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## Revision of the Genus *Lacconectus* Motschulsky (Coleoptera, Dytiscidae)

by M. Brancucci \*

**Abstract:** The genus *Lacconectus* Motschulsky is revised. 38 species are recognised, 24 of which are new to science; 1 is polytypic and includes 3 subspecies (2 new ones): *Lacconectus andrewesi* Guignot (S India), *L. basalis* Sharp (type species, India?, Burma, Thailand, Vietnam, Taiwan, Cambodia, Malaysia), *L. birmanicus* n. sp. (Burma), *L. biswasi* n. sp. (Assam), *L. corayi* n. sp. (Singapore), *L. fallaciosus* n. sp. (Burma), *L. formosanus* (Kamiya) (Taiwan, S China, Vietnam), *L. freyi* Guéorguiev (S India), *L. fulvescens* Motsch. (India, Burma), *L. gusenleitneri* n. sp. (Assam), *L. heinertzi* n. sp. (Thailand), *L. holzschuhi* n. sp. (Nepal), *L. javanicus* n. sp. (Java), *L. krikkeni* n. sp. (Malaysia), *L. laccophiloides laccophiloides* Zimm. (Palawan), *L. l. balabacicus* n. ssp. (Balabac Island), *L. l. luzonicus* n. ssp. (Luzon), *L. merguiensis* n. sp. (Burma), *L. minutus* n. sp. (Sumatra), *L. muluensis* n. sp. (Sarawak), *L. nicolasi* n. sp. (Nepal, N India), *L. oceanicus* Rég. (Mentawai), *L. ovalis* Gschw. (Assam), *L. pederzani* n. sp. (Assam), *L. peguensis* n. sp. (Burma), *L. ponti* n. sp. (Malaya), *L. pulcher* n. sp. (Sarawak), *L. punctatus* n. sp. (Vietnam, Cambodia), *L. punctipennis* Zimm. (Java, Sumatra), *L. regimbarti* n. sp. (S India), *L. ritsemai* Rég. (Java), *L. rossi* n. sp. (India), *L. sabahensis* n. sp. (Sabah), *L. scholzi* Gschw. (S India), *L. similis* n. sp. (Thailand), *L. simoni* Rég. (Sri Lanka), *L. spangleri* n. sp. (Sri Lanka), *L. strigulifer* Zimm. (Burma), *L. tonkinensis* Guignot (Vietnam) and *L. tonkinoides* n. sp. (Vietnam). Types of all species were studied and lectotypes designated when necessary. Two new synonyms were proposed: *L. lividus* Rég., 1891, is a junior synonym of *L. fulvescens* Motsch., 1855, and *L. kurosawai* Satô, 1979, of *L. laccophiloides laccophiloides* Zimm., 1928. *Platynectes formosanus* Kamiya is transferred to the genus *Lacconectus* and a neotype is designated. *Lacconectus festae* Griffini is transferred to the genus *Aglymbus*. The subgenera proposed by VAZIRANI (1970) are discussed and judged unacceptable. The aedeagus and parameres are illustrated for every species. Each type of reticulation and color pattern also is illustrated. Taxonomic keys are provided for the species-groups and species.

**Key words:** Coleoptera Dytiscidae – *Lacconectus* – taxonomy – description – new species.

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## I. INTRODUCTION

### 1. Preliminary notes

The genus *Lacconectus*, described by MOTSCHULSKY (1855), was based on a single species, *L. fulvescens* Motsch. SHARP (1880–82) described a second species, *L. basalis* Sharp. Subsequently RÉGIMBART (1899), GRIFFINI (1899), ZIMMERMANN (1923, 1928b, 1929), GSCHWENDTNER (1922, 1934), GUIGNOT (1954), GUÉORGUEV (1968) and SATÔ (1979) have added an additional 15 species, 3 of which are considered here as synonyms (2 new ones) and 1 of which is transferred to the genus *Aglymbus*. Furthermore, KAMIYA (1938) described *Platynectes formosanus* Kamiya, which actually belongs to *Lacconectus*. Finally, 24 new species are described below bringing the current number of valid species to 38 (1 polytypic).

This high number of new species is explained by the specialized habitat and consequently by the restricted areas in which they can be found.

Several subgenera have been proposed in *Lacconectus* (VAZIRANI, 1970). Punctuation, size and color were used to characterize members of the subgenera. However, these characters vary too gradually and I consider all subgeneric names invalid. VAZIRANI (l.c.) placed “species with deep striae or strong punctures” in the subgenus *Paralacconectus*

but, most curiously, also included in it very smooth and unpunctured species like *L. scholzi* Gschw. (type species). The same inconsistency applies to his interpretation of the metacoxal lines, which are indeed somewhat longer and more impressed in *L. simoni* Rég., for instance, but are represented only by a few large punctures in *L. scholzi* Gschw., as in *L. basalis* Sharp (which is *Lacconnectus* s. str. according to VAZIRANI, 1970).

In fact, *L. scholzi* Gschw., *L. andrewesi* Guignot, *L. regimbarti* n. sp., *L. spangleri* n. sp., *L. freyi* Guéorguiev and *L. rossi* n. sp. do have several characters in common, such as their generally large size, characteristic colour (brownish-black with testaceous markings, with the exception of *L. freyi* Guéorguiev and *L. rossi* n. sp.) discal and sublateral broadly interrupted rows of punctures on elytra (punctures forming well-spaced groups), and aedeagus developed in 2 planes, enlarged laterally in dorsal view. *L. freyi* Guéorguiev and *L. rossi* n. sp. are an exception in so far as their colour is concerned. On the other hand, *L. heinertzi* n. sp. has the size and colour but not the characteristic aedeagus. A subgenus based on these characters would not be a true reflexion of the relationships and so, after long hesitation, I have preferred to divide the genus into three characteristic groups.

## 2. Material and methods

### Material

Thanks to the collaboration of many colleagues, institutions and museums, I was able to study a large number of specimens. The following abbreviations are used for the collections where material is located:

- ALE = Akademie der Landwirtschaftswissenschaft der DDR,  
Eberswalde (Dr R. Gaedicke)
- BM = British Museum, Natural History, London (Mr C.R. Smith)
- BU = Hungarian Natural History Museum, Budapest  
(Dr Z. Kaszab)
- CAS = California Academy of Sciences, San Francisco  
(Dr D.H. Kavanaugh)
- FP = coll. F. Pederzani, Ravenna
- GW = coll. Prof. Dr G. Wewalka, Wien

- KU = Kagoshima University, Kagoshima-shi (Prof. T. Nakane)
- MB = coll. M. Brancucci, Natural History Museum, Basel
- MCG = Museo Civico di Storia Naturale, Genova (Dr R. Poggi)
- MFT = Museum Frey, Tutzing
- MIZS = Museo ed Istituto di Zoologia Sistemica della Università di Torino (Dr P. Passerin d'Entrèves)
- MNB = Museum für Naturkunde, Humboldt-Universität, Berlin, DDR (Dr F. Hieke)
- MP = Muséum National d'Histoire Naturelle, Paris (Dr Cl. Girard)
- NA = coll. Prof. Dr T. Nakane, Kagoshima-shi
- NRS = Naturhistoriska Riksmuseet, Stockholm (Dr T. Nyholm)
- NSMT = National Science Museum, Tokyo (Dr S. Uéno)
- OLM = Oberösterreichisches Landesmuseum, Linz (Dr F. Gusenleitner)
- RNHL = Rijksmuseum van Natuurlijke Historie, Leiden (Dr J. Krikken)
- SA = coll. Prof. Dr M. Satô, Nagoya
- SR = coll. Dr S. Rocchi, Firenze
- USNM = United States National Museum, Washington (Dr P. Spangler)
- VG = coll. Dr V.B. Guéorguiev, Sofia
- ZMK = Zoologisk Museum, Kobenhavn (Dr M. Holmen and Dr O. Martin)
- ZMM = Zoological Museum of Moskow (Dr N. Nikitsky)
- ZSI = Zoological Survey of India, Calcutta (Dr S. Biswas)
- ZSM = Zoologische Staatssammlung, München (Dr G. Scherer)

## Methods

### 1. Dissecting and illustrating techniques

Dried specimens were put in cold water for about an hour and then the aedeagus was removed with slightly hooked pin (size 000). Dissected parts were then glued on a card next to or beneath the insect.

When necessary, the colour patterns were illustrated by showing the left half of the insect.

Aedeagal illustrations are of the left lateral face with the median and apical parts in horizontal plane, so that all drawings are directly comparable; however, the base of the aedeagus in illustrations prepared this way sometimes appears shorter than it actually is, depending on how the aedeagus is curved laterally. When necessary, the apical part was drawn in dorsal view.

There are slight differences between the right and the left parameres; but, the differences were so minimal that I illustrated only the right one.

The elytral reticulation varies a great deal but always follows an "evolutionary scheme" as explained below. The SEM-photographs (except when noted) always show a portion of the right elytron situated on the basal third, between the sutural and discal rows of punctures.

## 2. Species-subspecies concept

I follow the species and subspecies concept of MAYR (1969). Subspecies treated herein are completely allopatric island populations.

## 3. Phylogenetic methods

Phylogenetic methods of HENNING (1950) are used. Classification and phylogeny of *Copelatus* is not well-known but I have used *Aglymbus* and *Copelatus* as a functional outgroup (WATROUS & WHEELER, 1981) so that a preliminary statement concerning phylogeny within *Lacconectus* can be made.

## 4. Taxonomic format

I have fully described the genus and the included species but have provided only diagnoses for the species-groups.

# 3. Morphology and terminology

The terminology used in this revision is the same as that used by other workers on Dytiscidae (GUIGNOT, 1931–33; BALFOUR-BROWNE, 1940, 1950; LARSON, 1975).

## Colour

*Lacconectus* species are rather uniform in colour pattern. Most species are brown or dark brown, with subtle paler areas sometimes visible (Fig. 3.) on the anterior part and disc of head, sides of pronotum, and

base of elytra. However, one small group of species is brownish-black with distinct testaceous markings (*L. scholzi* Gschw., *L. regimbarti* n. sp., *L. andrewesi* Guignot, *L. spangleri* n. sp., *L. simoni* Rég., *L. heinertzi* n. sp. and *L. laccophiloides luzonicus* n. ssp., Figs 5–9). A few species have longitudinal brown stripes on a testaceous background (*L. laccophiloides laccophiloides* Rég., *L. l. balabacicus* n. ssp. and *L. pulcher* n. sp., Fig. 4); *L. sabahensis* n. sp. has the entire basal third of the elytra brownish-black with bright testaceous spots and the posterior  $\frac{2}{3}$  testaceous with dark spots (Fig. 10).

The dark colour is assumed to be a modification of the brown colour, then the dark colour should be considered as a plesiomorphous character.

### Size

Total length and width vary between 3.6–7 mm and 2–3.9 mm respectively. Five species only are less than 4 mm and 3 greater than 6 mm; the remaining 30 are between 4–6 mm.

It is interesting that largest species also have similar colour patterns, aedeagal shape and surface sculpture of the dorsum.

### Reticulation

All species are fundamentally microreticulate on the upper surface. On the elytra the sequence of development is always the same: the more or less rounded or polygonal meshes become more and more elongate, are replaced by a fine striolation which gradually disappears posteriorly (Figs 11–15, see also the note below). Confirmation of this interpretation of the direction of this trend is found in the fact that if the meshes are already elongate at the base, they very quickly disappear, perhaps even in the basal third (*L. laccophiloides laccophiloides* Rég.), but if they are still strong at base they will usually not disappear before the apical third (*L. formosanus* (Kamiya)). The length of these reticulated areas varies considerably. For example, in *L. basalis* Sharp the reticulation is very strong at the base but is obsolescent by the middle of the elytra. On the other hand, in *L. pederzanii* n. sp., *L. gusenleitneri* n. sp., *L. nicolasi* n. sp. and *L. ovalis* Gschw., the meshes are polygonal and are very distinct on the entire elytral surface.

Although this interpretation runs contrary to my previous view of Dytiscid evolution, the “smooth surface” appears to have been secondarily acquired in this family and has to be considered as a plesiomorphous character within *Lacconectus*.

**Important note:** Study of the surface sculpture with the scanning electron microscope demonstrates the limitations of the light microscope by showing considerable variations not otherwise visible.

SEM photographs reveal that surfaces described throughout this paper as striolate or even smooth, on the basis of observations made with a light microscope, are actually finely transversely reticulate. This reticulation cannot be seen with a light microscope and has not been taken into consideration in the descriptions of discussions.

#### Puncturation

There are 2 types of puncturation, a minute one and a large one. The minute type is visible on the head, pronotum and elytra; on the elytra each puncture is very often surrounded by petal-like meshes.

The large type is generally limited to the pronotum margins and to the elytral rows of punctures and to the 2<sup>nd</sup> and 3<sup>rd</sup> interspaces (see figures 3–10), rarely to the 1<sup>st</sup> one (Figs 4, 5); the punctures in the interspaces are much less numerous and are widely spaced except in *L. laccophiloides laccophiloides* Zimm., *L. punctipennis* Zimm., *L. punctatus* n. sp. and *L. javanicus* n. sp. where they are numerous, particularly at base. In *L. simoni* Rég. and *L. strigulifer* Zimm. the punctures are modified into short and deep striae (Figs 40–45). The enlargement of the puncturation should also be considered as a plesiomorphous feature.

#### Prosternal process

The prosternal process varies a great deal within the genus *Lacconectus*. It can be very short (*L. tonkinensis* Guignot, Fig. 56) or elongate (*L. regimbarti* n. sp., Fig. 57). It is always more or less ovoid, bordered at the sides, and broadly rounded at the apex. In the descriptions, the ratio of length to width was calculated as shown in figure 57 (L/W).

#### Metacoxal lines

The metacoxal lines are practically absent in all species. Very often some traces are visible in the form of a few punctures (most species, Figs 58, 60) or a furrow (*L. regimbarti* n. sp., *L. simoni* Rég., etc., Fig. 61).

I cannot agree with VAZIRANI (1970), and I do not think that any great importance may be attributed to this character; it even varies con-

siderably within the same species-group. The furrow is long and well-developed in *L. regimbarti* n. sp. but short in *L. scholzi* Gschw., although both species are closely related. Furthermore, it varies a great deal within *L. spangleri* n. sp.: some specimens have a very short furrow, while others have a long and deeply impressed one.

#### Metacoxal processes

These processes are uniform in *Lacconectus* and rather consistent as in figures 58, 60 and 61.

#### Protarsi and mesotarsi of ♂

The joints are expanded moderately and have 2 rows of small rounded pads (Fig. 59) on joints 1–3, unlike *Copelatus* and *Aglymbus* in which these joints are distinctly broadened and have 2 rows of pads on each side of a longitudinal smooth median line, and also with long, thick hairs at anterior corner.

#### Anal sternite of ♂ and ♀

The anal sternite also is constant, in both sexes of each species. The surface sculpture is very important for the characterization of the species. It may be completely microreticulate, half microreticulate and half microstriolate, completely microstriolate, or completely smooth. It is interesting that the sequence of development takes the opposite direction of that on the elytra: the anal sternite goes from microreticulate to smooth from the posterior to the anterior margins (on elytra from base to apex).

#### Aedeagus

The aedeagus is the character which enables every species to be distinguished with certainty. It is very constant within a species. There are two basic aedeagal types. In most species it is more or less twisted laterally and evenly curved and rounded or pointed at the apex in lateral view, pointed and sometimes curved to the left at the apex in dorsal view (Figs 62–96, 103–104).

In the members of the *scholzi*-group, it is considerably broadened laterally in dorsal view. This plesiomorphous state is only found in dark-coloured species and in *L. freyi* Guéorguiev and *L. rossi* n. sp. (Figs 97–102).

### Parameres

The parameres are of the copelatine type. Their shape often is species specific, and provide a further means for identifying the species. The right and left parameres are of slightly different size and shape, each has a stylus, but the general appearance is the same. They may be short and broad, short and elongate, smooth, striate (Figs 105–145).

### Valvae of ♀

In *Copelatus* and *Aglymbus* the female valvae are cylindrical, laterally truncate with a long sublateral preapical hair. In members of *Lacconectus*, for which females are available there are 3 types of valvae, but it has not been possible to base species-groups on these types because of the gradual transition from one state to another.

The species of the *scholzi*-group as well as *L. tonkinoides* n. sp., *L. javanicus* n. sp., *L. simoni* Rég. and *L. ritsemai* Rég. (but the latter only moderately so) have valvae comparable to those of *Copelatus haemorrhoidalis* (F.) and *Aglymbus gestroi* Sharp: they are, in most cases, strongly tapered at the posterior  $\frac{3}{4}$  (Figs 147, 152, 153).

*L. fulvescens* Motsch., *L. basalis* Sharp, *L. tonkinensis* Guignot, *L. laccophiloides* sspp., *L. strigulifer* Zimm., *L. heinertzi* n. sp., *L. similis* n. sp., *L. peguensis* n. sp., *L. nicolasi* n. sp., *L. merguiensis* n. sp. and *L. birmanicus* n. sp. have narrow, but still more or less cylindrical valvae. They are not laterally truncate but have a small apical and ventral depression in which a short preapical seta is situated (Figs 146, 148).

*L. pederzanii* n. sp. and *L. corayi* n. sp. are transitional between this type and the one found in an extreme form in *L. pulcher* n. sp. (and probably also in *L. sabahensis* n. sp.). In the latter the valva is strongly sclerotized, flattened at the apical part, and the seta is short and placed far from the apex. Such valvae have also been found in *L. oceanicus* Rég., *L. formosanus* (Kamiya), *L. punctatus* n. sp., *L. punctipennis* Zimm. and *L. krikkeni* n. sp. (Figs 149–151, 154).

It is important to note that 2 very closely related species that are difficult to distinguish by their reticulation and even by the aedeagus, such as *L. tonkinensis* Guignot and *L. tonkinoides* n. sp., have very distinct valvae: in the former they are flattened at the apex and with a ventral seta (Fig. 148), whilst in the latter they are cylindrical, truncate laterally at apex and have a sublateral preapical seta (Fig. 147).



#### 4. Acknowledgements

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## II. SYSTEMATICS

### 1. Genus *Lacconectus* Motsch.

*Lacconectus* MOTSCHULSKY, 1855, Etud. Ent. 4: 83. Type species: *Lacconectus basalis* SHARP, designated by GUIGNOT (1946).

*Lacconectus* MOTSCHULSKY, SHARP, 1880–82, Sci. Trans. R. Dublin Soc. 2: 598, 894.  
– GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Torino 14 (342): 1. – VAZIRANI, 1970, Or. Ins. 4: 320. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 58.

*Lacconectus* (s. str.), VAZIRANI, 1970, Or. Ins. 4: 321.

*Lacconectus* (*Paralacconectus*) VAZIRANI, 1970, Or. Ins. 4: 326.

Colour generally brown to dark brown (Fig. 3), rarely with longitudinal dark brown stripes or patches (*L. laccophiloides* spp., *L. pulcher* n. sp. Fig. 4), with the anterior part of head, sides of pronotum and base of elytra usually distinctly paler, very often with the lateral margins of elytra and the epipleura darkened. In *L. scholzi* Gschw. and some re-

lated species (*L. andrewesi* Guignot, *L. spangleri* n. sp., *L. regimbarti* n. sp.) as well as in *L. simoni* Rég., *L. heinertzi* n. sp. and *L. sabahensis* n. sp. the surface is brownish-black, the elytra with distinct and well-defined testaceous markings (Figs 1, 5–10). Antennae and legs testaceous to ferrugineous-brown.

Body broad oval to elongate-oval, semi-matt to shining, rarely matt.

Head with small polygonal or almost rounded meshes and with minute punctures particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a small transverse depression beside eyes more or less deep and broad.

Pronotum with polygonal or almost rounded meshes and with minute punctures particularly numerous at sides. Anterior row of punctures more or less coarse. Lateral row of punctures curved in front of posterior angles; the punctures generally smaller but often very coalescing. A short row of punctures also present at middle of each laterobasal quarter. Lateral margins bordered, often completely; sometimes the furrow narrowly interrupted posteriorly and distinctly anteriorly.

Microreticulation of elytra ranging from deeply impressed meshes to an entirely smooth surface, with every intermediate stage represented (see the section on morphology). Puncturation consisting of small, more or less dense minute punctures, usually surrounded by petal-like meshes, and of larger punctures forming rows of punctures and some additional punctures in the interspaces. Sutural rows of punctures limited to a few large punctures in the apical third and to some smaller ones anteriorly. Discal and sublateral rows of punctures usually almost complete; the punctures always very large and irregularly distributed at the apex, smaller and in a straight line anteriorly; in most species they are close together, occasionally well-spaced but sometimes very close together (*L. laccophiloides laccophiloides* Rég., *L. muluensis* n. sp.), almost forming a furrow. On the other hand, however, they may be arranged in well-spaced groups, as in *L. scholzi* Gschw. and related species. Some large punctures always present in the interspaces between the discal and sublateral rows and between the sublateral and lateral rows. In *L. laccophiloides laccophiloides* Zimm., *L. punctatus* n. sp. and *L. punctipennis* Zimm., the large punctures are numerous in all interspaces, particularly at base. In *L. simoni* Rég. and *L. strigulifer* Zimm. the punctures are replaced by short striae (Figs 40–45).

Underside (Fig. 2). Prosternal process ovoid or ovoid-elongate, 1.2–1.7 times as long as broad, more or less strongly bordered at sides and rounded at apex (Figs 56, 57). Metasternal wings narrow and elon-

gate. Metacoxal processes angularly and deeply indented (Fig. 58). Metacoxal lines represented only by some punctures, rarely by a medium-sized furrow (*L. regimbarti* n. sp., *L. laccophiloides* sspp.), at the middle of their length (Fig. 61). Sternites 3, 4 and 5 with small to medium-sized, rarely large punctures. Anal sternite completely microreticulate, or half microreticulate and half microstriolate, or completely microstriolate, or completely smooth. A small oblique depression present, formed by some coalescent punctures on each side of the middle. Posterior margin always broadly rounded and finely bordered.

♂. Protarsi and mesotarsi moderately expanded laterally with 2 rows of small rounded pads (Fig. 59) on joints 1–3. Aedeagus, in lateral view, more or less curved (Figs 62–104). In dorsal view, it is often pointed, except in the *scholzi*-group where it is broadened laterally (Figs 97–102). Parameres of the Copelatini type, with a distinct style (Figs 105–145).

♀. Eyltral reticulation usually rather more impressed. Valvae elongate, cylindrical, with a long preapical sublateral seta (*scholzi*-group, *L. tonkinoides* n. sp., *L. ritsemai* Rég., Figs 147, 152, 153), or cylindrical but narrow with a short preapical ventral seta (*L. fulvescens* Motsch., *L. tonkinensis* Guignot, *L. basalis* Sharp, etc, Figs 146, 148), or strongly sclerotized, flattened in the apical part with a short seta set well back from the apex (*L. pulcher* n. sp., *L. formosanus* (Kamiya), *L. oceanicus* Rég., *L. corayi* n. sp., *L. punctatus* n. sp., *L. punctipennis* Zimm. and *L. krikkeni* n. sp., Figs 149–151, 154).

Total length: 3.6–7 mm; width: 2–3.9 mm.

Affinities: This genus is closely related to *Copelatus* and *Aglymbus*. It can be distinguished from the former by the absence of metacoxal lines, and from both by the surface sculpture of the upper surface and by the protarsi and mesotarsi of ♂ which are not so enlarged, have only 2 rows of larger pads, and are not bordered by long and thick setae. Furthermore, the aedeagus is simple and its opening is generally not far from the apex (except in the *scholzi*-group).

Distribution: Oriental region (Maps 1–5).

## 2. Species-groups

I emphatically disagree with VAZIRANI's (1970) subgeneric classification of *Lacconectus* (into 2 subgenera: *Lacconectus* and *Paralacconectus*). He included in the subgenus *Paralacconectus* species with "a

strong puncturation or with deep striae" and species with "metacoxal lines visible".

The present study provides considerable evidence that the metacoxal lines are not usefull in phylogeny or classification and do not characterize a precisely defined group. The same applies to the puncturation and striation (*L. simoni* Rég., *L. strigulifer* Zimm.), and, in any case VAZIRANI (1970) designated *L. scholzi* Gschw., an unpunctured species, as type species of the subgenus *Paralacconectus*. For these reasons, I am rejecting the subgeneric divisions proposed by VAZIRANI (l.c.)

Very few characters can be used to define species-groups because so many characters occur at random throughout the genus when species are grouped primarily on the reticulation, aedeagi and parameres as I have done. A more elaborate subdivision would not have been possible without making the system unduly complicated and confusing.

### Key to species-groups

1. Elytra brown to dark brown (Fig. 3), rarely brownish-black with testaceous markings (*L. laccophiloides luzonicus* n. ssp., *L. simoni* Rég., *L. sabahensis* n. sp and *L. heinertzi* n. sp., Figs 5–6, 10) or testaceous with longitudinal stripes (*L. laccophiloides laccophiloides* Rég. and *L. l. balabacicus* n. ssp., Fig. 4). Discal and sublateral rows of punctures on elytra not broadly interrupted; punctures never forming well-spaced groups on basal  $\frac{3}{4}$ . ♂. Aedeagus almost completely in 1 plane, not laterally enlarged in dorsal view (Figs 62–96, 103–104). ♀. Valvae cylindrical or more or less flattened in apical part (Figs 146–151, 154) ..... 2
- Elytra brownish-black with well-delimited testaceous markings Figs 1, 8, 9) rarely completely brown (*L. freyi* Guéorguiev and *L. rossi* n. sp.) Discal and sublateral rows of punctures on elytra always very broadly interrupted; punctures forming very well-spaced groups of 2–4 punctures on basal  $\frac{3}{4}$ . ♂. Aedeagus in 2 planes, laterally enlarged in dorsal view (Figs 97–102). ♀. Valvae always cylindrical, constricted at posterior  $\frac{3}{4}$ , laterally truncated at apex and with a long preapical sublateral seta (Figs 152–153).

### II. *scholzi*-group

2. Brown to dark brown species, rarely brownish-black with testaceous markings. Reticulation and puncturation taking various forms. ♂. Aedeagus never strongly narrow and slender (Figs 62–96), at most pointed apically (Figs 63, 95). Parameres broad to moderately elongate, always with longitudinal striolation and long apical setae (Figs 105–137). ♀. Valvae evenly cylindrical (Figs 146, 148–151), rarely strongly constricted at posterior  $\frac{3}{4}$  and laterally truncate (*L. tonkinoides* n. sp., *L. javanicus* n. sp. and *L. ritsemai* Rég., Figs 147–151).

#### I. **fulvescens-group**

- Bicoloured species (Fig. 10). Reticulation consisting of small rounded meshes. Puncturation consisting of minute and well-spaced punctures. ♂. Aedeagus strongly narrow, slender and pointed at apex (Figs 103–104). Parameres very elongate, without longitudinal striolations and with short apical setae (Figs 144–145). ♀. Valvae strongly sclerotized, flattened in apical part (Fig. 154).

#### III. **pulcher-group**

### 2.1. **fulvescens-group**

This group contains 30 species. Their colour and morphology vary a good deal. Most species are brown to dark brown (Fig. 3), but some are brownish-black with testaceous markings (*L. laccophiloides luzonicus* n. ssp., *L. heinertzi* n. sp., *L. simoni* Rég., Figs 5, 6) or testaceous with dark brown longitudinal stripes (*L. laccophiloides laccophiloides* and *L. l. balabacicus* n. ssp., Fig. 4). The reticulation may cover the entire surface (*L. ovalis* Gschw., *L. gusenleitneri* n. sp., *L. pederzani* n. sp., *L. nicolasi* n. sp.), may cover only a part, or may be entirely absent (*L. laccophiloides* sspp., *L. muluensis* n. sp.).

Aedeagus in 1 plane, at most twisted laterally (Figs 62–96). Parameres variable in shape but always more or less striate (Figs 105–137).

The valvae of the ♀ are cylindrical, constricted at posterior  $\frac{3}{4}$  and with a preapical sublateral seta (e.g. *L. tonkinoides* n. sp., Fig. 147) or are more or less flattened with a distinctly ventral seta (e.g. *L. krikkeni* n. sp., Fig. 149).

The discal and sutural rows of punctures on the elytra, which are never broadly interrupted and the aedeagi, which are developed only in

1 plane (Figs 62–96), enable the species of this group to be distinguished from those of *scholzi*-group; and the aedeagi and the constantly striolate parameres (Figs 105–137) differentiate them from the *pulcher*-group.

### Key to species of the *fulvescens*-group

As the species of *Lacconectus* are all so close, the key given below will not enable every female to be identified.

1. Elytra brown to dark brown, more or less distinctly paler at base (Fig. 3) ..... 2
  - Elytra brown with dark brown stripes or elytra brownish-black with distinct and well-defined testaceous bands and patches (Figs 4–6) ..... 28
2. Elytra with at most a few large punctures in the 2<sup>nd</sup> and 3<sup>rd</sup> interspaces and none in the 1<sup>st</sup> ..... 3
  - Elytra with several to many large punctures in all the interspaces, at least at base, or elytra with short and deep striae ..... 26
3. Larger species (length: 4.2–5.6 mm; width: 2.4–3.3 mm) ..... 4
  - Very small species (length: 3.6–4 mm; width: 2–2.2 mm) ..... 22
4. Elytral microreticulation distinct right to apex, not replaced posteriorly by a fine striolation; meshes polygonal ..... 5
  - Elytral microreticulation not reaching apex, posteriorly replaced by a fine striolation, or at least meshes elongate ... 9
5. Brown species, more elongate. Antennal joints slender, the 5<sup>th</sup> more than 1.5 times as long as broad. Elytral reticulation moderately to slightly impressed; punctures minute ..... 6
  - Dark brown species, broadly oval (length: 4.3–4.4 mm). Antennal joints short, the 5<sup>th</sup> about 1.1 times as long as broad. Elytral reticulation very deeply impressed. Puncturation very strong; punctures dense and numerous. ♂. Aedeagus (Fig. 62). Assam. 1. **L. ovalis** Gschw.
6. Larger species (4.8–5.4 mm). Elytral puncturation consisting of minute and dense but distinct punctures ..... 7
  - Smaller species (4–4.7 mm). Elytral puncturation consisting

- of very sparse, minute and hardly visible punctures. ♂. Aedeagus (Fig. 74). Nepal, Sikkim and West Bengal.
13. **L. nicolasi** n. sp.
7. Smaller species (4.4–4.8 mm). Lateral margins of elytra and epipleura dark brown. Anal sternite striolate, at least along anterior margin ..... 8
- Larger species (5–5.4 mm). Lateral margins of elytra and epipleura not darkened. Anal sternite completely reticulate.
5. **L. pederzanii** n. sp.
8. Larger species (4.8 mm). ♂. Aedeagus, in lateral view, broad (Fig. 64). Assam.
3. **L. gusenleitneri** n. sp.
- Smaller species (4.4–4.7 mm). ♂. Aedeagus, in lateral view, thin and slender (Fig. 65). Nepal.
4. **L. holzschuhi** n. sp.
9. Aedeagus broad at apex, in lateral view (Figs 67–68) .... 10
- Aedeagus not broad at apex, in lateral view (Figs 63, 69–73, 81–84, 89) ..... 11
10. Elytral reticulation extending beyond basal half. Anal sternite half reticulate, half striolate. ♂. Apical part of aedeagus, in lateral view, with parallel margins (Fig. 67). India, Burma.
6. **L. fulvescens** Motsch.
- Elytral reticulation limited to basal third. Anal sternite completely striolate. ♂. Apical part of aedeagus, in lateral view, sinuous on ventral margin (Fig. 68). Thailand.
7. **L. similis** n. sp.
11. Basal half of elytra microreticulate, posteriorly microstriolate ..... 12
- Basal part of elytra microstriolate, or at most narrowly microreticulate on basal third; apex always completely smooth, even at higher magnifications ..... 17
12. ♂. Aedeagus, in lateral view, more or less broadly rounded at apex (Figs 69, 70, 72, 73) ..... 13
- ♂. Aedeagus in lateral view, pointed at apex (Fig. 63). Malaysia.
2. **L. ponti** n. sp.
13. Larger species (4.7–5.5 mm) ..... 14
- Smaller species (4.2–4.5 mm) ..... 16
14. Elytral surface smooth, the meshes moderately impressed. Punctures of discal and sublateral rows weakly impressed. ♂. Apical part of aedeagus, in lateral view, tapered at apex (Figs 69, 70). Parameres broader (Figs 112, 113) ..... 15
- Elytral surface semi-matt, the meshes deeply impressed.



- Punctures of discal and sublateral rows deeply impressed. ♂. Apical part of aedeagus, in lateral view, not or very slightly tapered (Fig. 77). Parameres more elongate (Fig. 119). Taiwan, S China, Vietnam. 15. **L. formosanus** (Kamiya)
15. Meshes of elytral reticulation rounded and very small. Antennae slender, 5<sup>th</sup> joint twice as long as broad. ♂. Aedeagus (Fig. 69). Burma. 8. **L. peguensis** n. sp.
- Meshes of elytral reticulation distinctly polygonal. Antennae shorter, 5<sup>th</sup> joint 1.65 times as long as broad. ♂. Aedeagus (Fig. 70). Burma. 9. **L. birmanicus** n. sp.
16. Punctures of the elytral puncturation numerous and distinctly visible, surrounded by petal-like meshes. Punctures of the discal and sublateral rows large and deep, not broadly interrupted in basal half. ♂. Aedeagus (Fig. 72). Java. 11. **L. ritsemai** Rég.
- Punctures of the elytral puncturation minute, hardly visible but still present, also surrounded by petal-like meshes. Punctures of the discal and sublateral rows medium-sized, well-spaced and broadly interrupted in basal half. ♂. Aedeagus (Fig. 73). Burma 12. **L. merguiensis** n. sp.
17. Basal part of elytra more or less narrowly microreticulate. ♂. Apical part of aedeagus, in lateral view, strongly elongate (Figs 81–83, 89), except in *L. fallaciosus* n. sp. (Fig. 71) . 18
- Basal part of elytra only microstriolate, not at all microreticulate, or just around the scutellum. ♂. Apex of aedeagus, in lateral view, not strongly elongate ..... 21
18. Larger species (4.6–5.6 mm). Anal sternite microreticulate or at least microstriolate. ♂. Aedeagus, in lateral view, slender, strongly elongate at apex (Figs 81–83) ..... 19
- Smaller species (4.3–4.4 mm). Anal sternite smooth. ♂. Aedeagus, in lateral view, short, not strongly elongate at apex (Fig. 71). Burma. 10. **L. fallaciosus** n. sp.
19. Elytral puncturation dense and not deeply impressed; the punctures separated from each other by a distance equal to 3 meshes ..... 20
- Elytral puncturation very dense and deep; the punctures separated from each other by a distance equal to 2 meshes. ♂. Aedeagus (Fig. 81). India?, Burma, Thailand, Vietnam, Cambodia, Malaysia. 16. **L. basalis** Sharp



20. Elytral microreticulation distinct. ♂. Apical part of aedeagus, in lateral view, sinous, particularly on ventral margin (Fig. 82). ♂. Valvae cylindrical, with a preapical sublateral seta (Fig. 147). Vietnam. 17. **L. tonkinoides** n. sp.
- Elytral microreticulation obsolescent. ♂. Apical part of aedeagus, in lateral view, with parallel margins (Fig. 83). ♂. Valvae flattened in apical part, with a ventral seta (Fig. 148). Vietnam. 18. **L. tonkinensis** Guignot
21. 2<sup>nd</sup> and 3<sup>rd</sup> interspaces of elytra with only a few medium-sized punctures. Discal and sublateral rows interrupted. ♂. Apex of aedeagus not truncate (Fig. 84). ♂. Valvae strongly flattened in apical part; seta ventral (Fig. 149). Malaysia. 19. **L. krikkeni** n. sp.
- 2<sup>nd</sup> and 3<sup>rd</sup> interspaces of elytra usually with numerous large punctures. Punctures of discal and sublateral rows close-set, almost forming a furrow. ♂. Apex of aedeagus slightly truncate (Fig. 89). ♀. Valvae long, cylindrical; seta preapical and sublateral. Java. 24. **L. javanicus** n. sp.
22. ♂. Aedeagus, in lateral view, broadly or narrowly rounded at apex (Figs 76, 86–88) ..... 23
- ♂. Aedeagus, in lateral view, pointed at apex (Fig. 85). Singapore. 20. **L. corayi** n. sp.
23. Basal third of elytra distinctly microreticulate ..... 24
- Basal third of elytra smooth or at most narrowly and finely microstriolate ..... 25
24. Elytral microreticulation very distinct on more than basal half. ♂. Aedeagus, in lateral view, broadly rounded at apex (Fig. 76). Assam. 14. **L. biswasi** n. sp.
- Elytral microreticulation obsolescent. ♂. Aedeagus, in lateral view, narrowly rounded at apex (Fig. 86). Mentawai. 21. **L. oceanicus** Rég.
25. Elytra very finely microstriolate at base, particularly around the scutellum. Elytral puncturation distinctly visible; punctures rather close together. Discal row of punctures briefly interrupted here and there. ♂. Aedeagus, in lateral view, constricted in preapical part and then broadened again at apex (Fig. 87). Sumatra. 22. **L. minutus** n. sp.
- Elytra completely smooth. Elytral puncturation very fine and hardly visible; punctures minute and well-spaced. Discal row of punctures not interrupted, forming a furrow; punctures

very close together. ♂. Aedeagus, in lateral view, evenly tapered in apical part (Fig. 88). Sarawak.

23. **L. muluensis** n. sp.

26. Elytra with large punctures in the interspaces, the least numerous in the 2<sup>nd</sup> interspace ..... 27

– Pronotum and elytra covered with short and deep striae. ♂. Aedeagus (Fig. 94). Burma. 28. **L. strigulifer** Zimm.

27. Smaller species (4.5–4.8 mm). Interspaces covered with less dense large punctures which do not reach the apex in the 1<sup>st</sup> interspace. ♂. Aedeagus (Fig. 93). Vietnam, Cambodia.

26. **L. punctatus** n. sp.

- Larger species (5–5.2 mm). All interspaces of the elytra covered with dense and large punctures which reach almost the apex even in the 1<sup>st</sup> interspace. Java, Sumatra.

27. **L. punctipennis** Zimm.

28. Pronotum and elytra not covered with short striae ..... 29

– Pronotum and elytra covered with short and deep striae. (Fig. 5). ♂. Aedeagus (Fig. 95). Sri Lanka. 29. **L. simoni** Rég.

29. Smaller species (4–4.5 mm). Elytral reticulation hardly visible. ♂. Aedeagus, in lateral view, narrowly rounded at apex (Figs 90–92).

– Medium-sized subspecies (4–4.5 mm). Elytra testaceous-brown with distinct, more or less coalescent dark brown stripes (Fig. 4). Elytral interspaces with numerous large punctures at least at base. Nord Palawan Island.

25a. **L. laccophiloides laccophiloides** Zimm.

- Small subspecies (4 mm). Elytra testaceous-brown with very fine longitudinal brown stripes. Elytral interspaces with very few large punctures even at base. Balabac Island.

25b. **L. laccophiloides balabicus** n. ssp.

- Large subspecies (4.4 mm). Elytra largely brownish-black with ferrugineous-testaceous markings. Elytral interspaces with very few large punctures even at base. Luzon Island.

