THE DERMAPTERA IN THE MUSEUMS AT LEIDEN AND AMSTERDAM

by

M. BOESEMAN
(Rijksmuseum van Natuurlijke Historie, Leiden)

The collections of Dermaptera in the Rijksmuseum van Natuurlijke Historie at Leiden and the Zoölogisch Museum at Amsterdam, referred to in the present paper as "Museum Leiden" and "Museum Amsterdam", consist of numerous specimens including many types described by previous authors and a fairly large number of hitherto unidentified examples. A reinvestigation and an identification of the unidentified material therefore promised interesting results, a promise which has been fulfilled.

The investigations took place during the war years 1942 and 1943 under unfavorable circumstances. The original MS was finished shortly after the war but, due to printing difficulties, publication had to be postponed.

During the recent preparation of the present paper, some alterations and corrections of the old MS were found necessary and recent literature was added. No time was available for the examination and inclusion in the present paper of the acquisitions of both collections during and since the war.

The almost 3500 specimens included in this paper proved to belong to 157 species, 2 subspecies, 16 varieties; among these, 20 species and 8 varieties are new to science while the types were found of 30 species described by previous authors, most by De Haan, De Bormans, Dohrn, and Burr.

The following new species are described:

Diplatymorpha borneensis nov. gen., nov. spec. (fig. 2)
Dicrana jacobsoni nov. spec. (fig. 4)
Pyge vanderdoesi nov. spec. (fig. 5)
Gonolabidura javana nov. spec. (figs. 6a, 7a, b)
Gonolabidura boschmai nov. spec. (figs. 6b, 8)
Gonolabis acuta nov. spec. (fig. 9a, b)
Anisolabis nana nov. spec. (fig. 10a)
Anisolabis surinamensis nov. spec. (fig. 11)
Labidura vanheurni nov. spec. (fig. 12)

Labidura minor nov. spec. (fig. 13)
Nannisolabis javana nov. spec. (fig. 14)
Apachyus sumatranus nov. spec. (fig. 16)
Dendroiketes(?) novaeguineae nov. spec. (fig. 10b, c)
Irdex novaeguineae nov. spec. (fig. 18a)
Spongovostox sumatranus nov. spec. (fig. 17a, b)
Sphingolabis novaeguineae nov. spec. (fig. 18b)
Labia pratti nov. spec. (fig. 19)
Auchenomus minutus nov. spec. (fig. 22)
Proreus corporaali nov. spec. (fig. 19e, f)
Mesochelidura brongersmai nov. spec. (fig. 24)

New described varieties:

Allostethus indicum (Burm.) var. *maculatum* nov.
Irdex nitidipennis (De Borm.) var. *brachypyge* nov. (fig. 17c)
Enkrates elegans (De Borm.) var. *burri* nov. (fig. 23e)
Enkrates elegans (De Borm.) var. *inermis* nov. (fig. 23f)
Opisthocosmia centurio Dohrn var. *bidentata* nov. (fig. 26c, d)
Eparchus insignis (De Haan) var. *inermis* nov.
Cordax forcipatus (De Haan) var. *brevicontigua* nov. (fig. 26e)
Cordax forcipatus (De Haan) var. *formosana* nov. (fig. 26f)

Types of previously described species:

Arixenia jacobsoni Burr (paratypes?)
Diplatys sumatranus Boeseman
F. (*Pygidicrana*) *pallidipennis* De Haan
Pygidicrana piepersi Burr
Echinosoma horridum Dohrn
F. (*Echinosoma*) *sumatrana* De Haan
Forcinella marginalis Dohrn
F. (*Apachya*) *chartacea* De Haan
Labia laminata Burr (if locality erroneous)
Chaetospania tricuspidata Burr
Sparatta semi-fulva De Bormans
Sphingolabis furcifera De Bormans
Labia myrmeca Burr
Lobophora Ludekingi Dohrn
Labidurodes coloratus Burr
Chelisoches Ritsemae De Bormans
F. (*Psalidophora*) *fuscipennis* De Haan
Chelisoches? sobrius De Bormans
F. (*Psalidophora*) *albomarginata* De Haan
Chelisoches annulatus Burr
Hamaxas quadrituberculatus Burr
Hamaxas papuensis Burr
Forficula brachynota De Haan
Forficula ornata De Bormans
Forficula longipes De Haan
Opisthocosmia minuscula De Bormans
Forficula insignis De Haan
Forficula tenella De Haan
Forficula armata De Haan
Forficula forcipata De Haan

The collections further contain topotypes of *Chaetospania sumatrana* Borelli and paratypes of *Diplatys* spec. nov., to be described in due time by Mr. W. D. Hincks of the Manchester Museum, England.

It should be noted that some discrepancies occur between the localities as given by De Haan and those provided on the labels of his specimens.

Suborder ARIXENIA

Family ARIXENIIDAE

Arixenia esau Jordan

Arixenia esau Jordan, 1909, p. 313, pls. 16-18; —, Bei-Bienko, 1936, pp. 78, 215.

Amsterdam Museum:

Sumatra, Air Kumanis, III 1916, E. Jacobson, 1 ♀ (det. K. Jordan).

A large and well preserved specimen, measuring 16 mm (including the forceps), with a strongly contracted abdomen. Length of head 4 mm, abdomen 5 mm, maximal width of abdomen 8 mm.

The various labels give some further interesting information, viz., "4 of these *Arixenia*'s were found on the body of a young *Cheiromeles torquatus* (Horsf.) which swarmed with Acari".

As stated above, this specimen has been identified by Jordan, while it seems interesting to notice that its locality coincides with that of the specimens of *Arixenia jacobsoni* Burr, examined by Hebard (1927, p. 24).

Arixenia jacobsoni Burr

Arixenia jacobsoni Burr, 1912, p. 105, fig.; —, idem, 1912b, p. 225; —, Burr & Jordan, 1913, p. 398, figs. 12-28; —, Hebard, 1927, p. 24; —, Bei-Bienko, 1936, pp. 78, 215.

Leiden Museum:

Java, Babakan, Guwa Lawa (cave), III 1911, E. Jacobson, 15 ♂♂, 4 ♀♀, 1 immature (all det. Burr).

All specimens have been collected at exactly the same locality, at the same date, and by the same collector as Burr's type, which he kept in his own collection (Burr, l.c.). They consequently may be regarded as topotypes, and probably as paratypes. Furthermore, they are mentioned in one of Burr's publications (1912b, p. 225).

The total length of the male specimens is about 20 mm, of the females upwards of 25 mm, while the immature specimen measures 12.2 mm only. The length of the forceps is about 3.5-4 mm in the males, at least 5 mm in the females, and even 9.2 mm in the immature specimen.

An extensive and accurate description has been given by Burr & Jordan (l.c.).

Suborder DERMAPTERA s. str.
Superfamily PROTODERMAPTERA
Family PYGIDICRANIDAE
Subfamily DIPLATYINAE

The material belonging to this subfamily has been examined by Mr. W. D. Hincks of the Manchester Museum, England, for his forthcoming revision of the Diplatyinae. On account of this, hardly more than an enumeration of the present material is given.

