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NOTES AND ILLUSTRATIONS ON SOME DERMAPTERA (INSECTA) PRESERVED IN THE "RIJKSMUSEUM VAN NATUURLIZKE HISTORIE, LEIDEN"

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ABSTRACT

Results of investigation on types of six species viz ; *Proreus ludekingi* (Dohrn) ; *P. ritsemae* (Bormans) ; *P. sobrius* (Bormans) ; *Adithella fuscipennis* (Haan) ; *Cordax armatus* (Haan) ; and *Eparchus tenellus* (Haan) are given. Beside providing detailed redescriptions for some species and additional characters for others, following synonymies are also proposed : *Eutimomena* Bey-Bienko under *Cordax* Burr ; *Proreus shaffi* Bharadwaj and Kapoor under *Proreus ritsimae* (Bormans) ; *Adiathella philippinensis* Srivastava under *Adiatthella fuscipennis* (Haan) and *Eutimomena paradoxa* Bey-Bienko under *Cordax armatus* (Haan).

Introduction

The present paper deals with types of six species of Dermaptera viz., *Proreus ludekingi* (Dohrn) ; *P. ritsemae* (Bormans) ; *P. sobrius* (Bormans) ; *Adiathella fuscipennis* (Haan) comb. nov., under the family Chelisochidae and *Cordax armatus* (Hann) and *Eparchus tenellus* (Haan) under the family Forficulidae. Of these, species described by de Haan (1842), and Dohrn (1865) are redescribed since they are known by brief description. However, some additional information is provided for Bormans '(1884) species also.

As a result of this study following synonymies are proposed : *Proreus shaffii* Bharadwaj and Kapoor under *P. ritsemae* (Bormans) ; *Adiathella philippinensis* Srivastava under *A. fuscipennis* (Haan) ; and *Eutimomena paradoxa* Bey-Bienko gen. and sp. under *Cordax armatus* (Haan) gen. and sp. The *Cordax* Burr (1910) is redefined in the light of above proposed synonymy.

Proreus ludekingi (Dohrn)

(Figs. 1-4)

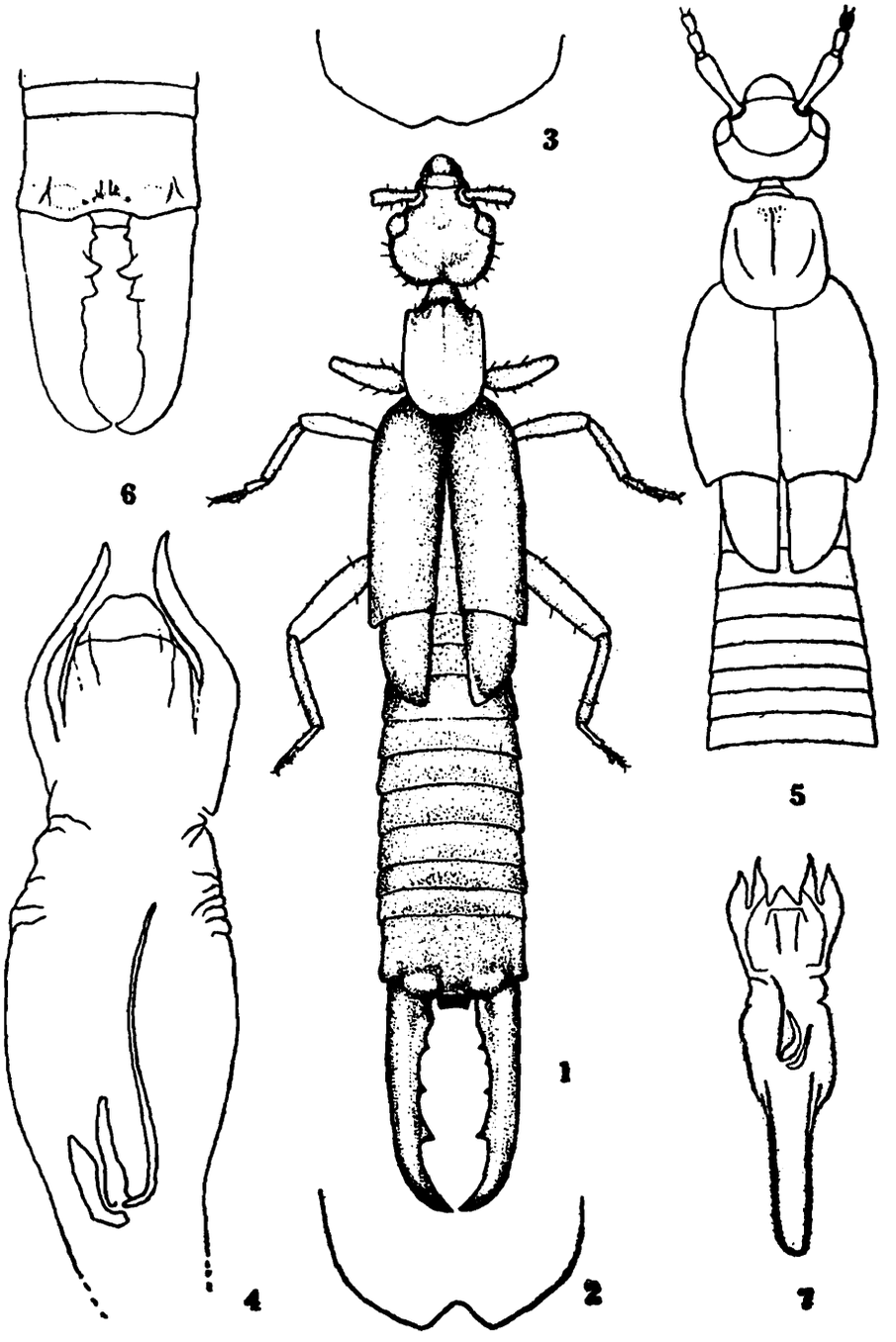
Lobophora ludekingi Dhorn, 1865, *Stettin. ent. Ztg.*, 26 : 73 (♂ ; in Insula Sumatra).