25c. **L. laccophiloides luzonicus** n. ssp.

- Larger species (6.1 mm). Elytral reticulation obsolescent, consisting of elongate meshes, even at base. ♂. Aedeagus, in lateral view, strongly broadened at apex (Fig. 96). Thailand.

30. **L. heinertzi** n. sp.

**1. *Lacconectus ovalis* Gschw.**

Figs 62, 105.

*Lacconectus ovalis* GSCHWENDTNER, 1936, Rec. Ind. Mus. 37: 369. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus* (s. str.) *ovalis* GSCHWENDTNER, VAZIRANI, 1970, Or. Ins. 4: 324. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 59.

Body oval, rather broad, semi-matt, dark ferrugineous-brown, the anterior part and disc of head, sides of pronotum and basal part of elytra paler.

Head dark ferrugineous-brown, slightly paler on clypeus and frons, semi-matt. Surface sculpture consisting of small, almost rounded and well-impressed meshes and of minute punctures, which are particularly numerous on frons and vertex. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-impressed. Antennae reddish-brown; joints short; the 5<sup>th</sup> 1.1 times as long as wide.

Pronotum dark ferrugineous-brown, narrowly paler at sides, semi-matt. Reticulation slightly more impressed than on head and punctures more numerous, particularly at sides. Longitudinal median suture long but weakly impressed. Punctures on anterior border large and well-marked. Punctures on lateral borders and at the middle of each latero-basal quarter coarse. Lateral margins almost completely bordered.

Elytra dark ferrugineous-brown, the basal part paler, semi-matt. Epipleura dark ferrugineous-brown. Meshes of the reticulation polygonal, very small but well-impressed on entire surface. Punctures minute, evenly distributed and separated from each other by a distance equal to 2–3 meshes, not distinctly surrounded by petal-like meshes. Sutural row of punctures restricted to posterior third; punctures small and well-separated from each other, and on anterior  $\frac{2}{3}$  1 or 2 punctures visible. Discal and sublateral rows of punctures complete; punctures irregularly distributed in the apical part, in a straight line anteriorly. Some large punctures visible in the interspace between discal and sublateral rows, and a few in the interspace between sublateral and lateral rows.

Underside dark reddish-brown. Legs dark brown. Prosternal process short, 1.4 times as long as broad, strongly bordered at sides and broadly rounded at apex, with a well-marked microsculpture. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of punctures. Anal sternite, with small and well-impressed reticulations and with a small depression near posterior border on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, tapered in apical part and broadly rounded at apex (Fig. 62). In dorsal view, evenly tapered, slightly curved to the left and pointed at apex. Parameres very broad (Fig. 105).

♀. Unknown.

Total length: 4.3–4.4 mm; width: 2.5–2.6 mm.

Types: I have seen 2 specimens labelled as paratypes from the ZSI. Locality: Upper Rotung, Abor. Exp., in water at leaf base of plantain, 20 ft from ground, 5.I.1912, S.W. Kemp. GSCHWENDTNER (1936) mentions 8 type-specimens.

Affinities: This species can be distinguished from all other species by the strongly impressed microreticulation, which covers the entire upperside, by the dense puncturation, and by the aedeagus.

Distribution: India (Assam) (Map 1).

## 2. *Lacconectus ponti* n. sp.

Figs 63, 106.

Body broadly oval, semi-matt, ferrugineous-brown, paler on anterior part and disc of head, on sides of pronotum and on base of elytra. Lateral margins of elytra dark brown.

Head ferrugineous-brown, anterior part paler, semi-matt. Surface sculpture consisting of small, rounded and well-impressed meshes and of dense and deep punctures. Clypeal grooves and a row of punctures alongside eyes deeply impressed. Transverse depression beside eyes very small and weakly impressed. Antennae ferrugineous-testaceous; joints short, the 5<sup>th</sup> 1.35 times as long as broad.

Pronotum ferrugineous-brown, broadly paler at sides, semi-matt. Microsculpture as on head, consisting of small, rounded and well-impressed meshes and of dense and very deep minute punctures; both more impressed at sides. Longitudinal median suture poorly visible. Anterior and lateral rows of punctures and punctures at the middle of each latero-basal quarter coarse; the punctures medium-sized but deeply impressed. Lateral margins finely bordered; the furrow narrowly interrupted before anterior edge.

Elytra semi-matt, ferrugineous-brown to brown, base paler. Lateral margins dark brown. Epipleura testaceous-brown, darker on apical half. Reticulation consisting of small polygonal and well-impressed meshes which become obsolete and elongate on apical half. Puncturation consisting of minute and dense punctures, separated from each other by a distance equal to 2–3 meshes and surrounded by petal-like meshes. Sutural row of punctures with some medium-sized punctures

in the apical half and a few punctures on the basal half. Discal and sublateral rows interrupted before anterior edge, the former broadly, the latter narrowly; the punctures large, irregularly distributed and well-spaced in the apical half, smaller, in a straight line and close together anteriorly. Some punctures visible in the interspace between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous-brown. Legs testaceous. Prosternal process very short, 1.4 times as long as broad, distinctly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4, and 5 with large punctures. Anal sternite striolate anteriorly, microreticulate posteriorly, with some very small punctures and a coarse oblique depression formed by 3–5 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, weakly curved, evenly tapered and probably pointed or very narrowly rounded at apex (Fig. 63; the apex is broken in the holotype). In dorsal view, also evenly tapered at apex. Parameres elongate (Fig. 106).

♀ Unknown.

Total length: 4.4 mm; width: 2.6 mm.

Type: Holotype ♂ (BM); locality: Malaya, Cameron Highlands, Tanah Rata, GH 154, Agric. Dept., 2.X.1947, R.A. Lever, Com. Inst. Ent Col. No. 11 490, *Lacconectus lividus* Rég., det. J. Balfour-Browne III.1950 from descr.

Derivatio nominis: This species is named after Mr. A.C. Pont (London), for his great help in correcting my English in the manuscript.

Affinities: The surface sculpture of the elytra is reminiscent of that of *L. ovalis* Gschw. However, the narrow apex of the aedeagus (Fig. 63) distinguishes *L. ponti* n. sp. from all species except for *L. pulcher* n. sp., *L. sabahensis* n. sp. and *L. corayi* n. sp. The first two are quite different because of their characteristic colour and elytral reticulation, and *L. corayi* n. sp. differs by its size and much less impressed elytral reticulation.

Distribution: Malaya (Cameron Highlands) (Map 1).

### 3. *Lacconectus gusenleitneri* n. sp. Figs 64, 107.

Body oval, shining, reddish-brown, the anterior part and disc of head, sides of pronotum and basal part of elytra slightly paler.

Head reddish-brown, slightly paler on anterior part and disc, shining. Surface sculpture consisting of small, very weakly impressed and

rounded meshes and of sparse punctures, the latter particularly numerous on disc. Clypeal gooves, a row of punctures alongside eyes and a transverse depression beside eyes with large but weakly impressed punctures. Antennae ferrugineous, joints slender; the 5<sup>th</sup> 1.6 times as long as broad.

Pronotum reddish-brown, shining. Microsculpture consisting of small, almost rounded and weakly impressed meshes and of regularly distributed minute and deeply impressed punctures. The reticulation becoming coarser and more deeply impressed at sides. Longitudinal median suture hardly visible. Anterior row of punctures with larger and small well-impressed punctures, rather well-spaced at middle, coalescing at sides. At the sides, they are enlarged, forming slight wrinkles. Punctures at the middle of each latero-basal quarter weakly impressed. Lateral margins distinctly bordered, the furrow almost reaching the anterior border.

Elytra reddish-brown, slightly paler at base, darker along lateral margins, at least at middle of length, shining. Epipleura reddish-brown at base, brown to blackish-brown posteriorly. Reticulation consisting of small polygonal meshes, which are distinct on the entire surface, even at apex. Puncturation consisting of minute punctures which are separated from each other by a space equal to 2–3 meshes and are surrounded by short petal-like meshes. Sutural row of punctures with some well-spaced punctures on the apical third and with 1–2 punctures on basal  $\frac{2}{3}$ . Discal and sublateral rows complete; the punctures irregularly arranged in the apical part, in a straight line anteriorly. Some large punctures present in the interspaces between discal and sublateral rows and between sublateral and lateral rows of punctures.

Underside dark brown. Legs brown. Prosternal process ovoid, 1.5 times as long as broad, bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punctures. Anal sternite striolate on anterior half, distinctly reticulate on posterior half and with 4 larger punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, broad, strongly and irregularly curved, evenly tapered towards apex (the apex is broken in the single ♂ known (holotype)) (Fig. 64). Parameres very short and broad (Fig. 107).

♀. Unknown.

Total length: 4.8 mm; width: 2.7 mm.



Type: Holotype ♂ (OLM); locality: India, Assam, Garo Hills, above Tura, 3500–3900 ft, 15.VII–30.VIII.1917, S. Kemp, coll. Gschwendtner.

Derivatio nominis: This species is named after Dr F. Gusenleitner (Oberösterreichisches Landesmuseum, Linz).

Affinities: The reticulation of this species is reminiscent of *L. holzschuhi* n. sp. from Nepal and *L. pederzanii* n. sp. from Assam, but it can easily be distinguished from these and all other species by the aedeagus, which is broad and unevenly curved in lateral view (Fig. 64).

Distribution: India (Assam) (Map 1).

#### 4. ***Lacconectus holzschuhi*** n. sp.

Figs 65, 108.

Body oval, semi-matt, dark brown, the anterior part and disc of head, sides of pronotum, base and postero-lateral parts of elytra paler, ferruginous-brown to testaceous-brown.

Head ferruginous-brown, darker brown alongside eyes, semi-matt. Surface sculpture consisting of small, almost rounded and well-impressed meshes and of minute punctures; punctures particularly numerous on frons and vertex. Clypeal grooves and a row of punctures alongside eyes coarse. Transverse depression beside eyes with 2 large and deep punctures. Antennae ferruginous; joints short, the 5<sup>th</sup> 1.5 times as long as broad.

Pronotum dark brown, broadly paler at sides, semi-matt. Microsculpture consisting of small, almost rounded and well-impressed meshes, and of dense and deep minute punctures; both coarser and more impressed at sides. Longitudinal median suture long and well-impressed. Punctures of anterior and lateral rows coarse, numerous, and irregularly distributed, coalescing more often at sides, forming wrinkles in front of the posterior angles. Punctures at middle of each latero-basal quarter slightly impressed. Lateral margins distinctly bordered, furrow almost reaching the anterior border.

Elytra dark brown, broadly and distinctly paler at base and on lateral part of posterior half, semi-matt. Epipleura testaceous on basal ¼, dark brown posteriorly. Reticulation consisting of very small polygonal meshes, distinct from base to apex. Puncturation consisting of minute and dense punctures which are separated from each other by a distance equal to 2 meshes and surrounded by short petal-like meshes. Sutural row of punctures with some large punctures on apical third and with 1–2 punctures on basal ⅔. Discal and sublateral rows abbreviated at base; the punctures very large and irregularly distributed in apical part,

smaller and in a straight line anteriorly. Several large punctures present in the interspaces between discal and sublateral rows and between sublateral and lateral rows of punctures.

Underside dark brown. Legs ferrugineous-brown. Prosternal process ovoid, 1.5 times as long as broad, bordered at sides and broadly rounded at apex. Metacoxal lines represented only by one puncture at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punctures. Anal sternite reticulate on entire surface; meshes more elongate along anterior margin.

♂. Aedeagus, in lateral view, strongly and irregularly curved, evenly tapered towards apex; apex pointed (Fig. 65). In dorsal view, evenly tapered in apical part and slightly curved to the left at apex. Parameres moderately broad (Fig. 108).

♀. Similar to ♂. Valvae long, narrow, subacute at apex, with a short preapical seta situated ventrally.

Total length: 4.4–4.7 mm; width: 2.5–2.7 mm.

Types: Holotype ♂ (MB) and 12 paratypes (11 ♂ and 1 ♀, MB); locality: W Nepal, Modi Khola, Landrung-Pothana, 1600–1900 m, 6.VI.1984, C.J. Rai. 3 paratypes ♂ (MB); locality: W Nepal, Modi Khola, Pothana-Landrung, 1900–1600 m, 7.V.1984, C.J. Rai. 6 paratypes ♂ (MB); locality: W Nepal, Modi Khola, Pothana, 1900 m, 5–7.V.1984, C.J. Rai. 7 paratypes (6 ♂, GW; 1 ♂, MB); locality: Nepal, 20 km NW Pokhara, Lumle, kleiner Quelltümpel, 1600 m, 2.V.1984, G. Wewalka.

Derivatio nominis: This species is named after my friend Carolus Holzschuh (Vienna) for his great help in collecting in the Himalayas.

Affinities: This species is closely related to *L. gusenleitneri* n. sp. from Assam. Size and surface sculpture of both species are very similar; however, the aedeagus of *L. holzschuhi* n. sp. is more slender and pointed at apex (Fig. 65). From *L. nicolasi* n. sp. which occurs also in Nepal, it can be distinguished by the reticulation which is more distinctly impressed and by the puncturation which is denser and coarser.

Distribution: W Nepal (Map 4).

##### 5. *Lacconectus pederzanii* n. sp.

Figs 17, 18, 66, 109.

Body oval, shining to semi-matt, ferrugineous-brown, slightly paler on anterior part and disc of head, at sides of pronotum and at base of elytra.

Head ferrugineous-brown, paler on anterior part and disc, shining to semi-matt. Surface sculpture consisting of small polygonal, almost rounded meshes and of minute punctures, particularly numerous on



disc. Clypeal grooves, punctures alongside eyes and a transverse depression beside eyes well-impressed. Antennae ferrugineous-testaceous; joints slender, the 5<sup>th</sup> 1.75 times as long as broad.

Pronotum ferrugineous-brown, the sides paler, shining to semi-matt. Microsculpture consisting of small, almost rounded meshes and of minute, well-impressed punctures, particularly coarse and dense on sides. Longitudinal median suture short but distinct. Anterior row of punctures coarse; punctures coalescing at sides. Punctures in lateral row and at middle of basal half very coarse, dense, strongly coalescing and forming slight wrinkles. Lateral margins distinctly and completely bordered.

Elytra ferrugineous-brown, paler at base and along lateral margins, slightly shining. Epipleura ferrugineous-brown. Reticulation consisting of small but well-impressed polygonal meshes (Fig 17, 18), visible on entire surface but becoming smaller and somewhat less impressed posteriorly. Puncturation consisting of minute, rather dense and well-impressed punctures, which are separated from each other by a distance equal to 2–3 (usually 2) meshes. Sutural row of punctures with some small punctures on apical third and 1 or 2 very small ones on basal  $\frac{2}{3}$ . Discal and sublateral rows coarse and irregular at apex, in a straight line anteriorly. Some punctures visible in the interspaces between discal and sublateral rows and between sublateral and lateral rows.

Underside dark ferrugineous-brown, legs testaceous-ferrugineous. Prosternal process short ovoid, 1.4 times as long as broad, strongly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by several punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of coarse punctures. Anal sternite microreticulate on whole surface, finely so on anterior margin, with some very small and very well-spaced punctures and a small depression formed by 3–4 coalescing punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, strongly curved, evenly tapered in apical third and narrowly rounded at apex (Fig. 66). In dorsal view, slightly curved to left at apex. Parameres broad (Fig. 109).

♀. Similar to ♂; reticulation somewhat more impressed. Valvae long, strongly flattened at apical part, narrowly rounded at apex. Seta short, ventral.

Total length: 5–5.4 mm; width: 2.8–3 mm.

Types: Holotype ♂ (FP) and 6 paratypes (1 ♂ and 3 ♀, FP; 1 ♂ and

1 ♀, MB); locality: India, Assam, Shillong, Khasi Hills, 1968, Sircar.

Derivatio nominis: This species is named after my friend and colleague, Mr Fernando Pederzani, Ravenna.

Affinities: This species is closely related to *L. gusenleitneri* n. sp. because of its ground sculpture, but it can easily be distinguished by its larger size and by its aedeagus, which is less broad at the apex (Fig. 66).

Distribution: India (Assam) (Map 1).

## 6. *Lacconectus fulvescens* Motsch.

Figs 19–21, 67, 110.

*Lacconectus fulvescens* MOTSCHULSKY, 1855, Et. Ent. 4: 83. – SHARP, 1880–82, Sci. Trans. R. Dublin Soc. 2: 598. – RÉGIMBART, 1888, Ann. Mus. Civ. St. Nat. Genova 6: 616. – GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Univ. Torino 14 (342): 2. – RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 291 (partim). – ZIMMERMANN, 1919, Arch. Naturgesch. A 83: 197 (partim). – ZIMMERMANN, 1920, Coelopt. Cat. 4 (71): 147. – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 385 (partim). – ZIMMERMANN, 1929, Ent. Bl. 25: 13. – GUIGNOT, 1954, Ark. Zool. 6: 566 (partim). – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40. – SATÓ, 1972, Ann. Hist. Nat. Mus. natn. Hung. 64: 151 (partim).

*Lacconectus* (s. str.) *fulvescens* MOTSCHULSKY, VAZIRANI, 1970, Or. Ins. 4: 325 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 58 (partim).

*Lacconectus lividus* RÉGIMBART, 1891, Ann. Mus. Civ. St. Nat. Genova 10: 544. – SEVERIN, 1892, Ann. Soc. Ent. Belg. 36: 476. – GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Univ. Torino 14 (342): 2. – RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 290. – ZIMMERMANN, 1920, Coleopt. Cat. 4 (71): 147. – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 385. – ZIMMERMANN, 1929, Ent. Bl. 25: 12. – GSCHWENDTNER, 1936, Rec. Ind. Mus. 37: 369, 374. – GUIGNOT, 1954, Ark. Zool. 6: 566 (partim). – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40. – **n. syn.**

*Lacconectus* (s. str.) *lividus* RÉGIMBART, VAZIRANI, 1970, Or. Ins. 4: 325 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 59 (partim).

*Lacconectus ritsemae* RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 290 (partim). – VAZIRANI, 1970, Or. Ins. 4: 323 (partim).

Body oval, reddish-brown to pale brown, semi-matt.

Head reddish-brown, a little darker alongside eyes, semi-matt. Surface sculpture consisting of very small, almost rounded and well-impressed meshes and of minute punctures, which are particularly numerous on frons and vertex. Clypeal grooves, a row of punctures alongside eyes and a pronounced transverse depression beside eyes. Antennae reddish-brown; joints slender, the 5<sup>th</sup> 1.8 times as long as wide.

Pronotum light brown, somewhat darker on disc, semi-matt. Microsculpture consisting of small, almost rounded and well-impressed meshes, and of minute and well-impressed punctures; the latter particularly numerous at sides. Longitudinal median suture very short. Ante-

rior border with a row of large and very closely-placed punctures, which more or less coalesce at lateral border and at the middle of each lateral-basal quarter. Lateral margins distinctly and completely bordered.

Elytra reddish-brown, somewhat paler at base, semi-matt. Epi-pleura brown. Reticulation consisting of rounded, very small but well-impressed meshes (Figs 19–21), which become obsolete and elongate on apical  $\frac{1}{3}$ , giving that part a shagreened lustre. Puncturation consisting of minute, evenly-spaced punctures, which are separated from each other by a distance equal to about 3 meshes and are surrounded by petal-like meshes (particularly visible on disc); punctures larger and more numerous posteriorly. Sutural row of punctures reaching at most to middle of elytra, the punctures large and well-spaced. Discal and sublateral rows of punctures almost complete; the punctures irregularly distributed in the apical third, in a straight line on rest of surface. Some very large punctures visible in the interspaces between discal and sublateral rows and between sublateral and lateral rows.

Underside and legs brown. Prosternal process very broad, 1.4 times as long as broad, moderately bordered at sides and broadly rounded at apex. Metacoxal lines represented only by 1 or 2 punctures at the middle of their length. Sternites 3, 4 and 5 each with transverse row of medium-sized punctures. Anal sternite finely striolate, without discernible meshes and with a depression formed by 4–5 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, broad in apical part; dorsal margin somewhat sinuous, the apex broadly rounded (Fig. 67). In dorsal view, slightly curved to the left and pointed at apex. Parameres broad (Fig. 110).

♀. Similar to ♂; meshes of elytral reticulation somewhat more impressed. Valvae narrow on apical half, very narrowly rounded at apex and with a short preapical seta which is situated ventrally.

Total length: 4.6–5 mm; width: 2.7–2.9 mm.

Types: I found 2 specimens in the collection of ZMM which probably belong to the type-series. The ♂ (792) is herewith designated as lectotype, and the ♀ (791) as paralectotype. Both are labelled “Ind. or.”, and the lectotype is labelled “*Lacconectus fulvescens* Motsch.” by Motschulsky himself.

Additional material studied: Burma: Tenasserim, coll. Helfer (3 ex., ZSM; 1 ex., MB).

India, Orissa: Mayurbhanj Surv., Simlipal Hills, Mokabari, Nulla, Sta 14,

21.II.1955, A. Shankat (1 ex., ZSI). Balasore Distr., Nilgiri Forest, Tangana nalla, Sta 26, 12.XII.1955, T.G. Vazirani, *L. lividus* Rég., det. T.G. Vazirani 1954 (1 ex., ZSI).

**Synonymy:** When comparing the types of *L. lividus* Rég. with those of *L. fulvescens* Motsch., I could find no significant differences. Consequently I propose considering *L. lividus* Rég. as a junior synonym of *L. fulvescens* Motsch. Régimbart only labelled a few specimens as types. As it is not certain which ones he actually studied when making his description of this species, I am regarding all specimens with the data mentioned in the original description as belonging to the type-series. 1 ♀ labelled "type" (MCG) is herewith designated as lectotype; locality: Burma, Carin Chebà, 400–900 m, IV.1888, L. Fea. A further 11 specimens are designated as paralectotypes; localities: Burma, Carin Chebà, 400–900 m, IV.1888, L. Fea (1 ♀, MCG; 3 ♀, coll. Régimbart 1908, MP; 1 ♀, ZSM). Burma, Tenasserim, Kawkareet, I–II.1887, L. Fea (1 ♂, MCG; 1 ♂ and 1 ♀, coll. Régimbart 1908, MP; 1 ♂, MB). Burma, Palone, VII.1887, L. Fea (1 ♂, MCG). 1 ♀ from Kawkareet in MP is labelled *L. fulvescens* Sharp (the latter mentioned by RÉGIMBART, 1888).

**Affinities:** This species is closely related to *L. pederzanii* n. sp., but can easily be distinguished by its smaller size, by the reticulation of the elytra in which the meshes reach the apical  $\frac{1}{3}$  only (covering the entire elytra in *L. pederzanii* n. sp.), and by the aedeagus which is broad and not narrowed in apical part. From *L. similis* n. sp., it differs by the more impressed elytral reticulation and by the parallel margins of the apical part of aedeagus in lateral view (Fig. 67).

**Distribution:** Burma and India (Orissa) (Map 1).

## 7. *Lacconectus similis* n. sp.

Figs 68, 111.

Body broadly oval, shining, dark brown, the head alongside eyes and lateral margins of elytra darker.

Head reddish-brown, darker alongside eyes, somewhat lighter on anterior part and on disc, shining to semi-matt. Surface sculpture consisting of small, almost rounded meshes and of minute punctures, particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a depression beside eyes impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.7 times as long as broad.

Pronotum reddish-brown, slightly paler at sides, shining to semi-matt. Microsculpture as on head, consisting of small, almost rounded and weakly impressed meshes and of minute punctures, particularly numerous at sides. Longitudinal median suture very short, hardly visi-

ble. Row of punctures on anterior border coarse; the punctures very large, close together and irregularly distributed. At sides and at middle of each latero-basal quarter the punctures distinctly smaller. Lateral margins completely bordered.

Elytra brown, testaceous along base, dark brown along lateral margins, shining. Epipleura dark brown. Meshes of the reticulation weakly impressed, rounded and very small; rapidly becoming elongate and obsolete, and replaced in basal third by a fine striolation which completely disappears before the middle. As a result, elytra with a shagreened lustre posteriorly. Puncturation consisting of minute and dense punctures, which are separated from each other by a distance equal to about 3 meshes; each one surrounded by petal-like meshes. Sutural row of punctures reduced to a few well-spaced punctures in the apical third. Discal and sublateral rows complete; the punctures well-spaced and irregular at apex, closer and in a straight line on anterior  $\frac{2}{3}$ . Some large punctures visible on the interspace between discal and sublateral rows, and a few on the interspace between sublateral and lateral rows.

Underside dark brown. Legs brown. Prosternal process short, ovoid, 1.4 times as long as broad, distinctly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of medium-sized punctures. Anal sternite striolate on anterior half, reticulate on posterior half and with a small depression formed by 3–4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, regularly curved, broad in apical part, sinuous on ventral margin (Fig. 68). In dorsal view, quite irregular, broader at the middle of its length. Parameres narrow (Fig. 111).

♀. Similar to ♂, at least externally; ground sculpture somewhat more impressed, and with a distinct shagreened lustre. Valvae long, narrow and narrowly rounded at apex. Seta short, ventral.

Total length: 4.5–5 mm; width: 2.6–2.9 mm.

Types: Holotype ♂ (MP) and 4 paratypes (2 ♀, MP; 1 ♂, BM; 1 ♂, MB); locality: Thailand, Luang Prabang, Ban Nam Mo, 31.III.1918, V. de Salvaza (holotype and 3 paratypes); idem, 31.III.1918, R.V. de Salvaza, Indo-China, BM 1924–315 (1 paratype).

Derivatio nominis: Species similar to many others.

Affinities: This species closely resembles *L. basalis* Sharp, but the reticulation is less impressed and the puncturation less dense. The aedeagus (Fig. 68) is broad at the apex (narrow in *L. basalis* Sharp), as

in *L. fulvescens*, Motsch., but the ventral margin is sinuous in lateral view.

Distribution: Thailand (Luang Prabang) (Map 1).

**8. *Lacconectus peguensis* n. sp.**

Figs 69, 112.

Body oval, semi-matt, brown, the head, sides of pronotum and basal part of elytra paler. Lateral margins of elytra blackish-brown.

Head light brown, paler on anterior part and disc, semi-matt. Surface sculpture consisting of very small, almost rounded meshes and of sparse minute punctures. Clypeal grooves, a row of punctures alongside eyes and a depression beside eyes weakly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> twice as long as broad.

Pronotum brown, testaceous at sides, semi-matt. Microsculpture consisting of small, almost rounded and weakly impressed meshes and of sparse minute punctures. Longitudinal median suture very short but distinct. Anterior row of punctures narrow, with medium-sized punctures. At lateral borders and at middle of each latero-basal quarter the punctures distinctly smaller. Lateral margins completely bordered.

Elytra brown, with an indistinct basal testaceous band and with lateral margins darker, semi-matt. Epipleura brown at base, dark brown in posterior half. Reticulation consisting of small, weakly impressed, almost rounded meshes, becoming obsolete in the apical third and almost disappearing at apex. Puncturation consisting of sparse minute punctures, separated from each other by a distance usually equal to 3–4 meshes. Sutural row of punctures with a few well-spaced punctures in apical third. Discal and sutural rows complete; the punctures irregularly distributed at apex, in a straight line anteriorly. Some larger punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside brown. Legs testaceous-brown. Prosternal process ovoid, very short, 1.5 times as long as broad, bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punctures. Anal sternite finely striolate on anterior half, faintly microreticulate on posterior half and with a small depression formed by 3 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, strongly but evenly curved, tapered in apical part and narrowly rounded at apex (Fig. 69). In dorsal view,



evenly tapered in apical part and slightly curved to the left at apex. Parameres moderately broad (Fig. 112).

♀. Similar to ♂. Valvae long, narrow and narrowly rounded at apex. Seta short, ventral.

Total length: 4.8–5 mm; width: 2.8–2.9 mm.

Types: Holotype ♂ (MP) and 2 paratypes (1 ♀, MP; 1 ♂ MB); locality: Pegu, coll. Guignot (*L. lividus* Rég.) and coll. Régimbart 1908. 1 paratype ♂ (MP); locality: Bengale, Staud., coll. Guignot.

Derivatio nominis: Species from Pegu.

Affinities: The elytral reticulation of this species is reminiscent of that of *L. fulvescens* Motsch., but it differs in the aedeagus, which is tapered in the apical part in lateral view (Fig. 69). It can be distinguished from *L. birmanicus* n. sp., by the meshes of the elytral reticulation, which are much smaller and rounded, and by the longer antennal joints.

Distribution: Burma (Pegu) and Bengale (?) (Map 1).

## 9. *Lacconectus birmanicus* n. sp.

Figs 70, 113.

*Lacconectus lividus* RÉGIMBART, GUIGNOT, 1954, Ark. Zool. 6: 566 (partim).

Body broadly oval, shining, pale brown, anterior part of head, sides of pronotum and a subbasal band on elytra testaceous. Lateral margins of elytra blackish-brown.

Head brown, clypeus and frons paler, testaceous, shining. Surface sculpture consisting of small polygonal meshes and of minute and sparse punctures, the latter more numerous on frons. Clypeal grooves, a row alongside eyes and a transverse depression beside eyes with coarse and impressed punctures. Antennae testaceous-ferrugineous; joints slender, the 5<sup>th</sup> 1.65 times as long as broad.

Pronotum brown, broadly paler at sides, shining. Microsculpture consisting of small, almost rounded, well-impressed meshes and of sparse minute punctures. The reticulation becoming more impressed towards sides. Longitudinal median suture hardly visible. Anterior row of punctures narrow and almost in a straight line; the punctures large and well-impressed. Punctures at sides and at middle of each latero-basal quarter medium-sized. Lateral margins distinctly and completely bordered.

Elytra pale brown, narrowly blackish-brown along lateral margins and with a subbasal testaceous band, shining. Epipleura testaceous on

anterior third, blackish-brown posteriorly. Reticulation consisting of small polygonal meshes, well-impressed at base, becoming obsolescent and transverse behind the middle, and replaced by a fine striolation on apical third, giving that part a shagreened lustre. Puncturation consisting of very small, obsolescent and hardly visible punctures. Sutural row of punctures with some very well-spaced and very small punctures along the suture. Discal and sublateral rows irregularly distributed on apical  $\frac{1}{4}$ , in a straight line on rest of surface. Some large punctures present in the interspace between discal and sublateral rows, and a very few in the interspace between sublateral and lateral rows.

Underside ferrugineous-brown. Legs testaceous-brown. Prosternal process ovoid, 1.5 times as long as broad, bordered at sides, broadly rounded at apex. Metacoxal lines represented by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of very small punctures. Anal sternite striolate on anterior half, distinctly microreticulate on posterior half and with a small oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin very finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, evenly tapered at apex, weakly depressed on dorsal margin before apex and narrowly rounded at apex (Fig. 70). In dorsal view evenly tapered at apex. Parameres moderately broad (Fig. 113).

♀. Similar to ♂; reticulation of upperside slightly more impressed. Valvae long, narrow and narrowly rounded at apex. Seta short, ventral.

Total length: 4.9–5 mm; width: 2.7–2.8 mm.

Types: Holotype ♂ (NRS, 426–83) and 5 paratypes (2 ♀, 425–83, 427–83, NRS; 1 ♀, coll. Guignot, MP; 1 ♂, 424–83 and 1 ♂, coll. Guignot, MB); locality: Tenasserim, Sukli, 75 km E of Moulmein, 600 m, 27–31.X.1934, Malaise, partim *Lacconectus lividus* Rég., det. Guignot 1953. 1 paratype ♀ (428–83, NRS); locality: Tenasserim, Mekane, 90 km E of Moulmein, 200 m, 2–8.XI.1934, Malaise.

Derivatio nominis: Species from Burma.

Affinities: This species is characterized by the minute and sparse punctures of the elytral reticulation and by its pale colour. From *L. peguensis* n. sp. (also from Burma) it can be distinguished by the sparser punctures of the elytral reticulation and by the aedeagus (Fig. 70) which is, in lateral view, slightly depressed on dorsal margin (rounded in *L. peguensis*).

Distribution: Burma (Tenasserim) (Map 4).



**10. *Lacconectus fallaciosus* n. sp.**

Figs 71, 114.

Body oval, shining, brown, indistinctly paler on anterior part and disc of head, at sides of pronotum and at the base of the elytra. Lateral margins of elytra dark brown posteriorly.

Head brown, slightly paler on anterior part and disc, slightly shining. Surface sculpture consisting of small, well-impressed and polygonal meshes and of minute punctures, particularly numerous on frons and clypeus. Clypeal grooves, a row of punctures alongside eyes, and a transverse depression beside eyes with deeply impressed punctures. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.65 times as long as broad.

Pronotum brown on disc, becoming gradually paler towards sides, slightly shining. Microsculpture consisting of small, very well-impressed and almost rounded meshes, and of minute punctures, more numerous and dense at sides. Longitudinal median suture short and weakly impressed. Anterior row of punctures narrow, consisting of strongly impressed and close-set punctures. Lateral row of punctures and punctures at the middle of each latero-basal quarter, coarse; the punctures medium-sized and partly coalescing. Lateral margins very finely but completely bordered.

Elytra brown, indistinctly paler at base and darker along lateral margins, at least posteriorly, strongly shining. Epipleura testaceous-brown at base, dark brown posteriorly. Reticulation consisting of very small, almost rounded meshes which gradually become obsolete posteriorly after basal third and disappear entirely before the middle, giving way to a hardly visible striolation. As a result, the elytra have a strong shagreened lustre on posterior half. Puncturation consisting of minute, well-impressed and dense punctures. At the base they are separated from each other by a distance equal to 2 meshes and are surrounded by petal-like meshes. Sutural row of punctures with 4 punctures in apical third and with 2 smaller ones anteriorly. Discal and sublateral rows almost complete, with large and deeply impressed punctures, irregularly distributed at apex, in a straight line and generally much closer anteriorly. A row of large punctures visible in the interspaces between discal and sublateral rows and between sublateral and lateral rows.

Underside brown. Legs testaceous. Prosternal process ovoid, about 1.4 times as long as broad, distinctly bordered at sides. Metacoxal lines represented only by a short row of punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punc-

tures. Anal sternite almost smooth, with only a few evenly distributed minute punctures and with a small oblique depression formed by 3–4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, regularly curved, slightly tapered in apical part, with a slight concavity on ventral margin just before apex and rounded at apex (Fig. 71). In dorsal view, tapered in apical part and slightly curved to the left at apex. Parameres of moderate width (Fig. 114).

♀. Similar to ♂; ground sculpture slightly more impressed, and striolation very distinct. Valvae long, narrow and narrowly rounded at apex. Seta short, ventral.

Total length: 4.3–4.4 mm; width: 2.5 mm.

Types: Holotype ♂ (MP) and 2 paratypes (1 ♀, MP; 1 ♀, MB); locality: Pégu, coll. Maurice Régimbart 1908.

Derivatio nominis: A deceptive species.

Additional material studied: Tenasserim, Mus. Pragense, coll. Helfer (2 ♀, ZSM; 1 ♀, MB).

Affinities: Because of its ground sculpture, this species is closely related to *L. basalis* Sharp and to *L. ritsemai* Rég. It differs from the former, among other features, by its smaller size, the shorter aedeagus, and the more elongate parameres; from the latter it differs by the slightly more impressed surface sculpture and by the aedeagus which is, in lateral view, narrower in apical part and more narrowly rounded at apex. It can easily be distinguished from *L. peguensis* n. sp. by the reticulation, which disappears before the middle of the elytra, and by its aedeagus (Fig. 71).

Distribution: Burma (Pegu) (Map 2).

# 11. *Lacconectus ritsemai* Rég.

Figs 72, 115.

*Lacconectus ritsemae* RÉGIMBART, 1883, Notes Leyden Mus. 5: 229. – GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Univ. Torino 14 (342): 2. – RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 291 (partim). – ZIMMERMANN, 1920, Coleopt. Cat. 4 (71): 147. – ZIMMERMANN, 1928, Wiener Ent. Zeitg. 44: 175 (partim). – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 384 (partim). – ZIMMERMANN, 1929, Ent. Bl. 25: (partim). – GUIGNOT, 1954, Ark. Zool. 6: 566 (partim) (*L. ritsemai* Rég.). – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40 (partim).

*Lacconectus* (s. str.) *ritsemai* RÉGIMBART, VAZIRANI, 1970, Or. Ins. 4: 322 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 59 (partim).

Body oval, shining, ferrugineous-brown, the disc and anterior part of head, sides of pronotum and base of elytra hardly paler. Lateral margins of elytra brown to dark brown.

Head ferrugineous-brown, slightly paler on anterior part and disc, shining to semi-matt. Surface sculpture consisting of small and well-impressed polygonal meshes and of some irregularly distributed minute punctures, particularly numerous on the disc. Clypeal grooves and a row of punctures alongside eyes distinctly impressed, a pronounced transverse depression beside eyes. Antennae testaceous; joints short, the 5<sup>th</sup> 1.5 times as long as broad.

Pronotum ferrugineous-brown, indistinctly paler at sides, shining to semi matt. Microsculpture consisting of small, polygonal, more or less rounded and well-impressed meshes, particularly at sides, and of minute and sparse punctures. Longitudinal median suture distinct. Anterior row of punctures coarse; the punctures large but not coalescent. Punctures present on lateral sides and at middle of each latero-basal quarter, very large and deeply impressed, forming weak wrinkles at base. Lateral margins finely but almost completely bordered, the furrow becoming very fine anteriorly.

Elytra ferrugineous-brown, indistinctly paler at the base and with dark lateral margins, shining. Epipleura ferrugineous-brown on anterior half, dark brown on posterior half. Reticulation consisting of small, polygonal and well-impressed meshes, which become obsolescent posteriorly and give way in posterior half to a fine striolation. Elytra with a weak shagreened lustre posteriorly. Puncturation consisting of small punctures that are separated from each other by a distance equal to 2–3 meshes and are surrounded by petal-like meshes. Sutural row of punctures with some small and very well-spaced punctures in the apical third, and 1–2 on basal  $\frac{2}{3}$ . Discal and sublateral rows reaching almost to base; the punctures very large and irregularly distributed in apical third, smaller, in a straight line and well-spaced anteriorly; except in basal third where they are close together. Some large punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous-brown. Legs testaceous. Prosternal process short, 1.5 times as long as broad, distinctly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a very short striae at the middle of their length. Sternites 3, 4 and 5 each with a row of medium-sized punctures. Anal sternite microreticulate, with some large punctures forming an oblique row on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, broadened in apical third, then gradually tapered and obliquely truncate at apex (Fig. 72).

In dorsal view, regularly tapered in apical part, slightly curved to left and pointed at apex. Right paramere moderately broad (Fig. 115). Left paramere elongate.

♀. Similar to ♂. Valvae cylindrical, tapered at posterior  $\frac{3}{4}$ , sublaterally truncate at apex, with a subapical medium-sized seta.

Total length: 4.3–4.4 mm; width: 2.5 mm.

Type: I have studied the holotype ♀ (RNHL), the only specimen mentioned in the original description; locality: Java, Kuhl & v. Hasselt, Cat. No. 1.

Additional material studied: Java, Galatea (3 ex., ZMK; 1 ex., MB). Java Galatea, circ. 3000' (1 ex., ZMK).