Diplatys nov. spec. (fig. 1)

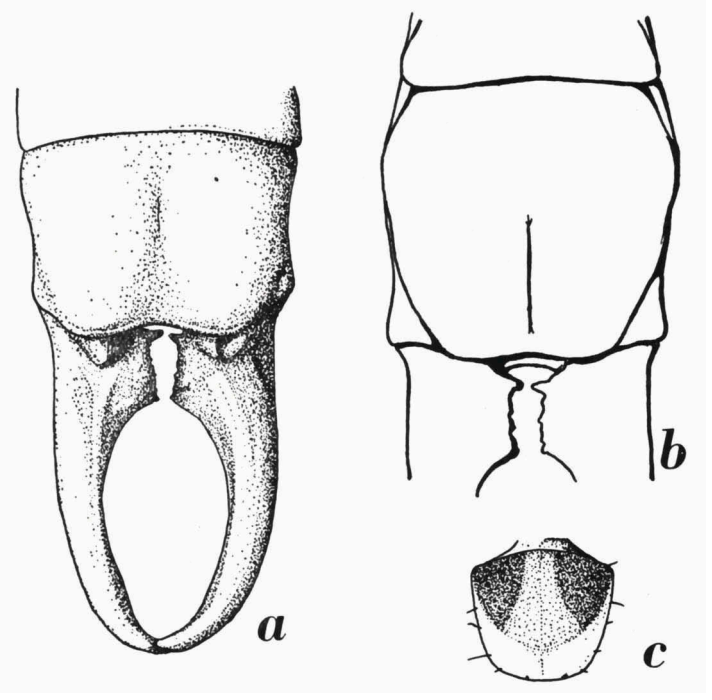

Fig. 1. *Diplatys* spec. nov. a, apical part of abdomen and forceps of male in dorsal view; b, penultimate ventral segment of male; c, pronotum of female. a, × 27, b, × 32; c, × 13.

Leiden Museum:

Java, Gunung Merbabu, VII 1910, E. Jacobson, 1 ♂; Nongkodjadjar, I 1911, E. Jacobson, 2 ♂♂, 1 ♀, 1 immature (all det. Burr: "*Diplatys nigriceps* Kirby").

These specimens have been mentioned by Burr (1912a, p. 25; 1912b, p. 226), and represent a new species to be described by Hincks.

Diplatys sumatranus Boeseman

Diplatys sumatranus Boeseman, 1952, p. 259, fig. 1.

Leiden Museum:

Sumatra, Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♂ (holotype).

Diplatys spec.

Leiden Museum:

Sumatra, Rimbo Pengadang, VI 1916, E. Jacobson 2 ♀♀; Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♀.

The specimen from Air Njuruk, Sumatra, has been collected together with the type of *Diplatys sumatranus* Boeseman, but seems not to represent the female of that species. The coloration is much lighter, brownish yellow, while, e.g., the pronotum is more elongate, with almost parallel sides.

Subfamily DIPLATYMORPHINAE nov.

Diplatymorpha borneensis nov. gen. et spec. (fig. 2)

Leiden Museum:

Borneo, Liang Kubung, IV 1894, J. Büttikofer, 1 ♀ (holotype).

The external morphological characteristics of the single specimen seem to indicate a close relationship both with the Diplatyinae and the Pygidicraninae. It is built slightly sturdier than the *Diplatys* species represented in our collections, though considerably less robust than our material of Pygidicraninae. The right antenna, consisting of 19 segments, seems to be complete, but the fourth and fifth segments are about globular and much shorter than the third. There is a distinct chitinous scutellum, the femora are compressed and carinate. As the inclusion in either of the related subfamilies seems impracticable, the new subfamily Diplatymorphinae is proposed.

The characters of the new genus *Diplatymorpha* can be taken from the description of the single species. The name is chosen to indicate the close relationship with the Diplatyinae.

Type of the genus: *Diplatymorpha borneensis* nov. spec.

The coloration shows no characteristic markings, being on the whole a slightly brownish yellow, with the exposed wing-scales, the abdomen (especially the apical part), the forceps, and the tibiae of first and second pairs of legs in a varying degree darker brownish. The third to twelfth and nineteenth antennal segments dark brown. A dense cloth of rather short testaceous hairs covers about the whole specimen.

Head flattened, with distinct occipital ridges orignating close behind the

innermost margin of the eyes, and ending near a slightly prominent ridge running along the posterior margin of the head. Occiput flat, partly even slightly concave. Interorbital space somewhat convex, with an about triangular flattened space between the interorbital centre and the antennal bases. Eyes prominent and dark.

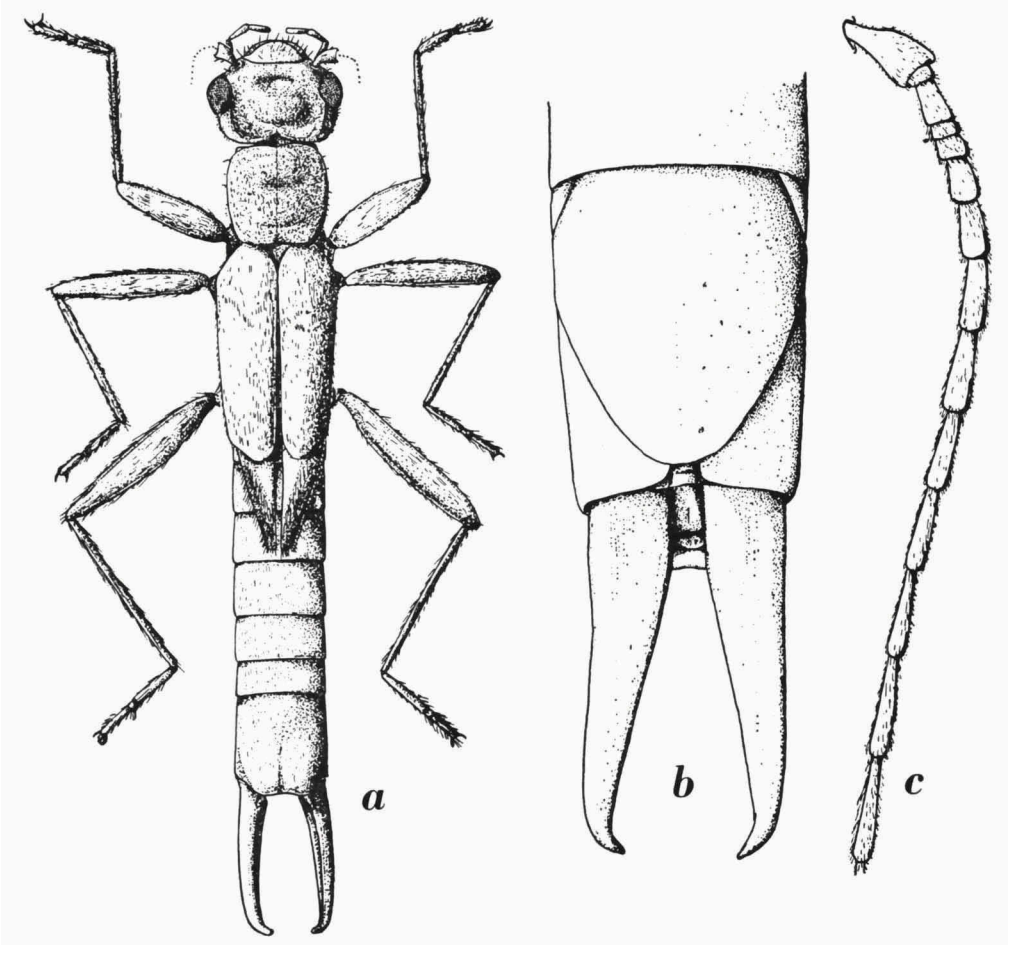

Fig. 2. *Diplatymorpha borneensis* nov. spec. a, habitus of female in dorsal view; b, penultimate ventral segment and forceps of female in ventral view; c, antenna of female. a, × 7.5; b, c, × 20.

The shape of the antennal segments seems characteristic: the first is strongly club-shaped, thick and short, about equal to postorbital length of head or $^3/_4$ to $^4/_5$ of eye-diameter. The second very short, transverse, the

third considerably longer, about half the length of the basal segment. The fourth short, transverse, not or hardly longer than the second, globular. The fifth hardly longer than the fourth, these together about equal to the third. The sixth again slightly (but distinctly) longer, but not yet equal to the third. The further segments gradually lengthening and growing more slender, the eighth being about as long as the first, the eighteenth even surpassing eye-diameter, but the ultimate nineteenth segment again slightly shorter. Except the club-shaped first and the almost globular short second, fourth and fifth segments, all proximal elements are more or less cylindrical, gradually becoming more elongately club-shaped apically (fig. 2c). The complete antenna reaches backwards about to the tips of the wing-scales.