Material examined : Type ♂ labelled as : (i) Ludeking Sumatra-printed ; (ii) *Lobophora ludekingi* Dohrn, type-handwritten probably by Bormans ; (iii) Museum Leiden, *P. ludekingi* Dohrn var. B, Det. M. Boeseman and (iv) Mus. Leiden No. 5011/4 ; designated as the Lectotype (genitalia mounted between two celluloid slips and pinned with the specimen).

Type ♂ labelled as : Labels (i) and

(ii) same as above ; (iii) ♂-printed ; (iv) 2ex. Lud., Sumatra, paar de Bormans gweest ; (v) Museum Leiden, *P. ludekingi* Dohrn, var. b., Det. M. Boeseman and (vi) Mus. Leiden No. 5011/43 ; designated as Paralectotype.

♂ : General colour yellowish brown ; legs yellow ; pronotum anteriorly, wings and



Figs. 1-7 : *Proreus ludekingi* (Dohrn), Lectotype ♂, 1. Dorsal view, 2. Posterior margin of penultimate sternite, 3. Posterior margin of penultimate sternite of Paralectotype ♂, 4. Genitalia ; *Proreus ritsemae* (Bormans), Type ♂, 5. Anterior portion of body, without legs, 6. Ultimate tergite and forceps and 7. Genitalia.

abdominal tergites somewhat darker ; elytra dark yellowish brown with median portion yellow.

Head about as long as broad, strongly depressed, occiput raised with two darker oblique stripes, sutures obsolete, hind margin deeply emarginate in middle. Eyes distinctly shorter than the post-ocular length. Antennae (broken, only 1st segment remaining) with 1st segment long, narrowed basally, shorter than the distance between antennal bases. Pronotum slightly longer than broad, anteriorly convex, sides straight, depressed, almost parallel, hind angles and the margin well rounded, median sulcus distinct ; prozona weakly raised and not well differentiaed from flat metazona. Elytra and wings well developed, former with shoulder rounded. Legs with femora sulcate above in a little less than apical half, hind tarsi with 1st segment slightly shorter than the 3rd ; 2nd narrowed apically, extending below 3rd segment. Abdomen moderatelly convex, punctulations obscure, parallel sided. Penultimate sternite rounded posteriorly with a deep emargination in middle. Ultimate tergite weakly transverse, sides parallel, postero-lateral angles a little projecting, hind margin trisinuate, laterally oblique, feebly tumid above the bases of forceps and provided with a compressed tubercle postero-internally, the area in middle posteriorly depressed with a pair of small compressed tubercles in middle and at close to posterior extremity of the depression. Pygidium vertical, trapezoidal, sides straight, gently contracted posteriorly, postero-lateral angles pointed and hind margin straight. Forceps with branches stout, depressed, almost straight, gently incurved in apical one third, tips pointed and hooked, internal margin below sharp, provided with two smaller, tooth in basal two third, followed by another triangular tooth directed ventre-posteriorly. Genitalia as in fig. 4. Length : body, 14.4-14.6 mm ; forceps, 4.3 mm.