Affinities: This species comes very close to *L. fallaciosus* n. sp. from Burma, but can easily be distinguished by the slightly less impressed surface sculpture of elytra, by the much smaller punctures of the elytral rows, by the aedeagus, which is in lateral view, very narrowly rounded at the apex (distinctly more broadly rounded in *L. fallaciosus* n. sp.), and by the valvae which are cylindrical and strongly tapered at posterior  $\frac{3}{4}$  (more or less flattened in *L. fallaciosus* n. sp.). From *L. formosanus* (Kamiya), it differs by the elytral striolation which is absent or hardly visible in the apical third, by the aedeagus (Fig. 72) which is narrowly rounded at the apex, and by the cylindrical valvae.

Distribution: Indonesia: Java (Map 1).

## 12. *Lacconectus merguiensis* n. sp.

Figs 22, 23, 73, 116.

*Lacconectus fulvescens* MOTSCHULSKY, GUIGNOT, 1954, Ark. Zool. 6: 566 (partim).

*Lacconectus ritsemai* RÉGIMBART, GUIGNOT, 1954, Ark. Zool. 6: 566 (partim).

Body oval, ferrugineous-brown, shining, indistinctly paler on anterior part of head, at sides of pronotum and at base of elytra. Lateral margins of elytra narrowly dark brown.

Head ferrugineous-brown, slightly paler on anterior part, shining. Surface sculpture consisting of small, polygonal and weakly impressed meshes and of minute and well-spaced punctures, particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes weakly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.75 times as long as broad.

Pronotum ferrugineous-brown, shining. Microsculpture as on head, consisting of small rounded and weakly impressed meshes and of well-spaced minute punctures. Longitudinal median suture very short. Anterior row of punctures narrow; the punctures small, almost in a straight line. Lateral row of punctures and punctures at the middle of

each latero-basal quarter obsolescent, partly coalescent and forming weak wrinkles. Lateral margins finely but completely bordered; the furrow obsolete.

Elytra ferrugineous-brown, shining. Lateral margins and epipleura dark brown except extreme base of latter. Reticulation consisting of small, almost rounded and hardly impressed meshes (Figs 22, 23) which are replaced in the apical third by fine striolations which disappear at the apex. Puncturation consisting of minute, poorly visible and well-spaced punctures. Posterior third of elytra with a fine shagreened lustre. Sutural row of punctures limited to a few punctures on apical third. Discal and sublateral rows of punctures reaching almost to base; the punctures medium-sized, well-spaced on apical third, less distant and in a straight line on rest of length. Some well-spaced punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside and legs ferrugineous-brown. Prosternal process very short, 1.35 times as long as broad, finely bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with some small punctures. Anal sternite finely striolate and with an oblique depression formed by 3–4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, weakly curved, slightly broadened in apical fifth, then tapered and narrowly rounded at apex (Fig. 73). In dorsal view, evenly tapered in apical part and pointed at apex. Parameres moderately broad (Fig. 116).

♀. Similar to ♂. Valvae long, narrow and narrowly rounded at apex. Seta short ventral.

Total length: 4.2–4.5 mm; width: 2.4–2.6 mm.

Types: Holotype ♂ (MP) and 5 paratypes (3 ♀, MP; 1 ♂ and 1 ♀, MB); locality: Tenasserim, Mergui, Mai 1895, Lakatt & Pamboo, partim coll. Régimbart 1908. 3 paratypes (1 ♂ and 1 ♀, NRS; 1 ♂ MB); locality: Tenasserim, Sukli, 75 km E of Moulmein, 600 m, 27–31.X.1934, R. Malaise, *L. fulvescens* Motsch., det. Guignot 1953. 1 paratype ♀ (MB); locality Tenasserim, Mavedaung, 30 km S of Ye, 15–25.XI.1934, R. Malaise (coll. Guignot).

Derivatio nominis: Species from Mergui.

Affinities: Because of its size this species comes close to *L. fallaciosus* n. sp. from Pegu and to *L. ritsemai* Rég. from Java, but it can easily be distinguished by the reticulation, which is obsolete, even at the

base, and is replaced in the posterior third by a fine striolation. The elytra show a fine shagreened lustre in the apical third. The aedeagus (Fig. 73) is reminiscent of that of *L. fallaciosus* n. sp. but is slightly more broadened in the posterior fifth and then evenly tapered towards the apex (slightly enlarged in *L. fallaciosus* n. sp.); furthermore, the dorsal margin is strongly curved (straight in *L. fallaciosus* n. sp.).

Distribution: Burma (Tenasserim) (Map 2).

13. **Lacconectus nicolasi** n. sp.

Figs 24, 25, 74, 75, 117.

*Lacconectus fulvescens* MOTSCHULSKY, RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 291 (partim). – VAZIRANI, 1970, Or. Ins. 4: 325 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 58 (partim).

*Lacconectus basalis* SHARP, BRANCUCCI, 1979, Ent. Bas. 4: 200.

Body oval, shining, brown, anterior part of head, sides of pronotum and base of elytra testaceous-brown. Elytra dark brown along lateral margins.

Head dark brown, clypeus and middle of frons mostly paler, semi-matt. Surface sculpture consisting of small, almost rounded and well-impressed meshes, and of minute and deep punctures, the latter particularly visible on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-marked; punctures large and strongly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.8 times as long as broad.

Pronotum brown to dark brown, the sides paler, shining to semi-matt. Microsculpture as on head, consisting of small, almost rounded and well-impressed meshes and of minute and deep punctures, the latter particularly strong and numerous at sides. Longitudinal median suture well-impressed. Anterior row of punctures consisting of very deep punctures. Punctures along sides and at the middle of each latero-basal quarter partly coalescent and forming weak wrinkles, particularly in front of posterior angles. Lateral margins almost completely bordered.

Elytra brown, narrowly dark brown along lateral margins, with a testaceous-brown subbasal band and often weakly visible testaceous patch on mediolateral part, shining. Epipleura brown at basal 1/5, dark brown to blackish behind. Reticulation consisting of small polygonal, almost rounded and well-impressed meshes (Figs 24, 25) which are obsolescent, smaller and slightly transverse at the apex but still visible. Puncturation consisting of some sparse and very minute punctures; these being separated from each other by a distance equal to 5–6



meshes and indistinctly surrounded by petal-like meshes. Sutural row of punctures consisting of some medium-sized punctures on the apical third and with several much smaller ones on the rest of the surface. Discal and sublateral rows almost reaching the base; the medium-sized punctures well-separated and irregularly distributed on apical half, in a straight line on basal half. Some punctures visible in the interspaces between discal and sublateral rows and between sublateral and lateral rows.

Underside dark brown to blackish-brown. Legs testaceous-brown. Prosternal process ovoid, 1.5 times as long as broad, strongly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punctures. Anal sternite microreticulate; meshes small and transverse on anterior half, larger and more polygonal on posterior half. With an oblique row of 5–6 punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, broadest in apical fourth, then tapered towards apex and rounded at apex. (Figs 74, 75). In dorsal view, evenly tapered in apical part and slightly curved to the left at apex. Parameres broad (Fig. 117).

♀. Similar to ♂; reticulation slightly more impressed. Valvae narrow, narrowly rounded at apex. Seta short, ventral.

Total length: 4–4.7 mm; width: 2.2–2.6 mm.

Types: Holotype ♂ (MB) and 71 paratypes (41 ♂ and 28 ♀, MB; 1 ♂ and 1 ♀, SR); locality: Nepal, Danda Pakhar, 1600–2500 m, 1.VI.1977, M. Brancucci. 33 paratypes (18 ♂ and 15 ♀, MB); locality: Nepal, Arun V., Num, 1550 m, 5–6.VI.1983, M. Brancucci. 1 paratype ♂ (GW); locality: Nepal, Heraudy-Umgb., 19.II.1981, M. Jäch. 1 paratype ♂ (GW); locality: Nepal, Dahran-Umgb., 12.II.1981, M. Jäch. 1 paratype ♀ (SA); locality: Sindhu, Lamosangu, 900 m, 18–21.X.1979, M. Satô. 2 paratypes (1 ♂, SA; 1 ♀, MB); locality: Sindhu, Simle, 1100 m, 10.XI.1979, M. Satô. 1 paratype ♀ (SA); locality: Nepal, Sindhu, Budipa, 1160 m, 10.XI.1979, M. Satô. 1 paratype ♀ (SA); locality: Sindhu, Shivino Khola, 1920 m, 14.XI.1979, M. Satô.

Derivatio nominis: This species is named after my son, Nicolas.

Additional material studied: W Nepal: Modi Khola, Pothana, 1900 m, 5–7. V. 1984, C.J. Rai (4 ex., MB). Modi Khola, Pothana-Landrung, 1900–1600 m, 7.V.1984, C.J. Rai (46 ex., MB); Idem, 6.VI.1984, (40 ex., MB). 20 km W Pokhara, Lumle, kleiner Quelltümpel, 1600 m, 2.V.1984, G. Wewalka (23 ex., GW; 1 ex., MB). 15 km NW Pokhara, Quellbach, ca. 1000 m, 13.V.1984, G. Wewalka (5 ex., MB).



India: Himalaya, Sikkim, 279, coll. Kraatz, *L. fulvescens* Motsch. det. M. Régimbart and A. Zimmermann (1 ex., ALE). Pedon, A. Desgodins (1 ex., MP). Indien, West Bengal, Kurseong, *L. fulvescens* det. A. Zimmermann (3 ex., ZSM; 1 ex., MB). Ind. bor., Kurseong, coll. Régimbart 1908, *L. fulvescens* Motsch. det. Régimbart (6 ex., MP; 3 ex., MB). Kurseong, P. Braet (2 ex., BM). Environs de Kurseong, R.P. Bretaudeau (2 ex., ZSM); idem, coll. Gärtner (1 ex., ALE); idem, coll. Régimbart 1908 (22 ex., MP; 7 ex., MB).

**Affinities:** The lustre and reticulation of this species are reminiscent of *L. biswasi* n. sp., *L. ritsemai* Rég. and *L. merguiensis* n. sp. However, it can easily be distinguished, partly by its size, partly by its elytral reticulation, and from all these species by its characteristic aedeagus. From *L. holzschuhi* n. sp. also from Nepal, it can be distinguished by its smaller size, by the minutes punctures of elytra which are much smaller and very distant, and by the aedeagus which is, in lateral view, rounded at apex (Figs 74, 75).

**Remark:** This species has been confused with *L. fulvescens* Motsch. by many authors.

**Distribution:** Nepal, India: Sikkim and West Bengal (Map 2).

#### 14. **Lacconectus biswasi** n. sp.

Figs 76, 118.

*Lacconectus fulvescens* MOTSCHULSKY, VAZIRANI, 1970, Or. Ins. 4: 325 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 58 (partim).

Body elongate-oval, unicolorous, ferrugineous-brown, slightly shining.

Head ferrugineous-brown, slightly shining. Surface sculpture consisting of small, rounded, weakly impressed meshes, and of minute but well-impressed punctures on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-marked. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.55 times as long as broad.

Pronotum ferrugineous-brown, slightly shining. Microsculpture consisting of small, rounded, weakly impressed meshes and of sparse minute punctures, particularly visible on sides. Longitudinal median suture weakly impressed. Anterior row of punctures narrow; the punctures well-impressed and well-spaced. Punctures of lateral row smaller but closer. Punctures at the middle of each latero-basal quarter well-separated from each other. Lateral margins distinctly and completely bordered.

Elytra ferrugineous-brown, hardly paler at base, slightly shining. Epipleura ferrugineous-brown. Microreticulation consisting of small and weakly impressed, almost rounded meshes in anterior half, becoming more obsolescent posteriorly, gradually disappearing in apical

third and giving way to a fine striolation. Puncturation consisting of sparse and hardly visible small punctures. Sutural row of punctures containing some small well-spaced punctures in apical half and 1–2 much smaller ones in basal half. Discal and sublateral rows of punctures complete; punctures sparse and irregularly-distributed in apical fourth, very small and in a straight line on rest of surface. Some small punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous. Legs testaceous-brown. Prosternal process ovoid, very short, about 1.3 times as long as broad, broadly bordered at sides, very finely so on posterior margin. Apex broadly rounded. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with some very small punctures at the middle. Anal sternite striolate on anterior half, finely microreticulate on posterior half and with a small depression formed by 4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, dilated in apical third and then tapered towards apex, which is rounded (Fig. 76). In dorsal view, strongly turned and slightly curved to the left at apex. Parameres moderately broad (Fig. 118).

♀. Unknown.

Total length: 3.9 mm; width: 2.2 mm.

Type: Holotype ♂ (ZSI). Locality: India, Assam, Manipur, Kamluvan, 1500 ft, 24.V.1960, F. Schmid, ZSI Lot No 61 1960, *Lacconectus fulvescens* Motsch., det. T.G. Vazirani.

Derivatio nominis: This species is named after Dr. S. Biswas of the Coleoptera Section in ZSI, Calcutta.

Affinities: The small size, the hardly visible puncturation on elytra, and the aedeagus (Fig. 76), which is broadened in the apical third in lateral view, distinguish *L. biswasi* n. sp. from all other known species.

Distribution: India (Assam) (Map 1).

# **15. *Lacconectus formosanus* (Kamiya) n. comb.**

Figs 26, 27, 77–80, 119–121.

*Platynectes formosanus* KAMIYA, 1938, J. Tokyo Nogyo Daigaku 5: 30. – GUÉORGUEV, 1972, Bull. Inst. Zool. Mus. 34: 57.

Body oval, shining, dark brown, the frons and vertex brown, the sides of pronotum and a subbasal band on elytra reddish-brown. Elytra black along lateral margins.

Head dark brown alongside eyes, reddish-brown on rest of surface, shining. Surface sculpture consisting of small, slightly polygonal and well-impressed meshes and of minute punctures, the latter particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes slightly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.8 times as long as broad.

Pronotum dark brown, paler at sides, shining. Microsculpture consisting of small, almost rounded and well-impressed meshes and of numerous minute punctures. Longitudinal median suture weakly impressed. Punctures of anterior row sparse, with the spaces between them equal to 4 or even 5 times their own diameter. Rows of punctures at sides, and at the middle of each latero-basal quarter with small and weakly impressed punctures. Lateral margins finely but almost completely bordered.

Elytra dark brown, black along lateral margins, with a subbasal testaceous band, shining. Epipleura dark brown to black, except at extreme base. Reticulation consisting of small, polygonal, almost rounded and weakly impressed meshes (Figs 26, 27), which become more elongate and obsolescent posteriorly and are replaced by a very fine, hardly visible striolation on apical third. Puncturation consisting of minute and well-spaced punctures at base, much more dense and numerous posteriorly, surrounded by petal-like meshes. Sutural row of punctures with very few punctures on the apical third. Discal and sublateral rows complete; the medium-sized punctures well-spaced and irregularly distributed at apex, in a straight line on rest of length. Some punctures visible in the interspaces between discal and sublateral rows and between sublateral and lateral rows of punctures.

Underside reddish-brown, dark brown on anterolateral part of metacoxae. Legs testaceous-brown. Prosternal process very short, 1.35 times as long as broad, distinctly bordered at sides. Metacoxal lines represented only by 1 or 2 small punctures at the middle of their length. Abdominal sternites 3, 4 and 5 each with a transverse row of medium-sized punctures. Anal sternite striolate on anterior half, distinctly reticulate on posterior half and with a small depression formed by 2–3 coalescent punctures on each side of middle line. Posterior margin distinctly bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved at base, straightened and hardly tapered in apical part, broadly rounded at apex (Figs 77–79); in dorsal view, apex slightly curved to the left. Parameres moderately broad (Figs 119–121).

♀. Similar to ♂; reticulation of upperside a little more impressed, and punctures slightly larger and apparently more numerous, at least at the base. Valvae long, strongly flattened in apical part, narrowly rounded at apex. Seta medium-sized, its position ventral.

Total length: 4.2–5.5 mm; width: 2.55–3.30 mm.

Variation: The aedeagus seems to vary slightly. In some specimens it is slightly narrower (Figs 77, 78), in others (specimens from Vietnam, Fig. 80 and specimens from Fukien, Fig. 79) slightly broader. Furthermore, the specimens from Fukien are rather large and more broadly oval, whereas the specimens from Vietnam (Ninh Binh) are on the average smaller. However, there are no other significant differences to suggest that these represent different species.

Types: The types of this species were destroyed during the 2<sup>nd</sup> World War. In view of the taxonomic difficulties within this genus and the close relationships between the different species, I have considered it necessary in this particular case to designate a neotype. This species was described from 5 specimens from Koshun, Taiheizan and Shinten (MB). I have chosen a male from KU as neotype. Locality: Formosa, Takesaki, 31.V.1941, Y. Yano. The drawings of the habitus and particularly of the aedeagus in the original type-specimens and also provide conclusive evidence that the species described as *Platynectes formosanus* by KAMIYA (1938) is in fact a *Lacconectus*.

Additional material studied: Taiwan: Takesaki, 31.V.1941, Y. Yano (3 ex., NA; 1 ex., MB). Kouden, 20.IV.1941, Y. Yano (9 ex., NA); Idem, 28.IV.1941 (3 ex., NA). Karapin, 30.IV.1941, Y. Yano (2 ex., MB). Keelung (Chilung), J.C. Thompson collection, Cal. Acad. Sci. Coll. (5 ex., CAS; 3 ex., MB; 1 ex., GW). China: Fukien, Kuatun, 5.IV.1946, Tschung Sen (2 ex., MB). Vietnam: Cuc phuong, Ninh binh, from trap in soil, 5–18.V.1966, Exp. Gy. Topál, Nr. 385 (2 ex., BU; 1 ex., MB). Idem, singled material, 11–17.V.1966, Nr. 380 (1 ex., BU).

Affinities: This species is closely related to *L. basalis* Sharp, and *L. fallaciosus* n. sp. It can be distinguished from the former by its smaller size, by the less numerous punctures at the base of the elytra, and by the aedeagus in which the apical part is slightly tapered (parallel-sided and broadly rounded in *L. basalis* Sharp). It can be distinguished from the latter by the more impressed elytral reticulation and by the aedeagus, which is, in lateral view, much more curved (Fig. 77).

Distribution: Taiwan, S China (Fukien) and Vietnam (Ninh Binh) (Map 1).

**16. *Lacconectus basalis* Sharp** Figs 3, 11–15, 28, 29, 81, 122, 146.

*Lacconectus basalis* SHARP, 1880–82, Sci. Trans. R. Dublin Soc. 2: 598. – RÉGIMBART, 1888, Ann. Mus. Civ. St. Nat. Genova 6: 616. – GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Univ. Torino 14 (342): 1. – RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 290. – ZIMMERMANN, 1919, Arch. Naturgesch. A 83: 197. – ZIMMERMANN, 1920, Coleopt. Cat. 4 (71): 147. – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 384. – ZIMMERMANN, 1929, Ent. Bl. 25: 12. – GUIGNOT, 1946, Rev. Fr. Ent. 13: 116 (sp. typ.) – GUIGNOT, 1954, Ark. Zool. 6: 566. – GUÉORGUIEV, 1968, Bull. Inst. Zool. Mus. 28:39.

*Lacconectus* (s. str.) *basalis* SHARP, VAZIRANI, 1970, Or. Ins. 4: 322. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 58. – BRANCUCCI (nec SHARP), 1979, Ent. Bas. 4: 200.

Body broadly oval, shining, brown; head, sides of pronotum and basal part of elytra paler. Elytra blackish-brown along lateral margins.

Head brown, paler on frons and on clypeus, shining. Surface sculpture consisting of small, almost rounded meshes and of minute punctures, particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> almost twice as long as broad.

Pronotum brown, distinctly paler at sides, shining. Microsculpture consisting of small, rounded and well-impressed meshes and of minute punctures, particularly numerous at sides. Longitudinal median suture long, about  $\frac{1}{3}$ – $\frac{1}{4}$  of pronotal length, well-impressed. Row of punctures at anterior border coarse; the punctures very close together and even coalescing at sides. Lateral row of punctures and punctures at the middle of each latero-basal quarter partly coalescing. Lateral margins distinctly and completely bordered.

Elytra brown (Fig. 3), testaceous at base, narrowly darker along lateral margins, shining. Epipleura black, except extreme base. Reticulation consisting of extremely small, more or less polygonal meshes (Figs 28, 29), which gradually disappear from anterior third posteriorly (Figs 11–15). Posterior  $\frac{3}{4}$  of elytra with a strong shagreened lustre. Puncturation consisting of small and dense punctures, which are separated from each other by a distance equal to 2 meshes and are surrounded by petal-like meshes. Punctures of sutural row becoming sparser anteriorly. Discal and sublateral rows almost complete; the punctures well-spaced and irregularly distributed in apical third, closer together and in a straight line in basal  $\frac{2}{3}$ . Some large punctures visible in the interspace between discal and sublateral rows, and a few in the interspace between sublateral and lateral rows.

Underside reddish-brown. Legs testaceous. Prosternal process ovoid, short, 1.5 times as long as wide, distinctly bordered at sides, more finely and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with a transverse row of small punctures. Anal sternite finely striolate. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, narrowed in apical  $\frac{1}{5}$  and rounded at apex (Fig. 81). In dorsal view, apex slightly curved to the left and pointed. Parameres very broad (Fig. 122).

♀. Similar to ♂; reticulation indistinctly more impressed. Valvae long, narrow in apical part, narrowly rounded at apex. Seta medium-sized and almost ventral (Fig. 146).

Total length: 5.1–5.4 mm; width: 3.1–3.3 mm.

Types: I found 5 cotypes in the collection of the British Museum. 1 ♂ (BM) labelled “type” is herewith designated as lectotype; locality: Siam, Bangkok, Sharp coll. 1905–313, Type 718, *L. basalis* n.sp. 1 ♀ (BM) is designated as paralectotype; locality: Siam, Bangkok, 812. Finally, 3 further syntypes (1 ♂ and 2 ♀, BM) are also considered as paralectotypes; locality: Cambodia, Castelnau, Sharp coll. 1905–313.

Additional material studied: India?: partim coll. v. Bennigsen, partim coll. Kraatz (4 ex., ALE; 2 ex., MB).

Burma: Shenmaga, 8.VI.1885, L. Fea, *L. basalis* Sharp, det. M. Régimbart (1 ex., MCG). Teinzo, V.1886, L. Fea, *L. basalis* Sharp, det. M. Régimbart (1 ex., MCG). Palon, Pegu (1 ex., MNB). Pegu, coll. M. Régimbart 1908 (5 ex., MP; 3 ex., MB). Palon, Pegu, VIII–IX.1887, L. Fea, partim coll. M. Régimbart 1908, partim coll. Kraatz (11 ex., MP, 13 ex., ALE; 3 ex., ZSM; 1 ex., MNB; 10 ex., MB; 1 ex., GW). Palone, L. Fea, partim coll. Régimbart 1908 (1 ex., MP). Palone, VII.1887, L. Fea, partim coll. M. Régimbart, partim *L. basalis* Sharp, det. M. Régimbart (2 ex., MP; 2 ex., MCG). Carin Chebà, 400–900 m, IV.1888, L. Fea, *L. basalis* Sharp, det. M. Régimbart (2 ex., MCG). Tenasserim, Sukli, 75 km E. of Moulmein, 600 m, 27.–31.X.1934, R. Malaise, *L. basalis* Sharp, det. F. Guignot 1953 (2 ex., NRS, 1 ex., MP; 1 ex., MB). Thailand: Siam, Sharp coll. 1905–313 (9 ex., BM). Siam, Schmidt (1 ex. MP). Siam, hills between Me Ping and Thaungyin Rs., 1700 ft, 9.I.1914, C. S. Barton, *Lacconectus basalis* Sharp, det. L. Gschwendtner, coll. Gschwendtner (1 ex., OLM). Sakhon Nakhon, Muang Sakhon Nakhon, Phu Phan, 2.IV.1954, R. E. Elbel (3 ex., USNM). Nakhon Phanom, Na Kae, Kan Luang, 26.VII.1954, R. E. Elbel (3 ex., USNM; 2 ex., MB). Doi Suthep, slope, 260 m, 15.VII.1962, E. S. Ross & D. Q. Cavagnaro (1 ex., CAS). Doi Suthep natn. Park, Konthathan, waterfall area, 600 m, 20.–27.X.1979, Zool. Mus. Copenhagen Exped. (1 ex., ZMK).

Vietnam: Cochinchine, 1872, Harmand (3 ex., MP; 1 ex., MB). Tonkin Central, 1911, A. Krempf (9 ex., MP; 5 ex., MB). Vieng Vai, 8.VI. Ht Mekong, 8.VI., V. de Salvaza (9 ex., MP; 2 ex., MB). Pak. Vit. ?, 13.XII.1918, V. de Salvaza, coll. Peschet 1945 (1 ex., MB). Ban-San, IV.1949, V. de Salvaza, coll. Peschet 1945 (1 ex., MP).

Taiwan: Koshun, 25.IV.–25.V.1918, U. Sonan, K. Miyake & M. Yoshino, coll. Gschwendtner, *L. basalis* Shp., det. L. Gschwendtner (1 ex., OLM).



Cambodia: coll. de Bonvouloir, *L. basalis*, D. Sharp Monogr. (1 ex., MP). 2047, *L. basalis* Sharp, det. J. Balfour-Browne (4 ex., BM). 67–56 (1 ex., BM). Sambor, 1884, Lt. L. Lamey (1 ex., MP).

Malaysia: Malacca, coll. M. Régimbart 1908 (2 ex., MP; 1 ex., MB). Malay Penin., Pulang Telibong, XII.1916 (5 ex., MP). Malay Penin., Kedah Peak, 1000 ft, 7.III.1928, H.M. Pendlebury, coll. F.M.S. Museums (5 ex., MP; 1 ex., MB).

**Affinities:** This species closely resembles *L. tonkinensis* Guignot and *L. tonkinoides* n.sp. The more numerous punctures on elytra, the larger punctures of the elytral rows, and the less slender aedeagus (Fig. 81) in lateral view distinguish it from both these species.

**Distribution:** India?, Burma, Thailand, Vietnam, Taiwan, Cambodia and Malaysia (Malaya) (Map 3).

**17. *Lacconectus tonkinoides* n. sp.**

Figs 82, 123, 147.

Body broadly oval, shining to semi-matt, brown with the anterior part of head, sides of pronotum and subbasal part of elytra paler. Base and lateral margins of elytra brownish-black.

Head brown, anterior part paler, brown alongside eyes, semi-matt. Surface sculpture consisting of small polygonal, almost rounded and very well-impressed meshes and of sparse minute punctures. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes moderately impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum brown, paler at sides, shining to semi-matt. Micro-sculpture consisting of small polygonal, almost rounded and well-impressed meshes and of minute and rather dense punctures. Longitudinal median suture weakly impressed. Anterior and lateral rows of punctures and punctures at the middle of each latero-basal quarter coarse; punctures deeply impressed. Lateral margins bordered; the furrow fine, almost complete, narrowly interrupted before anterior edge.

Elytra shining, brown, with a subbasal band, a postmedian lateral and an apical patch testaceous. Base and margins brownish-black. Epi-pleura testaceous-brown at base, becoming brownish-black towards apex. Reticulation consisting of small rounded and weakly impressed meshes, which become obsolescent behind basal third and give way to a fine striolation which gives the elytra a fine shagreened lustre and which disappears in the apical third. Puncturation consisting of dense and minute punctures, surrounded by petal-like meshes at the base. Sutural row of punctures consisting of some small to medium-sized punctures in the apical third and several smaller ones in the basal  $\frac{2}{3}$  of length. Discal and sublateral rows interrupted before anterior edge, the



former broadly, the latter narrowly; punctures large and irregularly distributed at the apex, smaller, in a straight line but well-spaced anteriorly except in the basal third where they are closer together. Some large punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside brown. Legs ferrugineous-brown. Prosternal process ovoid, 1.5 times as long as broad, distinctly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 with numerous small punctures. Anal sternite striolate anteriorly, microreticulate posteriorly, with very few minute punctures and an oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, strongly curved, evenly tapered in apical third, sinuous just before apex and narrowly rounded at apex (Fig. 82). In dorsal view, strongly tapered in apical part, slightly curved to the left just before apex and pointed apex. Parameres elongate (Fig. 123).

♀. Similar to ♂; elytral reticulation distinctly more impressed. Valvae long, cylindrical, strongly constricted at posterior  $\frac{3}{4}$ , the apex laterally truncate. Seta long, its position sublateral and preapical (Fig. 147).

Total length: 4.6–5.2 mm; width: 2.6–3.1 mm.

Types: Holotype ♂ and 11 paratypes (2 ♂ and 4 ♀, MP; 3 ♂ and 2 ♀, MB); locality: Tonkin, Hoa Binh, de Cooman, coll. Peschet 1945. 16 paratypes (5 ♂ and 7 ♀, MP; 2 ♂ and 2 ♀, MB); locality: Tonkin, Latho, de Cooman, coll. Peschet 1945. 6 paratypes (2 ♂ and 2 ♀, MP); locality: Tonkin, de Cooman, coll. Peschet 1945.

Derivatio nominis: A species closely related to *L. tonkinensis* Guignot.

Remarks: I hesitated before describing this species because it is difficult to separate from *L. tonkinensis* Guignot. However, its characters are constant and it therefore has to be treated as a different taxon. As its distribution is almost the same as that of *L. tonkinensis* Guignot, subspecific status would not be correct.

Affinities: This species is very closely related to *L. tonkinensis* Guignot. But its average size is slightly smaller (4.6–5.2 mm, against 5.1–5.6 mm in *L. tonkinensis* Guignot), the meshes of the elytral reticulation are distinct at least at the base (elongate and obsolescent in *L. tonkinensis* Guignot), in lateral view, the apical part of the aedeagus (Fig. 82) is shorter, slightly broader and sinuous just before the apex,

and the valvae of the ♀ are cylindrical, the apex laterally truncate and with a long sublateral preapical seta (Fig. 147).

Distribution: northern Vietnam (Map 2).

**18. *Lacconectus tonkinensis* Guignot**

Figs 30, 31, 56, 58, 59, 83, 124, 148.

*Lacconectus tonkinensis* GUIGNOT, 1957, Bull. Soc. Ent. Fr. 62: 94. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40. – VAZIRANI, 1970, Or. Ins. 4: 321. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 60.

Body very broadly oval, shining, brown, the head, sides of pronotum and a distinct subbasal elytral band paler. Elytra brown to black along lateral margins.

Head ferrugineous-brown, darker alongside eyes, shining. Surface sculpture consisting of small, almost rounded meshes and of minute punctures, the latter particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad at broadest point.

Pronotum ferrugineous-brown, paler at sides, shining. Meshes of reticulation small, rounded and weakly impressed. Puncturation consisting of minute punctures, particularly numerous at sides. Longitudinal median suture weakly impressed. Anterior row of punctures coarse; punctures not coalescing. Lateral row of punctures and punctures at the middle of each latero-basal quarter coalescing. Lateral margins finely but completely bordered.

Elytra brown, with a rather well-limited subbasal testaceous band, brown to black at extreme base and along lateral margins, shining. Epipleura brown to black. Reticulation consisting of very weakly impressed, elongate meshes, hardly visible, even at base (Figs 30–31), becoming more obsolescent posteriorly, giving the elytra a strongly shagreened lustre. Puncturation consisting of minute and dense punctures, separated from each other by a distance equal to 2–3 meshes and surrounded by petal-like meshes. Sutural row of punctures reduced to some medium-sized punctures in the apical part. Discal and sublateral rows rather complete; the punctures small, irregularly distributed in apical 1/4, in a straight line on the rest of the surface. Some larger punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous. Legs ferrugineous-brown. Prosternal process very short, 1.4 times as long as broad, distinctly bordered at

sides (Fig. 56). Metacoxal lines represented only by very short striae at the middle of their length (Fig. 58). Sternites 3, 4 and 5 each with some very small punctures at the middle. Anal sternite with a hardly visible striolation and with a small depression formed by 3–4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, weakly curved, evenly tapered and expanded in apical part, narrowly rounded at apex (Fig. 83). In dorsal view, sinuous at base and slightly curved to left at apex. Parameres elongate (Fig. 124).

♀. Similar to ♂. Valvae long, narrow, slightly flattened in apical part, narrowly rounded at apex. Seta short, ventral (Fig. 148).

Total length: 5.1–5.6 mm; width: 3–3.3 mm.

Types: Holotype ♂ (MP), allotype ♀ (MP) and 7 paratypes (2 ♂ and 5 ♀, MP); locality: Tonkin, Tam Dao, H. Perrot, coll. Guignot.

Additional material studied: Tonkin, de Cooman, coll. Peschet 1945 (1 ex., MP). Tonkin, Lactho, de Cooman, coll. Peschet 1945 (4 ex., MP; 4 ex., MB). Tonkin, Hoa Binh, de Cooman, coll. Peschet 1945 (3 ex., MP).

Affinities: *L. tonkinensis* Guignot is closely related to *L. tonkinoides* n. sp., but its large size, the obsolescent elytral reticulation, even at the extreme base, the more expanded apical part of the aedeagus, and the valvae of the ♀ (Fig. 148), which are slightly flattened and have a ventral short seta, differentiate it from *L. tonkinensis* n. sp. From *L. basalis* Sharp, it differs by the reticulation of elytra, which is much less impressed, even at the base, and has much smaller and more elongate meshes. The aedeagus (Fig. 83) is more elongate and tapered at the apex in lateral view; the parameres are more elongate (Fig. 124).

Distribution: Northern Vietnam (Map 1).

#### 19. *Lacconectus krikkeni* n. sp.

Figs 32, 33, 84, 125, 149.

*Lacconectus ritsemae* RÉGIMBART, ZIMMERMANN, 1929, Ent. Bl. 25: 13 (partim).

Body oval, shining, brown, the head, pronotum and base of elytra paler, testaceous-brown. Lateral margins of elytra dark brown to blackish-brown.

Head pale, testaceous-brown, darker alongside eyes, shining to semi-matt. Surface sculpture consisting of small, polygonal, weakly impressed meshes and of minute and dense punctures, particularly numerous on disc. Clypeal grooves and punctures alongside eyes well-

impressed. Transverse row of punctures beside eyes weakly impressed. Antennae testaceous-brown; joints slender, the 5<sup>th</sup> 1.6 times as long as broad.

Pronotum testaceous-brown, the disc hardly darker, shining to semi-matt. Microsculpture consisting of small, almost rounded, well-impressed meshes, particularly at sides, and of dense minute punctures. Longitudinal median suture well-impressed. Anterior row of punctures very coarse; the punctures irregular in size. Lateral row of punctures at the middle of each latero-basal quarter smaller but dense, coalescing at the base to form slight wrinkles. Lateral margins finely but completely bordered; furrow very fine anteriorly.

Elytra brown, indistinctly paler at the base, shining. Lateral margins dark brown to blackish. Epipleura brown at the base, dark brown posteriorly. Reticulation consisting of small, almost rounded meshes at the extreme base (Figs 32, 33), soon becoming elongate and obsolete and being replaced by a fine striolation which gradually disappears in posterior half, giving it a shagreened lustre. Puncturation consisting of very small and dense punctures. Sutural row of punctures with some very small punctures in apical third and with 1 or 2 additional ones on basal  $\frac{2}{3}$ . Discal and sublateral rows of punctures very fine, almost complete, slightly abbreviated at the base; the punctures irregularly distributed at apex, very small, in a straight line and well-spaced anteriorly, close-set and grouped together at the base. A few larger punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside testaceous-brown. Legs testaceous. Prosternal process short, 1.5 times as long as broad, bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a short row of punctures at the middle of their length. Sternites 3, 4 and 5 each with small punctures, forming an irregular transverse row. Anal sternite smooth on anterior half, striolate on posterior half and with an oblique, almost transverse row of 4–5 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, slightly but evenly curved, evenly tapered in apical part, with a bend on ventral margin just before apex and narrowly rounded at apex (Fig. 84). In dorsal view strongly tapered in apical 10<sup>th</sup> and pointed at apex. Parameres elongate (Fig. 125).

♀. Similar to ♂. Valvae cylindral, tapered at posterior  $\frac{3}{4}$ , laterally truncate at apex. seta long, preapical sublateral (Fig. 149).

Total length: 4.1–4.7 mm; width: 2.4–2.6 mm.

Types: Holotype ♂ (RNHL) and 13 paratypes (6 ♂ and 3 ♀, RNHL; 2 ♂ and 2 ♀, MB); locality: Borneo Exped., Pondok ?, I.1894, Dr. J. Büttik., G. Kenepai (*Lacconectus ritsemae* Rég.). 1 paratype ♂ (MP) from the same locality, coll. Guignot. 7 paratypes (6 ♀, ZSM; 1 ♂, MB); locality: Sarawak, partim Penrissen, partim Poi. 1 paratype ♂ (BM); locality: Borneo, Peugaron (*Lacconectus fulvescens* Motsch., det. J. Balfour-Browne). 1 paratype ♂ (BM); locality: Borneo, Sarawak, Wallace (*Lacconectus fulvescens* Motsch., det. M. Régimbart). 4 paratypes (2 ♂ and 1 ♀, BM; 1 ♂, MB); locality: Sarawak, Mt. Dulit, Dulit Trail, old secondary forest, in pool on boulder in torrent, 10.VIII.1932, B.M. Hobby & A.W. Moore, Oxford Univ. Exp., B.M. 1933–254 (*Lacconectus ritsemae* Rég., det. J. Balfour-Browne). 3 paratypes ♂ (2 ♀, BM; 1 ♂ MB); locality: Sarawak, 4<sup>th</sup> Division, Gn. Mulu, N.P., pitfall trap, fish bait, MD forest, 100–500 m, III–V.1978, I. Hanski, B.M. 1978–524. 4 paratypes (1 ♂ and 2 ♀, MP; 1 ♂, MB); locality: Malaya, Perak, Batang, Padang, Jor Camp, in hollow bamboo, 1800 ft, 28.V.1923, H.M. Pendlebury, F.M.S. 1 paratype ♂ (MB); locality: Malay Penin., Kedah Peak, 1000 ft, 7.III.1928, H.M. Pendlebury, coll. F.M.S. Museums. 46 paratypes (17 ♂ and 23 ♀, SA; 3 ♂ and 2 ♀, MB; 1 ♂, GW); locality: Malaya, Ulu Gombak, 3.XII.1968, M. Satô.

Derivatio nominis: This species is named after Dr. J. Krikken (Rijksmuseum van Natuurlijke Historie, Leiden).

Affinities: *L. krikkeni* n. sp. is closely related to *L. fallaciosus* n. sp. and to *L. merguiensis* n. sp. It can easily be distinguished from the former by the punctures of the discal and sublateral rows of the elytra, which are small and well-spaced (large and very close together in *L. fallaciosus* n. sp.), by the elytral puncturation, in which the punctures are much smaller and more separated, and by the aedeagus, which is, in lateral view, evenly tapered in the apical part and narrowly rounded at the apex (Fig. 84). It can be also be distinguished from *L. merguiensis* n. sp. by the reduced reticulation (covering at least the anterior half in *L. merguiensis* n. sp.) and by the aedeagus.

Distribution: Malaysia (Malaya and Sarawak) (Map 4).

## 20. *Lacconectus corayi* n. sp.

Figs 85, 126.

Body small, oval, shining, brown to ferrugineous-brown, slightly paler on anterior part of head and sides of pronotum, distinctly so on base of elytra. Lateral margins of elytra darker towards apex.