Pronotum slightly narrower than postorbital head, about as long as broad, strongly rounded with the convex sides slightly converging backwards. Prozona convex, metazona and sides flat, the lateral margins slightly curved upwards. Along the sides a few strong hairs. Scutellum rather small but distinct, triangular.

Elytra elongate, shoulders oblique, posterior margins oblique and rounded; length about twice the pronotum. Wing-scales long and slender, length about equal to pronotum, truncate at apex.

Abdomen elongate, slender, about cylindrical. Posterior tergite rather long, slightly longer than broad, with a strongly convex surface; posterior margin with two short and rather indistinct protuberances above forceps, slightly concave in between, obliquely truncate laterally. Pro-, meso-, and metasternum rectangular, the posterior margins truncate, meso- and metasternum distinctly transverse. Penultimate ventral segment elongate, greatly exposed, the posterior part triangular and rounded.

Forceps almost straight, slightly curved inwards near the apex, and distinctly curved somewhat upwards; the proximal blunt dorsal ridges are partly covered by the posterior protuberances of the ultimate tergite.

Legs long and slender, the femora compressed and carinate.

Total length 16 mm, length of forceps 2 mm.

Subfamily PYGIDICRANINAE

Tagalina semperi Dohrn

Tagalina semperi Dohrn, 1863, p. 45; —, Burr, 1909, p. 15; —, idem, 1913, p. 312; —, Borelli, 1926, p. 250; —, idem, 1926a, p. 388; —, idem, 1932, p. 179; —, Günther, 1929, pp. 59, 66.

Leiden Museum:

New Guinea, Headquarter Camp, Kaiserin Augusta River, 12 X 1910, Dutch New Guinea Expedition, 1 ♀.

Amsterdam Museum:

New Guinea, Bivouac Island, 1909/1910, H. A. Lorentz, 1 ♂, 1 ♀; Cleft Bivouac, 12-22 X 1912, G. Versteeg, 2 ♂♂, 1 ♀, 2 immature; South New Guinea, 15 XII 1912, G. Versteeg, 1 ♂; Tanah Tinggi, 30 km upstream from Tanah Merah, Upper Digul, VIII-IX 1929, W. G. N. van der Sleen, 1 immature.

The specimens collected by Versteeg have the head dark brown or castaneous, the pronotum (or at least the prozona) dark brown, and probably belong to Günther's subspecies *erythronota* (l.c., p. 67). The specimen collected by the Dutch New Guinea Expedition has been examined by Burr (1913, p. 312).

Kalocrania marmoricrura (Serville)

Pygidicrana marmoricrura Serville, 1839, p. 20.
Kalocrania marmoricrura, Zacher, 1911, p. 337; —, Burr, 1912b, p. 226; —, Borelli, 1926, p. 250; —, idem, 1927, p. 69.

Leiden Museum:

Java, P. Bleeker, 1 ♂; Buitenzorg, J. G. Boerlage, 1 immature; Buitenzorg, VII 1909, H. W. van der Weele, 1 immature; Nongkodjadjar, I 1911, E. Jacobson, 3 ♂♂ (det. Burr), 2 immature (det. Burr, with question mark); Garut, 700-1000 m, VIII-IX 1929, W. C. van Heurn, 1 immature; Batavia, 1932/1933, W. C. van Heurn, 1 immature; Bremi, Probolinggo, 1000-2000 m, VII 1935, W. C. van Heurn, 1 ♀; Tjoban Rondo, Pudjon, 1400 m, VII 1937, W. C. van Heurn, 1 immature.
Sumatra, Batang Singalang, 1 ♀, 1 immature; Sungal Kumbang, IX 1915, E. Jacobson, 1 immature.
China, 1 immature.
Locality unknown, 1 ♂, 2 ♀♀, 1 immature.

Amsterdam Museum:

Java, Tjigembong, Preanger, VII 1915, J. B. Corporaal, 1 ♀ (det. MacGillavry); Dampit, Sumberpakel, 1920, MacGillavry, 1 ♂.
Sumatra, Sibolangit, 550 m, 19 X 1921, J. B. Corporaal, 1 immature.

The five specimens from Java, Nongkodjadjar, collected by Jacobson, must be those recorded by Burr (1912b, p. 226). The question marks on the labels written by Burr for the two larvae clearly indicate the difficulty encountered in identifying juvenile specimens, even if acompanying adults are available. Burr, however, does not seem so lacking in faith in his publication, in which these question marks were omitted.

Although some of the specimens accurately show the characteristic coloration, both collections as a whole nicely illustrate the considerable range of variability and the unreliability of this character for systematic discrimination in this group. The star-shaped yellow or testaceous spot on the head, the oval or pear-shaped yellow spots on the elytra, and the dark brown markings on the legs may all become indistinct or vary in shape, while all combinations of these varying characters seem to be possible.

Several specimens have the abdomen broken, but the parts still existent. The antennae are generally mutilated or even lacking, the label of the male specimen from Dampit, Sumberpakel gives the information: "antennae 35 articuli".

Kalocrania pallidipennis (De Haan)

Forficula pallidipensis De Haan, 1842, p. 240, pl. 23 fig. 8.
Kalocrania pallidipennis, Zacher, 1911, p. 337.

Leiden Museum:

Java, J. van der Hoeven, 1 ♀; Krawang, P. Bleeker, 1 ? (type, abdomen mutilated); Buitenzorg, J. G. Boerlage, 1 ♂; Ardja-Sari, Preanger, A. E. Kerkhoven, 1 ♀, 1 immature, 1 ? (abdomen mutilated).

Sumatra, Lubukgadang, Mahang Pandjang, Sumatra Expedition 1877/1878, 1 ♀, 1 immature; Tandjung Morawa, Serdang, B. Hagen, 1 immature.

Borneo, Sakumbang, P. Bleeker, 1 ♂, 1 ♀, 2 ? (types, mutilated).

Locality unknown, F. J. M. Heylaerts, 1 ? (mutilated).

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 1 ♂, 1 ♀ (det. Burr, 1905).

The five specimens collected by Bleeker (Java, Borneo) represent, according to their labels, De Haan's type material of the present species. The agreement with De Haan's description seems conclusive. Nevertheless, there is some mystery around this matter.

Bleeker arrived in Batavia, after a 110 days' voyage from the Netherlands, at the 10th of March, 1842, while De Haan's publication was issued in the same year. Consequently, and accepting the data given on the labels of the present specimens (written by S. C. Snellen van Vollenhoven?), these types must have been collected and(or) donated to the Leiden Museum almost immediately after Bleeker's arrival in Batavia; after arrival within the same year, 1842, they must have been examined by De Haan without delay, the results being published before the year was ended.

All this may have been possible, but some doubt seems justified on account of the duration at the time of the voyage from the Dutch East Indies to the Netherlands.

Furthermore, Bleeker complained of his lack of time for scientific research, his time, especially in the beginning, being almost completely occupied with his official duties, while he certainly never got to Borneo during 1942. Possibly the specimens were sent to him by another collector.

Interesting is also to note that all present specimens were collected at such an early date, and that no specimens belonging to the present species were found in the more recent collections obtained from Jacobson and Van

Heurn. Borelli (1926, 1927) and Hebard (1927) too do not mention this species.