Remarks : There appears to be some variation in the posterior emargination of penultimate sternite. It is more pronounced in the case of Lectotype.

This species comes very close *P. unidentatus* Bey-Bienko, from South China but differs in having the posterior margin of penultimate sternite sinuate in middle and parameres narrower.

Proreus ritsemae (Bormans)

(Figs. 5-7)

Chelisoches ritsemae Bormans, 1884, *Notes Leyden Mus.*, 6 : 185 (1♂), Moeara Laboe (Exped. Scientif. Néerland).

Proreus shaffii Bharadwaj and Kapoor, 1967, *Bull. Ent.*, New Delhi, 8 (2) : 4 (♂ ; Port Blair, Andamans—Indian Agric. Res. Inst., New Delhi)—syn. nov.

Material examined : Sumatra, Moeara Laboe (Exped. Scientif. Néerland.), 1 ♂, II. 1877, Leiden Museum ; this is the type of Bormans ; Pasumah Estate Palemb, 1 ♀, viii. 1965, Coll. *E. Jacobson* (Det. by M. Boeseman).

Remarks : Bormans' (1884) original description is quite adequate. The male genitalia from the type is figured here besides other body parts.

The description of *Proreus shaffii* Bharadwaj and Kapoor, is almost identical except the forceps which represent the mesolabic form. For this reason it is treated here as synonym of this species,

Proreus sobrius (Bormans)
(Figs. 8-9)

Chelisoches ? sobrius Bormans, 1884, *Notes Leyden Mus.*, 6 : 188 (♂ ; Padang, Sumatra).

Material examined : Holotype ♂ labelled as : (i) Ludeking, Sumatra-Printed ; (ii) *Froficula sobria* Dohrn, testes Dohrn-handwritten probably by Dohrn ; (iii) Chelisoches ? sobrius ♂ Dohrn-handwritten by Bormans ; (iv) 1 ex. Ludek. Sumatra paar de Bormans geweest-handwritten ; (v) in dezen toestand van Dr. M. Burr teruggekregen. Chez.-handwritten ; (vi) ♂-typed ; (vii) TYPE-Printed on pink paper ; (viii) Mus. Leiden No. 5011/5.

Remarks : The Holotype male lacks antennae except left basal segment and legs. Basal antennal segment is longer than the distance between antennal bases and is narrowed at base. Eyes are about half as long as the post-ocular length. Sides of abdominal segments are rounded posteriorly but segments 8th and 9th rugosely striate also. Genitalia (Fig. 2) is figured here for the first time.

The original description of the species is quite adequate and no further elaboration is necessary.

The general facies and the shape of ♂ genitalia justify its inclusion in the genus *Proreus* Burr.

Amongst the Oriental species it has close resemblance with *P. cunctator* Burr and *P. fletcheri* Hebard, both known from India, but differs in being slightly larger in size, stouter in build and having distinctive ultimate tergite, pygidium and ♂ genitalia.

Adiathella fuscipennis (Haan) comb. nov.
(Figs. 12-14)

Forficula (*Psalidophora*) *fuscipennis* Haan, 1842, *Verh. nat. Ges. nederl. Overz. Bezitt.*, 1842 : 241 (♂, ♀ ; Batang Singalang (Sumatra), Krawng).

Adiathella philippinensis Srivastava, 1976, *Pacif. Insects*, 17 (1) : 126 (♂, ♀ ; Philippines—Bishop P. Mus., Honolulu, Hawaii and Zool. Surv. India, Calcutta)— syn. nov.