Head ferrugineous-brown, slightly paler on anterior part. Surface sculpture consisting of small, almost rounded, distinctly impressed

meshes and of minute punctures, particularly numerous on disc. Clypeal grooves, punctures alongside eyes and a transverse depression beside eyes weakly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.55 times as long as broad.

Pronotum ferrugineous-brown, paler at sides, shining. Micro-sculpture consisting of small, almost rounded, well-impressed meshes, particularly at sides, and of minute but deep punctures; the latter dense at sides. Longitudinal median suture long and very distinct. Anterior and lateral rows of punctures, and punctures at the middle of each latero-basal quarter coarse; the punctures not coalescent but deeply impressed. Lateral sides finely bordered; the furrow fine, becoming obsolete anteriorly and interrupted before reaching anterior edge.

Elytra brown, with a distinct testaceous subbasal band, shining. Lateral margins darkened posteriorly. Epipleura ferrugineous-brown. Reticulation obsolescent even at the base in the holotype, very finely striolate at the extreme base in the paratypes. Apical half smooth. Entire surface with a shagreened lustre. Puncturation consisting of small, dense and evenly distributed punctures. Sutural row of punctures with several large punctures on apical third and some smaller ones on the rest of the surface. Discal and sublateral rows of punctures almost complete; the punctures being large and irregularly distributed but not widely spaced at apex, smaller and in a straight line anteriorly. This series formed by well-spaced groups of punctures posteriorly, but rarely interrupted on the basal half. Some large punctures visible on the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside testaceous-brown. Legs testaceous-brown. Prosternal process ovoid, 1.5 times as long as broad, strongly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with numerous medium-sized punctures. Anal sternite smooth on anterior half, finely striolate on posterior half, with an oblique depression formed by 5–6 coalescent punctures. Posterior margin broadly rounded and very finely bordered.

♂. Aedeagus, in lateral view, evenly tapered and narrowly pointed at apex (Fig. 85). In dorsal view, pointed at apex. Parameres moderately broad (Fig. 126).

♀. Similar to ♂; elytral striolation slightly more impressed at the extreme base. Valvae slightly flattened at apical part, narrowly rounded at apex. Seta ventral.



Total length: 3.7–3.8 mm; width: 2.10–2.15 mm.

Types: Holotype ♂ (BM) and 3 paratypes (1 ♀, BM; 1 ♀, MP; 1 ♂, MB); locality: Singapore, H.N. Ridley, 98–204, *Lacconectus laevis* Rég., n. sp. typ. (name in litt.).

Derivatio nominis: This species is named after Mr A. Coray, scientific illustrator, who made the illustrations for this paper.

Affinities: The size of this species is reminiscent of that of *L. oceanicus* Rég. but it can easily be distinguished by the absence of the elytral reticulation, even at base. It can be distinguished from *L. muluensis* n. sp. by its smaller size and by the aedeagus which is, in lateral view, narrow and pointed at the apex (Fig. 85), and by the parameres which are short and broad (Fig. 126).

Distribution: Singapore (Map 1).

## 21. *Lacconectus oceanicus* Rég.

Figs 86, 127.

*Lacconectus oceanicus* RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 291. – ZIMMERMANN, 1919, Arch. Naturgesch. A 83: 197. – ZIMMERMANN, 1920, Coleopt. Cat. 4 (71): 147. – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 386. – ZIMMERMANN, 1929, Ent. Bl. 25: 13. – CSIKI, 1937, Arch. Hydrobiol., Suppl. 15: 128 (partim). – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus* (s. str.) *oceanicus* RÉGIMBART, VAZIRANI, 1970, Or. Ins. 4: 321. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 59.

Body oval, shining, brown, anterior part and disc of head, sides of pronotum and base of elytra distinctly testaceous. Lateral margins of elytra dark brown.

Head brown, shining, distinctly paler on clypeus and frons. Surface sculpture consisting of small polygonal and distinctly impressed meshes and of minute and sparse punctures. Clypeal grooves moderately impressed. Row of punctures alongside eyes arched out anteriorly and not following the margin of the eyes. Transverse depression beside eyes with 3–4 punctures, very weakly impressed. Antennae testaceous; joints short, the 5<sup>th</sup> 1.45 times as long as broad.

Pronotum brown, the sides distinctly testaceous, shining. Microsculpture consisting of small, almost rounded and distinctly impressed meshes and of sparse minute punctures. Longitudinal median suture hardly distinct and not impressed. Anterior row of punctures coarse, the punctures medium-sized and close-set. Lateral row of punctures and punctures at the middle of each latero-basal quarter fine. Lateral margins very finely bordered; the furrow interrupted anteriorly.

Elytra shining, brown, slightly faded, distinctly testaceous at base. Lateral margins dark brown. Epipleura testaceous at base, dark brown



on the rest of the surface. Reticulation consisting of small mostly rounded and obsolescent meshes, replaced by a fine striolation posteriorly after the middle; the latter hardly visible in the apical third. Puncturation consisting of small obsolescent, minute and evenly distributed punctures, surrounded at the base by petal-like meshes. Sutural row with a few large punctures in apical third and 3–4 on basal  $\frac{2}{3}$ . Discal and sutural rows almost reaching the base; punctures large, very well-spaced and irregularly distributed at apex, smaller, in a straight line and distinctly closer together anteriorly.

Underside ferrugineous-brown. Legs testaceous. Prosternal process short, ovoid, 1.4 times as long as broad, distinctly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with minute punctures. Anal sternite finely striolate on anterior  $\frac{3}{4}$ , microreticulate on posterior quarter and with an oblique depression formed by some coalescent punctures. Posterior margin indistinctly bordered and broadly rounded.

♂. Aedeagus, in lateral view, very slightly broadened after the middle, then evenly tapered and narrowly rounded at the apex (Fig. 86). In dorsal view, evenly tapered in apical third and slightly curved to left at apex. Parameres elongate (Fig. 127).

♀. Similar to ♂; elytral reticulation slightly more impressed at the base. Valvae flattened at apical part, narrowly rounded at apex. Seta short, ventral.

Total length: 3.6–3.9 mm; width: 2–2.2 mm.

Types: I found 40 specimens in different collections, collected at the same locality and by the same collector. As it is not possible to determine which were seen by the author, I am considering them all as forming part of the type-series. 1 ♂ labelled “type” is herewith designated as lectotype (MCG), and all the other specimens are designated as paralectotypes (9 ♂ and 3 ♀, MCG; 6 ♂ and 1 ♀, coll. Régimbart 1908, MP; 4 ♂ and 1 ♀, coll. Oberthur, MP; 2 ♂ and 3 ♀, coll. Zimmermann, ZSM; 1 ♂ and 1 ♀, *L. oceanicus* Rég. det. Zimmermann, ALE; 4 ♂ and 2 ♀, *L. oceanicus* Rég. det. Zimmermann, ZMK; 2 ♂, MB). Locality: Mentawai, Sipora, Sereinu, V–VI.1894, Modigliani (a few specimens are simply labelled “Mentawai”).

Affinities: The size and reticulation of this species distinguish it from all other species except for *L. corayi* n. sp., from which it differs particularly by the distinct microreticulation at the base of the elytra (practically absent in *L. corayi* n. sp.) and by the aedeagus, which is

broadier in the apical part (Fig. 86). It can be distinguished from *L. biswasi* n. sp. by the minute punctures on the elytra, which are more numerous and more distinct, by the aedeagus which is, in lateral view, narrowly rounded at the apex, and by the parameres which are more elongate (Fig. 127).

Distribution: Indonesia (Mentawai) (Map 1).

## 22. *Lacconectus minutus* n. sp.

Figs 87, 128.

*Lacconectus oceanicus* RÉGIMBART, CSIKI, 1937, Arch. Hydrobiol., Suppl. 15: 128 (partim).

Body elongate-oval, shining, brown, paler on clypeus, at sides of pronotum and at base of elytra.

Head brown, paler on labrum and clypeus, shining. Surface sculpture consisting of small, weakly impressed polygonal meshes and of some minute punctures, particularly numerous on frons. Clypeal grooves small and moderately impressed. Row of punctures alongside eyes arched out anteriorly and not following the margin of eyes. Transverse depression beside eyes represented only by 2 punctures. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.45 times as long as broad.

Pronotum brown, the sides distinctly testaceous, shining. Microsculpture consisting of small, weakly impressed, almost rounded meshes and of some well-spaced minute punctures. Longitudinal median suture very short. Anterior row of punctures irregular; the punctures sometimes close, sometimes well-spaced. Lateral row of punctures large, coalescent. Punctures at the middle of each latero-basal quarter medium-sized and well-spaced. Lateral margins finely bordered; the furrow obsolescent anteriorly and broadly interrupted before anterior edge.

Elytra brown, lighter at base, shining. Epipleura testaceous at base, brown on the rest of the elytra. Reticulation consisting of polygonal, almost rounded meshes, which become transverse just before posterior  $\frac{2}{3}$  and are replaced by striolations in the apical part. Puncturation consisting of small, well-spaced but distinct minute punctures. Sutural row of punctures with a few large punctures on the apical third and some smaller ones on the basal  $\frac{2}{3}$ . Discal and sutural rows reaching almost to the base; the medium-sized punctures irregularly distributed at the apex, in well-separated groups anteriorly. Some punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside brown. Legs ferrugineous. Prosternal process ovoid, 1.5 times as long as broad, distinctly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with numerous small punctures. Anal sternite striolate on anterior half, microreticulate on posterior half, with an oblique depression on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, slightly broadened at apical third and just before apex, then tapered and very narrowly rounded at apex (Fig. 87). In dorsal view, evenly tapered and pointed at apex. Parameres elongate (Fig. 128).

♀. Unknown.

Total length: 3.9 mm; width: 2 mm.

Type: Holotype ♂ (BU); locality: Sumatra merid., Ranau, D. Limnol. Exp. coll. E. Csiki, *L. oceanicus* Rég.

Derivatio nominis: A very small species.

Affinities: This species is very closely related to *L. oceanicus* Rég., but can easily be distinguished by the elytral reticulation, which is slightly less impressed but is replaced by a striolation just before posterior  $\frac{2}{3}$ ; moreover, the apex is microstriolate (practically smooth in *L. oceanicus* Rég.); and, the aedeagus (Fig. 87), in lateral view, is broadened just before the apex (gradually tapered in *L. oceanicus* Rég.).

Distribution: Sumatra (Map 1).

### 23. **Lacconectus muluensis** n. sp.

Figs 88, 129.

Body oval, shining, brown, paler on anterior part and disc of the head, at sides of pronotum and on the base of the elytra. Lateral margins of elytra darker, particularly on the posterior part.

Head testaceous-brown, ferrugineous alongside eyes and posteriorly. Surface sculpture consisting of small and well-impressed polygonal meshes and of minute and deeply impressed punctures. Clypeal grooves and a transverse depression beside eyes moderately impressed. Row of punctures alongside eyes arched out and not following the margin of the eyes. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.75 times as long as broad.

Pronotum brown, paler at sides, shining. Microsculpture consisting of small rounded meshes, particularly impressed at sides, and of minute punctures, numerous and deeply impressed at sides. Longitudinal median suture weakly visible. Anterior row of punctures very nar-

row; the punctures medium-sized, deeply impressed and close together. Punctures of lateral row and the middle of each latero-basal quarter large, partly coalescent at sides. Lateral margins finely bordered, the furrow becoming very fine anteriorly but only narrowly interrupted before the edge.

Elytra brown, with a well-defined basal testaceous band, shining. Lateral margins blackish-brown, particularly on the posterior part. Epipleura testaceous-brown at base, blackish-brown posteriorly. Reticulation consisting of small rounded meshes at extreme base, soon becoming elongate and obsolete and replaced by a fine striolation which gradually disappears in the posterior half, producing a shagreened lustre. Puncturation consisting of dense, minute and obsolescent punctures. Sutural row of punctures with irregular, medium-sized, numerous punctures on posterior half and with 1–2 on anterior half. Discal and sublateral rows of punctures reaching almost to the base; punctures well-spaced and irregularly distributed in the apical third, close together and in a straight line anteriorly, even coalescent and forming a furrow at the base. Several medium-sized punctures visible in the posterior half of the interspace between sutural and discal rows. Furthermore, numerous larger and irregularly distributed punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous. Legs testaceous. Prosternal process ovoid, 1.4 times as long as broad, distinctly bordered at sides, finely so and rounded at apex. Metacoxal lines represented only by several punctures at the middle of their length. Sternites 3, 4 and 5 each with numerous medium-sized punctures. Anal sternite smooth and with some sparse punctures on each side of the middle in the posterior half. Posterior margin finely bordered at sides only and broadly rounded at apex.

♂. Aedeagus, in lateral view, regularly curved, somewhat tapered in the apical part and narrowly rounded at apex (Fig. 88). In dorsal view, pointed at apex. Parameres broad (Fig. 129).

♀. Unknown.

Length: 3.9–4 mm; width: 2.2–2.3 mm.

Types: Holotype ♂ (BM); locality: Sarawak, 5<sup>th</sup> Division, Gn. Mulu NP, pitfall-trap, fish bait, Kerangas, ca. 150 m, III–V.1978, I. Hanski, BM 1978–524. 2 paratypes ♂ (1 ex., BM; 1 ex., MB); locality: Sarawak, Gunong Mulu Nat. Park, Site 20, W. Melinau Gorge, 422577, FE 63, Kerangas, MV-understorey, 150 m, March–April, J.D. Holloway et al., R.G.S. Exped. 1977–78, BM 1978–206.

**Derivatio nominis: Species from Gn. Mulu N.P.**

Additional material studied: Indonesia: Sarawak, 4<sup>th</sup> Division, Gn. Mulu NP, pitfall-trap, fish bait, MD forest, 100–500 m, III–V.1978, I. Hanski, BM 1978–524 (1 ♀., BM; 1 ♀., MB). Sarawak, 4<sup>th</sup> Division, Gn. Mulu NP, nr Camp, Malaise trap, 150–200 m, V–VIII.1978, P.M. Hammond & J.E. Marshall, BM 1978–49 (1 ♀., BM).

**Affinities:** *L. muluensis* n. sp. is closely related to *L. minutus* n. sp., but it differs by its slightly larger size and in its aedeagus which is, in lateral view, evenly tapered in the apical part (Fig. 88). It can be distinguished from *L. oceanicus* Rég. by the absence of elytral reticulation, and from *L. corayi* n. sp. by the aedeagus which is, in lateral view, not pointed at the apex. It differs from all other species by its size.

**Remarks:** The 3 ♀ mentioned in the list of additional material could not be considered as paratypes. They differ slightly from the type specimens, being larger and a little more strongly sculptured on elytra.

**Distribution:** Malaysia (Sarawak, Gn. Mulu) (Map 1).

**24. *Lacconectus javanicus* n. sp. Figs 34, 35, 89, 130.**

Body oval, shining, dark brown, head, sides of pronotum and base of elytra markedly paler. Lateral margins of elytra blackish.

Head brown, darker alongside eyes, slightly shining to semi-matt. Surface sculpture consisting of small polygonal, almost rounded meshes and of minute punctures, particularly numerous on frons and vertex. Row of punctures alongside eyes deeply impressed. Clypeal grooves and a transverse depression beside eyes, particularly the latter, weakly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum dark on disc, gradually becoming paler towards sides, slightly shining to semi-matt. Microsculpture consisting of small, almost rounded meshes and of dense minute punctures; the latter becoming larger and more numerous towards sides. Longitudinal median suture particularly long, about  $\frac{1}{3}$  to  $\frac{1}{4}$  of pronotal length, and particularly deeply impressed. Row of punctures along anterior border broad; the punctures irregularly-distributed and coarse towards sides. Punctures of lateral row and at the middle of each latero-basal quarter very close together. Lateral margins finely and completely bordered posteriorly; furrow slightly shortened anteriorly.

Elytra dark brown, paler on subbasal part and blackish on lateral margins, strongly shining. Epipleura brown at base, blackish-brown posteriorly. Reticulation obsolete, even at base; the meshes elongate,

very small on basal margin (Figs 34–35), disappearing rapidly and giving way to a fine striolation. Posterior half completely smooth. Puncturation consisting of small and dense punctures which are separated from each other at base by a distance equal to 2 meshes. Elytra with a strong shagreened lustre on entire surface. Sutural row of punctures reaching to base, the punctures well-spaced and, on apical third, very irregularly distributed. Discal and sutural rows of punctures complete; the punctures well-spaced and irregularly distributed at apex, very close together and in a straight line in front. Some punctures present on anterior half of the interspace between sutural and discal rows and many more on posterior half as well as on the whole length of the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous-testaceous. Legs testaceous. Prosternal process ovoid, short, 1.4 times as long as broad. Metacoxal lines represented only by a short striae at the middle of their length. Sternites 3, 4 and 5 each with some very small punctures. Anal sternite very slightly striolate-microreticulate, and with an oblique depression formed by 6–7 coalescent punctures on each side of the middle. Posterior margins finely bordered, broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, slightly broadened in apical part, then tapered towards tip; apex slightly truncate (Fig. 89). In dorsal view, pointed at apex. Parameres very broad (Fig. 130).

♀. Similar to ♂; elytral reticulation indistinctly more impressed. Valvae long, cylindrical, tapered at posterior  $\frac{3}{4}$ , laterally truncate at apex. Seta long, preapical sublateral.

Length: 4.4–4.8 mm; width: 2.5–2.8 mm.

Types: Holotype ♂ (MP) and 45 paratypes (12 ♂ and 21 ♀, MP; 6 ♂ and 6 ♀, MB); locality: Java, Malang. 23 paratypes (8 ♂ and 10 ♀, MP; 2 ♂ and 3 ♀, MB); locality: Java, Soekaboemi. 1 paratype ♀ (MP); locality: Java, 1929, coll. Dr. Baum. 1 paratype ♂ (BM); locality: Java, Bowring, 6347 (*L. punctipennis* Zimm., det. J. Balfour-Browne).

Derivatio nominis: Species from Java.

Affinities: This species is related to *L. krikkeni* n. sp., *L. basalis* Sharp, *L. fallaciosus* n. sp., *L. tonkinoides* n. sp. and *L. tonkinensis* Guignot, but can easily be distinguished by the elytral reticulation, which is restricted to the extreme base, by the minute punctures on the elytra, which are numerous and well-impressed, by the punctures of the discal and sublateral rows, which are very close together, by the few large punctures in the 1<sup>st</sup> interspace and the more numerous ones in the



2<sup>nd</sup> and 3<sup>rd</sup> interspaces, and, finally, by the aedeagus which is slightly truncate at the apex (Fig. 89).

Distribution: Indonesia: Java (Map 2).

**25a. *Lacconectus laccophiloides laccophiloides* Zimm.**

Figs 4, 16, 36, 37, 90, 131.

*Lacconectus laccophiloides* ZIMMERMANN, 1928, Wiener Ent. Zeitg. 44: 175. – ZIMMERMANN, 1929, Ent. Bl. 25: 15. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus (Paralacconectus) kurosawai* SATÔ, 1979, Bull. Natn. Sci. Mus., Ser. A (Zool.) 5: 39, **n. syn.**

Body oval, shining to semi-matt, head and pronotum ferrugineous-brown, elytra testaceous-brown with dark markings.

Head ferrugineous-brown, slightly paler on anterior part and disc, semi-matt. Surface sculpture consisting of small, polygonal and well-impressed meshes and of minute and deep punctures, particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-impressed. Antennae testaceous-brown; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum ferrugineous-brown, slightly paler at sides, semi-matt. Microsculpture consisting of small, almost rounded and very well-impressed meshes and of minute, deeply impressed and numerous punctures. Longitudinal median suture very short. Anterior row of punctures very coarse, the punctures large, deeply impressed and very close together. Punctures of the lateral row and at the middle of each latero-basal quarter partly coalescent. Moreover, large and irregularly distributed punctures visible at the middle of the base of pronotum. Lateral sides finely but incompletely bordered, the furrow obsolete anteriorly and interrupted before margin.

Elytra shining, testaceous-brown with blackish-brown markings consisting of 6 longitudinal bands that are connected anteriorly and posteriorly by a transverse band; the longitudinal bands sometimes interrupted at the middle (Fig. 4). Lateral margins of elytra and epipleura blackish-brown, except at the base. Reticulation hardly visible at the usual magnification (but actually present, see Figs 36 and 37), only a fine striolation visible at the base. Puncturation consisting of minute and dense punctures. Elytra with a shagreened lustre on entire surface. Sutural row of punctures complete; the punctures very well-spaced. Discal and sublateral rows of punctures reaching almost to base; the punctures large, markedly irregularly distributed on apical third, very



close together and in a straight line on the rest of the surface. All 3 interspaces with many large and irregularly distributed punctures, at least in apical half but often reaching to the base.

Underside and legs ferruginous-brown. Prosternal process very short, 1.3 times as long as broad, strongly bordered at sides and broadly rounded at apex. Metacoxal lines represented by a long and deep furrow at the middle of their length. Sternites 3, 4 and 5 each with numerous medium-sized punctures. Anal sternite finely striolate, with a group of coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, almost constant in width and rapidly tapered at apex; ventral margin of apical fifth straight (Fig. 90). In dorsal view, evenly tapered and pointed at apex. Parameres broad (Fig. 131).

♀. Similar to ♂. Valvae very narrow in apical half, narrowly rounded at apex and with a short preapical seta which is situated ventrally.

Total length: 4–4.5 mm; width: 2.4–2.6 mm.

Variation: The dark markings of the elytra may be more or less reduced. Furthermore, the number of punctures in the interspaces of the elytra is variable; sometimes they are limited to the posterior half, sometimes they reach the base.

Types: Although the author wrote in the original description of this species “a large series in coll. Zimmermann”, actually he defined his type-series by using type labels. So I only consider 10 specimens from ZSM and 4 specimens labelled “paratypes” from MP as forming the type-series. 1 ♂ is herewith designated as lectotype (ZSM), and the other 13 specimens as paralectotypes (2 ♂ and 7 ♀, ZSM; 1 ♂ and 3 ♀, MP); locality: Nord Palawan, Binaluan (2 specimens from MP have the data “XI–XII.1913, leg. Boettcher”, and all 4 specimens from MP “coll. Guignot”).

Additional material studied: Palawan (3 ex., MNB). Nord Palawan, Binaluan (13 ex., coll. Zimmermann, ZSM; 12 ex., MNB; 10 ex., MB; 1 ex., GW). N Palawan, Binaluan, XI–XII.1913, G. Boettcher (12 ex., Staudinger-Bang Haas, coll. Peschet 1945, MP; 6 ex., MNB; 6 ex., MB).

Synonymy: I compared the lectotype of *L. laccophiloides laccophiloides* Zimm. with the types of *L. (Paralacconectus) kurosawai* Satô, but could find no differences. As a result, I am considering *L. (P.) kurosawai* Satô as a junior synonym of *L. laccophiloides laccophiloides* Zimm. *L. kurosawai* Satô was described from a holotype ♂ (NSMT) and

5 paratypes (2 ♂ and 3 ♀, NSMT, SA); locality: Philippines, Palawan, Sabang, N of Mt. St. Paul, 11–13.VII.1977, M. Satô.

Affinities: This species can easily be distinguished from all other species by its colour, by the absence of reticulation, by the numerous large punctures in the interspaces (Fig. 4), and by the aedeagus (Fig. 90).

Distribution: Philippines (North Palawan Island) (Map 2).

**25b. *Lacconectus laccophiloides balabacicus* n. ssp.** Figs 91, 132.

This subspecies differs from the typical subspecies by its smaller size, by the absence of large punctures at the middle of the base of the pronotum, by the absence of punctures in the interspace between sutural and discal rows, by the very few punctures in the 2 outer interspaces, and by the aedeagus which is slightly broadened just before the apex (Fig. 91). Parameres (Fig. 132). The colour of the single known specimen is much paler, with the black markings hardly visible.

Total length: 4 mm; width: 2.4 mm.

Type: Holotype ♂ (MP); locality: Balabac, n. sp., Dr. Régimbart vidit 1898.

Derivatio nominis: Species from Balabac Island.

Distribution: Philippines (Balabac Island) (Map 2).

**25c. *Lacconectus laccophiloides luzonicus* n. ssp.** Figs 92, 133.

*L. l. luzonicus* n. ssp. can be distinguished from the typical subspecies by the very few large punctures at the middle of the base of the pronotum, by the absence of punctures in the interspace between sutural and discal rows of punctures, by the few punctures present in the 2 outer interspaces, by the prosternal process which is slightly longer, by the apical part of the aedeagus which is more slender (Fig. 92), and by the parameres which are more elongate (Fig. 133). The colour is similar to that of the typical subspecies, but the dark markings are more extensive.

Total length: 4.4 mm; width: 2.6 mm.

Types: Holotype ♂ (MP) and 1 paratype ♀ (MB); locality: Philippines, Luzon, Los Banos, Staudinger-Bang Haas, coll. Peschet 1945. 3 paratypes (2 ♀, SA; 1 ♂, MB); locality: Philippines, Luzon, Laguna Prov., Mt. Maquiling, 430 m, 17–18.VI.1977, M. Satô.

Derivatio nominis: Species from Luzon.

Distribution: Philippines (Luzon Island) (Map 2).

26. **Lacconectus punctatus** n. sp. Figs 38, 39, 93, 134, 150.

Body broadly oval, shining to semi-matt, brown, indistinctly paler on disc of head, on sides of pronotum and on base of elytra. Lateral margins of elytra narrowly darkened.

Head brown, slightly darker alongside eyes, semi-matt. Surface sculpture consisting of small, almost rounded and well-impressed meshes and of minute and deep punctures; the latter particularly numerous on disc. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.7 times as long as broad.

Pronotum brown, very slightly paler at sides, semi-matt. Micro-sculpture consisting of very small, more or less rounded and well-impressed meshes and of dense minute and deep punctures. Longitudinal median suture moderately impressed. Anterior and lateral rows of punctures and punctures at the middle of each latero-basal quarter coarse; punctures very large and strongly coalescent. Lateral margins bordered; furrow obsolete and narrowly interrupted before anterior edge.

Elytra shining, brown, slightly paler at base. Lateral margins very narrowly blackish-brown. Epipleura testaceous on basal third, blackish-brown on the apical  $\frac{2}{3}$ . Reticulation not visible at the usual magnification (but actually present, see Figs 38, 39), only fine striolations visible on basal third. Elytra with a shagreened lustre posteriorly. Puncturation of 2 kinds, the smaller one consisting of minute and dense punctures, the large one of very large punctures; the latter numerous at base, becoming very sparse at apex. Sutural row of punctures difficult to distinguish from the normal puncturation; punctures more numerous on apical half. Discal and sublateral rows complete; punctures irregularly distributed and well-spaced on apical third, in a straight line and closer together anteriorly.

Underside testaceous-brown. Legs testaceous. Prosternal process ovoid, 1.35 times as long as broad, distinctly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 with numerous small punctures. Anal sternite finely striolate, narrowly microreticulate along posterior margin, with minute and sparse punctures and with an oblique depression formed by 5 coalescent punctures on each side of the middle. Posterior margin bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved, slightly broadened at apical fourth, then tapered and obliquely truncate at the apex (Fig. 93). In dorsal view, evenly tapered. Parameres moderately broad (Fig. 134).

♀. Similar to ♂. Valvae strongly flattened in apical part and narrowly rounded at apex. Seta short and ventral (Fig. 150).

Total length: 4.5–4.8 mm; width: 2.6–2.7 mm.

Types: Holotype ♂ (MP) and 2 paratypes (1 ♀, MP; 1 ♀ MB); locality: Cambodge, Sambor, Vitalis De Salvaza, coll. Peschet 1945, *Lacconectus vitalis* n. sp., à décrire (name in litt.). 3 paratypes (2 ♀, MP; 1 ♂, MB); locality: Tonkin central, 1911, A. Krempf.

Derivatio nominis: A particularly puncturate species.

Additional material studied: Hoh Chang, I.1900, Mortenau (1 ex., CAS) ?

Remarks: Although the ♂ of *L. punctipennis* Zimm. is not known, I consider it correct to describe this new taxon as *L. punctatus* n. sp., as the differential characters are constant and precise enough to distinguish the females as well.

Affinities: This species can be easily distinguished from *L. punctipennis* Zimm. by the colour, which is more uniform, by the punctures at the base of the pronotum which are restricted to the middle of each latero-basal quarter and by the punctures of the elytral interspaces which are larger but less numerous, particularly posteriorly, and by the valvae which are narrowly rounded at the apex (Fig. 150).

Distribution: northern Vietnam, Cambodia (Map 4).

## 27. *Lacconectus punctipennis* Zimm.

Fig. 151.

*Lacconectus punctipennis* ZIMMERMANN, 1928, Sarawak Mus. J. 3: 387. – ZIMMERMANN, 1929, Ent. Bl. 25: 14. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus* (s. str.) *punctipennis* ZIMMERMANN, 1970, Or. Ins. 4: 321. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 59.

Body broadly oval, shining to semi-matt, brown to testaceous-brown, paler on disc of head, sides of pronotum and base of elytra. Lateral margin and base of elytra narrowly brownish-black.

Head testaceous-brown, dark brown alongside eyes, semi-matt. Surface sculpture consisting of small, more or less rounded and well-impressed meshes and of minute but deep punctures. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes coarse; punctures very large. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum testaceous-brown, testaceous at sides. Microsculpture consisting of almost rounded and very well-impressed meshes and of dense minute and deep punctures. Longitudinal median suture impressed. Anterior and lateral rows of punctures coarse; punctures

coalescent. The entire base with large and well-spaced punctures. Lateral margins almost completely bordered; the furrow narrowly interrupted anteriorly.

Elytra shining, brown, with a subbasal testaceous-brown band. The base and the lateral margins narrowly brownish-black. Epipleura testaceous on basal third, dark brown posteriorly. Reticulation consisting of small polygonal meshes at the extreme base; these rapidly replaced by fine striolations in basal third. Elytra with a shagreened lustre posteriorly. Puncturation of two kinds, the smaller one consisting of minute punctures surrounded by petal-like meshes at the base and the larger one of less numerous, but very large punctures covering the entire elytra and becoming slightly sparser behind. Sutural row of punctures with dense punctures in the apical third. Discal and sublateral rows of punctures interrupted just before anterior edge; the punctures irregularly distributed and mixed with those of the interspaces on the apical half, in a straight line and very close-set anteriorly.

Underside testaceous-brown. Legs testaceous. Prosternal process ovoid-elongate, with a row of punctures along sides, 1.5 times as long as broad, distinctly bordered at sides and broadly rounded at apex. Metacoxal lines represented only by a short furrow at the middle of their length. Sternites 3, 4 and 5 each with numerous small punctures. Anal sternite almost smooth, finely striolate, with a coarse oblique depression on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Unknown.

♀. Valvae strongly flattened in apical part and distinctly rounded at apex. Seta medium-sized and ventral (Fig. 151).

Total length: 5–5.2 mm; width: 3 mm.

Type: Holotype ♀ (ZSM); locality: Java, Banjoewangi, 1909, coll. Zimmermann.

Additional material studied: Sumatra O–K, Siantar, 1891?, H.G. Hellendoorn (1 ex., RNHL).

Remarks: The specimen from Sumatra is slightly more coarsely punctured and slightly more distinctly reticulate.

Affinities: This species differs from *L. punctatus* n. sp. by the more strikingly differentiated colour, which is distinctly brownish-black at the base and on the epipleura, by the punctures on the base of the pronotum, which extend as far as the base, by the punctures of the elytral interspaces, which are smaller and only slightly more numerous

at the base than at the apex and by the valvae which are more broadly rounded at the apex (Fig. 151). From all other species it can be distinguished by the numerous punctures in the interspaces.

Distribution: Java, Sumatra (Map 1).

**28. *Lacconectus strigulifer* Zimm.** Figs 40, 41, 44, 94, 135.

*Lacconectus strigulifer* ZIMMERMANN, 1928, Sarawak Mus. J. 3(4): 386. – ZIMMERMANN, 1929, Ent. Bl. 25(1): 15. – GUIGNOT, 1954, Ark. Zool. 6(32): 566. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 39.

*Lacconectus (Paralacconectus) strigulifer* ZIMMERMANN, VAZIRANI, 1970, Or. Ins. 4: 327. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 60.

Body very broad, semi-matt to matt, brown, anterior part of head, sides of pronotum and base of elytra testaceous-brown.

Head brown, clypeus slightly paler, semi-matt. Surface sculpture consisting of small polygonal, almost rounded and well-impressed meshes, of sparse punctures on clypeus and on anterior part of frons, and of very short and deeply impressed striae on posterior part of frons and on vertex. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes coarse; the punctures large and deeply impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.85 times as long as broad.

Pronotum brown, paler at sides, semi-matt to matt. Microsculpture consisting of small polygonal and deeply impressed meshes, of very sparse minute punctures, and of deeply impressed short striae; the latter longitudinal, very deep and dense at sides, becoming more widely spaced towards disc, and much shorter and much less impressed and sinuous on disc. Longitudinal median suture short. Anterior row of punctures coarse; the punctures large, partly coalescent. Punctures of lateral row and at the middle of each latero-basal quarter smaller, but strongly coalescent. Lateral margins almost completely bordered; the furrow obsolete and narrowly interrupted before anterior edge.

Elytra brown, testaceous at base, matt. Lateral margins and epipleura testaceous-brown. Reticulation consisting of small and well-impressed polygonal meshes visible on entire surface (Figs 40, 41). Puncturation consisting of dense, short, deeply impressed and regularly distributed striae (Fig. 44), except in the apical third where they are shorter and sinuous. Sutural row of punctures with some hardly visible punctures in the apical third and about 2 larger ones on the rest of the surface. Discal and sublateral rows almost complete but hardly visible among the striae; the punctures being large and irregularly distributed



at the apex, smaller and in a straight line anteriorly. Some punctures visible in the interspaces between sutural and discal rows of punctures, and between sublateral and lateral rows.

Underside ferrugineous-brown. Legs testaceous. Prosternal process oval-elongate, 1.5 times as long as broad, distinctly bordered at sides and rounded at apex. Metacoxal lines represented by a short and deep furrow at the middle of their length. Sternites 3, 4 and 5 with numerous small punctures. Anal sternite microreticulate, with some punctures and with an oblique depression formed by 5 coalescent punctures on each side of the middle. Posteriorly finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, regularly curved, evenly tapered in apical third and rounded at apex (Fig. 94). In dorsal view, evenly tapered in apical part, very slightly curved to left and pointed at apex. Parameres broad (Fig. 135).

♀. Similar to ♂; reticulation markedly more impressed. Valvae long, narrow, narrowly rounded at apex. Seta short, ventral.

Total length: 4.9–5 mm; width: 2.9–3 mm.

Type: Holotype ♂ (ZSM); locality: Indien, coll. Zimmermann. I could not find the ♀ previously mentioned by ZIMMERMANN (1923).

Additional material studied: Birmania: Pegu, coll. Régimbart 1908 (1 ex., MP; 1 ex., MB). Pegu, *L. oblongopunctatus* Rég., type, coll. Régimbart 1908, *L. strigulifer* Zimm. = *L. oblongopunctatus* Rég. in litt. det. Guignot 1951 (1 ex., MP). L. Burma, Dawna Hills, 2000–3000 ft, 2.–3.III.1908, N.A., coll. Gschwendtner, *Lacconectus strigulifer* Zimm., det. Gschwendtner (1 ex., OLM).

Affinities: *Lacconectus strigulifer* Zimm. can easily be distinguished from all other species by the short and deep striae covering the entire upper surface. From *L. simoni* Rég. it differs by its brown colour, by the strong elytral reticulation and by the dense striae.

Distribution: Apparently Burma (Pegu) (Map 1).

## 29. *Lacconectus simoni* Rég.

Figs 5, 42, 43, 45, 95, 136.

*Lacconectus simoni* RÉGIMBART, 1893, Ann. Soc. Ent. Fr. 62: 102. – GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Univ. Torino 14 (342): 2. – RÉGIMBART, 1899, Ann. Soc. Ent. Fr. 68: 292. – ZIMMERMANN, 1920, Coleopt. Cat. 4(71): 147. – GSCHWENDTNER, 1922, Ent. Anz. 2: 134. – ZIMMERMANN, 1928, Sarawak Mus. J. 3: 388. – ZIMMERMANN, 1929, Ent. Bl. 25(1): 15. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus (Paralacconectus) simoni* RÉGIMBART, VAZIRANI, 1970, Or. Ins. 4: 327. – WEWALKA, 1973, Bull. Fish. Res. Stn. Sri Lanka 24: 86. – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 60, 98.



Body elongate-oval, shining, dark brown to brownish-black, the anterior part and disc of head, sides of pronotum, base and apical parts of elytra testaceous.

Head dark brown, clypeus and a rounded patch on disc testaceous, shining to semi-matt. Surface sculpture consisting of small rounded but well-impressed meshes and of small, deep punctures; the latter particularly numerous on disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes well-marked. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.85 times as long as broad.

Pronotum dark brown, testaceous at sides; the testaceous parts prolonged along anterior border up to the middle half of pronotum, shining to semi-matt. Microsculpture consisting of small and rounded meshes, of very sparse and minute punctures and of very deep and short striae; the latter being variable in length and more numerous along the base and at sides. Longitudinal median suture very long and deeply impressed. Anterior and lateral rows of punctures very coarse; punctures very irregularly distributed, very deep, coalescent and elongate. Lateral margins finely bordered; the furrow becoming obsolete anteriorly and interrupted before reaching anterior edge.

Elytra shining, very dark, brownish-black, with 2 subbasal testaceous patches, a long and broad outer one and a small, mostly rounded inner one, and with a subapical testaceous patch (Fig. 5); furthermore, a postmedian testaceous patch sometimes visible. Epipleura blackish-brown, except at the base where they are testaceous. Reticulation consisting of very small and poorly-distinct meshes at the base (Figs 42–43), which disappear rapidly posteriorly giving way to a fine striolation which is invisible after midlength. Puncturation consisting of minute and obsolete punctures and of very deep striae covering the entire elytra (Fig. 45); the latter particularly deep and numerous at the base and at sides. Sutural row of punctures not distinct, covered by the deep striae. Discal and sublateral rows of punctures almost reaching the base, indistinct in the apical third, formed by a series of very close-set and deep striae anteriorly.

Underside blackish-brown on metacoxae, paler on the rest of the surface. Legs testaceous. Prosternal process ovoid-elongate, 1.55 times as long as broad, strongly and broadly bordered at side, broadly rounded at apex. Metacoxal lines represented by a long and deep furrow at middle of their length. Sternites 3, 4 and 5 with some minute punctures and a few larger ones. Anal sternite striolate, only narrowly reticulate towards posterior margin, with some minute punctures and

an oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, evenly curved and tapered towards apex, narrowly rounded at the apex (Fig. 95). In dorsal view, also regularly tapered in the apical part, slightly curved to the left and bluntly pointed at the apex. Parameres broad (Fig. 136).

♀. Similar to ♂; elytral reticulation at the base slightly more impressed, striae deeper and more numerous. Valvae cylindrical, tapered at posterior  $\frac{3}{4}$ , laterally truncated at apex. Seta long, preapical and sublateral.

Total length: 5.1–5.4 mm; width: 2.9–3 mm.