Kalocrania imperatrix (Burr)

Pygidicrana imperatrix Burr, 1899, p. 163.
Kalocrania imperatrix, Burr, 1912b, p. 226; —, Borelli, 1926, p. 250; —, idem, 1927, p. 69; —, Hebard, 1927 p. 24.

Leiden Museum:

Java, Banjuwangi, 1911, MacGillavry, 1 ♂ (det. Burr).
Sumatra, Solok, 12 VIII 1913, P. O. Stolz, 1 immature.
Borneo, Gunung Kenepai, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀.

Amsterdam Museum:

Java, Ardja-Sari, Preanger, 1 ♂, 2 immature.
Locality unknown, East Indian Archipelago?, 1 ♂ (det. Burr, 1905).

The single female specimen is distinctly smaller than the males, but of the same general appearance. It has no dorsal protuberances on the bases of the forceps.

The coloration is about the same in both sexes, though in general apparently somewhat more accentuate in the female: two longitudinal brown bands on the pronotum, and a distinct pair of oblong spots near the shoulders and on the vertical sides of the rather dark elytra.

This seems to be the first report of this species from Borneo.

Kalocrania valida (Dohrn)

Pygidicrana valida Dohrn, 1867, p. 344.

Leiden Museum:

India, Shembaganur, Madura District, M. Burr, 1 ♂, 1 immature (det. Burr).

Both have the abdomen broken, the parts still existent.

Kalocrania similis Zacher (fig. 3a)

Kalocrania similis Zacher, 1911, p. 338; —, Borelli, 1926, p. 250.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 1 ♀ (det. Burr: "*Dicrana* (*horsfieldi*? Kirby)").
Sumatra, Rimbo Pengadang, VI 1916, E. Jacobson, 1 ♀.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 2 ♂♂ (det. Burr, 1905: "*Pygidicrana marmoricrura* Serv."); West Java, 1919, W. C. van Heurn?, 1 ♂, 1 immature; Buitenzorg, 1921, W. C. van Heurn, 2 ♀♀.

The specimen identified by Burr as "*Dicrana* (*horsfieldi*? Kirby)" has been mentioned by this author (Burr, 1912b, p. 226). It agrees much better

with the female specimens of the present species in the collection of the Amsterdam Museum than with *horsfieldi* Kirby, as judged by literature only (Kirby, 1891, p. 506, pl. 12 figs. 11, 11a; De Bormans, 1900, p. 20; Burr, 1912b, p. 226, 1915, p. 436). It has the lateral parts of the wing-scales dark brown.

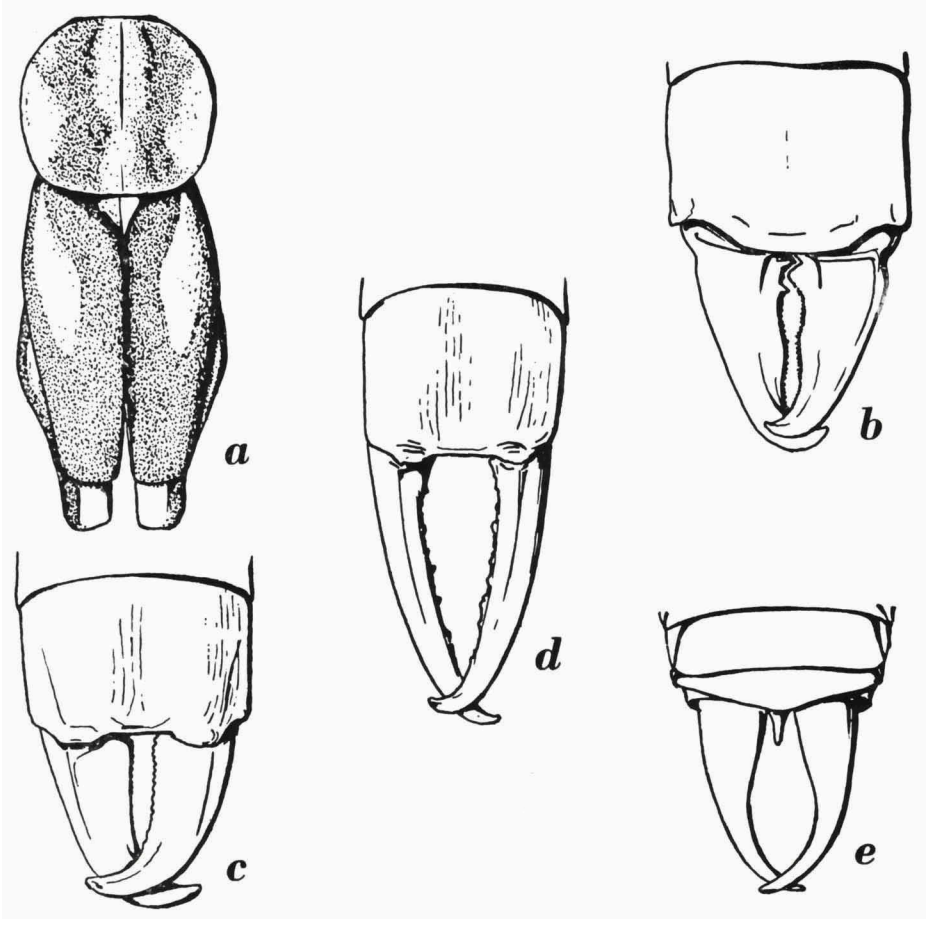

Fig. 3. a, *Kalocrania similis* Zacher, pronotum, elytra, and wing scales of male in dorsal view; b, *Dicrana daemeli* (Dohrn), posterior abdominal segment and forceps of male in dorsal view; c, d, *Pyragra fuscata* Serville, var., posterior dorsal segment and forceps of male in dorsal view; e, *Echinosoma fuscum* Borelli, apical part of abdomen and forceps of female in ventral view. a, × 7.5; b, c, × 6.8; d, × 6; e, × 8.5.

The Sumatran specimen has the exposed parts of the wings completely yellowish white, the penultimate ventral segment of the abdomen slightly more angular than the further specimens.

The two specimens identified as *Pygidicrana marmoricrura* Serv. distinctly differ from that species: the forceps are considerably shorter and slightly stouter, the pear-shaped light spot on the elytra is longer and reaches with the narrow elongation to the shoulder (fig. 3a). The female forceps are also distinctly shorter and stouter than in *marmoricrura*. There are no distinct sexual differences in coloration.

There is also a remarkable agreement with *Kalocrania siamensis* (Dohrn), as described by Dohrn (1863, p. 51) and Burr (1910, p. 59, fig. 13). The principal differences are: the wholly light brownish antennae; the shape of the spots on the elytra, with the broadest part at about $^2/_5$ of the length of the elytra, extending over half heir length; the slightly rounded posterior margin of the penultimate ventral segment of the male.

The coloration of the pronotum in our specimens closely agrees with Burr's description of *siamensis* (l.c.), but disagrees with his figure (fig. 13) which, moreover, shows a distinctly more rounded shape of the pronotum.

The relationship with *horsfieldi* Kirby must be quite close, as is shown by Burr's erroneous identification of one of our specimens. A close comparison between series of *similis, siamensis,* and *horsfieldi* may yield interesting results, but the necessary material is not available in our collections.

Kalocrania spec.

Leiden Museum:

Borneo, Gunung Kenepai, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀? (abdomen only).

From the same locality and collector as a previously mentioned female specimen identified as *Kalocrania imperatrix* (Burr).

Dicrana separata Burr

Dicrana separata Burr, 1908c, p. 387; —, Rehn, 1924, p. 404; —, Hincks, 1939, p. 236.
Dicrana bettoni, Burr, 1907, p. 3, pl. 1 fig. 1.

Leiden Museum:

Africa, Angkole Karagwe, Uganda, Tanganyika, 1930/1931, A. E. Speyer, 1 ♂, 1 ♀, 1 ? (abdomen mutilated).