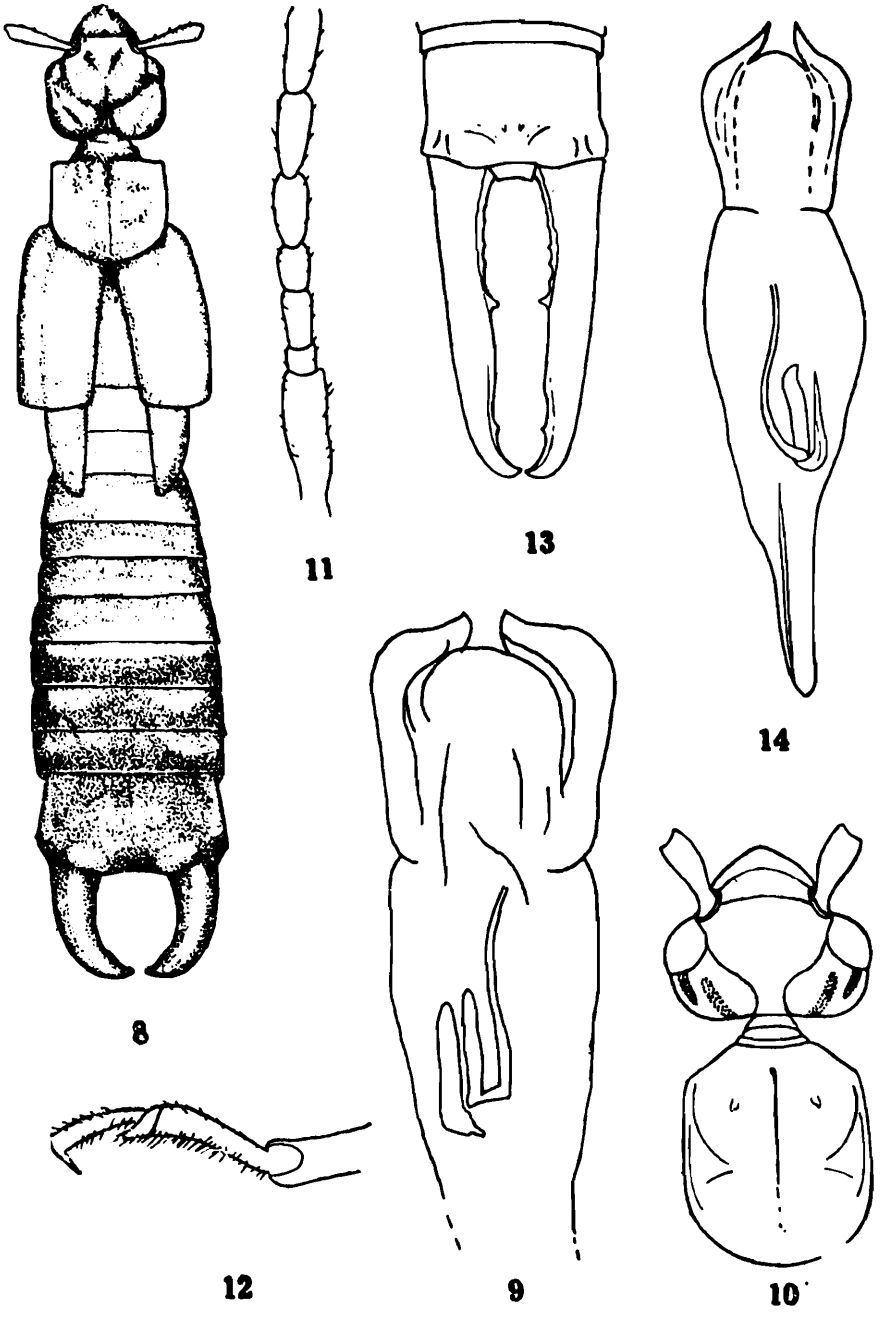
Material examined : Sumatra : Padang, Muller ♂ (Type *Psalidophora fuscipennis* de Haan) ; Batang, Singalang, ♀ (Det. label probably in Haan's handwriting). Both the specimens are labelled as 'Type' but Haan (1842) instead of Padang mentions of Krawang in addition of Batang, Singalang. Original description being very brief it is described here in detail :

General colour blackish brown, head orange, occiput with a pair of oblique longitudinal blackish brown stripes, forceps yellowish brown.

Head smooth, about as long as broad, frons convex, occiput comparatively more convex, divisible into two halves by a depression in place of median suture ; transverse suture well marked. Eyes prominent, black, slightly longer than the genae (or post-ocular length). Antennae damaged ; only 11-segments remaining ; segments long and slender ; 1st stout, gently expanded apically ; slightly longer than the distance between antennal bases ; 2nd small ; 3rd longer than 4th and equal to 5th ; remaining gradually increasing in length and thinning ; 11th segment in apical half orange and remaining portion blackish brown.