Variation: The 6 specimens from ZMK are very densely and completely patterned with close-set and coalescent striae, and the elytral colour differs a little from the typical form: the postmedian patch is quite well-developed and is joined to a very large subapical patch by a narrow lateral band; furthermore, a second postmedian patch is sometimes visible. These differences do not indicate a new taxon to me, as the only ♂ of this series is not completely mature and the other characters seem to be similar to those of the typical form. As the locality is only given as "Ceylon", it is not possible to describe it as a geographical race. Further, in some extreme cases, the brownish-black elytral pattern can be extremely reduced as described by WEWALKA (1973).

Types: I found 18 type specimens. 1 ♂ is herewith designated as lectotype, and the other specimens as paralectotypes. Lectotype (MP) and 5 paralectotypes (2 ♂ and 3 ♀, MP); locality: Ceylan, Nuwara-Eliya, Simon, coll. Régimbart 1908. 1 paralectotype ♀ (BM); locality: idem, 1905–73. 10 paralectotypes (3 ♂ and 4 ♀, MP; 1 ♀, BM; 1 ♂, MCG; 1 ♂, MB); locality: Ceylan, Hakgala, Simon, partim coll. Régimbart 1908, partim Dr. Régimbart legit 1893. 1 paralectotype ♂ (MCG); locality: Ceylan, "Typus".

Additional material studied: Ceylan (1 ex., ZMK). Ceylan (*Lacconectus simoni* Rég., det. A. Zimmermann) (1 ex., ZMK). Ceylan, coll. Zimmermann (2 ex., ZSM). Ceylan, 1894 (1 ex., MB). Ceylan, Mus. Western (2 ex., ZMK; 1 ex., MB). Ceylon, Mas Keliya, 3000 m, 29.XI.1970, F. Starmühlner (1 ex., GW). Ceylon, Nuwara Eliya, High Forest, Kurundu Oya, 18.III.1973, R. Bauman & J. Cross (45 ex., USNM; 15 ex., MB); Idem, B. light (1 ex., USNM). Ceylon, Nuwara Eliya, Ohiya Oya, 22.III.1973, R. Baumann & J. Cross (13 ex., USNM; 6 ex., MB). Ceylon, Nuwara Eliya Umgb., 21.XI.1980, M. Jäch (4 ex., MB); Idem, 8.I.1981 (1 ex., GW). Ceylon, Horton Plains, 15.I.1981, M. Jäch (2 ex., GW).

Affinities: The colour of this species and the sculpture of the dorsum differentiate it from all other known species.

Distribution: Sri Lanka (Map 4).

**30. *Lacconectus heinertzi* n. sp.**

Figs 6, 96, 137.

Body oval, shining to semi-matt, brownish-black, the anterior part and disc of head testaceous-brown, the sides of pronotum ferrugineous-brown and the elytra with various bands and patches.

Head testaceous-brown, darker alongside eyes, shining to semi-matt. Surface sculpture consisting of small, moderately impressed meshes and of dense but irregularly distributed and deeply impressed minute punctures. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes deeply impressed. Antennae testaceous; joints slender, 1.9 times as long as broad.

Pronotum brownish-black, with a shallow longitudinal ferrugineous band in the middle and the sides testaceous-brown. Micro-sculpture consisting of small, rounded and well-impressed meshes, and of dense and irregularly distributed minute punctures. Median longitudinal suture long but weakly impressed. Anterior and lateral rows of punctures and punctures at the middle of each latero-basal quarter coarse and irregular in size. Lateral sides distinctly bordered, the furrow interrupted shortly before anterior edge.

Elytra shining, brownish-black to black, with testaceous bands and patches as follows: a transverse subbasal band, a short medio-lateral band, a lateral postmedian spot and an apical patch (Fig. 6). Epipleura brownish-black except at the extreme base where they are testaceous. Reticulation consisting of small rounded meshes at the extreme base, which soon become elongate and are replaced on about basal third by fine striolations, giving the elytra a fine shagreened lustre. Puncturation consisting of very small and very dense punctures, separated from each other by a distance equal to 2 meshes. Sutural row of punctures formed by some small punctures in apical third and by 2–3 others in basal  $\frac{2}{3}$ . Discal and sublateral rows almost complete; the punctures large and irregularly distributed at apex, smaller and in more or less regular straight lines anteriorly. Some punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous, prosternum and abdominal sternites ferrugineous. Legs ferrugineous to testaceous. Prosternal process ovoid-elongate, 1.45 times as long as broad, bordered at sides and rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 with numerous medium-sized punctures. Anal sternite finely striolate and with an

oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, tapered to middle, then broadened in apical part and truncate at apex (Fig. 96). In dorsal view, broadened in apical half, then evenly tapered and pointed at apex. Parameres broad (Fig. 137).

♀. Similar to ♂; reticulation and striolation slightly more impressed. Valvae long, narrowly rounded at apex. Seta ventral.

Total length: 6.1 mm; width: 3.7 mm.

Types: Holotype ♂ (ZMK) and 1 paratype ♀ (MB); locality: Thailand, Doi Suthep-Pui natn. Park, Konthathan, waterfall area, 600 m, 20–27.X.1979, Zool. Mus. Copenhagen Exped.

Derivatio nominis: This species is named after my colleague, Dr. R. Heinertz, for the help he has given me with the curation of collections.

Affinities: The form of this species is reminiscent of *L. regimbarti* n. sp. and *L. scholzi* Gschw., and its aedeagus of *L. similis* n. sp. From the first two it can easily be distinguished by the elytral reticulation, which is limited to the basal third of the elytral (almost covering the entire surface in the other two species), and by the aedeagus which is, in lateral view, broadened in the apical part and truncated at the apex (Fig. 96). From *L. similis* n. sp., it differs by its size and colour (Fig. 6).

Distribution: Thailand (Doi Suthep-Pui natn. Park) (Map 1).

## 2.2. *scholzi*-group

6 large species (4.7–7 mm) are assigned to this group. Except for *L. freyi* Guéorguiev and *L. rossi* n. sp., they are all strongly coloured, brownish-black with testaceous markings as follows: a subbasal band, a lateromedian transverse patch and a subapical band (Figs 7–9). In all species, the reticulation, when present, consists of very small and rounded meshes. The puncturation is minute and well-spaced. Furthermore, the discal and sublateral rows of punctures on the elytra are broadly interrupted; the punctures are arranged in very well-spaced groups of 2–4.

The underside of the species is characterized by a rather elongate prosternal process (Figs 2, 57).

The aedeagus is developed in 2 planes, enlarged laterally in dorsal view (Figs 97–102). The valvae of the ♀ are cylindrical, strongly constricted at posterior  $\frac{3}{4}$ , laterally truncate at apex. Seta long, preapical, its position sublateral (Figs 152, 153).

All 6 species occur in S India and Sri Lanka.

**Key to species of the scholzi-group**

1. Upperside uniformly brown, at most slightly paler on anterior part of head, on sides of pronotum and at base of elytra . . . . . 2
- Upperside brownish-black with testaceous markings (Figs 7–9) . . . . . 3
2. Broadly oval species. Elytral reticulation visible on the entire surface except at the apex, consisting of small rounded meshes. ♂. Aedeagus (Fig. 97). India (Anamalai Hills).  
31. **L. freyi** Guéorguiev
- Elongate species. Elytra smooth except for fine striolations at the extreme base. ♂. Aedeagus (Fig. 98). India (Maharashtra).  
32. **L. rossi** n. sp.
3. Size moderate (4.7–5.6 mm) . . . . . 4
- Size large (5.9–7 mm) . . . . . 5
4. Elytra with a distinct microreticulation consisting of small rounded meshes and covering the entire half. ♂. Aedeagus (Fig. 99). S India.  
33. **L. andrewesi** Guignot
- Elytra without microreticulation, with only a very fine striolation. ♂. Aedeagus (Fig. 100). Sri Lanka.  
34. **L. spangleri** n. sp.
5. Smaller species (5.9–6.7 mm). Apical third of elytra without distinct reticulation. ♂. Aedeagus, in lateral view, evenly curved (Fig. 101). S India.  
35. **L. regimbarti** n. sp.
- Very large species (6.4–7 mm). Elytral reticulation covering the entire surface. ♂. Aedeagus, in lateral view, almost straight on the middle  $\frac{3}{5}$  (Fig. 102). S India.  
36. **L. scholzi** Gschw.

**31. *Lacconectus freyi* Guéorguiev**

Figs 97, 138.

*Lacconectus freyi* GUÉORGUIEV, 1968, Bull. Inst. Zool. Mus. 28: 39.

Body broadly oval, shining to semi-matt, ferrugineous-brown, somewhat paler on anterior part and disc of head, on sides of pronotum, and on basal and apical parts of elytra.

Head ferrugineous-brown, anterior part and disc somewhat paler, shining to semi-matt. Surface sculpture consisting of small but well-impressed rounded meshes and of small well-marked punctures, particularly numerous on frons. Clypeal grooves, a row of punctures along-

side eyes and a transverse depression beside eyes weakly impressed. Antennae ferrugineous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum ferrugineous-brown, paler at sides, shining to semi-matt. Microsculpture as on head, consisting of small rounded and well-impressed meshes and of some very well-spaced punctures. Longitudinal median suture hardly visible. Anterior row of punctures coarse; the punctures strongly impressed, well-spaced at the middle, closer together at sides. Punctures of lateral row coalescent. Punctures at the middle of each latero-basal quarter medium-sized and sparse. Lateral margins weakly bordered; the furrow almost reaching posterior border but interrupted in front at anterior  $\frac{4}{5}$ .

Elytra ferrugineous-brown, somewhat paler at base and darker on posterior part of lateral margins, shining. Epipleura brown at basal third, dark brown posteriorly. Reticulation consisting of small, almost rounded and well-impressed meshes, which become smaller and slightly transverse towards apex but are still very distinct. Puncturation consisting of small, hardly visible and well-spaced punctures. Sutural row of punctures with some small punctures in apical third. Discal and sutural rows almost reaching base; punctures large and irregularly distributed at the extreme apex, in very well-spaced groups of 3–4 further in front. Some small punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous-brown. Legs testaceous-brown. Prosternal process subovoid, the sides subparallel at middle; 1.5 times as long as broad, moderately bordered at sides and broadly rounded at the apex. Metacoxal lines represented only by very few punctures at the middle of their length. Sternites 3, 4 and 5 each with some small punctures forming a weak transverse row. Anal sternite microreticulate, finely on anterior margin, with some small punctures on the disc and with a weak depression formed by 2–3 coalescent punctures near the margin on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, strongly curved, evenly tapered in apical part and pointed at apex (Fig. 97). In dorsal view, also tapered in apical part but narrowly rounded at apex (Fig. 97a). Parameres very broad (Fig. 138).

♀. Similar to ♂; elytral reticulation slightly more impressed. Valvae long, cylindrical, strongly constricted at posterior  $\frac{3}{4}$ , the apex laterally truncate. Seta long, preapical, its position sublateral.



Total length: 5.1–5.3 mm; width 3–3.1 mm.

Types: I have seen 2 of 3 types mentioned in the original description, the holotype ♂ (MFT) and 1 paratype ♀ (VG); locality: S India, Anamalai Hills, Cinchona, 3500 ft., 1959, Museum Frey Tutzing.

Affinities: The reticulation and the colour of this species are reminiscent of *L. nicolasi* n. sp. However, *L. freyi* Guéorguiev can easily be distinguished by its larger size, the more broadly oval shape, the discal and sublateral rows of punctures which are in well-spaced groups of 3–4, the aedeagus, which is developed dorsally (Fig. 97) as in *L. rossi* n. sp., and the very broad parameres (Fig. 138). It differs from most of the other species of the *scholzi*-group by its uniformly brown colour and from *L. rossi* n. sp. by its broadly oval form.

Distribution: S India (Anamalai Hills) (Map 1).

**32. *Lacconectus rossi* n. sp.** Figs 46, 47, 60, 98, 139.

Body elongate, strongly shining, brown, the anterior part of head, sides of pronotum and base of elytra reddish-brown to testaceous.

Head dark brown, paler on anterior half, shining. Surface sculpture consisting of small rounded obsolete meshes in anterior part, of larger and polygonal ones on vertex, and of well-impressed sparse punctures, particularly numerous on frons. Clypeal grooves, a row of punctures alongside eyes, and a transverse depression beside eyes moderately impressed. Antennae ferrugineous; joints slender, the 5<sup>th</sup> 1.75 times as long as broad.

Pronotum reddish-brown, darker on anterior margin and on disc, shining. Microsculpture similar to that of the head, the meshes are obsolescent and the punctures sparse. Longitudinal median suture short and weakly distinct. Anterior row of punctures narrow, the punctures deeply impressed. Punctures at sides and at the middle of each latero-basal quarter smaller and closer. Sides weakly and not completely bordered, the furrow obsolete when reaching posterior border and disappearing in front at anterior  $\frac{3}{4}$ .

Elytra reddish-brown, narrowly testaceous at base, somewhat darker at sides, strongly shining. Epipleura reddish-brown at base, becoming darker posteriorly. Meshes of the reticulation obsolete at the extreme base (Figs 46, 47), becoming more and more elongate and disappearing after anterior quarter. The surface thereafter with a shagreened lustre. Puncturation consisting of minute and dense punctures that are separated from each other by a distance equal to 2–3 meshes. Sutural row of punctures with 3–4 punctures in apical fourth.



Discal row almost complete, the punctures irregularly distributed at apex, in a straight line in front, forming groups of 3–5 punctures. Sublateral row also almost complete, with well-spaced punctures. Some large punctures present in the interspaces between discal and sublateral rows, and between sublateral and lateral rows of punctures.

Underside dark brown on metepisternum and metacoxae, testaceous-brown on the rest of the surface. Legs testaceous. Prosternal process narrow, elongate, about 1.7 times as long as broad, finely bordered at sides and rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length (Fig. 60). Sternites 3, 4 and 5 each with a transverse row of medium-sized punctures. Anal sternite finely striolate and with a small depression formed by 2–3 coalescent punctures on each side of the middle line. Posterior margin broadly rounded and finely bordered.

♂. Aedeagus, in lateral view strongly curved, very broad only at the middle (Fig. 98). In dorsal view, broadened at posterior third and evenly tapered towards apex behind middle (Fig. 98a). Parameres very broad and very short (Fig. 139).

♀. Similar to ♂. Valvae long, cylindrical, tapered at posterior  $\frac{3}{4}$ , laterally truncate at apex. Seta long, preapical and sublateral.

Total length: 4.7–5.6 mm; width: 2.6–3 mm.

Types: Holotype ♂ (CAS) and 52 paratypes (23 ♂ and 14 ♀, CAS; 1 ♂, GW; 1 ♀, SR; 8 ♂ and 5 ♀, MB); locality: India, Maharashtra, Mahableswar, 1250 m, 13.II.1962, E.S. Ross & D.Q. Cavagnaro.

Derivatio nominis: This species is named after its collector, Dr E.S. Ross (San Francisco).

Affinities: The colour of this species is reminiscent of *L. basalis* Sharp and related species, but the aedeagus (Fig. 98) is more like that of *L. scholzi* Gschw. and related species. It can therefore be easily distinguished from all known species. It differs from *L. freyi* Guéorguiev, which has the same colour and belongs to the same group, by its elongate shape and by the elytral microsculpture, which disappears after anterior quarter.

Distribution: India (Maharashtra) (Map 1).

### 33. *Lacconectus andrewesi* Guignot

Figs 7, 99, 140, 152.

*Lacconectus andrewesi* GUIGNOT, 1952, Rev. Fr. Ent. 19: 31. – GUÉORGUIEV, 1968, Bull. Inst. Zool. Mus. 28: 39. – VAZIRANI, 1970, Or. Ins. 4: 329. – VAZIRANI, 1977, Proc. zool. Surv. India, Occ. Pap. 6: 60. – SATÔ, 1979, Bull. Natn. Sci. Mus., Ser. A (Zool.) 5: 40.

Body broadly oval, ferrugineous to brownish-black, elytra with testaceous-ferrugineous markings.

Head ferrugineous, slightly darker alongside eyes, slightly shining. Surface sculpture consisting of small, weakly impressed, polygonal and almost rounded meshes, and of sparse minute punctures. Clypeal grooves and a row of punctures alongside eyes distinctly impressed. Transverse depression beside eyes very short and weakly marked. Antennae testaceous; joints slender, the 5<sup>th</sup> 2.1 times as long as broad.

Pronotum ferrugineous, darker on disc, slightly paler at sides, slightly shining. Microsculpture consisting of small, weakly impressed, rounded to polygonal meshes and of sparse but well-impressed minute punctures. Longitudinal median suture hardly visible. Anterior row of punctures narrow; the punctures medium-sized, irregularly distributed. Punctures along lateral sides and at the middle of each latero-basal quarter smaller, partly coalescent. Lateral margins very finely bordered; the furrow narrowly interrupted posteriorly, broadly anteriorly.

Elytra shining, blackish-brown, with testaceous markings as follows: a broad basal band, a short but broad lateromedian patch, and a broad subapical band; the bands not reaching either suture or lateral margin (Fig. 7). Epipleura dark brown, except extreme base which is testaceous. Reticulation consisting of small, polygonal, almost rounded meshes, which become elongate posteriorly but are visible as far as apex. Puncturation consisting of minute and hardly visible punctures, surrounded by slightly petal-like meshes. Sutural row of punctures consisting of very small punctures, restricted to apical third. Discal and sutural rows of punctures very fine, broadly interrupted before basal edge; the punctures small, irregularly distributed at the apex, in well-spaced groups anteriorly. Some punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside and legs testaceous. Prosternal process ovoid, 1.5 times as long as broad, distinctly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with very few minute punctures. Anal sternite striolate on anterior half, transversely microreticulate on posterior half. Posterior margin bordered and broadly rounded.

♂. Aedeagus, in lateral view, moderately curved at middle, strongly so at both ends, broadened at middle and just before apex and, finally,

pointed at apex (Fig. 99). In dorsal view, evenly tapered and moderately broad (Fig. 99a). Parameres moderately broad (Fig. 140).

♀. Similar to ♂. Valvae cylindrical, strongly tapered at posterior  $\frac{3}{4}$ , laterally truncate at apex. Seta long, preapical and sublateral (Fig. 152).

Total length: 4.7–5 mm; width: 2.7–2.9 mm.

Types: Holotype ♂ (MP); locality: Ind. or., Kanara, H.E. Andrewes, coll. Régimbart 1908. 1 paratype ♂ (MP); locality: N Kanara, T.R. Bell, coll. Guignot.

Additional material studied: India, N Kanara, T.R. Bell (1 ex., BM; 1 ex., MB).

**Affinities:** The colour and aedeagus of this species are reminiscent of *L. scholzi* Gschw., *L. regimbarti* n. sp. and *L. heinertzi* n. sp. However, it can easily be distinguished from these species by its smaller size, the minute and sparse punctures of the elytral reticulation, and the aedeagus (Fig. 99). It differs from the very closely related species, *L. spangleri* n. sp. by the distinct elytral microreticulation and by the aedeagus, which is rounded at the apex in dorsal view (pointed in *L. spangleri* n. sp.).

**Distribution:** S India (Kanara) (Map 1).

#### 34. *Lacconectus spangleri* n. sp. Figs 48–50, 100, 141.

Body elongate-oval, shining, brownish-black with the anterior part and disc of head, and sides of pronotum paler. Elytra with paler subbasal band and subapical patch.

Head brownish-black, the anterior part and disc ferrugineous-brown, shining. Surface sculpture consisting of very small and almost rounded meshes and of minute punctures, particularly numerous on disc. Clypeal grooves and a row of punctures alongside eyes coarse. Transverse depression beside eyes weakly impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 2.1 times as long as broad.

Pronotum brownish-black, narrowly ferrugineous-brown at sides, shining. Microsculpture consisting of very small rounded meshes and of minute and sparse punctures. Longitudinal median suture weakly impressed. Anterior and lateral rows of punctures and punctures at the middle of each latero-basal quarter coarse; punctures medium-sized but partly coalescent. Lateral margins finely and almost completely bordered; the furrow narrowly interrupted before anterior edge.

Elytra brownish-black with a subbasal testaceous-brown band and an apical testaceous-brown patch, shining. Epipleura dark brown at extreme base, brownish-black on the rest of the elytra. Microreticulation

not visible with light microscope, except for a few very small and rounded meshes at base, in sutural and scutellar area (Figs 48–50; appearing polygonal in the SEM photographs); only a very fine striolation visible on basal third, which gradually disappears posteriorly. Puncturation consisting of minute and sparse punctures. Sutural row of punctures formed only by a few small punctures on apical third and 1 or 2 on basal  $\frac{2}{3}$ . Discal and sublateral rows broadly interrupted before anterior edge; punctures medium-sized, irregularly distributed on the apical third, smaller and well-spaced anteriorly. Some medium-sized punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside dark brown, somewhat paler on sternites. Legs brown. Prosternal process elongate, 1.7 times as long as broad, distinctly bordered at sides and broadly rounded at apex. Metacoxal lines represented usually by a short furrow at the middle of their length; in some specimens it is long and much more impressed. Sternites 3, 4 and 5 each with numerous small to medium-sized punctures. Anal sternite smooth on anterior half, microstriolate on posterior half and with 3–4 large close-set punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, long and curved on apical half, very narrow and with a small prominence at apex (Fig. 100). In dorsal view, evenly tapered in apical third and pointed at apex (Fig. 100a). Parameres elongate (Fig. 141).

♀. Similar to ♂. Valvae cylindrical, tapered at posterior  $\frac{3}{4}$ , sublaterally truncate at apex, with a preapical sublateral long seta.

Total length: 5–5.6 mm; width: 2.8–3.1 mm.

Types: Holotype ♂ (USNM) and 15 paratypes (3 ♂ and 6 ♀, USNM; 1 ♀, GW; 1 ♂ and 4 ♀, MB); locality: Ceylon, Kandy Distr., Kandy, Roseneath, 25.III.1971, P. & P. Spangler. 2 paratypes (1 ♀, USNM; 1 ♀, MB); locality: Ceylon, Kandy Distr., Rangala, 2.IV.1971, P. & P. Spangler. 1 paratype ♀ (USNM); locality: Ceylon, Monaragala Distr., 4 Mi W. Padiyatalwa, 6.IV.1971, P. & P. Spangler. 1 paratype ♀ (MP); locality: Puwakpitiya, Hiver 1906–7, E. Bugnion.

Derivatio nominis: This species is named after the collector, Dr P.J. Spangler (United States National Museum, Washington), in appreciation of the loan of a large collection.

Affinities: Because of its colour and aedeagus, this species is close to *L. scholzi* Gschw. and related species. It comes particularly close to *L. andrewesi* Guignot, from which it can be easily distinguished by the

almost wholly invisible elytral reticulation and by the aedeagus which is pointed at the apex in dorsal view (Fig. 100).

Distribution: Sri Lanka (Map 2).

**35. *Lacconectus regimbarti* n. sp.**

Figs 1, 8, 51, 52, 57, 61, 101, 142, 153.

*Lacconectus scholzi* GSCHWENDTNER, GUIGNOT, 1952, Rev. Fr. Ent. 19: 31 (partim). – VAZIRANI, 1970, Or. Ins. 4: 328 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 60 (partim).

Body large, oval, semi-matt to slightly shining, dark brown to brownish-black, head, sides and disc of pronotum ferrugineous, elytra with testaceous markings.

Head ferrugineous, dark alongside eyes and posteriorly, semi-matt. Surface sculpture consisting of very small, rounded and well-impressed meshes and of minute and well-impressed punctures, the latter particularly numerous and irregularly distributed at sides. Clypeal grooves, a short row of punctures alongside eyes and a transverse depression beside eyes well-marked; punctures large and strongly coalescent. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.9 times as long as broad.

Pronotum dark brown along anterior and posterior margins, ferrugineous on rest of surface, semi-matt. Microsculpture consisting of very small, rounded and well-impressed meshes and of dense and deep punctures. Longitudinal median suture well-impressed. Anterior and lateral rows of punctures coarse; the punctures large, irregularly distributed, sometimes separated, sometimes coalescent. Punctures at the middle of each latero-basal quarter well-spaced. Lateral margins almost completely bordered but furrow obsolescent anteriorly and disappearing before anterior edge.

Elytra slightly shining, brownish-black with testaceous markings as follows: a subbasal band, a lateromedian transverse patch and a subapical band; the bands not reaching either suture or lateral margin (Figs 1, 8). Epipleura blackish-brown, except base which is testaceous. Reticulation consisting of very small rounded meshes (Figs 51, 52), which become obsolete at apical  $\frac{1}{4}$  and are replaced by fine striolations giving to apical fourth a shagreened lustre. Puncturation consisting of minute, deeply impressed and close-set punctures, separated from each other by a distance equal to 3–4 meshes. Sutural row of punctures consisting of some punctures on apical third. Discal and sublateral rows broadly interrupted before basal edge; punctures medium-sized and in well-spaced groups, particularly anteriorly. Some punctures visible in

the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside and legs testaceous. Prosternal process elongate and distinctly microreticulate, 1.66 times as long as broad, bordered at sides and rounded at apex (Figs 57, 61). Metacoxal lines represented by a long and deep furrow at the middle of their length. Sternites 3, 4 and 5 each with some small and with a short transverse row of large punctures on each side of the middle. Anal sternite finely striolate along anterior margin, microreticulate on the rest of the surface, with some minute punctures and an oblique depression formed by 3–4 coalescent punctures on each side of the middle. Posterior margin strongly bordered and broadly rounded.

♂. Aedeagus, in lateral view, strongly curved on whole length, broadened after middle and just before apex, narrowly rounded at apex (Fig. 101). In dorsal view, triangular in apical part and narrowly rounded at apex (Fig. 101a). Parameres elongate (Fig. 142).

♀. Similar to ♂; reticulation indistinctly more impressed. Valvae long, cylindrical, tapered at posterior  $\frac{3}{4}$ , laterally truncate at apex. Seta long, preapical, its position being sublateral (Fig. 153).

Total length: 5.9–6.7 mm; width: 3.4–3.7 mm.

Types: Holotype ♂ (MP) and 15 paratypes (4 ♂ and 7 ♀, MP; 1 ♂ and 3 ♀, MB); locality: Wallardi, Travancore, 5.IX.1903, R. P. Fabre, partim *L. favrei* Rég., ex typis (name in litt.); partim coll. Régimbart 1908, partim coll. Peschet 1945. 1 paratype ♂ (BM); locality: not known, ex. col. Clark, BM 1867–56. 6 paratypes (2 ♀, MP; 3 ♂ and 1 ♀, MB); locality: Bangalore, 1900, Tabourel, coll. Régimbart 1908. 5 paratypes (4 ♂ and 1 ♀, MP); locality: Inde, Bangalore, 1902. 1 paratype ♀ (BU); locality: Ramandorog, 1919, Katona, *Lacconectus scholzi* Gschw., det. Guignot. 8 paratypes (5 ♂ and 1 ♀, MP; 2 ♂, MB); locality: South India, Salem Distr. Shevaroy Hills, 3000–4000 ft, IX.1934, Nathan, coll. Guignot. 3 paratypes (1 ♂ and 1 ♀, ZMK; 1 ♀, MB); locality: S India, Bangalore, Hebbal, Karnataka, 26.–31.X.1977, Zool. Mus. Copenhagen Exp.

Derivatio nominis: This species is named after the late M. Régimbart in recognition of his outstanding contribution to our knowledge of this genus.

Affinities: This species is closely related to *L. scholzi* Gschw. and *L. heinertzi* n. sp. It can be distinguished from the former by the elytral reticulation, which is slightly less strongly impressed and which disappears and is replaced by a fine striolation after posterior  $\frac{3}{4}$  (visible on



entire surface in *L. scholzi* Gschw.), and particularly by the aedeagus (Fig. 101) which is, in lateral view, strongly curved (straight along middle  $\frac{3}{5}$  in *L. scholzi* Gschw.). From the latter it can easily be distinguished by the reticulation, which is distinctly visible far behind the middle of the elytra, and by the puncturation which is more sparse and less dense.

Distribution: S India (Map 2).

**36. *Lacconectus scholzi* Gschw.** Figs 2, 9, 53–55, 102, 143.

*Lacconectus simoni* var. *scholzi* GSCHWENDTNER, 1922, Ent. Anz. 2: 134.

*Lacconectus scholzi* GSCHWENDTNER, GSCHWENDTNER, 1934, Ent. Anz. 14: 53 (spec. propr.). – GUIGNOT, 1952, Rev. Fr. Ent. 19: 31. – GUÉORGUEV, 1968, Bull. Inst. Zool. Mus. 28: 40.

*Lacconectus (Paralacconectus) scholzi* GSCHWENDTNER, VAZIRANI, 1970, Or. Ins. 4: 328 (partim). – VAZIRANI, 1977, Rec. zool. Surv. India, Occ. Pap. 6: 60 (partim).

*Lacconectus bicolor* ZIMMERMANN, 1923, Ent. Bl. 19: 36. – ZIMMERMANN 1928, Sarawak Mus. J. 3: 387. – ZIMMERMANN, 1929, Ent. Bl. 25: 14. – GSCHWENDTNER, 1934, Ent. Anz. 14: 73 (syn. of *L. scholzi* Gschw.).

Body broadly oval, semi-matt, ferrugineous to blackish ferrugineous-brown, paler on disc of head, on middle and sides of pronotum, and with various well-delimited bands and patches on elytra.

Head ferrugineous, darker alongside eyes and on vertex, semi-matt. Surface sculpture consisting of very small rounded and well-impressed meshes and of deeply impressed punctures, particularly numerous on disc. Clypeal grooves, punctures alongside eyes very well-impressed; punctures strongly coalescent. Transverse depression beside eyes short but well-impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.8 times as long as broad.

Pronotum broadly dark ferrugineous-brown along anterior and posterior borders, lighter on the middle and sides, semi-matt. Micro-sculpture consisting of very small and rounded meshes and of minute, deeply impressed punctures; the former particularly impressed and the latter particularly numerous at sides. Longitudinal median suture long and deeply impressed. Anterior row of punctures coarse, the punctures irregularly distributed, sometimes well-spaced, sometimes close together and coalescent. Punctures of lateral row and of the middle of each latero-basal quarter smaller but more numerous and coalescent. Lateral sides of pronotum bordered; the furrow interrupted anteriorly.

Elytra blackish ferrugineous-brown, with ferrugineous-testaceous bands and patches: a subbasal band, which does not reach either suture or lateral margin, a mediolateral patch, and a broad subapical band (Fig. 9). Epipleura blackish-brown. Reticulation consisting of very



small, well-impressed and rounded meshes (Figs 53–55), which become less impressed posteriorly and are replaced by a fine striolation after apical third. Puncturation consisting of minute and dense punctures which are separated from each other by a distance equal to 3–4 meshes. Sutural row of punctures formed by some small punctures in apical third and 2–3 in basal  $\frac{2}{3}$ . Discal and sublateral rows of punctures largely abbreviated at the base; the punctures large and irregularly distributed at apex, and in well-spaced groups of 2–4 punctures anteriorly. Some punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside ferrugineous, the sternites darker. Legs ferrugineous. Prosternal process elongate, 1.6 times as long as broad, strongly bordered at sides, broadly rounded at apex (Fig. 2). Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with numerous small punctures. Anal sternite weakly microreticulate anteriorly, strongly so posteriorly and with an oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin distinctly bordered and broadly rounded.

♂. Aedeagus, in lateral view, very long and almost straight, suddenly curved on apical fifth and pointed at apex (Fig. 102). In dorsal view, broadened on apical third, then narrowed on apical fifth and narrowly rounded at apex (Fig. 102a). Parameres long and broad (Fig. 143).

♀. Similar to ♂, but slightly more shagreened. Valvae long, cylindrical, slightly tapered at posterior  $\frac{3}{4}$  and laterally truncate at apex. Seta long, preapical and sublateral.

Total length: 6.4–7 mm; width: 3.6–3.9 mm.

Types: Holotype ♂ (OLM); locality: S India, Shambaganur, coll. Gschwendtner.

Synonymy: When comparing the types of *L. bicolor* Zimmermann with those of *L. scholzi* Gschwendtner, I could find no significant differences. Consequently, I propose to consider *L. bicolor* Zimm. as a junior synonym of *L. scholzi* Gschw. *L. bicolor* Zimm. was apparently described from 6 specimens. 1 ♂ (ZSM) is herewith designated as lectotype, and the other specimens as paralectotypes (2 ♂ and 2 ♀, ZSM; 1 ♂, coll. Peschet 1945, MP); locality: S India, Shembaganur.

Additional material studied: India, Madura, Chambaganor, coll. Peschet 1945 (3 ex., MP). Madura, Shembaganur, coll. Peschet 1945 (1 ex., MP; 2 ex., MB). Kodicanal, R.P. Cartets, coll. Peschet 1945 (1 ex., MP; 1 ex., MB). India or., Shembaganur, *L. scholzi* Gschw., det. F. Guignot (7 ex., BU; 1 ex., MB).

**Affinities:** This species is closely related to *L. regimbarti* n. sp. and *L. heinertzi* n. sp. but can easily be distinguished by the aedeagus, which is, in lateral view, almost straight along the median  $\frac{3}{5}$  (Fig. 102).

**Distribution:** S India (Map 2).

### 2.3. pulcher-group

This small group includes only 2 characteristic species, *L. pulcher* n. sp. and *L. sabahensis* n. sp. The elytral colour is remarkable: *L. pulcher* n. sp. is testaceous with more or less coalescing longitudinal brown stripes; *L. sabahensis* n. sp. is brownish-black on the basal third with 3 rounded testaceous patches, and testaceous on the apical  $\frac{2}{3}$  with brownish-black patches (Fig. 10). The reticulation consists of small, evenly rounded meshes and the puncturation of minute and very well-spaced punctures.

The aedeagus is particularly slender and pointed at the apex (Figs 103–104). Parameres remarkably elongate, strongly curved, smooth, not at all striate, with short apical setae (Figs 144, 145). Valvae of ♀ strongly sclerotized, much broadened at the base and flattened in the apical part. Seta situated ventrally, far from the apex (Fig. 15).

Both species are found on the island of Borneo (Sarawak and Sabah).

### Key to species of the pulcher-group

1. Size smaller (3.9–4.3 mm). Elytra testaceous with longitudinal brown, more or less coalescent stripes. Elytral reticulation fine. ♂ Aedeagus (Fig. 103). Sarawak.

37. ***L. pulcher*** n. sp.

- Size larger (5.2 mm). Basal third of elytra brownish-black with 3 subbasal testaceous spots; apical  $\frac{2}{3}$  testaceous. Elytral reticulation deeply impressed. ♂. Aedeagus (Fig. 104). Sabah.

38. ***L. sabahensis*** n. sp.

### 37. ***Lacconectus pulcher*** n. sp.

Figs 103, 144, 154.

Body elongate, shining, brownish-black with testaceous-brown markings.

Head brownish-black to dark brown, shining. Surface sculpture consisting of small polygonal, almost rounded meshes and of minute and deeply impressed punctures, the latter being well-spaced except on

the disc. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes moderately impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.65 times as long as broad.

Pronotum brownish-black, the sides paler, broad anteriorly. Microsculpture consisting of small polygonal and well-impressed meshes and of minute and deep punctures, the former becoming very deeply impressed at sides. Longitudinal median suture very short and hardly visible. Anterior row of punctures narrow; punctures medium-sized. Lateral row coarse; punctures very close-set. Punctures at the middle of each latero-basal quarter well-spaced. Lateral margins bordered; the furrow broadly interrupted anteriorly.

Elytra shining, variable in colour. In both types, testaceous-brown with 4 more or less shortened brownish-black lines, coalescing and forming patches at basal third; the 2<sup>nd</sup> and 4<sup>th</sup> lines prolonged and joined together at apex, the 1<sup>st</sup> and 3<sup>rd</sup> interrupted posteriorly just after middle of elytra. Epipleura dark brown. Reticulation consisting of small polygonal meshes; becoming gradually transverse posteriorly and being replaced by fine striolations at the apex, except in ♀ where reticulation is distinctly visible as far as the apex. Puncturation consisting of minute, sparse and hardly visible punctures surrounded by petal-like meshes. Sutural row of punctures with a few very well-spaced punctures at apex and 4–5 on rest of length. Discal and sublateral rows broadly interrupted before apex; punctures large and irregularly distributed at apical third, smaller, in a straight line and well-spaced at basal  $\frac{2}{3}$ , except on basal third where they are closer. Some punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside dark brown, legs testaceous. Prosternal process ovoid, 1.4 times as long as broad, strongly bordered at sides, broadly rounded at apex. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 each with numerous minute punctures along middle. Anal sternite microreticulate with some well-spaced minute punctures and an oblique depression formed by 4 coalescent punctures on each side of the middle. Posterior margin very finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, weakly curved, evenly tapered and pointed at apex (Fig. 103). In dorsal view, suddenly tapered just before the apex and pointed at apex. Parameres very elongate (Fig. 144).

♀. Similar to ♂; elytral reticulation slightly more impressed, the meshes being distinct on the entire surface. Valvae short, strongly

sclerotized, broadened at the base and flattened in the apical part. Seta situated ventrally, far from apex (Fig. 154).

Total length: 3.9–4.3 mm; width: 1.6–1.8 mm.

Types: Holotype ♂ (BM) and 1 paratype ♀ (MB); locality: Sarawak, 4<sup>th</sup> Division, Gn. Mulu N.P., pitfall-trap, fish bait, MD forest, 100–500 m, III.–V.1978, I. Hanski, BM 1978–524.

Derivatio nominis: A particularly beautiful species.

Additional material studied: Sarawak, 4<sup>th</sup> Division, Gn. Mulu N.P., Camp 5, Malaise trap, alluvial forest, V.–VIII.1978, P.M. Hammond, J.E. Marshall, BM 1978–49 (1 ex. ♀, BM) ?.

Remarks: I have only considered 2 specimens as types. A third one, listed above as additional material, has a dark colour which does not correspond to the reduced one in the types. On the other hand, the other characters are very similar. This specimen however may belong to another species.

Affinities: This species should be placed near *L. sabahensis* n. sp. but can easily be distinguished by its size, colour and aedeagus (Fig. 103).

Distribution: Indonesia: Sarawak (Map 2).

### 38. *Lacconectus sabahensis* n. sp. Figs 10, 104, 145.

Body elongate, matt, brownish-black with testaceous-brown markings.

Head testaceous-brown, broadly darker alongside eyes, matt. Surface sculpture consisting of small, well-impressed, polygonal, almost rounded meshes, of dense and minute but deep punctures and of some larger punctures on the middle of frons. Clypeal grooves, a row of punctures alongside eyes and a transverse depression beside eyes moderately impressed. Antennae testaceous; joints slender, the 5<sup>th</sup> 1.65 times as long as broad.

Pronotum brownish-black, brown to testaceous-brown at sides and narrowly so along anterior and posterior margins, matt. Microreticulation consisting of small polygonal, almost rounded meshes and of dense minute but impressed punctures. Longitudinal median suture short and poorly visible. Anterior row of punctures coarse; punctures large. Punctures of lateral row and at the middle of each latero-basal quarter large, partly coalescent. Lateral margins finely bordered; the furrow narrowly interrupted posteriorly and broadly anteriorly.