Both adult specimens are brachypterous, a forma already known in this species (Hincks, l.c.).

Dicrana daemeli (Dohrn) (fig. 3b)

Pygidicrana Daemeli Dohrn, 1869, p. 233; —, De Bormans, 1900, p. 20, fig. 12.
Dicrana daemeli, Günther, 1929, p. 59.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 1 ♂; Tjibodas, M. Weber, 1 ♀ (both det. Burr, 1905). New Guinea, Cleft Bivouac, 22 X 1912, G. Versteeg, 1 ♀.

The Javanese specimens identified by Burr closely agree with our material of *Kalocrania similis* Zacher, excepting the shape of the pronotum and some small differences in coloration. Although not completely convinced by Burr's identification, I could not find sufficient objections against a provisional acceptance on his authority.

The coloration is as follows: behind a transverse, curved and about M-shaped line, the posterior part of the head is almost completely light yellowish, with a slightly brownish posterior margin and an almost complete median brown line. The antennae testaceous, not dark. The lateral parts of the wing-scales dark brown. The pronotum and elytra about as in *similis* Zacher, with the dark longitudinal bands somewhat broader and separated by a narrow lighter line only. The legs have some indistinct brownish longitudinal markings, or no markings at all.

The New Guinean specimen has the dorsal surface of the head considerably darker, the H-shaped lighter part hardly distinguishable. The two longitudinal bands on the pronotum much darker brown, the elytra dark except the part around the light scutellum, forming a distinct light yellowish triangular patch. Right wing scale brown, left with the lateral and vertical parts brown only. Femora slightly darker, the third pair even considerably darker, and without markings.

A very inconspicuous difference between the two females is the slightly more slender abdomen and forceps in the New Guinean specimen.

Dicrana jacobsoni nov. spec. (fig. 4)

Leiden Museum:

Sumatra, Suban Ajam, Benkulen, VII 1916, E. Jacobson, 1 ♂ (holotype).

A slender species, easily distinguished by the most peculiarly shaped penultimate ventral segment, and by the tapering and almost wholly straight forceps.

In general the coloration shows a rather close agreement with the previous species. The interocular part and the sides behind the eyes are brown, the occiput yellow with a rather broad longitudinal band along the median line not quite reaching the dark interorbital area, and with two much narrower and shorter inconspicuous lateral longitudinal bands of a darker pigmentation (fig. 4). First, second, and proximal part of third antennal segment brown, further segments lighter testaceous.

Pronotum with two rather narrow brownish longitudinal bands, sharply defined anteriorly but gradually more indistinct and vague backwards, not reaching posterior margin of pronotum. Two small spots near anterior angles, a more distinct short brown median stripe posteriorly.

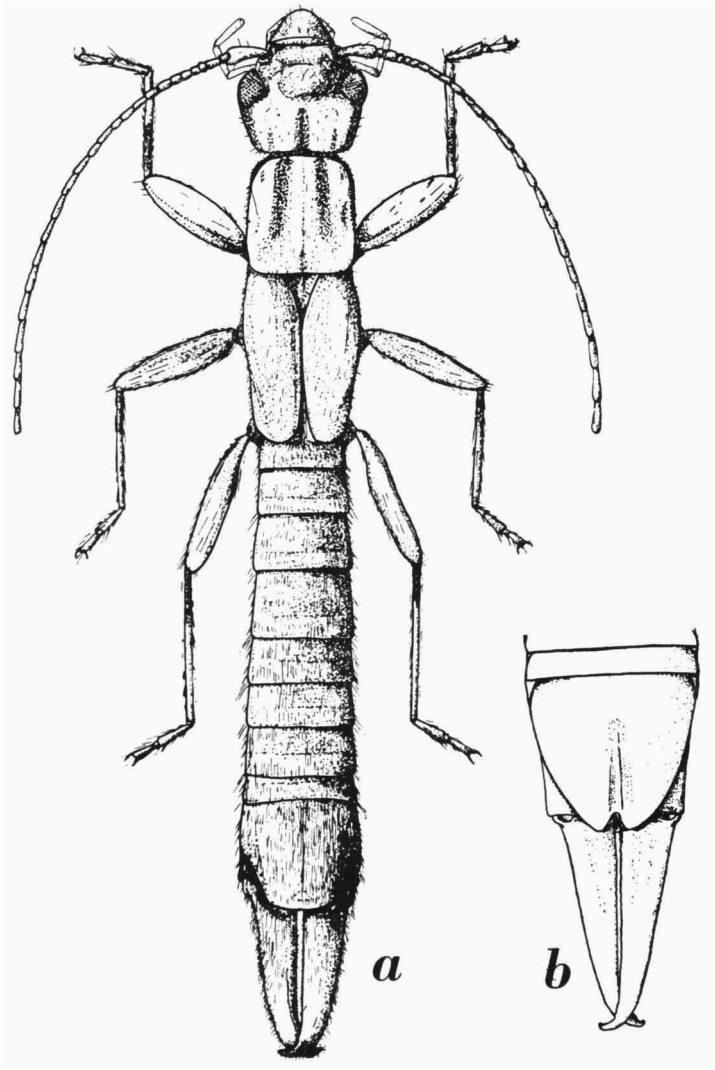

Fig. 4. *Dicrana jacobsoni* nov. spec. a, habitus of male in dorsal vieuw; b, penultimate ventral segment and forceps of male in ventral view. a, × 6.5; b, × 9.

Elytra brown with lighter longitudinal oval spots reaching from anterior margin along about $^2/_3$ of their length; a lighter longitudinal stripe along

the vertical sides. They completely cover the light yellowish wings, which have the apex and the exterior margins slightly brownish.

Abdomen dark castaneous, forceps more clearly reddish brown. First pair of legs testaceous with indistinct markings on femora, tibiae with dark proximal halves; second pair with exterior side of femora almost completely covered with a dark brown band, tibiae with a shorter dark part; third pair with proximal halves of femora and tibiae brownish.

Prosternum with a distinct median brown blotch, mesosternum with posterior half brown only, metasternum completely brown except antero-lateral areas.

Shape of head pentagonal, slightly longer than broad, posterior margin straight. Antennae with 25 segments (only 20 left): first very strong, club-shaped, slightly longer than diameter of eye or postorbital part of head; second very short, third considerably longer, fourth short and distinctly transverse, fifth slightly transverse, the further segments gradually lengthening. Median occipital suture distinct, in contradistinction with the rather inconspicuous transverse suture. The head further covered with some sparse brownish hairs, short on the occiput.

Pronotum rather angular, posterior margin straight, the straight sides slightly diverging backwards; posterior angles slightly rounded, anterior angles strongly rounded; anterior margin distinctly convex. Surface of prozona convex, separated from also convex metazona by an undeep transverse furrow; sides not curved upwards. The scutellum distinct, triangular.

Elytra rather long and slender, about 1½ length of pronotum, rounded, covered with sparse short brown hairs, and completely covering the short wings which have some short white hairs near the apex.

Abdomen covered with a dense cloth of short and long hairs on the dorsal surface, a much less dense cloth of still shorter hairs on the ventral surface. Posterior dorsal segment about as long as broad, with a broad and slightly rounded protruding median part above the bases of the forceps provided with a small smooth median area. Penultimate ventral segment triangular, with the posterior apex distinctly incised, forming two separate and slightly rounded lobes; an indistinct longitudinal median furrow rostrad of the incision. Mesosternum rather long, with a slightly rounded truncate posterior margin. Metasternum with a strongly sinuate posterior margin, forming two lateral flaps behind coxae of posterior legs, and with a short longitudinal median line corresponding with similar lines on the anterior parts of several ventral abdominal segments, lacking on some posterior segments only.