Pronotum slightly longer than broad, smooth, anteriorly convex, sides almost straight, gently reflexed and parallel, hind angles and margin well rounded ; prozona tumid and well differentiated from flat metazona, median sulcus faint. Elytra and wings normal, former with humeral angles weak, costal margin straight, smooth. Legs long

and slender, tibae sulcate above at extreme apex, hind tarsi with 1st segment slightly longer than the combined length of remaining two segments together ; tarsi clad with fine pubescence on underside. Abdomen parallel sided, convex, smooth, glabrous, sides of segments rounded. Penultimate sternite transverse, broadly rounded posteriorly. Ultimate tergite transverse, smooth, postero-lateral angles a little projecting, hind margin trisinuate, laterally oblique, the area above the roots of forceps tumid with a faint ridge, intervening space depressed with two small compressed tubercles on either side of middle



Figs. 8-14 : *Proreus sobrius* (Bormans), Type ♂ ; 8. Dorsal view, without antennae and legs, 9. Genitalia ; *Adiathella fuscipennis* (Haan), Type ♂ ; 10. Head and pronotum, 11. A few basal antennal segments, 12. Hind tarsus, 13. Ultimate tergite and forceps and 14. Genitalia.

line. Pygidium subvertical, sides and posterior margin emerginate. Forceps with branches remote, stout, depressed, straight, tapering apically with tip gently hooked ; internal margin ventrally with several teeth ending with a strong conical tooth at middle, afterwards dorsally margin sharp but unarmed except for a small triangular tooth, ventrally placed, a little before apex. Genitalia as in fig. 14.

♀ : Agrees with male in most characters but differs in having the abdomen shortened and elytra and wings extending up to the middle of ultimate tergite ; forceps internally armed near base with a strong pointed tooth, followed by several minute teeth up to middle, afterwards margin almost smooth.

Remarks : In having the tibiae sulcate at extreme apex, smooth and glabrous elytra and wings, this species should be placed under the genus *Adiathella* Brindle (1970). Moreover, the forceps in both sexes are also alike.

A. philippinensis Srivastava (1976) is treated as a synonym of this species.

Cordax Burr

Cordax Burr, 1910, *Fauna Brit. India, Dermaptera* : 184 (Type-species-*Forficula armata* Haan, 1842).
Eutimomena Bey-Bienko, 1970, *Zool., Zhur.*, 49 : 1819 (Type-species-*Eutimomena paradoxa* Bey-Bienko, 1970)—syn. nov.

Remarks : This genus agrees with *Timomenus* Burr, in most characters except that the first antennal segment is flat above with sides slightly raised or occasionally forming a sort of ridge and ventrally convex.

Burr (1910) assigned *Forficula armata* Haan, as the type but his description and diagrams are based on the material from Celebes which perhaps belong to some other species. The remaining species now placed under this genua will require a new genus—a subject which will be discussed elsewhere.

Since thet type species of this genus and the *Eutimomena* are synonymus latter will automatically fall as synonym of former. This has already been pointed out by Stivastava (1981).

Cordax armatus (Haan)

(Figs. 15-19)

Forficula armata Haan, 1842, *Verh. nat. Ges. Nederl. Overz. Bezitt.*, 1842, : 243, pl. 23, fig. 13 (1♀, 1 ex. Sumatra, Batang Singalang).
Eutimomena paradoxa Bey-Bienko, 1970, *Zool. Zhur.*, 49 : 1819, fig 8, 9 (Holotype ♂, Chapa N. Vietnam—Leningrad Mus.)—syn. nov.