Elytra matt, brownish-black on basal third and narrowly so along margins, testaceous-brown on apical  $\frac{2}{3}$ . The brownish-black surface

with 3 subbasal testaceous-brown patches; the testaceous-brown surface with a postmedian brownish-black patch, an oblique dark brown subapical patch, and a dark brown, lateral postmedian, weakly distinct patch; the latter joined to the subapical patch by a fine brown line (Fig. 10). Epipleura blackish-brown, except extreme base which is slightly paler. Reticulation consisting of small polygonal, almost rounded and well-impressed meshes, which cover the entire surface. Puncturation consisting of minute and sparse punctures, separated from each other by a distance equal to 3–5 meshes and surrounded by petal-like meshes. Sutural row of punctures with some large punctures on apical third and with 1–2 on basal  $\frac{2}{3}$ . Discal and sublateral rows broadly interrupted before anterior edge; the punctures being large, irregularly distributed and well-spaced at the apex, more or less in a straight line but close-set in front. Some large punctures visible in the interspaces between discal and sublateral rows, and between sublateral and lateral rows.

Underside testaceous-brown. Legs testaceous. Prosternal process ovoid, 1.5 times as long as broad, broadly bordered at sides and broadly rounded at apex. Metacoxae strongly microreticulate, particularly at sides. Abdomen microreticulate. Metacoxal lines represented only by a few punctures at the middle of their length. Sternites 3, 4 and 5 with numerous small punctures and some medium-sized ones. Anal sternite microreticulate, strongly so along posterior margin, with some minute punctures and a very short oblique depression formed by 3 coalescent punctures on each side of the middle. Posterior margin finely bordered and broadly rounded.

♂. Aedeagus, in lateral view, weakly curved, evenly tapered in apical part and pointed at apex (Fig. 104). In dorsal view, also evenly tapered in apical part and pointed at apex. Parameres elongate (Fig. 145).

♀. Unknown.

Total length: 5.2 mm; width: 2.7 mm.

Type: Holotype ♂ (GW); locality: Ost-Malaysia, Sabah, Nat. Park Kinabalu, 1585 m, 11.VIII.1972, Beck.

Derivatio nominis: Species from Sabah.

Affinities: The colour (Fig. 10), the habitus, and the aedeagus (Fig. 104) of this species distinguish it from all other known species.

Distribution: Malaysia: Sabah (Map 2).

### 3. Unnamed material

#### Species 1

A species closely related to *L. sabahensis* n. sp., but differing by its smaller size (total length: 4.5 mm; width: 2.5 mm), by its much paler colour (brown stripes broadened in subbasal and postmedian parts on a testaceous ground), and by the meshes of the elytral reticulation which are larger.

Material studied: 1 ♀ (BM); locality: Sarawak, 4<sup>th</sup> Division, Gn. Mulu N.P., nr. Camp, pitfall trap, upper montane forest, c. 1800 m, V.1978, N.M. Collins, BM 1978–11.

#### Species 2

This species is similar to *L. punctatus* n. sp., but the punctures on the 1<sup>st</sup> and 2<sup>nd</sup> interspaces are less numerous. The pronotum is blackish-brown, narrowly paler at sides and densely punctured and the elytra are testaceous with some very short, longitudinal, brown stripes.

Material studied: 2 ♀ (1 ex., BM; 1 ex., MB); locality: Sarawak, 4<sup>th</sup> Division, Gn. Mulu N.P., camp 5, alluvial forest, Malaise trap, V–VIII.1978, P.M. Hammond, J.E. Marshall, BM 1978–49. 1 ♀ (BM); locality: Sarawak, 4<sup>th</sup> Division, Gn. Mulu N.P., pitfall-trap, fish bait, MD forest, 100–500 m, III–V.1978, I. Hanski, BM 1978–524.

### 4. Species removed from the genus *Lacconectus*

#### *Aglymbus festae* (Griffini) n. comb.

*Lacconectus festae* GRIFFINI, 1899, Boll. Mus. Zool. Anat. Comp. Torino 14: 2. – GUÉORGUIEV, 1968, Bull. Inst. Zool. Mus. 28: 39.

GRIFFINI (1899) described this species from a single specimen from S. Jose in Ecuador (holotype ♂, MIZS). I found further species of this group in other collections from South America and the study of various *Aglymbus* species shows that these species, including *L. festae* Griffini, have to be placed in the genus *Aglymbus*.

*Aglymbus* and *Lacconectus* are very similar and their phylogenetic relationship requires further study. There are significant differences in the microreticulation, puncturation, and also in the ♂ protarsi and mesotarsi. In *Aglymbus*, tarsi are much more enlarged and have 4 rows of small elongate pads, 2 on each side of the joints 1–3 which are separated by a smooth median line. In specimens of *Lacconectus* (Fig. 59) there are only 2 rows of rounded pads and the smooth median line that is evident in *Aglymbus* is absent. The metacoxal lines are weakly visible at the base in the South American *Aglymbus* and completely absent in African species. Finally, the aedeagus of *Aglymbus* is more elongate and very narrow in the apical part.

### III. ZOOGEOGRAPHIC ANALYSIS

Species of the genus *Lacconectus* are found throughout the Oriental region. In fact, the distribution of the genus closely follows the limits of the Oriental Zoogeographic region, south of a line running from the foot of the Himalayas to the southern part of China, and north of Java excluding Sulawesi (Maps 1–4). The probable center of their dispersal corresponds to the center of their present distribution. In fact, a fifth of the species occur in Burma. From here they must have moved into other upland areas of the Oriental region. They are thus absent from the lowland areas of India or Borneo, but are found for example in the foothills of the Himalayas, the Shevaroy Hills, and the Anamalai Hills in the Indian Subcontinent and on Mt Kinabalu (Sarawak) in Borneo (Map 5). It is interesting that most of the plesiomorphous species exist in the area of greatest diversity.

It is curious that the coloured and relatively large species, except *L. laccophiloides luzonicus* n. ssp. from Luzon and *L. heinertzi* n. sp. from Thailand, occur in South India and Sri Lanka. This is particularly interesting as no less than 4 species of the *javanicus*-group of the genus *Laccophilus* (BRANCUCCI, 1983) with the same colour pattern and relative large size have exactly the same distribution, in the hills of South India and Sri Lanka. It could also be pointed out that the smallest species of both species groups (*L. elegans* Sharp in the *javanicus*-group of *Laccophilus*, and *L. andrewesi* Guignot in the *scholzi*-group of *Lacconectus*) occur in Kanara, and the largest species in the same groups (*Laccophilus aurofasciatus* Vazirani and *Lacconectus scholzi* Gschw., respectively) in Madurai. However, these features have probably resulted from similarities in habitat rather than phylogenetically-linked dispersal. *Laccophilus* species of the *javanicus*-group have several plesiomorphous characters and are regarded as relatively primitive, whereas *Lacconectus* species of the *scholzi*-group have several apomorphous features and are considered to be highly derived.

Unlike *Laccophilus* species, however, most *Lacconectus* have a restricted distribution and many species are only known from 1 or 2 localities. The most widespread species is *L. basalis* Sharp which occurs in Burma, Thailand, Cambodia, Vietnam, Malaysia and apparently also in Taiwan and Java.



It is also interesting to note the characteristic morphology of most of the species occurring in Malaysia, Indonesia and the Philippines. They are weakly reticulate or often not reticulate, and have strong, scarcely interrupted and furrow-like discal and sublateral rows of punctures on the elytra (*L. punctipennis* Zimm., *L. muluensis* n. sp., *L. minutus* n. sp., *L. javanicus* n. sp. and *L. laccophiloides laccophiloides* Zimm.).

#### IV. ECOLOGICAL NOTES

It is curious that the number of *Lacconectus* specimens in different collections is very limited, and in fact a few large Museums have none at all. The proportion between the number of *Lacconectus* and the number of Oriental *Laccophilus* (BRANCUCCI, 1983), for instance, is probably no more than  $\frac{1}{20}$ . This can probably be explained by the very small area in which each species is found: of the 37 species known, 17 are known from a single locality and apparently occupy a very restricted area.

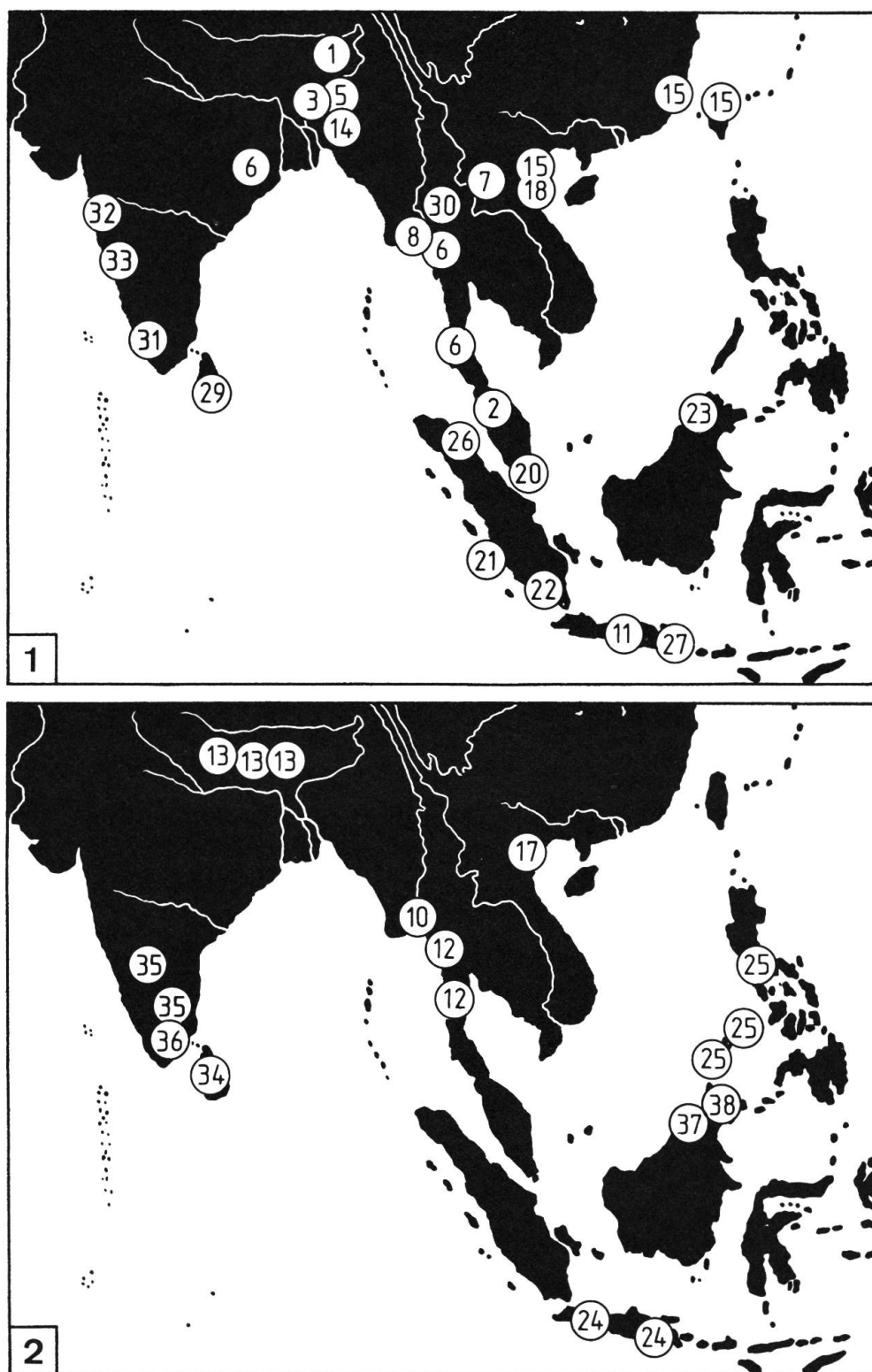
I do not know in which habitat the Vietnamese or Indonesian species occur, but I can give some notes on my own experience in collecting a species of *Lacconectus* in Nepal (*L. nicolasi* n. sp.). Though I have been to the Himalayas several times, I have only been able to find *L. nicolasi* n. sp. on two occasions, and both in the same kind of water: streams on a steep slope, with bottoms consisting of mixed gravel and sand, and with small water-holes forming here and there. The beetles were mostly collected on the edges of these holes.

In 1983 I visited the Arun Valley in East Nepal and collected in many pools, rivers and streams, but I was only able to find *L. nicolasi* n. sp. in one of them. It was very small, as described above, but the amount of water it contained was probably constant throughout the year.

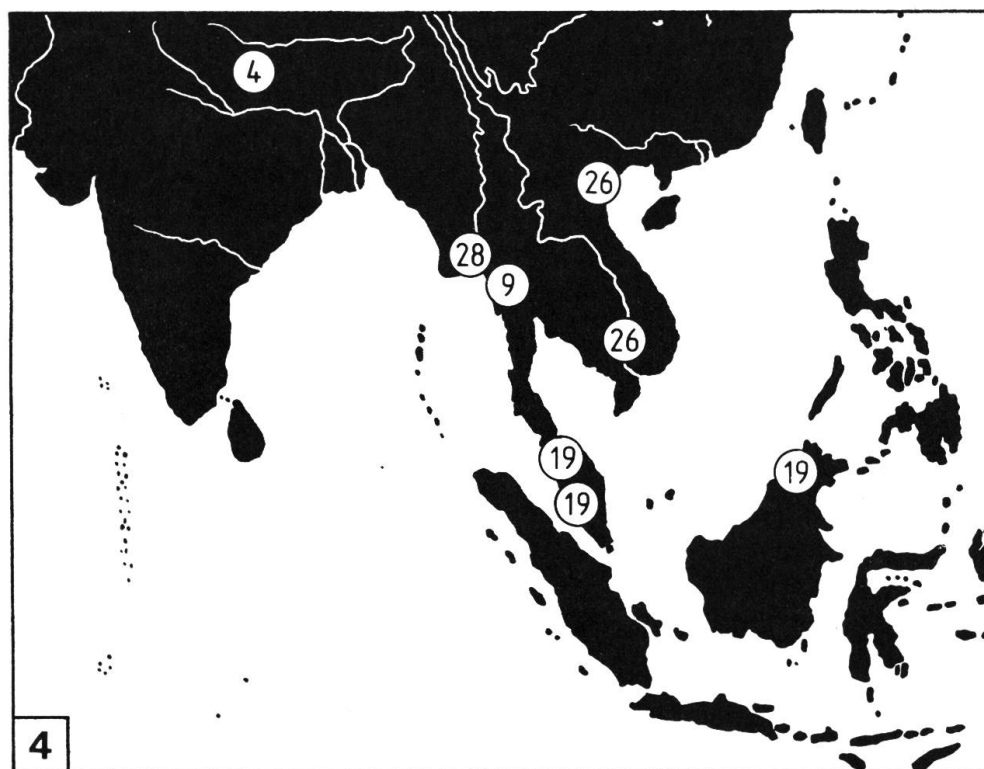
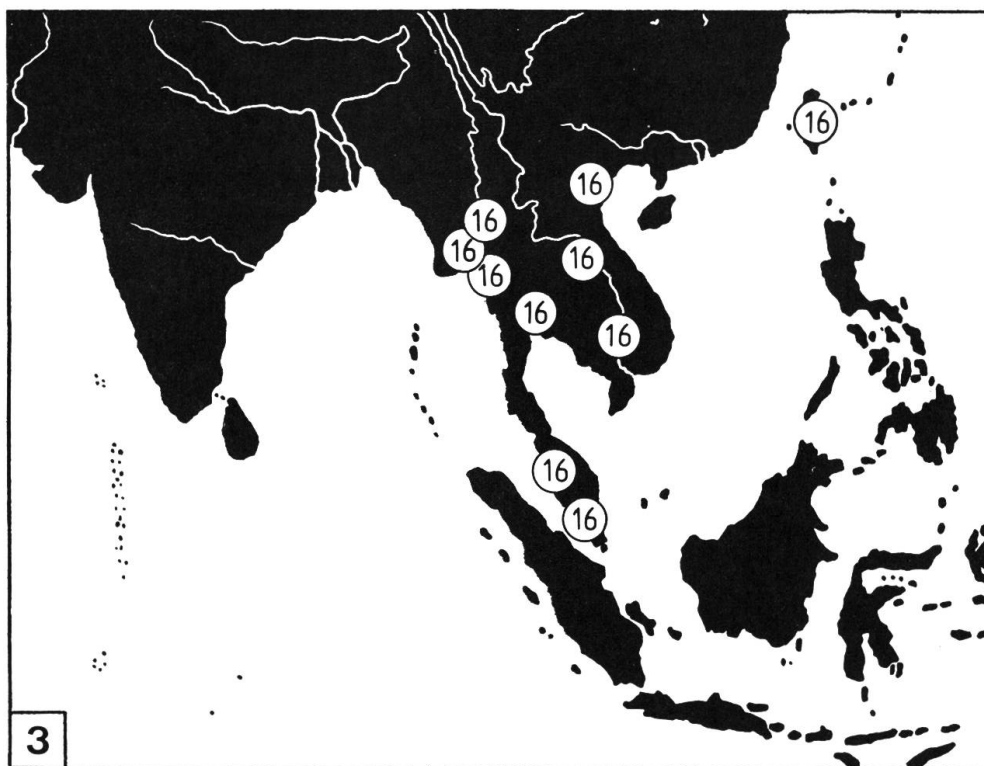
*Lacconectus nicolasi* n. sp. was caught together with *Platynectes kashmiranus* Balfour-Browne, a euryecous and very widespread species. *L. nicolasi* n. sp. and probably the other *Lacconectus* species are extremely stenoecous. Furthermore, they seem to live only in mountainous regions, between 100 and 2000 metres (Map 5).

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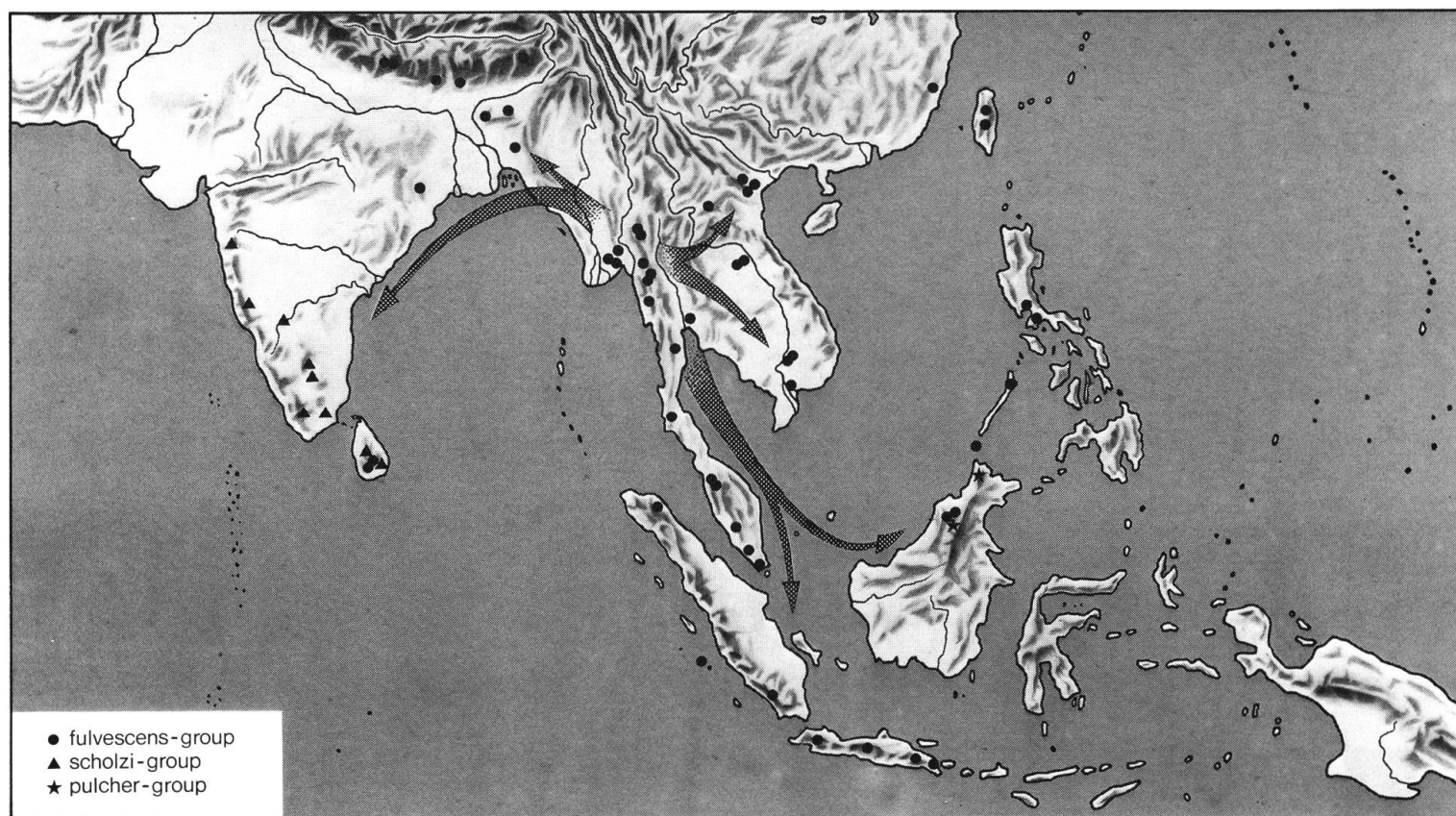
14, *L. biswasi* n. sp. 15, *L. formosanus* (Kamiya). 18, *L. tonkinensis* Guignot. 20, *L. corayi* n. sp. 21, *L. oceanicus* Rég. 22, *L. minutus* n. sp. 23, *L. muluensis* n. sp. 27, *L. punctipennis* Zimm. 28, *L. strigulifer* Zimm. 30, *L. heinertzi* n. sp. 31, *L. freyi* Guéorguiev. 32, *L. rossi* n. sp. 33, *L. andrewesi* Guignot. Map. 2. 10, *L. fallaciosus* n. sp. 12, *L. merguiensis* n. sp. 13, *L. nicolasi* n. sp. 17, *L. tonkinoides* n. sp. 24, *L. javanicus* n. sp. 25, *L. laccophiloides* ssp. 34, *L. spangleri* n. sp. 35, *L. regimbarti* n. sp. 36, *L. scholzi* Gschw. 37, *L. pulcher* n. sp. 38, *L. sabahensis* n. sp.



Maps 1–2: Distribution of *Lacconectus* species (numbers correspond to the species numbers). Map 1. 1, *L. ovalis* Gschw. 2, *L. ponti* n.sp. 3, *L. gusenleitneri* n.sp. 5, *L. pederzani* n.sp. 6, *L. fulvescens* Motsch. 7, *L. similis* n.sp. 8, *L. peguensis* n.sp. 11, *L. ritsemai* Rég.



Maps 3–4: Distribution of *Lacconectus* species (numbers correspond to the species numbers). Map. 3. 16, *L. basalis* Sharp. Map. 4. 4, *L. holzschuhi* n. sp. 9, *L. birmanicus* n. sp. 19, *L. krikeni* n. sp. 26, *L. punctatus* n. sp. 29, *L. simoni* Rég.



Map 5: Global distribution of the genus *Lacconectus* in relation to the position of the mountains. → indicate the probable evolutionary paths along which species developed.

## V. PHYLOGENETIC CONSIDERATIONS

In the course of this study, I have tried to work out a phylogenetic system. For this purpose, I have taken into consideration other genera of the tribe Copelatini, such as *Copelatus* and *Aglymbus* (South American species as well as Madagascan species). Other genera, such as *Agraphis*, *Stictogabus* and *Agabetes*, seem to me to be doubtfully placed in the Copelatini.

Because of a number of plesiomorphous (Table 1) features, *Lacconectus* is probably the most primitive genus and is the sister-group of the other two genera.

Within the *Lacconectus* (Table 2), the situation is much more difficult and more intricate for various reasons, I was still able to find synapomorphies which suggest certain phylogenetic relationships (Fig. 155).

Punctures of the discal and sublateral rows of elytra small and in well-spaced groups (1) is a character that can only be found in the *scholzi*-group (*L. scholzi* Gschw., *L. regimbarti* n. sp., *L. andrewesi* Guignot, *L. spangleri* n. sp., *L. rossi* n. sp. and *L. freyi* Guéorguiev) and has to be considered as a synapomorphy.

Aedeagus, in dorsal view, developed laterally in the apical part (2). This feature is only found in 6 species (*scholzi*-group) and can be interpreted as being synapomorphous. Furthermore, such a development has not been found in other genera as *Copelatus* and *Aglymbus*.

Aedeagus very slender and narrow in lateral view (3) is a synapomorphy of *L. sabahensis* n. sp. and *L. pulcher* n. sp., and is undoubtedly an apomorphy in other species like *L. ponti* n. sp. and *L. corayi* n. sp.

Parameres narrow, elongate and not striolate (4) is a synapomorphy of *L. pulcher* n. sp. and *L. sabahensis* n. sp. and is absent in all the other species studied.

Brownish-black colour with testaceous markings (5) characterizes the species of the *scholzi*-group, as well as *L. heinertzi* n. sp., *L. simoni* Rég., *L. laccophiloides luzonicus* n. ssp., *L. pulcher* n. sp. and *L. sabahensis* n. sp. In the latter 5 taxa, it is probably a parallel development.

The formation of a furrow by the discal and sublateral rows of punctures, with the punctures being very close together (6), is also a synapomorphic feature. It occurs in some smooth species (*L. muluensis* n. sp., *L. laccophiloides laccophiloides* Zimm.) and in some weakly micro-reticulate species (*L. minutus* n. sp., *L. javanicus* n. sp., *L. punctatus* n. sp. and *L. punctipennis* Zimm., but not so distinct in the latter).

Characterl	Plesiomorphous State	Apomorphous State
1. Colour	brown (Fig. 3)	brownish-black (Figs 4–10)
2. Size	medium	not medium 1.a large 1.b small
3. Antennae (joint 5 <sup>th</sup> : L/W 1.9)	short	long
4. Large puncturation of elytra	sparse (Fig. 3)	dense (Figs 4, 9) 1 rounded 2 elongate (striae)
5. Punctures of the elytral rows	distant (Fig. 4)	not distant (Figs 4, 9) 1.a close 1.b grouped
6. Elytral surface sculpture (post. 1/2)	microreticulate	not microreticulate 1 microstriolate 2 smooth
7. Prosternal process	ovoid (Fig. 56)	not ovoid (Fig. 57) 1 ovoid-elongate 2 elongate
8. Anal sternite (post. margin)	microreticulate	not microreticulate 1 microstriolate 2 smooth
9. Aedeagus (lateral view)	not narrow and slender	narrow and slender (i.e. figures 103–104)
10. Aedeagus (dorsal view)	not broadened laterally	broadened laterally (Figs 97–102)
11. Parameres	broad	not broad 1 narrow (Figs 126–128) 2 smooth (Figs 144–145)
12. Valvae	long, narrow and not flattened (i.e. figure 146)	not so 1.a broad cylindrical (Fig. 152) 1.b short and flattened (Fig. 154)

Tab. 1: Plesiomorphous and apomorphous characters some of which are used in the analysis (Chapter V).

Some species (*L. punctipennis* Zimm., *L. punctatus* n. sp. and *L. laccophiloides laccophiloides* Zimm., sometimes also *L. javanicus* n. sp.) have strongly puncturate elytra (7). This feature is certainly a synapomorphy, though it can vary greatly even within a species.



Pronotal and elytral striations (8) are a particular modification of the puncturation and should be considered as a synapomorphy (or at least as an apomorphy).

Character no.	1	2	3	4	5	6	7	8	9	10	11	12
Species												
ovalis	0	0	0	0	0	0	0	0	0	0	0	?
ponti	0	0	0	0	0	0	0	0	1	0	1	?
gusenleitneri	0	0	0	0	0	0	0	0	0	0	0	?
holzschuhi	0	0	0	0	0	0	0	0	1	0	0	0
pederzanii	0	0	0	0	0	0	0	0	0	0	0	0
fulvescens	0	0	0	0	0	0	0	1	0	0	0	0
similis	0	0	0	0	0	1	0	0	0	0	0	0
peguensis	0	0	1	0	0	0	0	0	0	0	0	0
birmanicus	0	0	0	0	0	0	0	0	0	0	0	0
fallaciosus	0	0	0	0	0	1	0	2	0	0	0	0
ritsemai	0	0	0	0	0	0	0	0	0	0	0	1.a
merguiensis	0	0	0	0	0	1	0	1	0	0	0	0
nicolasi	0	0	0	0	0	0	0	0	0	0	1	0
biswasi	0	0	0	0	0	0	0	0	0	0	0	?
formosanus	0	0	0	0	0	1	0	0	0	0	0	1.b
basalis	0	0	1	0	0	1	0	1	0	0	0	0
tonkinoides	0	0	1	0	0	0	0	0	0	0	0	1.a
tonkinensis	0	0	1	0	0	1	0	1	0	0	0	0
krikkeni	0	0	0	0	0	1	0	1	0	0	0	1.b
corayi	0	1.b	0	0	0	1	0	1	1	0	1	1.b
oceanicus	0	1.b	0	0	0	0	0	0	0	0	1	1.b
minutus	0	1.b	0	0	1.a	2	0	0	0	0	1	?
muluensis	0	1.b	0	0	1.a	2	0	2	0	0	0	?
javanicus	0	0	0	1	1.a	1	0	1	0	0	0	1.a
l. laccophiloides	0	0	0	1	1.a	2	0	1	0	0	0	0
l. balabacicus	0	1.b	0	1	1.a	2	0	1	0	0	0	?
l. luzonicus	0	0	0	1	1.a	2	0	1	0	0	0	?
punctatus	0	0	0	1	1.a	1	0	0	0	0	0	1.b
punctipennis	0	0	0	1	1.a	1	0	2	0	0	0	1.b
strigulifer	0	0	0	2	0	0	0	0	0	0	0	0
simoni	1	0	0	2	0	0	0	0	0	0	0	1.a
heinertzi	1	1.a	1	0	0	1	0	1	0	0	0	0
freyi	0	0	1	0	1.b	0	0	0	0	1	0	1.a
rossi	0	0	0	0	1.b	1	1	1	0	1	0	1.a
andrewesi	1	0	1	0	1.b	0	0	0	0	1	0	1.a
spangleri	1	0	1	0	1.b	1	1	1	0	1	1	1.a
regimbarti	1	1.a	1	0	1.b	0	1	1	0	1	0	1.a
scholzi	1	1.a	1	0	0	0	1	0	0	1	0	1.a
pulcher	1	0	0	0	0	0	0	0	1	0	2	1.b
sabahensis	1	0	0	0	0	0	0	0	1	0	2	1.b

Table 2: Distribution of character states among species of *Laconectus*: 0 = plesiomorphous states, 1 and 2 = progressive apomorphous states, 1.a and 1.b = bidirectional apomorphous states.

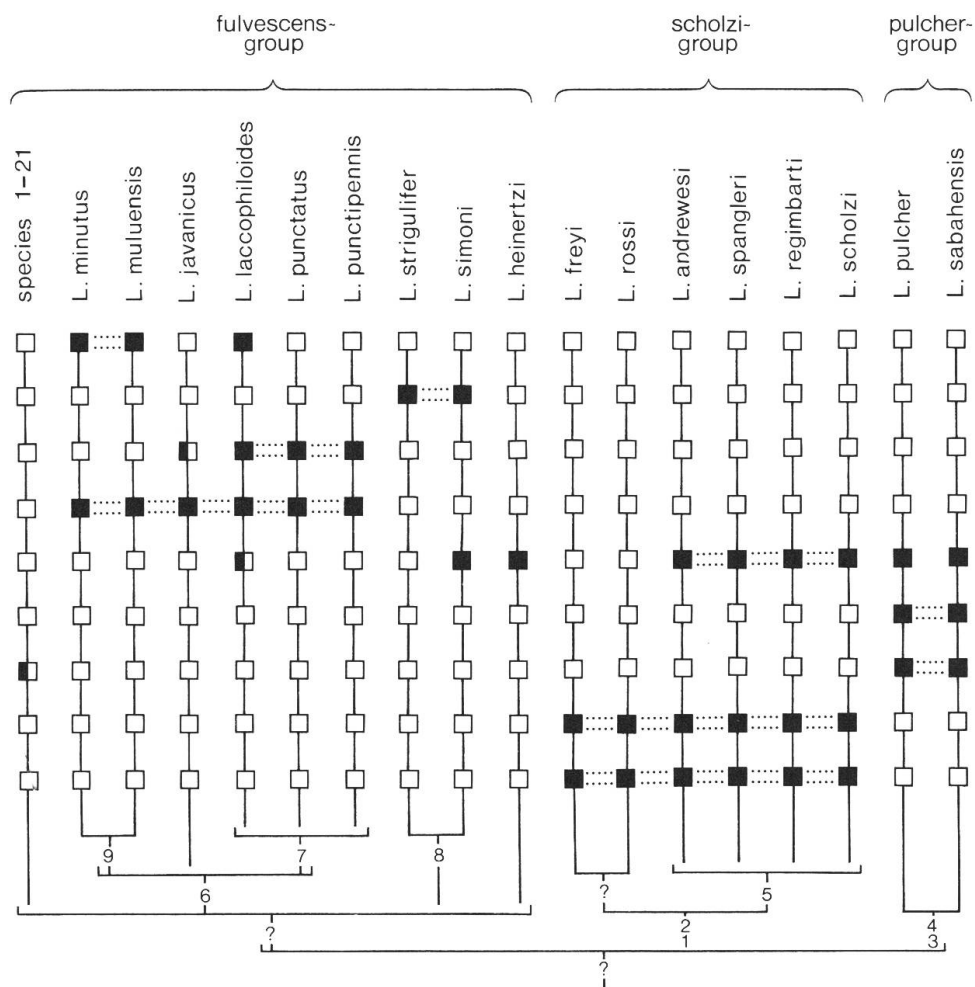


Fig. 155: Cladogram of the presumed relationships of *Lacconectus* species. ■ = apomorphous characters (the numbers correspond to those used in the text):

1. Punctures of the discal and sublateral rows of elytra small and in well-spaced groups.
2. Aedeagus, in dorsal view, developed laterally in apical part.
3. Aedeagus, in lateral view, very slender and narrow.
4. Parameres narrow, elongate and not striolate.
5. Colour brownish-black with testaceous markings.
6. Discal and sublateral rows of punctures forming a furrow.
7. Elytra strongly puncturate.
8. Pronotum and elytra striate.
9. Elytra smooth.

Smooth elytra, at most very narrowly reticulate or weakly striolate at the base (9), is also an apomorphous feature for various species and there is a general trend towards this state throughout the genus *Lacconectus*. The apomorphous status of this character has been confirmed by the study of various Dytiscidae, particularly the Colymetinae in which the base of the elytra is always less reticulate than the apex. In

*Lacconnectus* the opposite sequence can be observed, and there is a succession of steps which show the slow and gradual transformation of a reticulation into a striolation.

Although I am not quite sure whether the female valvae provide any reliable phylogenetic characters, it seems evident to me that strongly sclerotized valvae, as found in *L. pulcher* n. sp. or *L. formosanus* Kamiya), should be regarded as apomorphous features (perhaps even as synapomorphies). Because of the similar type of cylindrical valvae found in related genera such as *Copelatus* and *Aglymbus*, those of *L. scholzi* Gschw., *L. javanicus* n. sp. etc. could not be assessed and taken into consideration in this discussion.

The genus *Lacconnectus* is the sister-group of *Copelatus* and *Aglymbus*, but I could not find any obvious apomorphous feature to characterize the genus. An undoubtedly plesiomorphous character is found in the protarsi and mesotarsi of the ♂, which are relatively slightly broadened and have only 2 rows of pads. The aedeagus is also plesiomorphous: its form is simple and its opening is placed not far from the apex (except in *L. scholzi* Gschw. and related species).

## VI. CONCLUSIONS

The present revision is the result of the study of a relatively large number of *Lacconnectus* specimens, bearing in mind the rarity of their occurrence. It increases by 24 (about  $\frac{2}{3}$ ) the number of known species. This unexpected development, which is unusual in Oriental Dytiscidae, is probably to be explained by the restricted habitats in which they live (lotic systems in isolated mountain valleys), and the small series of each species that I have had at my disposal has convinced me that several further species remain to be found.

This paper also describes the difficulties experienced when trying to arrange all these species in a phylogenetical sequence. Because of this and the intricate distribution of the characters, I have been unable to accept the subgenus *Paralacconnectus* described by VAZIRANI (1970) and have preferred to arrange the species into three distinct groups.

## VII. RÉSUMÉ

Le genre *Lacconnectus* Motschulsky est révisé. On distingue 38 espèces, dont 24 sont nouvelles pour la science; 1 seule espèce est polytypique et comprend 3 sous-espèces (2 nouvelles): *Lacconnectus andrewesi*

Guignot (sud de l'Inde), *L. basalis* Sharp (espèce type, Inde?, Birmanie, Thaïlande, Vietnam, Taiwan, Cambodge et Malaisie), *L. birmanicus* n. sp. (Birmanie), *L. biswasi* n. sp. (Assam), *L. corayi* n. sp. (Singapoure), *L. fallaciosus* n.sp. (Birmanie), *L. formosanus* (Kamiya) (Taiwan, sud de la Chine, Vietnam), *L. freyi* Guéorguiev (sud de l'Inde), *L. fulvescens* Motsch. (Inde, Birmanie), *L. gusenleitneri* n. sp. (Assam), *L. heinertzi* n. sp. (Thaïlande), *L. holzschuhi* n. sp. (Népal), *L. javanicus* n. sp. (Java), *L. krikkeni* n. sp. (Malaisie), *L. laccophiloides laccophiloides* Zimm. (Palawan), *L. l. balabacicus* n. ssp. (Balabac), *L. l. luzonicus* n. ssp. (Luzon), *L. merguiensis* n. sp. (Birmanie), *L. minutus* n. sp. (Sumatra), *L. muluensis* n. sp. (Sarawak), *L. nicolasi* n. sp. (Népal, nord de l'Inde), *L. oceanicus* (Mentawai), *L. ovalis* Gschw. (Assam), *L. pederzanii* n. sp. (Assam), *L. peguensis* n. sp. (Birmanie), *L. ponti* n. sp. (Malaya), *L. pulcher* n. sp. (Sarawak), *L. punctatus* n. sp. (Vietnam, Cambodge), *L. punctipennis* n. sp. (Java, Sumatra), *L. regimbarti* n. sp. (sud de l'Inde), *L. ritsemai* Rég. (Java), *L. rossi* n. sp. (Inde), *L. sabahensis* n. sp. (Sabah), *L. scholzi* Gschw. (sud de l'Inde), *L. similis* n. sp. (Thaïlande), *L. simoni* Rég. (Sri Lanka), *L. spangleri* n. sp. (Sri Lanka), *L. strigulifer* Zimm. (Birmanie), *L. tonkinensis* Guignot (Vietnam) and *L. tonkinoides* n. sp. (Vietnam).

Les types de toutes les espèces ont été étudiés et un lectotype a été désigné chaque fois que cela s'est avéré nécessaire. 2 nouvelles synonymies sont proposées: *L. fulvescens* Motsch. (= *L. lividus* Rég.) et *L. laccophiloides laccophiloides* Zimm. (= *L. kurosawai* Satô).