Forceps rather strong, straight, contiguous, tapering towards the slightly

incurvate apices, slightly curved upwards in lateral view; inner margins finely serrate; whole forceps covered with a cloth of very fine hairs.

Legs strong, with rather short, broad, carinate and slightly compressed femora.

Total length 21 mm, length of forceps 3.4 mm.

Pyge piepersi (Burr)

Pygidicrana piepersi Burr, 1908, p. 95; —, Zacher, 1911, p. 342.

Leiden Museum:

Java, "Java occ.", M. C. Piepers, 1 ♂ (holotype).

This severely damaged specimen according to its label has been examined by Burr. It must be Burr's holotype.

Pyge vanderdoesi nov. spec. (fig. 5)

Leiden Museum:

Asia, Malay Peninsula?, P. J. van der Does de Bye, 1 ♂ (holotype), 1 ♀ (allotype), 2 immature.

Only the name of the collector being known, the locality as given above must be regarded with some reserve. The present locality seems likely as Van der Does de Bye seems to have collected principally on the Malay Peninsula (and a few specimens on Borneo), while all other earwigs from the same collector have been captured at the same locality.

Of the various species of this and related genera, the present male specimen shows the closest agreement with *Cranopygia cumingi* (Dohrn), as described and figured by Burr (1910, p. 62, figs. 14 & 94) and, on account of the coloration, partly even better with the slightly differing forma mentioned by Burr in the same publication.

On account of this rather close agreement, and since most morphological characters can be taken from the figure (fig. 5), in general only the differences in comparison with *Cranopygia cumingi* (Dohrn) are here given.

Head dark brown, with a more or less distinct small lighter spot just before the innermost point of the orbital margin; the central area is slightly lighter, dark castaneous in the male specimen. Occipital ridges indistinct, sutures all conspicuous.

Pronotum about quadrate, the sides slightly convex and converging backwards, the angles rounded. Light testaceous, the prozona more or less darker, especially on each side a small area bordering on the mesozona darker brownish.

Scutellum rather large, probably varying with the development of the elytra, which in our specimens are very short.

Abdomen castaneous in male, almost black in female specimen. Posterior dorsal segment not crested laterally, with the posterior lateral angles somewhat prominent. Penultimate ventral segment rather broad and rounded, with a small but distinct undeep median emargination in the male; more triangular and without emargination in the female specimens.

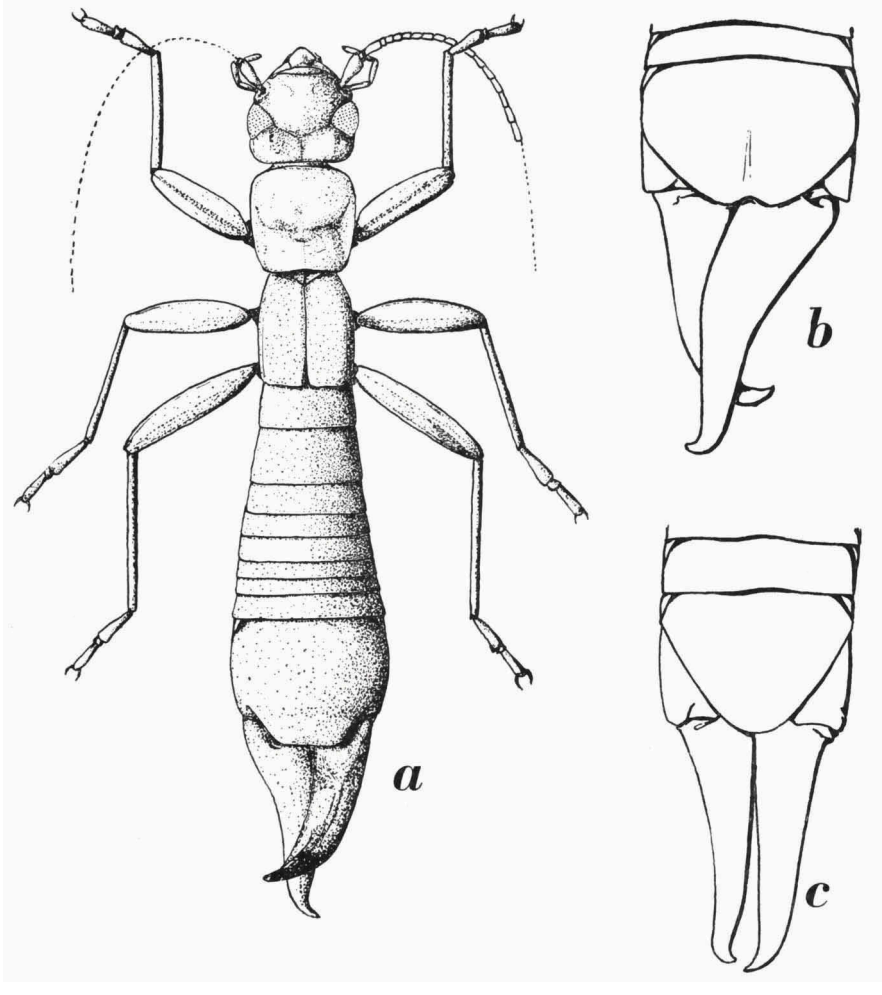

Fig. 5. *Pyge vanderdoesi* nov. spec. a, habitus of male in dorsal view; b, penultimate ventral segment and forceps of male in ventral view; c, penultimate ventral segment and forceps of female in ventral view. a, × 5; b, c, × 7.

Male forceps smooth, without protuberances, flattened ventrally, further closely agreeing with *cumingi* Dohrn. Female forceps more straight in dorsal

view and less asymmetrical. All forceps rather strongly curved upwards, especially the right one in the male.

Abdomen and a part of the forceps covered with a dense cloth of short light hairs; some very short and dark brownish hairs sparsely on elytra and pronotum, some longer hairs on head and legs.

Further small and rather inconspicuous differences in coloration seem unimportant, the present scant material showing a distinct variability.

Total length 22 mm (♂), 24 mm (♀), length of forceps 4.5 mm (♂), 4 mm (♀).

Although Burr (1915, p. 430) expresses the opinion that his genus *Pyge* should be suppressed, it is still accepted here on account of the very close agreement of the present specimens with the diagnosis of that genus.

Acrania bakeri Borelli (fig. 7c)

Acrania bakeri Borelli, 1920, p. 2; —, idem, 1932, p. 180.

Leiden Museum:

Borneo, Sugut, Sandakan Bay, Prakke, 1 ♀.

The identification of the single, female, and moreover rather damaged specimen should be accepted with some reserve. The abdomen is broken, some segments lacking, but the apical part still existent.

The coloration differs in some respects from Borelli's description (l.c.), but the variability of this character is indicated by this author's description of a color variety of the same species (1932, p. 180).

The present specimen is completely covered with a dense cloth of short hairs and, excepting the separate abdominal part, with a whitish muddy substance. The original color of head and antennae is rather dark brown. The pronotum, slightly broader than long, has a remarkably deep curved furrow behind the darker brown convex prozona. Scutellum, elytra, femora, and tibiae also quite dark but with a very dense cloth of much lighter hairs. The apical part of the abdomen very dark brown.

In contradistinction with Borelli's original description there is no distinct triangular median impression on the posterior dorsal abdominal segment. A distinct median incisure in the penultimate ventral segment completely agrees with Borelli's statement on the subject. Sexual dimorphy seems slight.

Pygidicraninae spec. incert.

Leiden Museum:

Java, XII 1917, E. Jacobson, 1 immature.

Originally placed with the *Diplatys* species, distinguished by not having the cerci segmentate.

Subfamily PYRAGRINAE

Pyragra fuscata Serville (fig. 3c, d)

Pyragra fuscata Serville, 1831, p. 34.

