tarsi without arolia.

The genus differs from *Latindia*, Stål, by the absence of an oblique vein in the tegmina, from *Paralatindia*, Sss., by the presence of alar organs in both sexes, from *Ipisoma*, Bol., by the equally long tegmina and wings, from *Hemilatindia*, Sss., by the pronotum without deflexed sides and by the entirely membranous character of the tegmina.

There are four species in the Oxford Museum, all from the Oriental region, but the specimens are in bad condition. The insects which in life appear very like small Homoptera of the family Fulgoridæ (e.g. *Leusaba*, *Stacota*, *Epora*) are extremely fragile and it is a matter of difficulty to capture perfect specimens.

Homopteroidea nigra, n. sp. (Plate XVI, figs. 13, 14.)

♀. Head black, antennæ fuscous, clypeus with an erect pubescence. Pronotum almost orbicular, margined all round, a few erect hairs on the anterior and lateral margins, disc irregular with two converging sulci posteriorly, black, lateral margins dark castaneous. Tegmina castaneous, radial vein giving off four costal veins, three longitudinal sectors in discoidal field, apex of tegmina reticulate, anal vein angled, axillary veins reduced, reticulated. Wings infuscated, four costal veins, ulnar vein tri-ramose, apex of wing reticulated.

Abdomen fusco-castaneous; supra-anal lamina large, produced, margin slightly reflected, emarginate in the middle and with a stiff erect pubescence, sub-genital smaller than the supra-anal lamina, compressed laterally and deeply cleft; cerci mutilated. Legs fusco-castaneous, tarsi paler, front femora with apical spine on anterior border beneath, no genicular spine, mid-femora with two apical spines and a genicular spine, hind femora missing; tarsi without arolia.

Length of body 7 mm. ; length of tegmina 3 mm.

KUCHING. One example [No. 26]. An example of this species from Sumatra is in the Paris Museum.

Genus PARANAUPHÆTA, Br.

Paranauphæta atra, n. sp.

♂ and ♀. Entirely black, shining, except the apical third of the antennæ which is testaceous, and the labrum which is flavo-testaceous. Pronotum marked with irregular depressions. Tegmina with radial vein ramose, fourteen to fifteen costal veins, their basal halves obsolescent, anterior ulnar vein bifurcate, posterior ulnar multi-ramose, anal vein not reaching the middle of the sutural margin. Wings infuscated, radial vein irregular, costal veins obsolete, ulnar vein sending many branches to the dividing vein, an inconspicuous apical triangle. Supra-anal lamina in both sexes large, the cerci barely exceeding it, its posterior margin in the female slightly emarginate; sub-genital lamina in male large, asymmetrical with prominent acuminate styles, in the female ample.

Total length, 27 mm. ; length of tegmina, 21 mm.

KUCHING. A long series [No. 6].

[*Paranauphæta affinis*, n. sp.]

♀. Allied to *P. basalis*, Serv., but with no yellow band on the head between the eyes; abdomen beneath with no yellow spots, the last three segments of the abdomen above with very small yellow spots; the supra-anal lamina entirely black. Tegmina and wings variable in length, in one example not extending beyond the middle of the sixth abdominal segment, in no case attaining the extremity of the abdomen.

Total length 22 mm. ; length of tegmina 13 mm. to 15 mm.

BHUTAN. Four examples (Paris Museum).]

IV. THE TYPE OF *Epilampra brasiliensis*, Fab.

Fabricius' description in his "Systema Entomologiæ," 1775, p. 272, of this species is as follows:—

"*B. pallida*, abdomine atro.

"Habitat in Brasilia. *Mus. Dom. Banks*.

"Paulo major *B. lapponica*. Tota pallida, abdomine subtus atro. Antennæ fuscæ."

So brief a description of a member of a genus including numbers of cryptically-coloured species, renders its determination by subsequent authors almost impossible. The synonymy of the species according to Brunner (Nouv. Syst. d. Blatt. 1865, p. 159) is:—

Epilampra brasiliensis, Burm. Handb. ii, p. 505 (1838).

Blatta maculicollis, Serv., Ins. Orth. p. 92 (1839).

? *Blatta grisea*, De Geer, Mém. Ins. iii, p. 570, n. 7, pl. 44, f. 9 (1773).

? *Blatta grisea*, Oliv. Enc. Méth. T. iv, p. 319, n. 35.

? *Phyllodromia burmeisteri*, Guér. Ile de Cuba, Anim. Art. p. 345 (1857).

None of these species can be recognized with certainty, since the descriptions of them are inadequate and the types of some are missing. The Hope Museum at Oxford contains some drawings made by the late Professor Westwood of several of Serville's types, amongst others the type of *Blatta maculicollis*, and on comparing this with the Fabrician type of *Blatta brasiliensis* in the Banksian cabinet at the British Museum I have come to the conclusion that the two species are distinct. Brunner's own description does not apply to the Fabrician type, nor to the drawing of *maculicollis*, and I would therefore suggest the name of *Epilampra burmeisteri*, Guér., for this species. *Epilampra burmeisteri* has been well described also by de Saussure (Mém. Mex. Blatt., p. 131), though I am by no means certain if this author had the opportunity of seeing Guérin's type which came from Cuba. Examples in the Oxford Museum from Jamaica, Guiana and Brazil appear to be identical with each other and they correspond well with Brunner's and de Saussure's descriptions. It remains then only to give a detailed description of the Fabrician type.