*Platynectes formosanus* Kamiya est transféré dans le genre *Lacconectus* et un néotype est désigné. *Lacconectus festae* Griffini est transféré dans le genre *Aglymbus*.

Les sous-genres proposés par VAZIRANI (1970) sont discutés et rejetés, par contre les 37 espèces reconnues sont réparties dans 3 groupes différents.

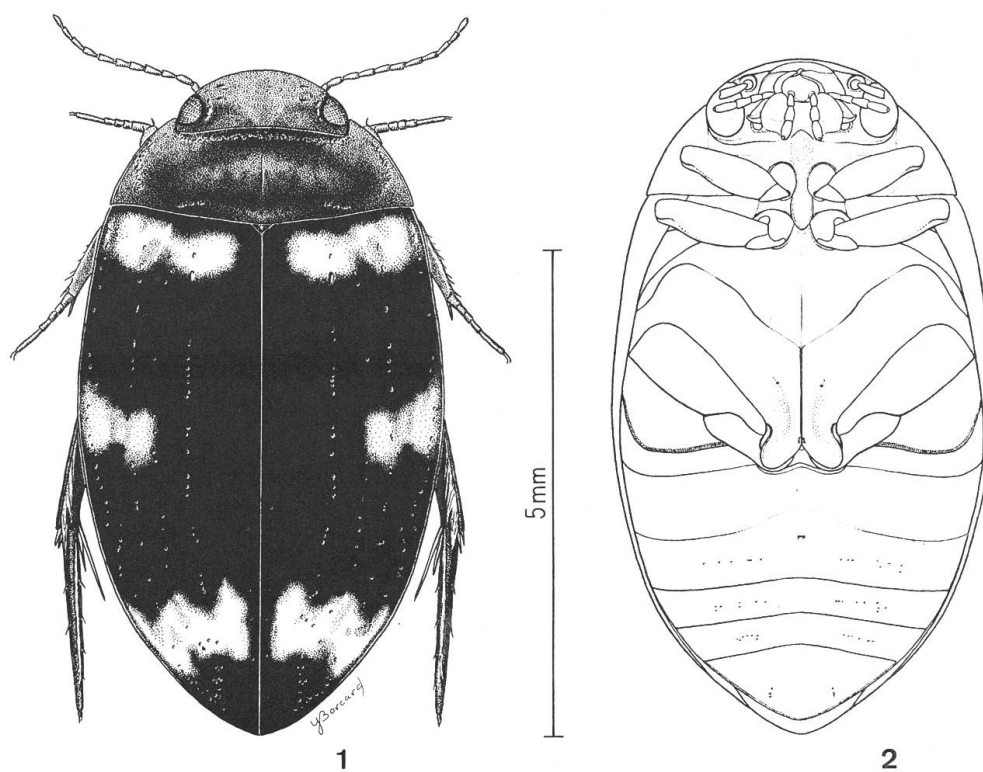
L'édéage, les paramères et en cas de nécessité, la reticulation et la coloration, sont illustrés pour chaque espèce. Des clés permettent l'identification des groupes et des espèces.

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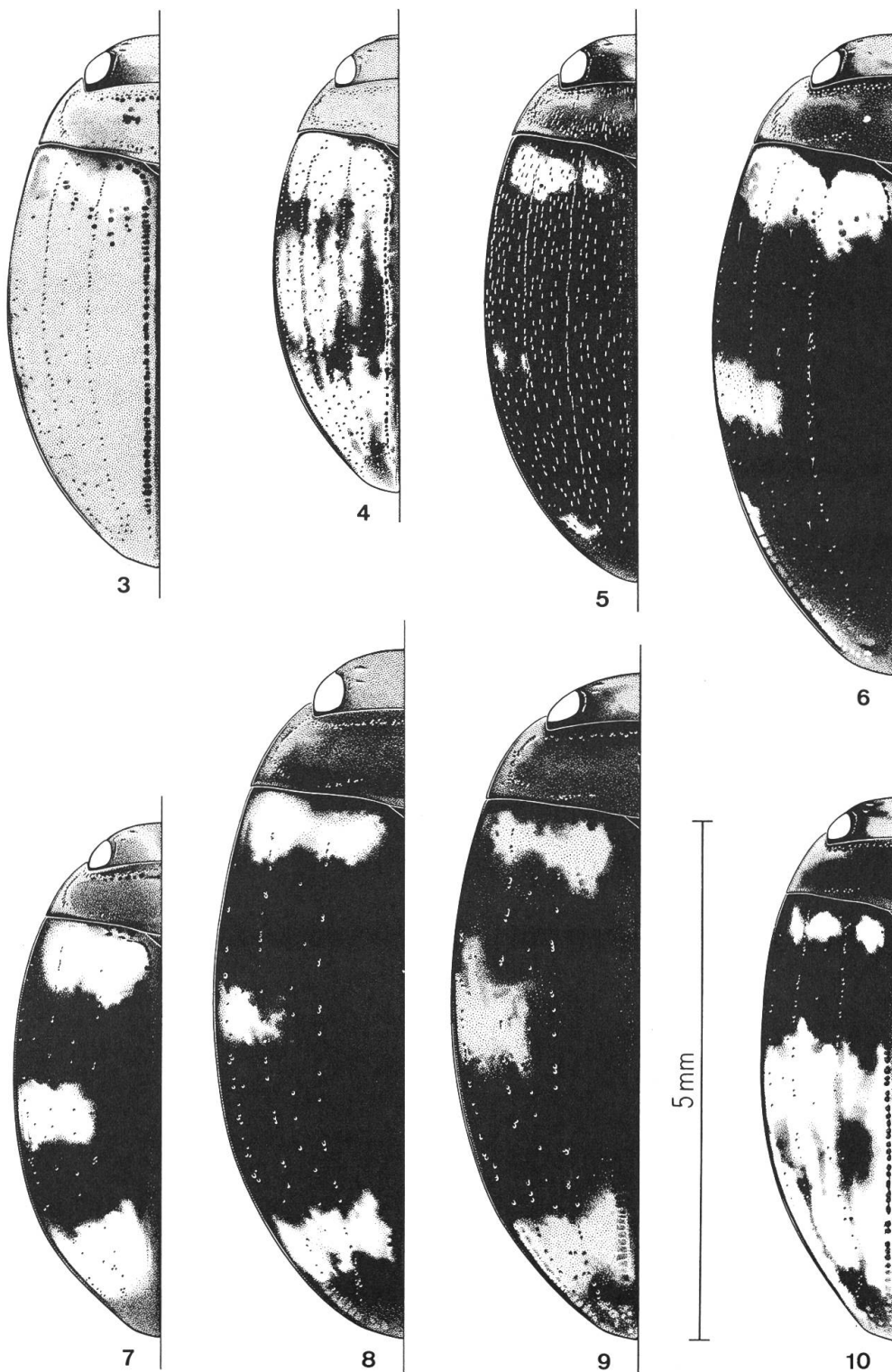
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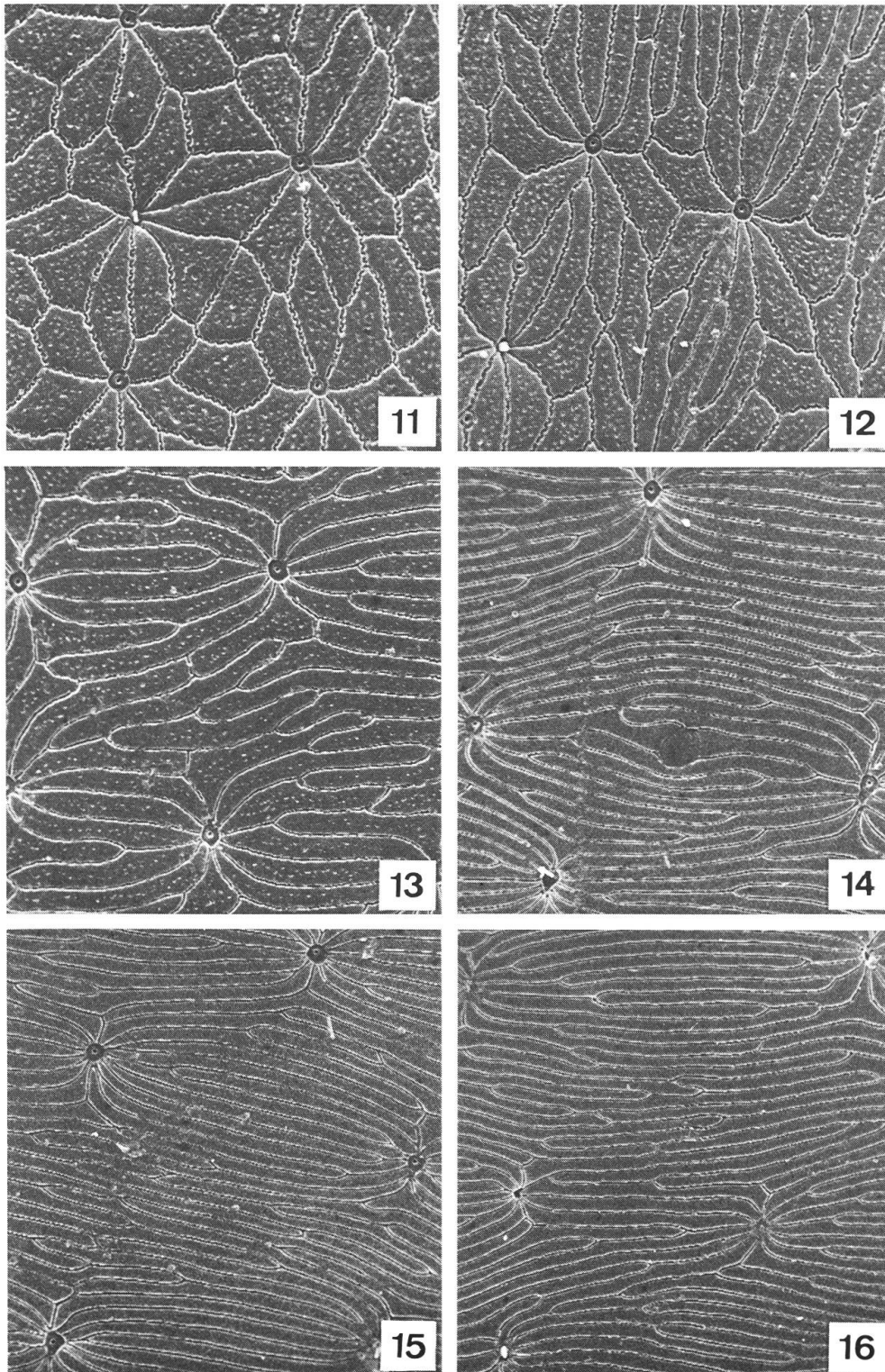


Figs 1–2: 1, *Lacconectus regimbarti* n.sp., upperside. 2, *L. scholzi* Gschw., underside.

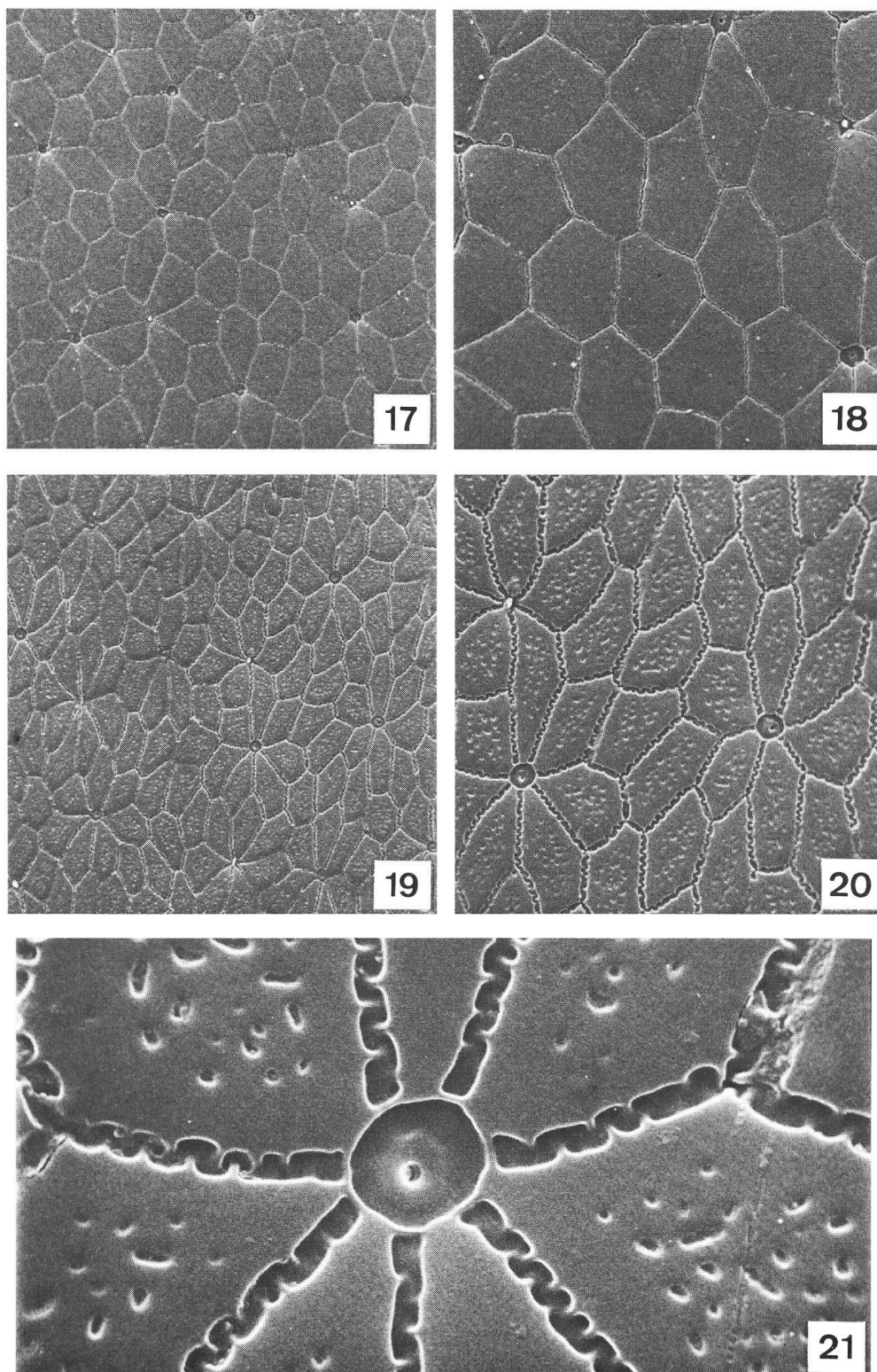




Figs 3–10: Colour pattern of: 3, *Lacconectus basalis* Sharp. 4, *L. laccophiloides laccophiloides* Zimm. 5, *L. simoni* Rég. 6, *L. heinertzi* n. sp. 7, *L. andrewesi* Guignot. 8, *L. regimbarti* n. sp. 9, *L. scholzi* Gschw. 10, *L. sabahensis* n. sp.

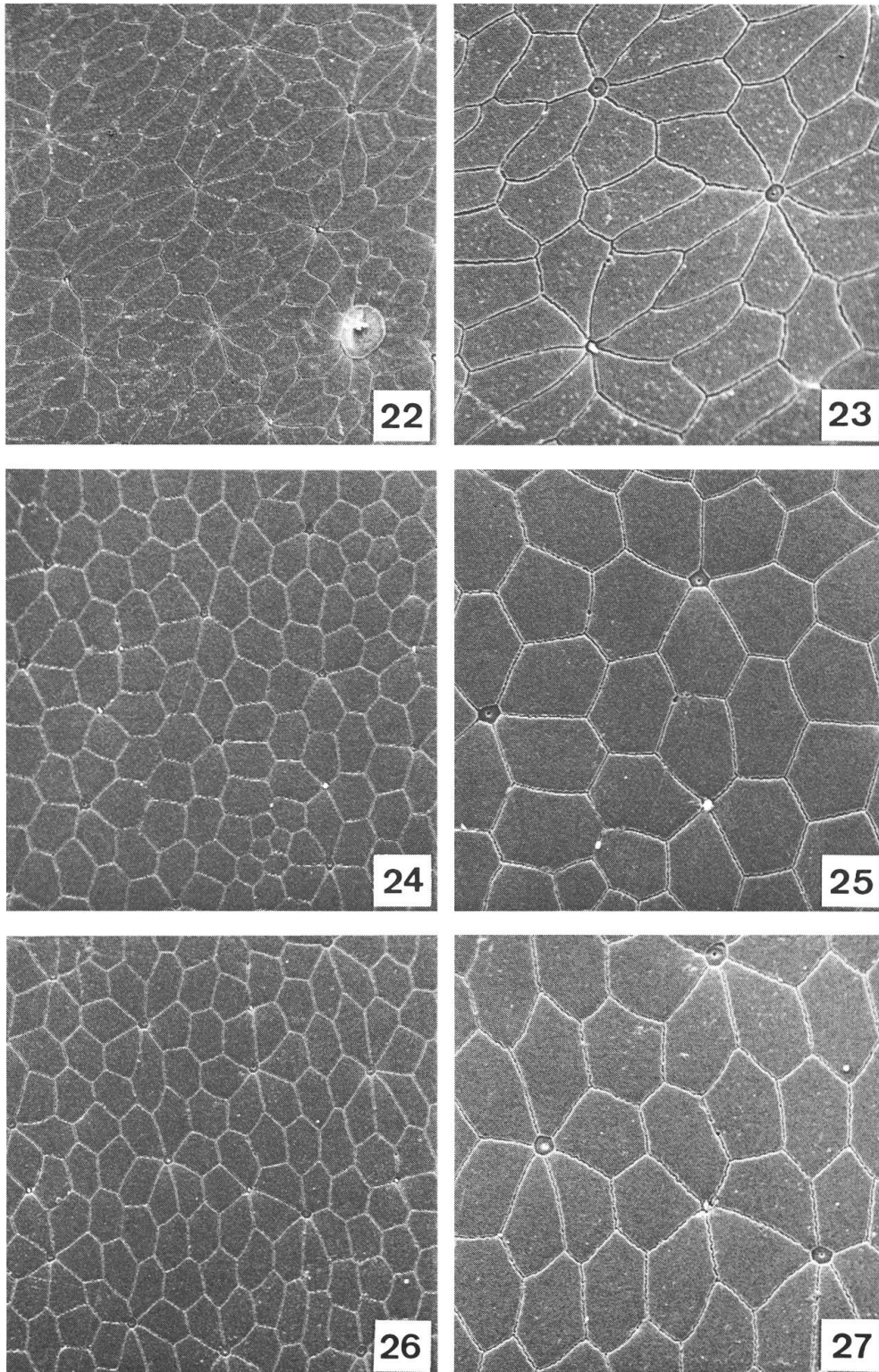


Figs 11–16: 11–15. Elytral reticulation of *Lacconectus basalis* Sharp (1200×): 11, at base. 12, at basal  $\frac{1}{4}$ . 13, at middle. 14, at posterior  $\frac{3}{4}$ . 15, at apex. 16. Elytral reticulation of *L. laccophiloides laccophiloides* Rég. (1200×), at apex.

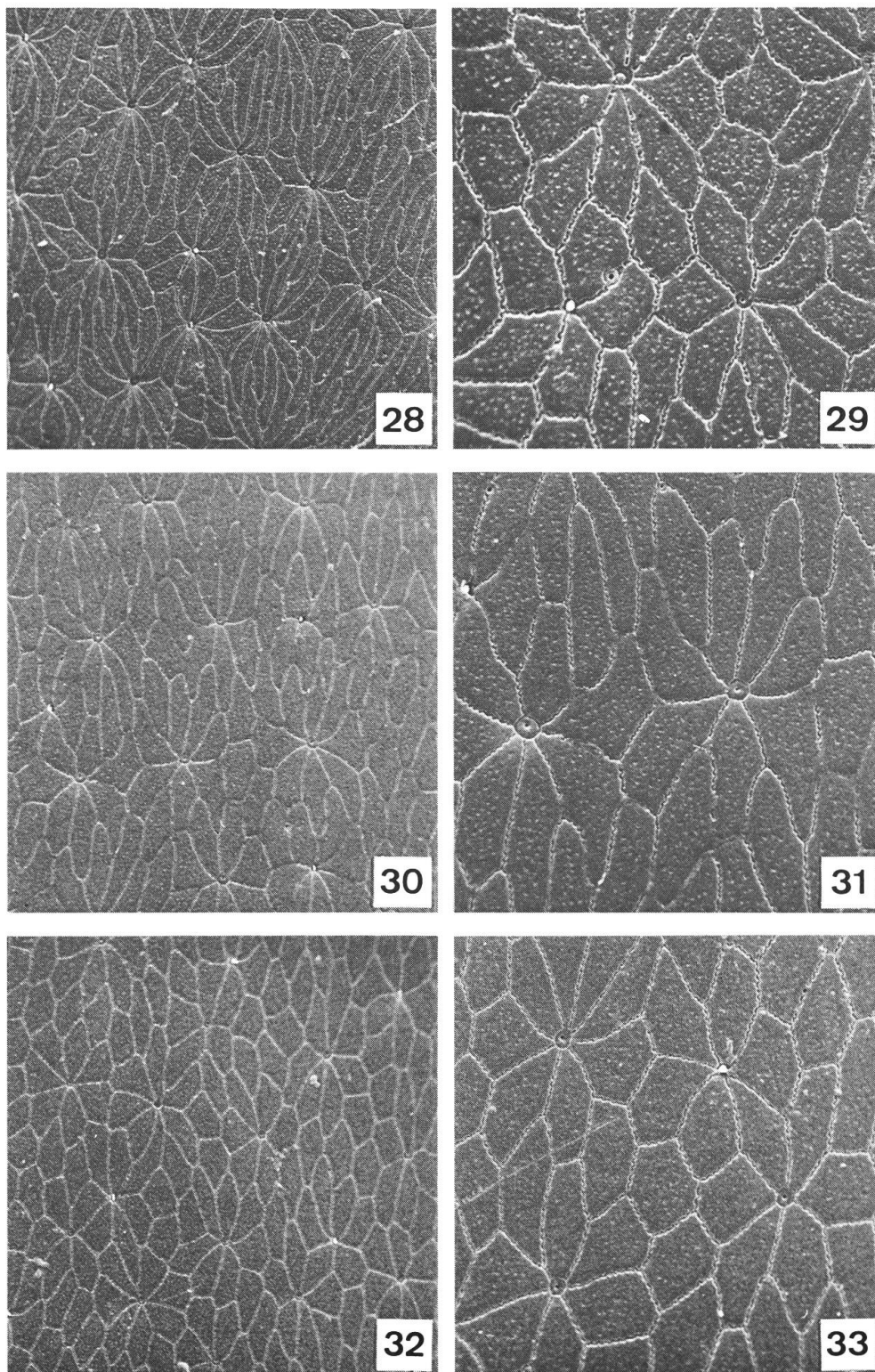


Figs 17–21: Elytral reticulation, at basal  $\frac{1}{4}$ , of: 17, *Lacconectus pederzanii* n. sp. (600 $\times$ ). 18, Idem (1200 $\times$ ). 19, *L. fulvescens* Motsch. (600 $\times$ ). 20, Idem (1200 $\times$ ). 21, Idem (6000 $\times$ ).

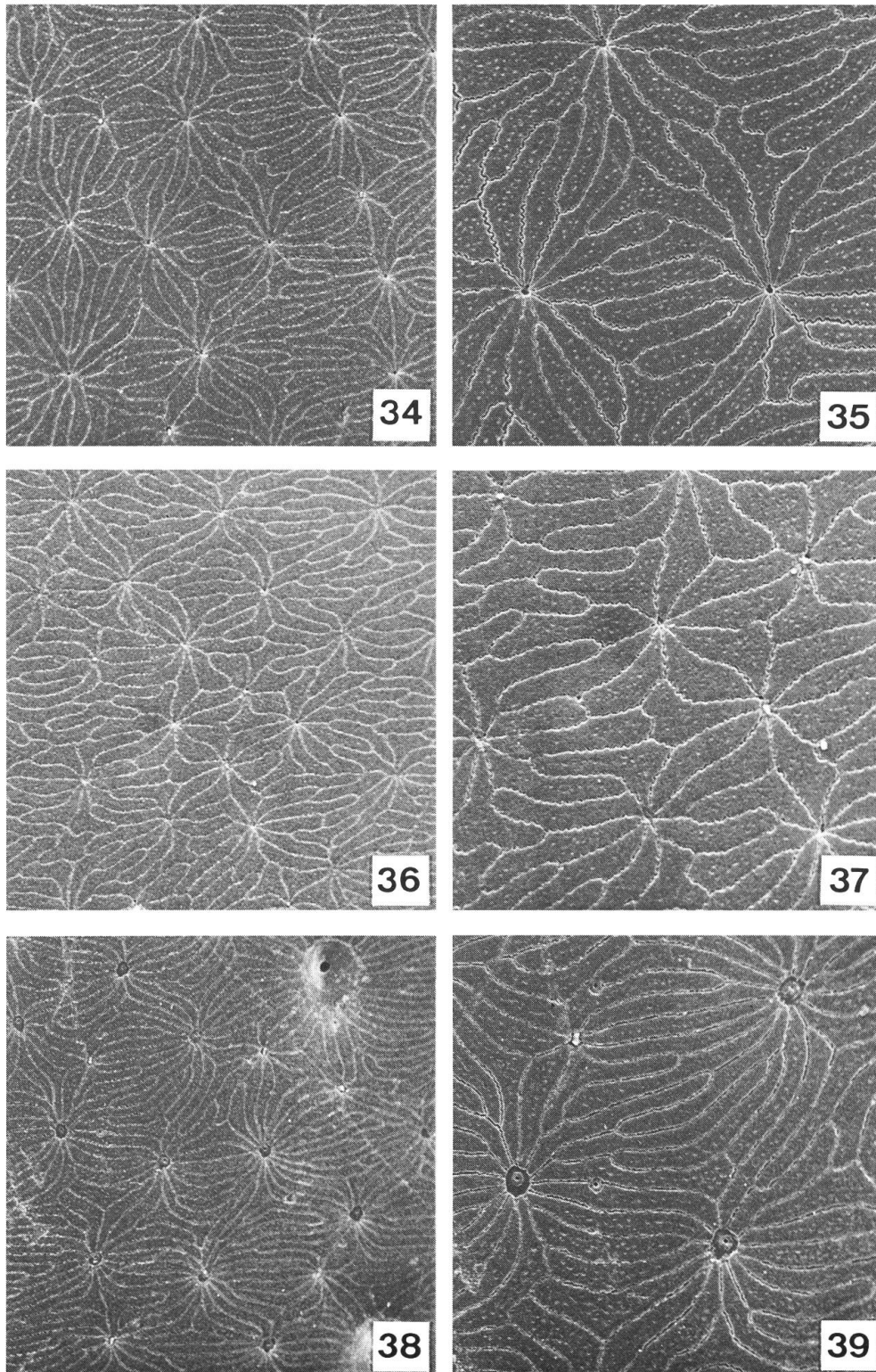




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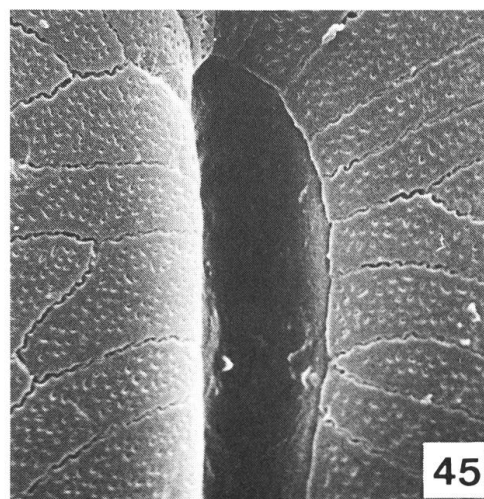
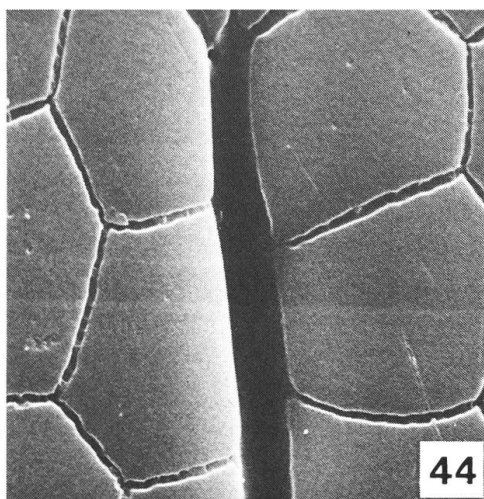
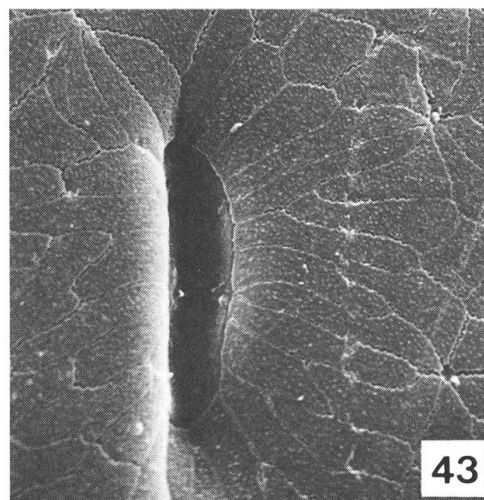
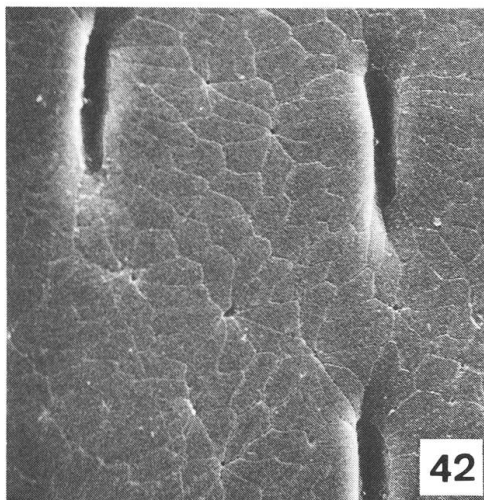
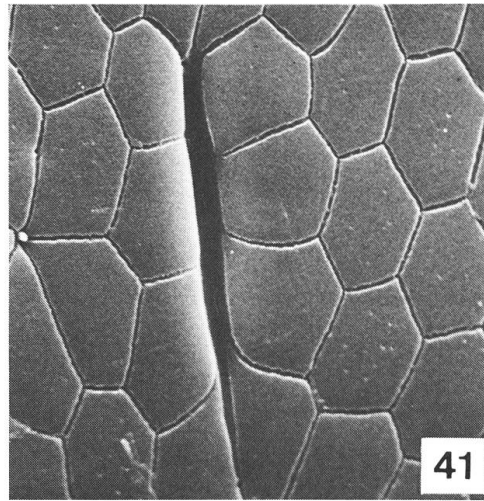
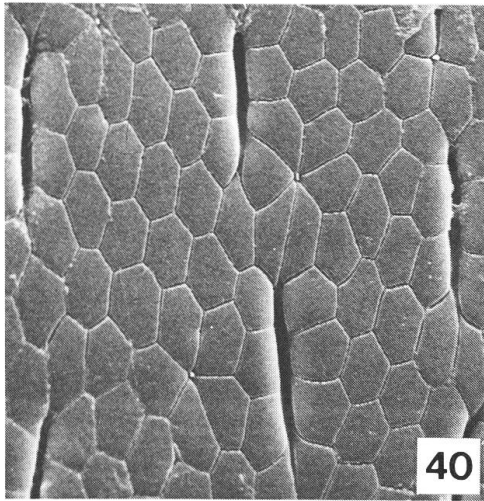


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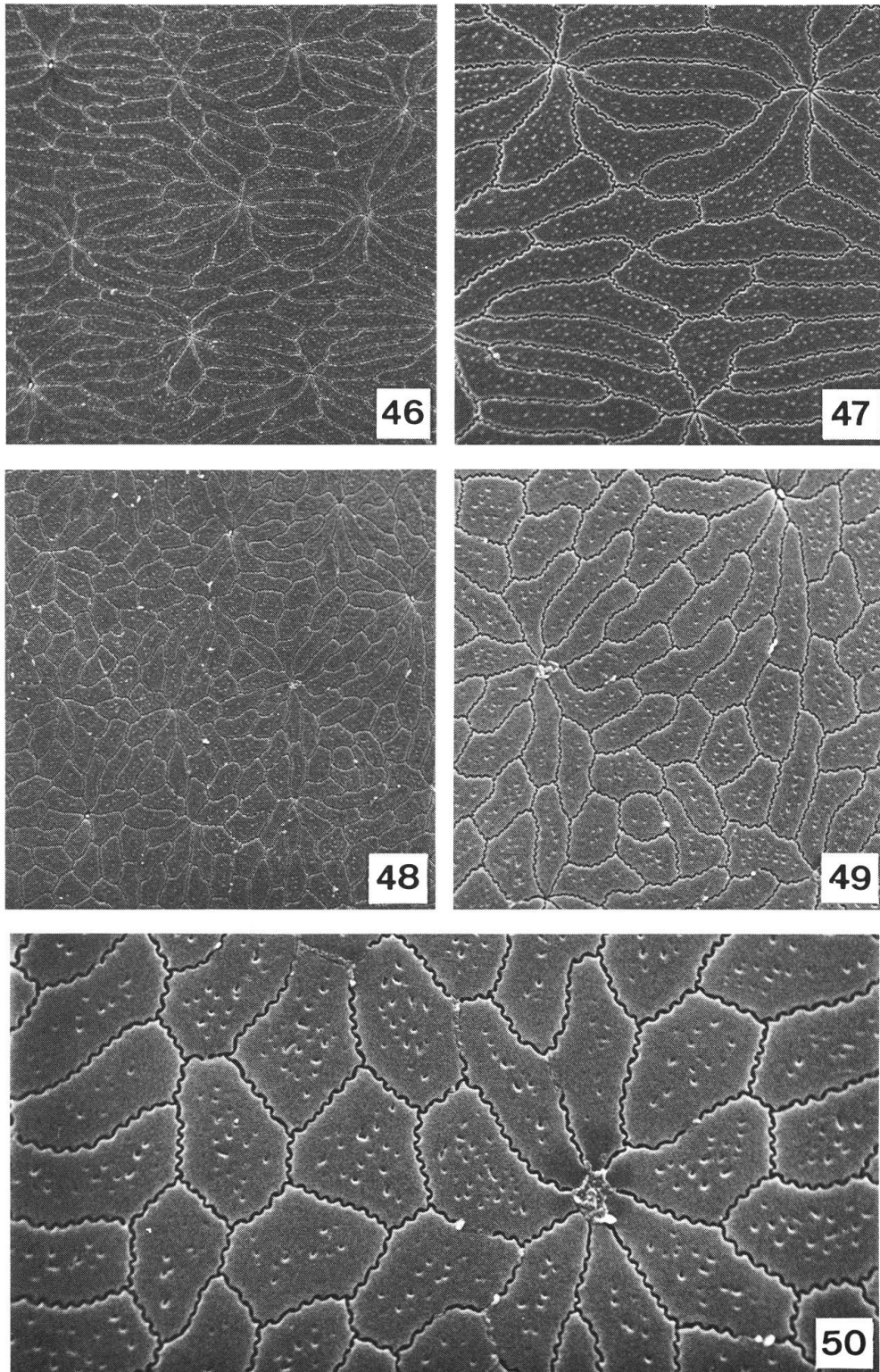


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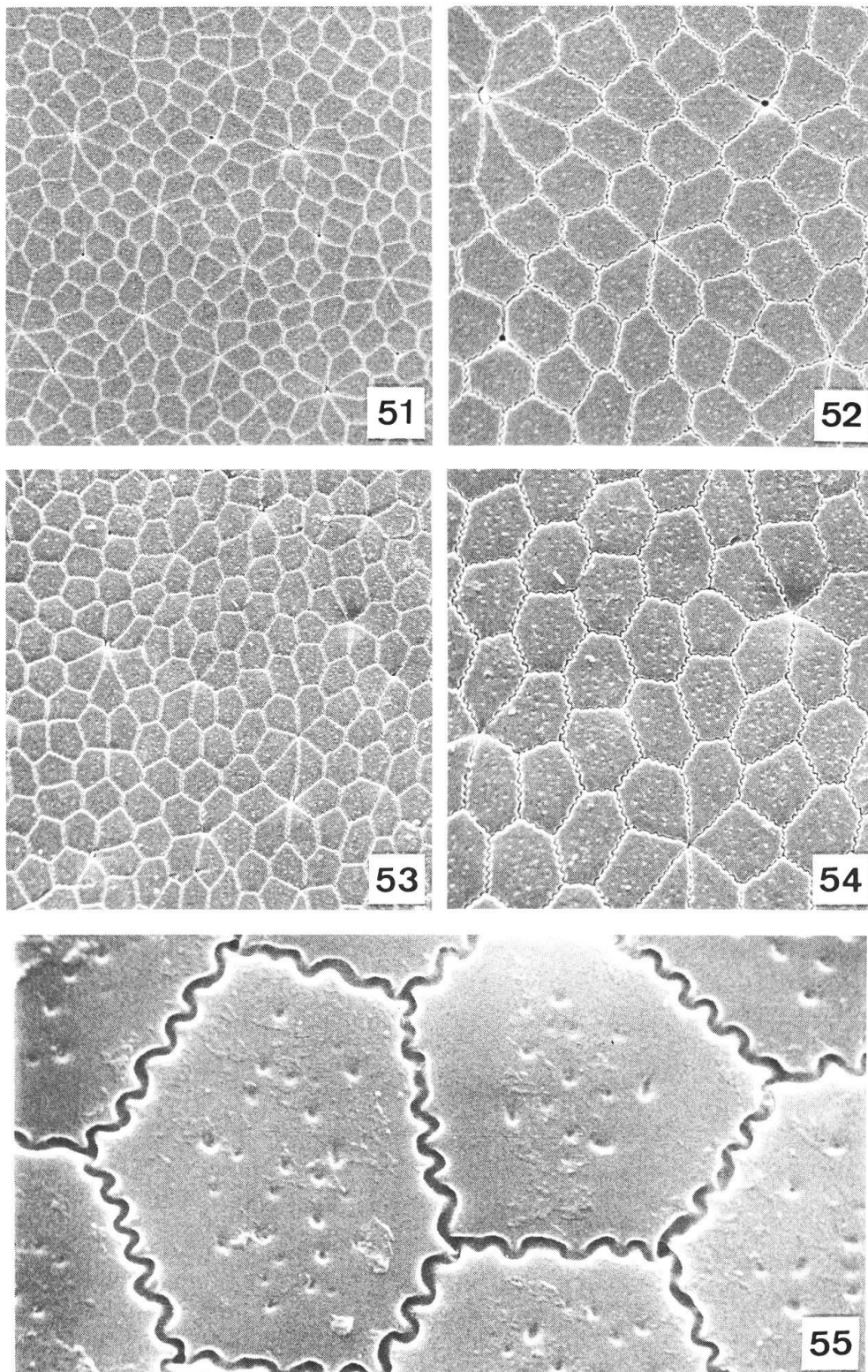