Leiden Museum:

South America, Brazil, 1 ♂; Dutch Guiana, Lawa River, 3 XI 1903, G. M. Versteeg, Gonini Expedition 1903/1904, 1 ♀.
Locality unknown, 1 ♀.

Amsterdam Museum:

South America, Brazil, Joinville, 1 ♀ (det. Burr, 1905); Dutch Guiana, Franssen Herderschee-peak (3° 25′ N., 56° W.), 9 IX 1908, J. H. A. T. Tresling, Surinam Expedition, 1 ♂.

The specimen from the Lawa River was identified as "*P. saussurei*", the specimen from unknown locality as "*Thermastris* Dohrn — *Brasiliensis* Gray" and "*Opaca* Burm.".

The Brazilian specimens have the exposed parts of the wing scales plain yellow, representing De Bormans's forma *brasiliensis* (1900, p. 24); the further specimens have the lateral parts distinctly brownish, as in De Bormans's forma *saussurei* (l.c.).

The only, but very considerable, difference between the two male specimens is found in the shape of the forceps (fig. 3).

Total length 20 mm, forceps 5.5 mm, in the male specimen from Brazil; total length 25 mm, forceps 5.5 mm, in the Guiana male.

Pyragropsis emarginata Rehn

Pyragropsis emarginata Rehn, 1916, p. 216.

Amsterdam Museum:

South America, Dutch Guiana, Gran Rio (56° 13′ W., 3° 25′ N.), 22 IX 1908, J. H. A. T. Tresling, Surinam Expedition, 1 ♂.

Abdomen and four legs detached but still present.

Excepting few small differences, there is a complete agreement with Rehn's description. The posterior margin of penultimate ventral segment considerably emarginate. Median part of pronotum between two lines converging backwards from the shoulders brown, lateral parts lighter, yellowish. Elytra dark brown with lighter spots close behind pronotum. Sides of otherwise dark brown wing-scales distinctly lighter. Legs testaceous or yellowish, proximal $^1/_2$ (or $^2/_3$) of femora, and generally the tibiae dark. Antennae dark brown except ultimate (16th) yellow segment. Abdomen dark castaneous. Inner proximal $^2/_3$ of forceps covered with a dense cloth of rather long hairs.

Total length about 12 mm.

Subfamily ECHINOSOMATINAE

Echinosoma yorkense Dohrn

Echinosoma Yorkense Dohrn, 1869, p. 234.
Echinosoma yorkense, Burr, 1912b, p. 227; —, Günther, 1929, p. 60.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 1 ♂ (det. Burr).

Amsterdam Museum:

Java, Nongkodjadjar, XII 1921?, MacGillavry, 1 ♂.

The similarity between both specimens is almost complete, the size 5.8 and 8 mm, forceps 1 mm.

A further juvenile specimen identified by Burr as "*E. yorkense* (?) Dohrn", probably representing the specimen mentioned in his paper (l.c.), has been removed to the related species *sumatranum* De Haan. Either the immature specimens of *yorkense* and *sumatranum* are very much alike, or this example belongs to the second species. The material is too scanty for a final decision.

?**Echinosoma fuscum** Borelli (fig. 3d)

Echinosoma fuscum Borelli, 1907, p. 350.

Amsterdam Museum:

Africa, Angola, District Lunda, 1200 m, 1927, P. A. Nannings, 1 ♀.

This identification of a single female specimen should be regarded with some reserve. The agreement with Borelli's description of the present species is very close, especially the coloration: antennal segments "bruni ad eccezione del secondo e del tre ultimi giallo-bruni", but the antennae consist of 24 segments; pronotum "castaneo-oscuro con 2 macchie giallo sporco sui lati in forma di triangolo", wing-scales "giallo". However, this description does not mention the shape of the pygidium.

Burr (1915, p. 437) and Rehn (1924, p. 362) both regarded *Echinosoma fuscum* Borelli as synonymous with *E. afrum* (Palisot de Beauvois), but the shape of the pygidium in the second species, short and transverse, seems to be completely different. Borelli (1923, p. 415) and Menozzi (1935, p. 31), on the contrary, both mention *fuscum* as a separate species.

The coloration of the present specimen also shows close affinity with *Echinosoma occidentale* De Bormans, viz., the dark form described by Rehn (1924, p. 365); only the distinct lateral triangular yellowish blotches on pronotum and the plain yellow wing scales better agree with Rehn's light colored form (l.c., pp. 365, 366). The pygidium, however, is completely different in shape.

Echinosoma sumatranum (De Haan)

Forficula sumatrana De Haan, 1842, p. 241.

Echinosoma sumatranum, Burr, 1910, p. 70; —, idem, 1912a, p. 26; —, idem, 1912b, p. 227; —, Borelli, 1926, p. 252; —, idem, 1932, p. 180; —, idem, 1932b, p. 81; —, Günther, 1932, p. 471.

?*Echinosoma horridum* Dohrn, 1863, p. 66; —, Zacher, 1911, p. 344; —, Burr, 1912b, p. 227; —, Borelli, 1927, p. 69; —, idem, 1932, p. 180; —, idem, 1932b, p. 80.

?*Echinosoma westermanni* Dohrn, 1863, p. 65.

A discussion on further synonymy is given in the text.

Leiden Museum;

Java, A. J. van Eyndhoven, 1 ♂; C. L. Blume, 1 ♂ (type of *horridum* Dohrn); Preanger, H. W. van der Weele, 2 ♂♂, 2 ♀♀, 9 immature; Nongkodjadjar, I 1911, E. Jacobson, 2 ♀♀, 6 immature (det Burr; "*E. horridum* (?) Dohrn" (♀ and immature), "*E. yorkense* (?) Dohrn" (immature)); Gunung Ungaran, X 1909, XII 1909, IX 1910, E. Jacobson, 1 ♂, 4 immature; Tjiliwung, Puntjak-pass, Res. Buitenzorg, about 1000 m, VI 1932, W. C. van Heurn, 7 ♂♂, 4 ♀♀, 2 immature.

Sumatra, Padang, S. Müller, 1 ♂ (type of *F. sumatrana* De Haan); Padang-Bessie, 1 ♀ (type of *F. sumatrana* De Haan); Batang Singalang, 1 ♀ (type of *F. sumatrana* De Haan); Tandjong Morawa, Serdang, B. Hagen, 5 ♀♀, 3 immature (partly det. Burr); Tanangtalu, V 1915, E. Jacobson, 1 ♂.

Philippine Islands, Manila, H. Deyrolle, 1 ♂.

Locality unknown, 2 ♂♂, 1 ♀.

Amsterdam Museum:

Java, Tjigembong, Preanger, J. B. Corporaal, 1 ♂.

Sumatra, Gunung Salihan, 1907, J. P. Kleiweg de Zwaan, 1 immature; Tandjong Merah, 22 m, 4 VIII 1921, J. B. Corporaal, 1 ♀; Simpang Raja, 400 m, 16 VIII 1921, J. B. Corporaal, 1 ♂, 2 ♀♀; Sibolangit, 550 m, 16 & 27 X 1921, J. B. Corporaal, 1 ♂, 1 ?; Sibolangit, 550 m, 16 X 1921, J. A. Loerzing, 1 ♂.

New Guinea, foot of Mount Cyclope, 11 IV 1903, 1 ♂ (det. Burr, *E. westermanni* Dohrn); Lake Sentani, 2-19 IV 1903, Dutch New Guinea Expedition 1903, 1 ♀ (det. Burr, *E. forbesi* Kirby).

Burr's statement (1912b, p. 227) still stands: "The specific distinctions of this genus are very vague, and probably many species will have to be sunk as mere colour variants." Since then, hardly any of the indicated difficulties have been convincingly solved, on the contrary, some further species have been described on in my opinion insufficient characters.