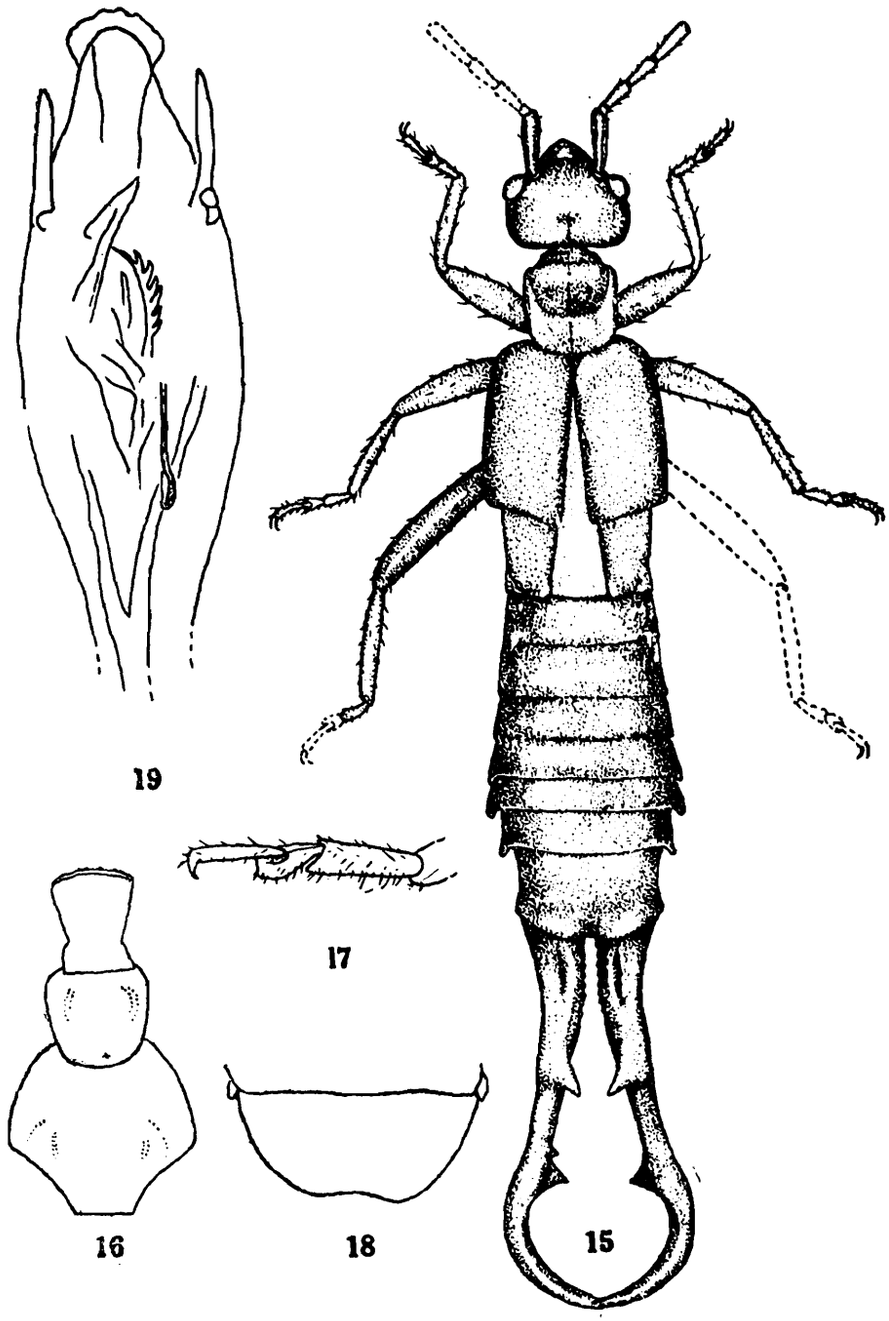
Material examined : Lectotype ♂ labelled as : (i) Batang Singalang—rounded lable handwritten ; (ii) Forficula armata de Haan-handwritten, probably by Haan ; (iii) 2 exs paar de Bormans geweest-handwritten ; (iv) ♂-typed ; (v) Museum Leiden, C. armata, Det. M. Boeseman-1st line printed, rest handwritten ; (vi) Museum Leiden No. 5011/6 (Genitalia mounted between two coverslips and pinned with the specimen.

De Haan (1842) has not made any mention of number of specimens examined by him. However, Boeseman (1954) records two specimens as types (or syntypes) one of which a ♂, listed above, is designated as the lectotype. Since the original description is brief, the species is redescribed :

General colour brownish black, pronotum yellowish laterally and in posterior half ; apical portion of tibia and tarsi light brown,

elytra somewhat yellowish brown ; wings darker with inner tip yellow, abdominal tergites light brown in middle.

Head smooth, about as long as broad, weakly convex with faint depression in middle, sutures obsolete, hind margin straight. Eyes shorter than the post-ocular length and 1st antennal segment. Antennae partly broken (1st segment on the left and five basal ones on the right remaining), 1st segment stout, expanded apically, in cross section convex ventrally and deplanate above with lateral margins feebly raised above ; 2nd about as long as broad ; 3rd slightly



Figs. 15-19 : *Cordax armatus* (Haan), Lectotype ♂, 15. Dorsal view, 16. Sternal plates, 17. Hind tarsus, 18. Penultimate sternite and 19. Genitalia.