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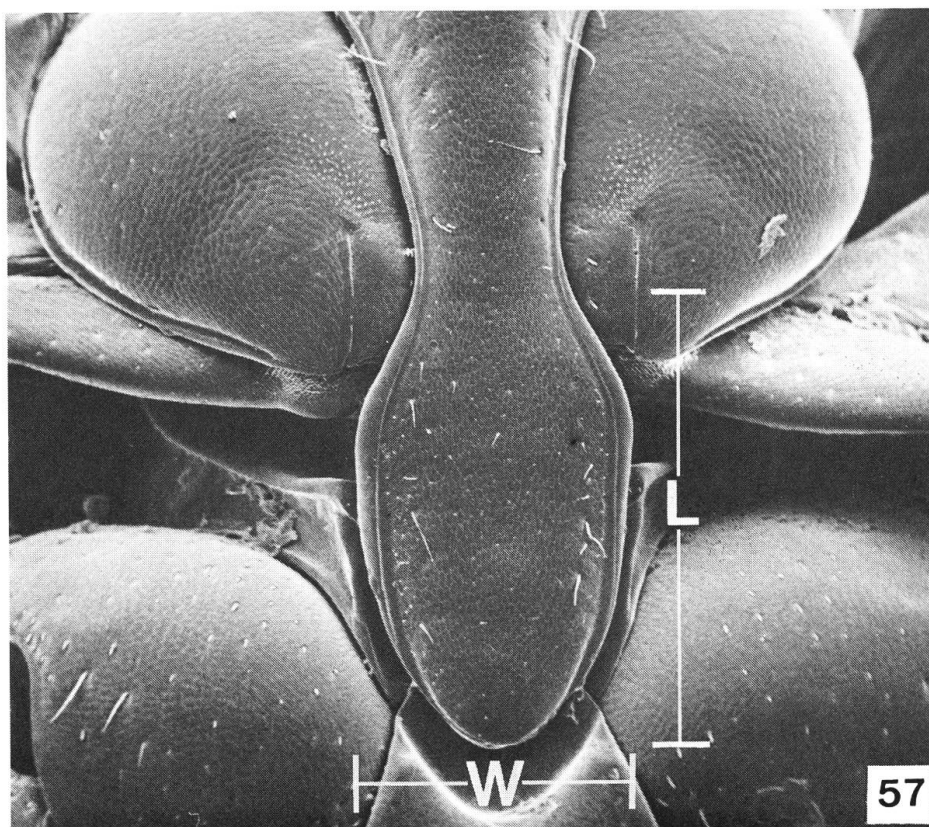
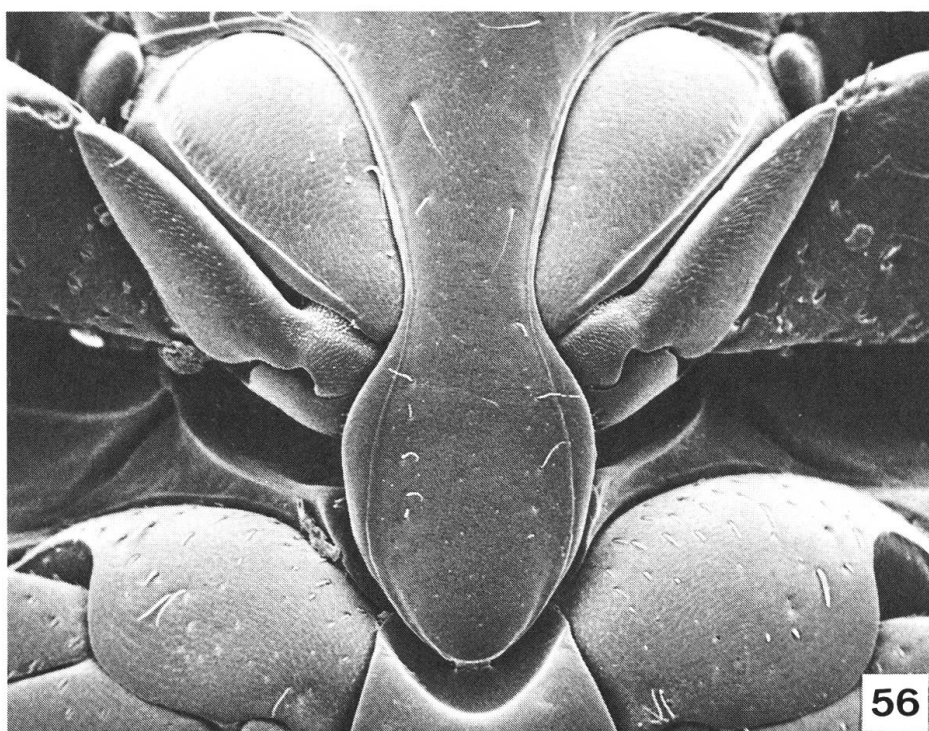


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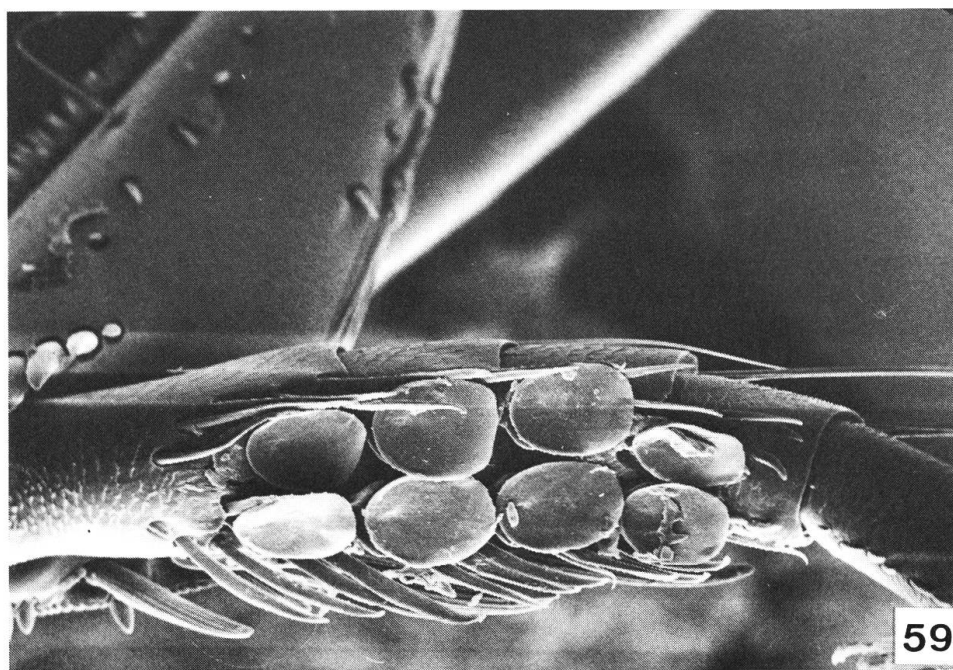
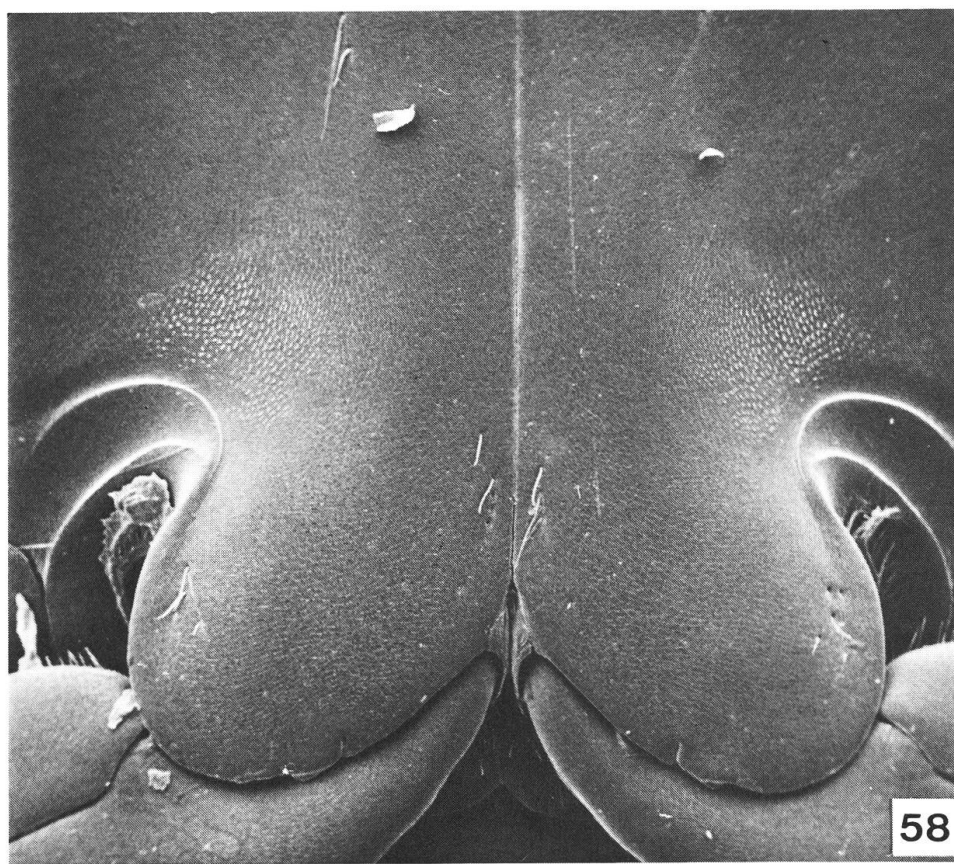


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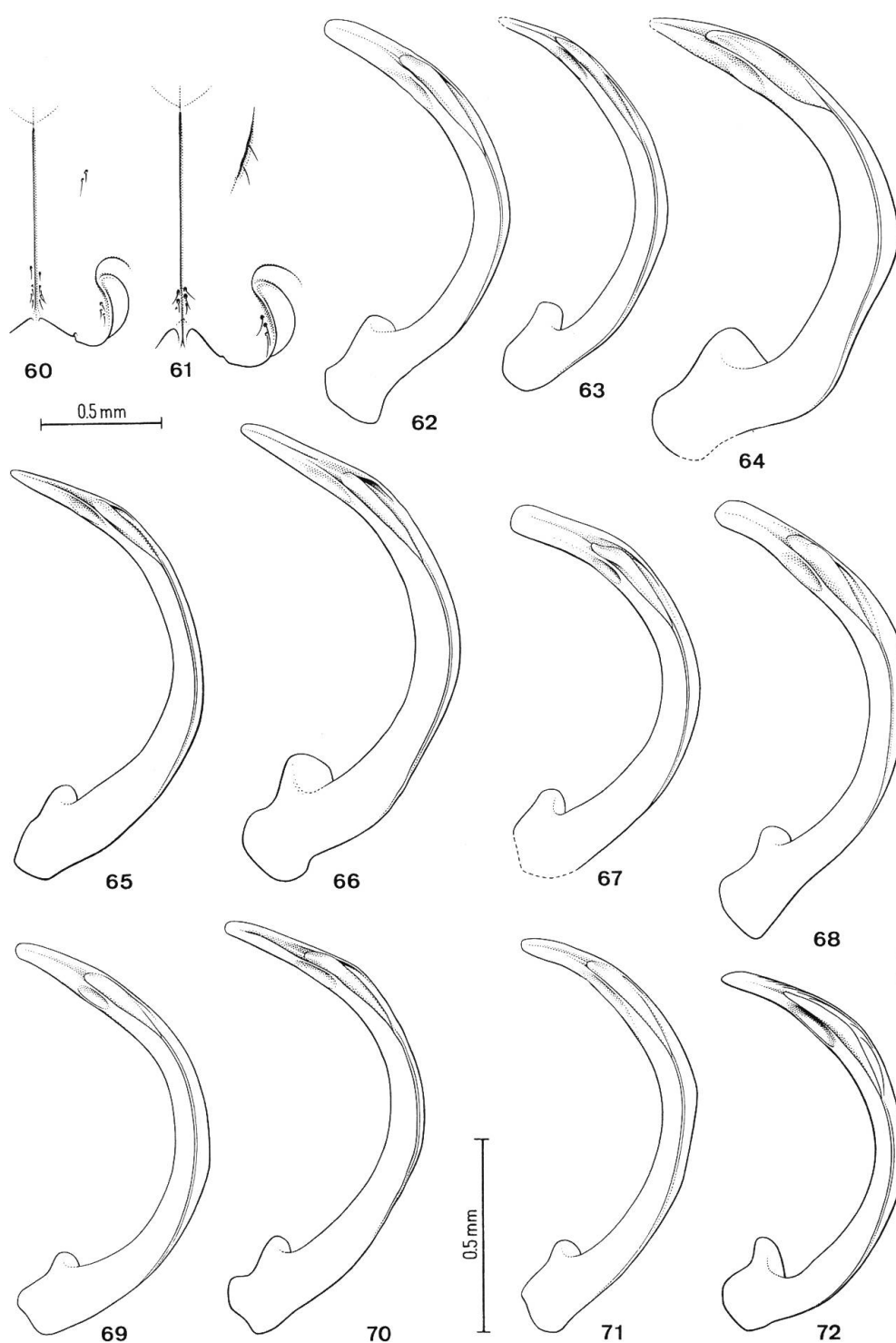




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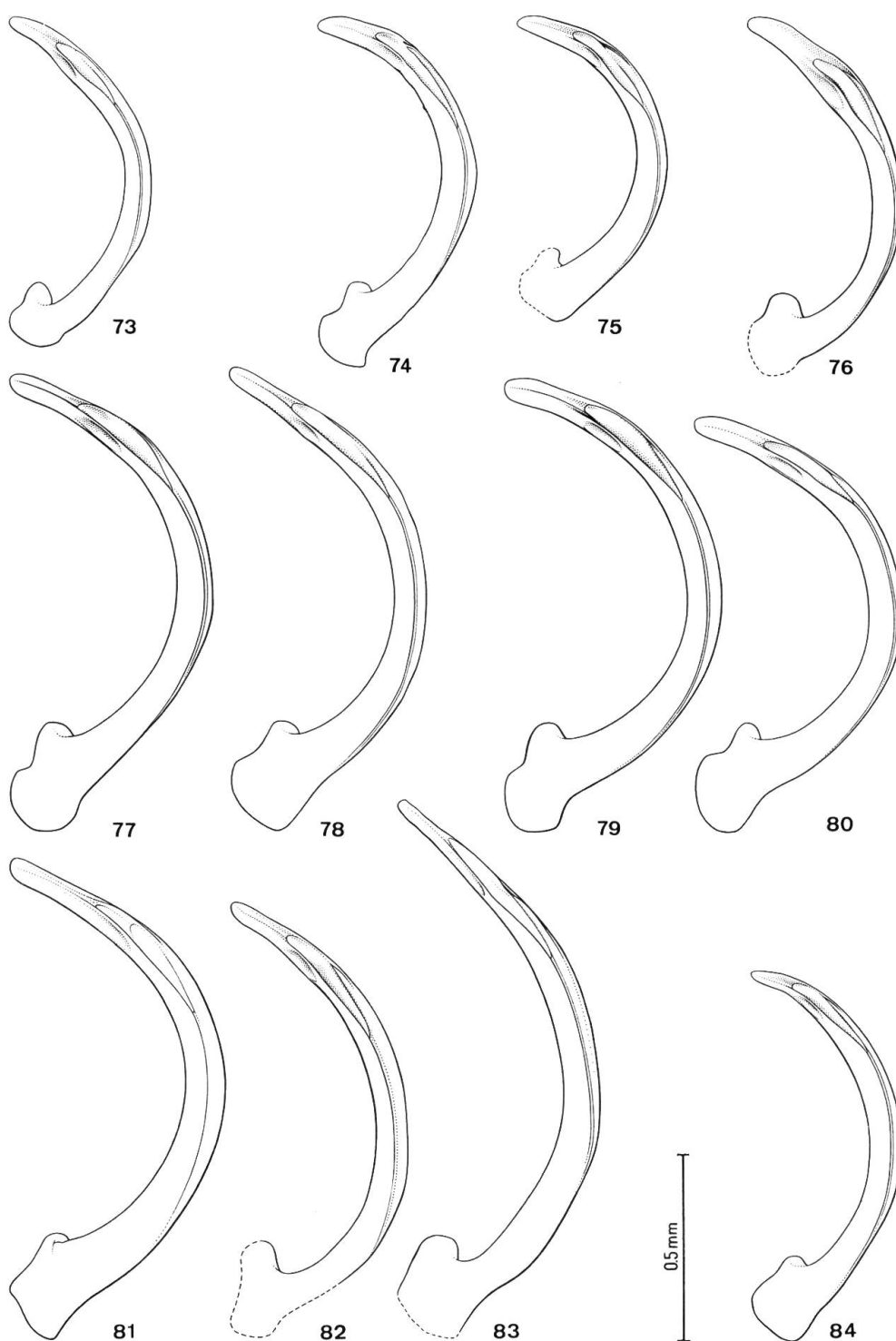


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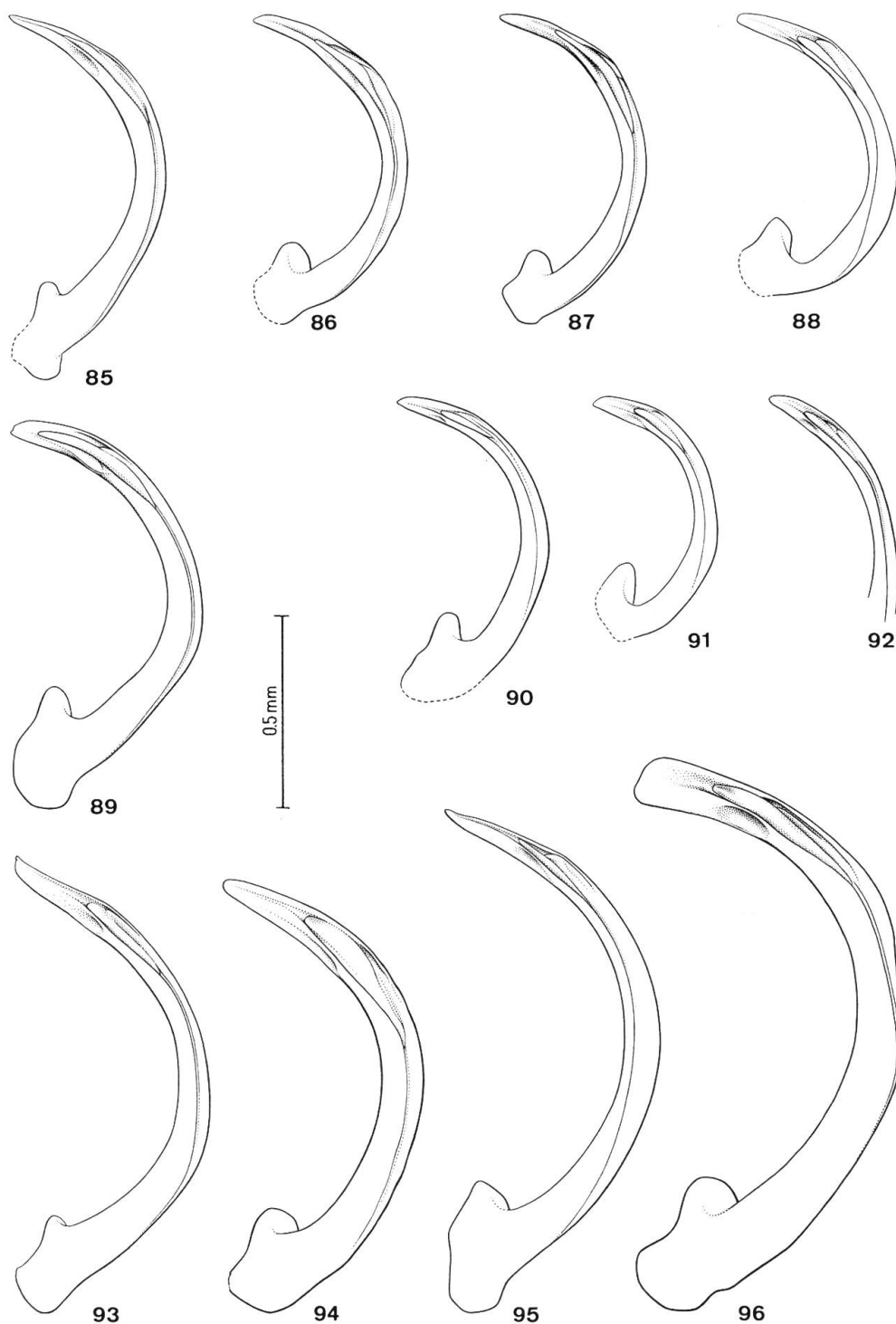


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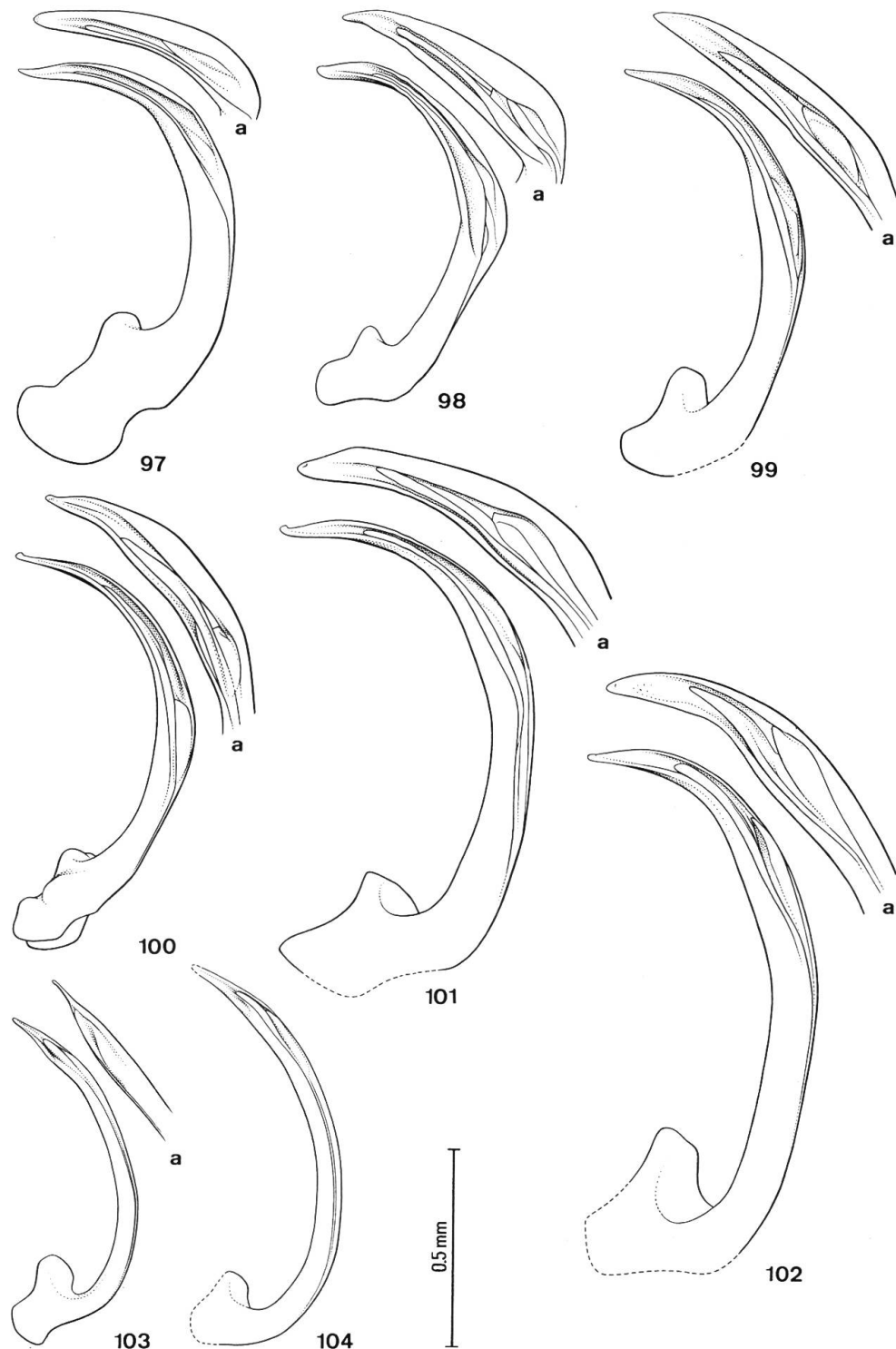




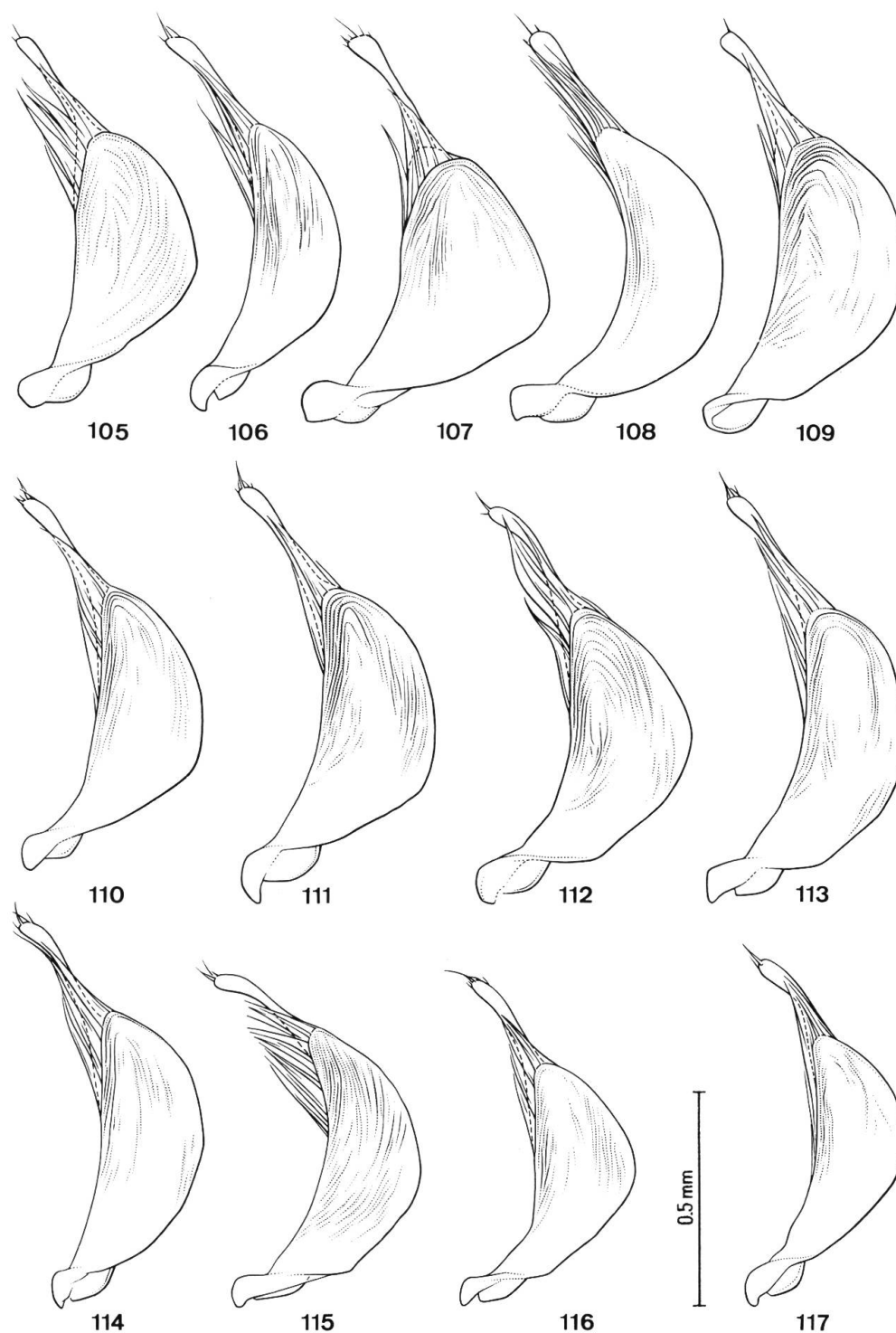
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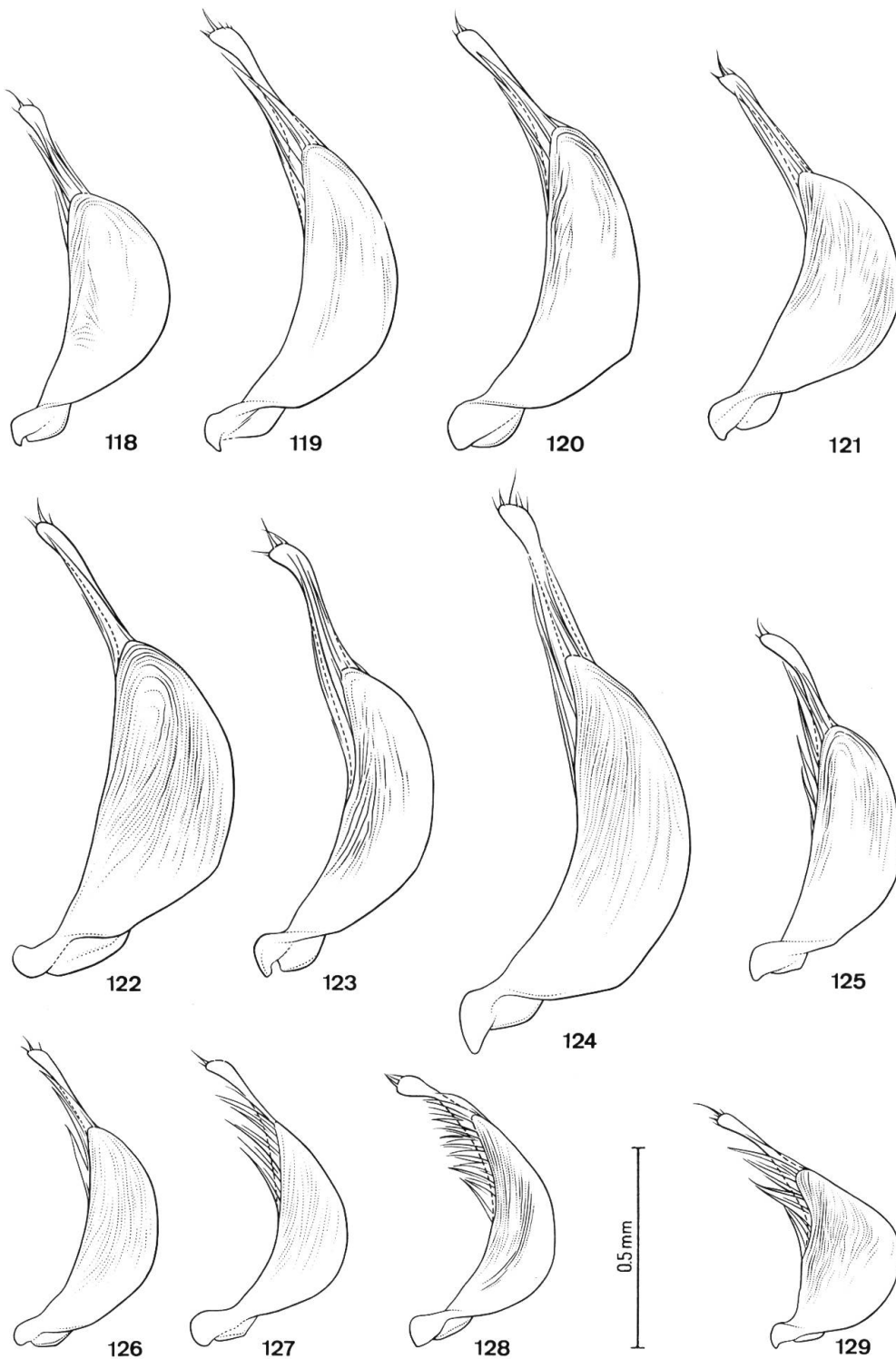
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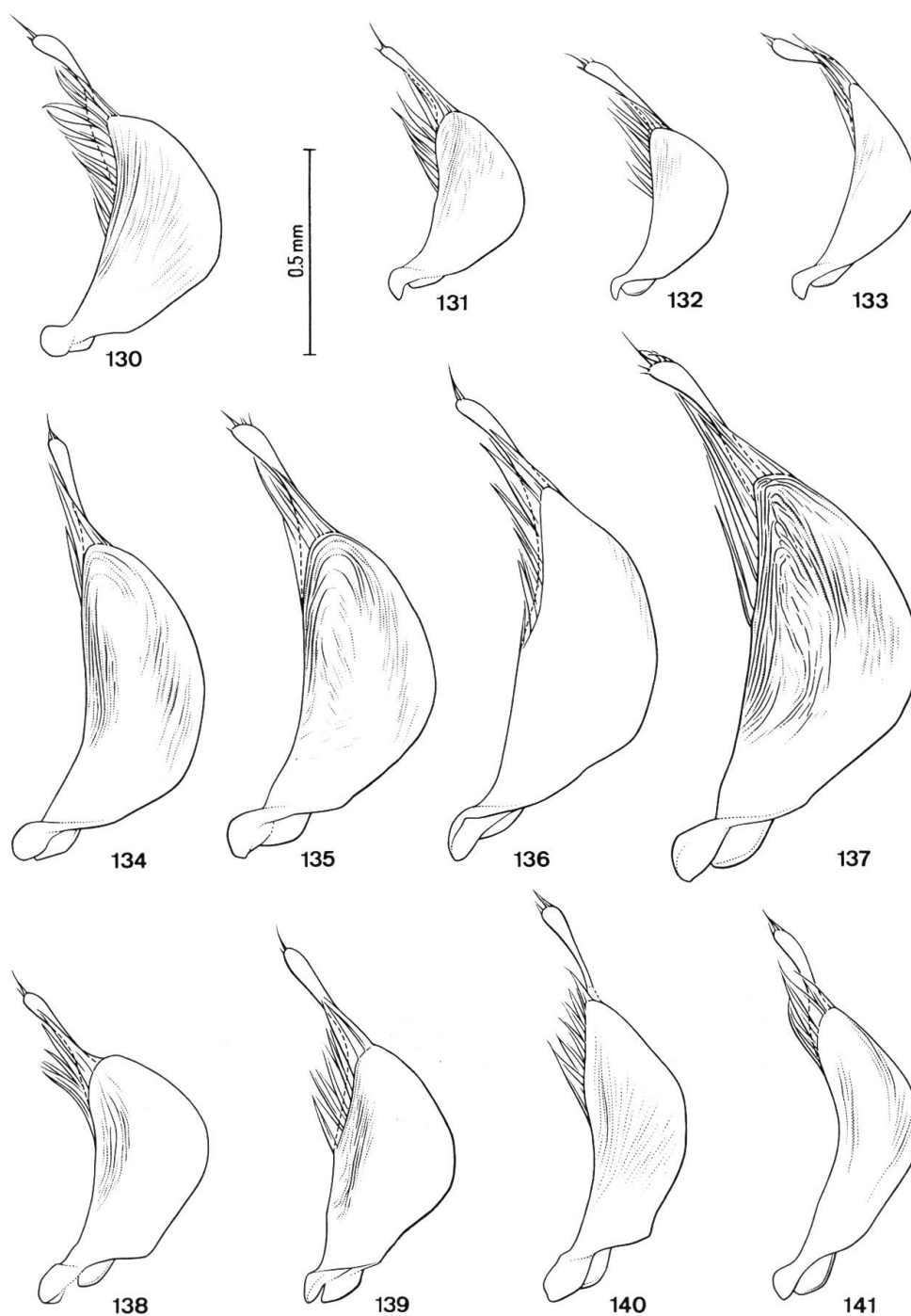
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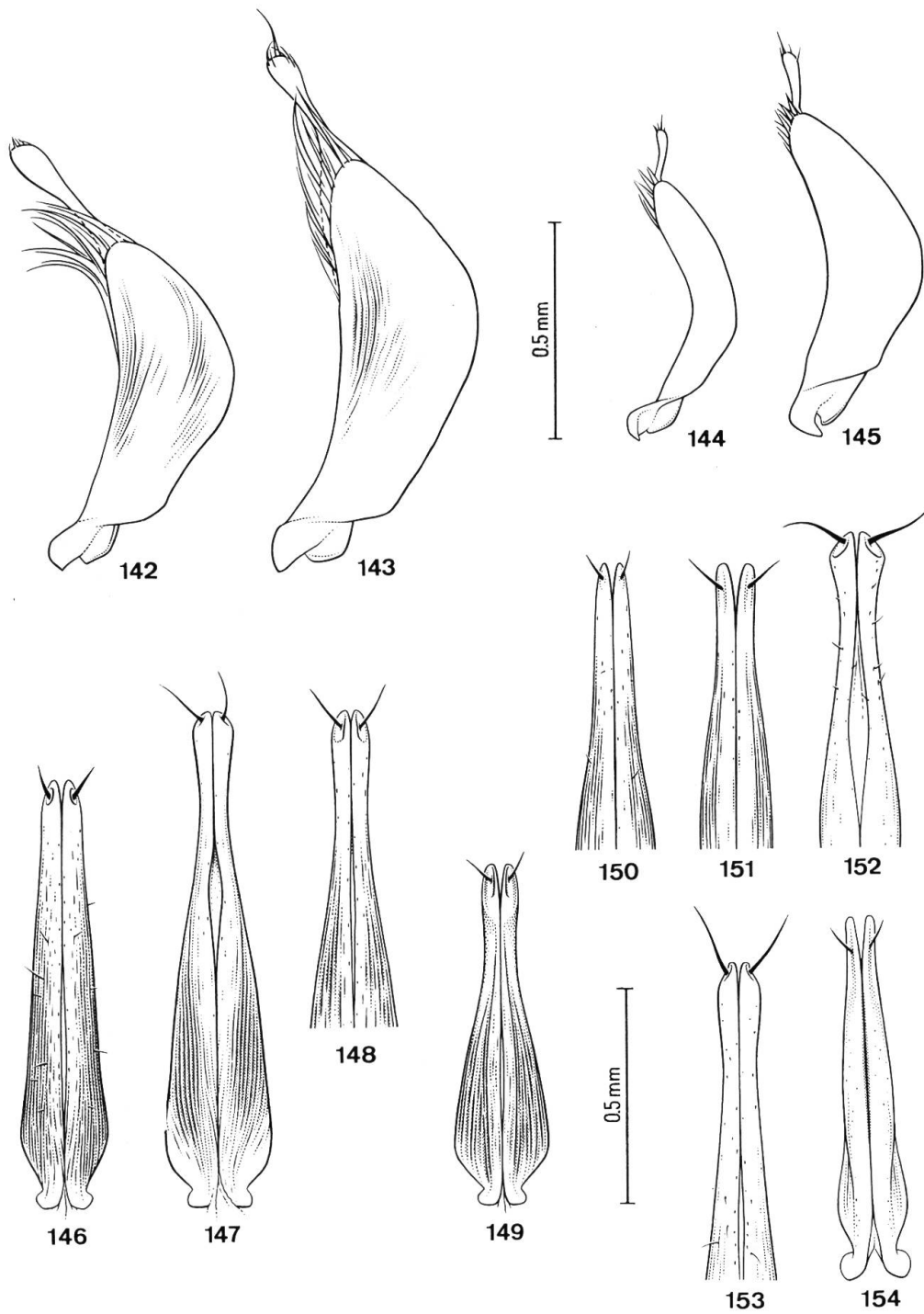


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