On referring to the Banksian cabinet I found two specimens belonging to distinct species under the name *Blatta brasiliensis*; one measured in total length 18 mm., and had the abdomen fuscous beneath, the other measured 25·1 mm., and had the abdomen beneath rufous with pale disc. The former specimen corresponds the more closely to the diagnosis of Fabricius and may be selected as the type of the species; the following is a description of it:—

♂. Dull testaceous. Head with a few small brown maculæ on the front and face, palpi pallid; (antennæ broken). Pronotum broadly transverse not covering the vertex, lateral margins broadly hyaline, disc testaceous, unspotted. Tegmina testaceous hyaline, unspotted; mediastinal vein unbranched, radial vein with eight costal branches, the two last bifurcate, apex of radial vein ramose and not reaching end of tegmina, anterior ulnar vein bifurcate, the branches becoming ramose, posterior ulnar vein simple, anal sulcus strongly marked, four axillary veins. Wings hyaline, veins testaceous. Abdomen fuscous above and beneath becoming rather paler towards the extremity; supra-anal lamina produced subquadrate, testaceous, posterior border slightly emarginate; sub-genital lamina semi-orbicular, ample, with large acuminate styles (cerci mutilated, fuscous). Legs testaceous, coxæ with fuscous line on outer border; front femora with ten spines on the anterior margin beneath, extending from the middle to the apex, the middle ones longest, four spines on posterior margin, mid-femora with six spines on anterior margin, three on posterior margin, hind femora with six spines on anterior margin, four on posterior margin, formula of apical spines $\frac{2}{1}$, $\frac{1}{1}$, $\frac{1}{1}$, of genicular spines 0, 1, 1.

Total length, 18 mm.; length of body, 12·2 mm.; length of tegmina, 15 mm.; breadth of pronotum, 6·5 mm.

The other specimen is slightly darker in colour. ♂. Eyes whitish-grey, face testaceous, a rufo-fuscous stripe on the frons extending down to the base of the clypeus, thinning out to a line on the vertex. Pronotum more trapezoidal, lateral margins hyaline. Tegmina with two-branched mediastinal vein, radial vein giving off eleven costals, its end ramose, seven axillary veins. Abdomen rufous beneath with the disc paler; supra-anal lamina triangularly produced; sub-genital lamina narrow, produced, asymmetrical with one acuminate style. Front femora with two spines on anterior margin beneath in the middle, four on the posterior margin (hind femora lost), formula of apical spines, $\frac{2}{1}$, $\frac{1}{1}$, $\frac{1}{0}$?

Total length, 25·1 mm.; length of body, 17 mm.; length of tegmina 21 mm.; (pronotum crushed).

Which of these two specimens, if either, is identical with the *Blatta grisea* of De Geer it is not possible to say ; it would scarcely be wise to sink *brasiliensis* as a synonym of *grisea* and I hesitate also to give a name to the second of Fabricius' specimens.

EXPLANATION OF PLATES.

PLATE XIV.

- FIG. 1. *Pseudomops burri*, n. sp. (Type ♂.)
2. ,, *discicollis*, Burm., ♀.
3. *Pseudophyllodromia pulcherrima*, n. sp. (Type ♂.)
4. *Miroblatta petrophila*, n. sp. (Type ♂.) Nat. size.
4a. Ventral aspect of same, showing the "epipleura."
5. *Thyrsocera speciosa*, Wlk. (Type ♀.)
6. *Pseudothyrsocera ruficollis*, n. sp. (Type ♂.)
7. *Pseudomops bicolor*, n. sp. (Type ♂.)
8. *Homalosilpha decorata*, Serv., ♂. Nat. size.

PLATE XV.

- FIG. 1. Sub-genital lamina of *Hemithyrsocera histrio*, Burm., ♂
s. = spiracle, t. = "titillator."
2. "Titillator" of *Hemithyrsocera lateralis*, Wlk.
3. " " " *Theganopteryx æthiopica*, Sss.
4. End of abdomen of *Escala circumducta*, Wlk., ♂, dorsal
view.
5. End of abdomen of *Escala longiuscula*, Wlk., ♂, dorsal
view.
6. Sub-genital lamina of *Escala insignis*, n. sp. ♂.
7. Wing of *Anaplecta maculata*, n. sp.
8. " " *zeylanica*, n. sp.
9. " " *thwaitesi*, n. sp.
10. " " *malayensis*, n. sp.
11. " " *borneensis*, n. sp.
12. " " *obscura*, n. sp.

PLATE XVI. ---

- FIG. 1. Wing of *Anaplecta brunneri*, n. sp.
 2. " " *dahomensis*, n. sp.
 3. " " *pavida*, n. sp.
 4. " " *fusca*, n. sp.
 5. " " *varipennis*, n. sp. (long-winged form).
 6. " " " " (short-winged form).
 7. " " *chrysoptera*, n. sp.
 8. " *Anaplectoidea nitida*, n. sp.
 9. Tegmen of *Anaplectoidea nitida*, n. sp.
 10. Dorsal view of abdomen of *Ischnoptera montis*, n. sp. ♂.
 11. End of abdomen of *Ischnoptera excavata*, n. sp. ♂, dorsal view.
 12. Opening of scent-glands in *Pseudomops bicolor*, n. sp. ♂, dorsal view ; a, side view.
 13. Pronotum of *Homopteroidea nigra*, n. sp.
 14. Tegmen of *Homopteroidea nigra*, n. sp.



Shelford, Robert W. C. 1906. "XIV. Studies of the Blattidæ." *Transactions of the Entomological Society of London* 54, 231–280.

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