shorter than the 4th ; 5th longer than the preceding, all long and thin, cylindrical. Pronotum about as long as broad, anteriorly straight, sides feebly convex and raised, hind margin and angles rounded, median sulcus faint ; prozona raised and well differentiated from flat metazona. Leg long and slender, fore-femora sowllen middle and hind one compressed, hind tarsi with 1st segment slightly longer than the third, 2nd enlarged, emarginate in middle posteriorly. Prosternum longer than broad, narrowed posteriorly. Mesosternum about as long as broad, gently narrowed posteriorly with hind margin rounded. Metasternum transverse, narrowed posteriorly between hind coxae with hind margin truncate. Elytra and wings well developed. Abdomen narrowed at base, gradually enlarging apically up to 9th tergite, lateral tubercles on 3rd and 4th tergites prominent but former comparatively weakly developed, obscurely punctulate, sides of segments 6th to 9th with a posteriorly directed tubercle but their size not uniform, on 6th segment weakest and on 7th strongest, 8th and 9th of intermediate size. Penultimate sternite transverse, obscurely punctate, hind margin rounded with slight emargination in middle. Ultimate tergite transverse, sloping and contracted backwards, sides contracted in middle, stripes of obscurely marked punctures and smooth areas alternating, faintly tumid above the bases of forceps and slightly depressed in middle, hind angles a little projecting and margin in middle almost straight and laterally oblique. Pygidium vertical, about as long as broad with a faint median groove in middle. Forceps stout, subcontiguous, depressed, almost straight and with a faint depression above in middle and sides feebly raised in basal one third, afterwards compressed, gradually diverging for a short distance and strongly incurved in apical third, internally serrated in basal one third, armed with a strong vertical, posteriorly directed tooth at middle and another triangular tooth present at apical two thirds, horizontal and directed internally, in profile branches gently raised in middle. Genitalia as in figure 19. Length : body, 11.5 mm ; forceps, 6.2 mm.

Distribution : Burma and Vietnam.

Eparchus tenellus (Haan)

(Figs. 20-21)

Forficula tenella Haan, 1842, *Verh. nat. Ges. Nederl. Overz. Bezitt.*, 1842 : 243 (♂, ♀ ; Java).

Materiai examined : Syntype ♂ labelled as : (i) Java, Kuhal & V Hass.—circular label handwritten ; (ii) tenella Hagb. —handwritten probably by Haan ; (iii) ♂ ; (iv) 3 exs paar Bormans geweest-handwritten ; (v) Museum Leiden, tenellus de Haan, Det. M. Boeseman-partly handwritten, partly printed and (vi) Mus. Leiden No. 5011/11 (forceps missing).

Syntype ♀, labelled as : (i) Java, Khl & H. -circular lable, handwritten ; (ii) Forficula tenella Hagb. in Mus. hugd. Bat. -handwritten ; (iii) ♀ ; (iv) Museum Leiden, E. tenellus de Haan, Det. M. Boeseman-partly printed, partly handwritten and (v) Mus. Leiden No. 5011/10,

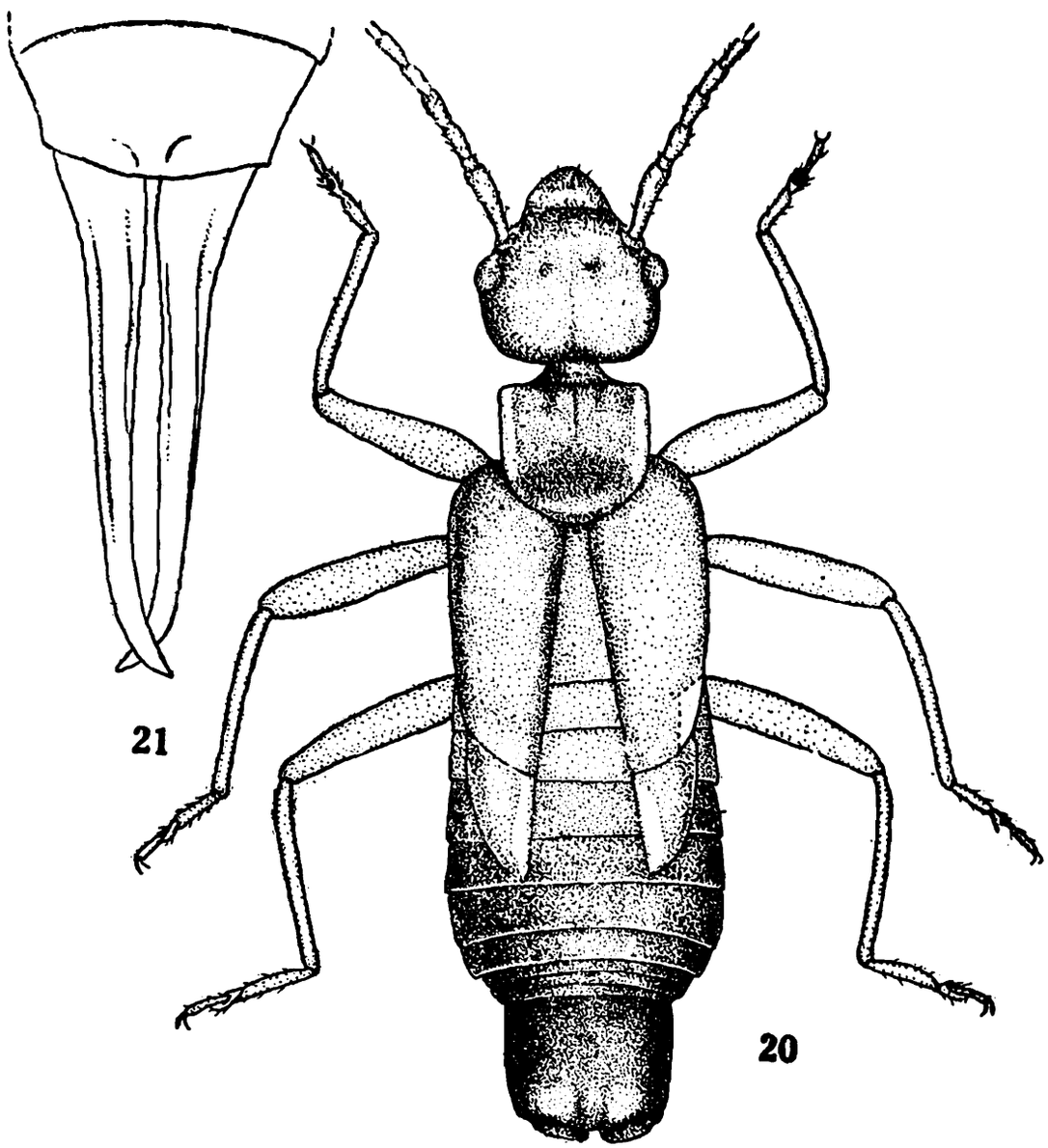
Syntype ♀, labelled as : (i) Java, Kuhl & V. Hass-circular label handwritten ; (ii) tenella Hagb.—handwritten probably by Haan ; (iii) ♀ ; (iv) Museum Leiden, *E. tenellus* de Haan, Det. M. Boeseman-partly printed and partly handwritten ; and (v) Mus.

Leiden No. 5011/9 (This specimens is partly eaten up by psocids).

The above three specimens according to Boeseman (1954) are the types of present species and are treated here as syntypes. Unfortunately the forceps in ♂ are missing. Since the original description by Haan (1842) is quite brief and the subsequent descriptions need checking, a detailed description from the syntypes is provided :

General colour blackish brown ; pronotum yellow laterally ; antennae with one or two pre-apical segments yellow, elytra somewhat reddish brown in ♂ but in ♀ with a yellow spot externally in basal half, wings reddish brown, internally with a yellow stripe ; legs light blackish brown, abdominal tergites darker.

♂ : Head slightly longer than broad, frons weakly raised, sutures obsolete, hind



Figs. 20-21 : *Eparchus tenellus* (Haan), Syntype ♂, 20. Dorsal view, without forceps ; Syntype ♀ ; 21. Ultimate tergite and forceps.

margin straight, scarcely emarginate in middle. Eyes shorter than the post-ocular length. Antennal segments long and slender, 3rd slightly shorter than the 4th, remaining gradually increasing in length and thinning. Pronotum about as long as broad, anterior margin straight and angles a little projecting, sides straight, gently reflexed, converging posteriorly, hind margin obtusly rounded, median sulcus faint, prozona raised and well differentiated than the depressed metazona. Legs long and slender, hind tarsi with 1st segment longer than the 3rd ; 2nd lobed ; claw without arolium. Elytra and wings normal, smooth. Abdomen smooth, convex, enlarged in middle. Penultimate sternite broadly rounded posteriorly. Ultimate tergite weakly transverse, contracted and sloping backwards, depressed in middle posteriorly and areas above the base of forceps with broad, low tumid elevation, hind margin in middle straight, laterally oblique. Forceps missing. Length : body, 8.7 mm (without forceps).

♀ : Agrees with males in most characters except that the ultimate tergite more narrowed posteriorly and forceps simple and straight. Length : body, 7.3-7.9 mm ; forceps, 2.4-2.6 mm.

Remarks : The male specimen before me unfortunately lacks forceps. However, according to Haan (1842) forceps in male are armed in middle with a tooth above.

Günther (1934) recognises as many as eight subspecies for this species.

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