Before initiating any new species of *Echinosoma,* the validity and range of variation in the principal characters should be established for the various species(?), forms, and varieties known at present. Certainly no new species should be described without a considerable series of specimens available.

The present material, though rather numerous and containing several of the hitherto discriminated forms, still is insufficient for any decisive conclusions in this matter.

The two specimens from Padang and Padang-Bessie, Sumatra, in the

collection of the Leiden Museum, are De Haan's types of the present species. The specimen collected by Blume in Java, in the same collection, is the type of *horridum* Dohrn.

As presumed by Burr (1915, p. 437), *horridum* Dohrn seems to be a synonym of *sumatranum,* the type showing no really distinctive characters. A further suggestion by Burr (l.c.), the synonymy of *sumatranum* and *westermanni* Dohrn, seems confirmed by the lack of deviation in the principal characters of the New Guinea specimen identified by Burr as *westermanni.*

The second New Guinea specimen, identified by Burr as *Echinosoma forbesi* Kirby, accurately agrees with our female specimens of *sumatranum,* but a decision as to a possible synonymy between the two can not be reached with the scant material, the single available specimen of *forbesi*(?) moreover being female.

Burr (1915, p. 437) regarded *forbesi* Kirby as probably synonymous with *yorkense* Dohrn, but this seems doubtful. A synonymy of *forbesi* and *sumatranum,* also suggested by De Bormans (1900, p. 28), is more acceptable.

A further addition to the synonymy of *sumatranum* may be *Echinosoma siebersi* Borelli (1926, p. 351), hardly (if at all) distinct from *forbesi* Kirby, and probably *micropteryx* Günther, as already suggested by its author (1932, p. 427).

A discrimination between supposed species on account of differences in color and markings seems without any value, as is conclusively shown by the wide range of variation and the existence of almost every stage of transition in this character in the present material.

More reliable is generally the shape of the pygidium. Günther (1932, p. 42) writes about *Echinosoma siebersi* Borelli and *E. forbesi* Kirby: "Die beiden letztgenannten Species zeichnet den übrigen *Echinosoma*-Arten gegenüber das spitz nach hinten ausgezogene Pygidium der ♂♂ aus." The present material, however, shows a considerable amount of variation in this character too, especially in the females, and the two species mentioned by Günther were described originally after female specimens only.

Several of the present specimens, viz., those collected by Jacobson and by the Dutch New Guinea Expedition, have been mentioned by Burr in previous papers (1906, p. 9; 1912a, p. 26; 1912b, p. 227). The type of *horridum* Dohrn has been examined by De Bormans.

There are some brachypterous specimens among the material collected by Van der Weele, with the dark tip of the wing-scales exposed only; the Lake Sentani (New Guinea) specimen has the wing-scales almost completely

brown, a color generally existing (if at all!) at the apex only, but the further material contains a complete series connecting it with the typical form.

This species must be the most common of the genus in the Indo-Australian area.

Echinosoma spec.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 1 immature.

This specimen may belong to *E. sumatranum* (De Haan).

Family LABIDURIDAE

Subfamily ALLOSTETHINAE

Allostethus indicum (Burmeister)

Forficula indica Burmeister (MS Hagenbach), 1838, p. 751.
Allostethus indicum, Borelli, 1926, p. 252; —, idem, 1927, p. 69; —, Hebard, 1927, p. 25.

Leiden Museum:

Java, C. L. Blume, 1 ♂; A. J. van Eyndhoven, 1 ♀; Ardja-Sari, Preanger, A. E. Kerkhoven, 1 ♂, 1 ♀; Batavia, 1932-1933, W. C. van Heurn, 1 ♂, 2 immature; Bremi, Probolinggo, 1000-2000 m, XI 1934, VII 1935, W. C. van Heurn, 4 ♂♂, 4 ♀♀, 4 immature; Idjen Highlands, East Java, about 1600 m, XI 1936, J. van Heurn, 1 immature (abdomen only); Kendeng Ridge, Idjen Highlands, about 1600 m, 1936, F. J. Appelman, 2 ♀♀, 1 immature.

Sumatra, Manna, Palembang, M. Knappert, 1 ♀, 2 ??; Batang Singalang, 1 ♀; Padang, 1 ♂; Laut Rakit, Serdang, IV 1910, J. B. Corporaal, 1 ♂; Highlands of Padang, E. Piaget (Dunlop), 1 ♀; Serapai Kur., VII 1915, E. Jacobson, 1 ♀.

Locality unknown, 4 ♂♂, 3 ♀♀, 1 immature, 1 ?.

Amsterdam Museum:

Java, Ardja-Sari, Preanger, 3 ♀♀; Tjigembong, V 1915, J. B. Corporaal, 1 ♂, 2 immature (♂ and 1 immature: det. MacGillavry).

Batu Islands, Pulu Tanahmassa, IX 1896, I. Z. Kannegieter, 1 ♂, 4 ♀♀; Pulu Pini, XI 1896, I. Z. Kannegieter, 2 ♂♂.

The generally small brownish apical spot on the exposed wing-scales is variable and, in extreme cases, covers this whole area except a small median part close behind the apical margins of the elytra.

The coloration of the legs seems to vary with the geographical distribution: the Sumatran specimens have the femora and tibiae almost completely unicolorous brown, the Javanese specimens have the proximal halves brown only; the specimens from the Batu Islands have the legs about unicolorous, but the whole coloration is considerably lighter and rather castaneous.

There seems to be but little variation in the degree of exposure of the wings, so that there is no gradual transition to the brachypterous forms.

The Sumatran specimen collected by Piaget was labelled "*Psalis indica* Hagenb." Some of the Batu Island specimens are slightly smaller than normal, especially the male and one female from Tanahmassa (less than 20 mm total length).

Allostethus indicum (Burmeister), var. **setiger** Verhoeff

Allostethus setiger Verhoeff, 1904, p. 117.
Allostethus indicum Hagenb. (Burm.), var. *brachyptera* Borelli, 1932, p. 180; —, idem, 1932a, p. 191; —, idem, 1932b, p. 81, fig. 1.

Leiden Museum:

Java, Preanger, Mrs. F. Adèr, 1 ♀; Garut and environs, Preanger, 700 à 1000 m, 1928, XI 1928, 1929, IV-IX 1929, V-VIII 1930, II-III 1931, W. C. van Heurn, 13 ♂♂, 14 ♀♀, 8 immature.
Sumatra, 1 ♂.

Although some minor variations in the development of the wings are shown by the present brachypterous material, there are no intermediary forms connecting them with the forma typica. The length of the wings varies between slightly shorter and hardly longer than the elytra, the variation within these extremes sometimes being shown in a single specimen. The range of variation also seems to cover the presumed difference between *setiger* Verhoeff and *brachyptera* Borelli.

The further characters show the same range of variation as the typical form, including the rare abbreviation of the elytra (with an equal further abbreviation of the wings). The single Sumatran specimen, however, shows the "Javanese" bicolorous markings on femora and tibiae.

I doubt whether this material belongs to a separate species, *A. setiger* Verhoeff, in accordance with Hebard (1927, p. 25). On the other hand it might form a mere variety of the common *A. indicum* as already suggested by Verhoeff. Provisionally Verhoeff's suggestion is here accepted on account of the unreliability of the discriminating characters (length of wings; coloration).

Allostethus indicum (Burmeister), var. **minor** De Bormans

Ps(alis) indica Hagenb. Burm., var. *minor* De Bormans, 1900, p. 447.

Leiden Museum:

Sumatra, Tanangtalu, V 1915, E. Jacobson, 1 ♀.
Locality unknown, 1 ♀.

The same variability in coloration seems to occur as in the previous forms; the Sumatran specimen has bicolorous femora.

The only discriminating character for this variety seems to be the rather small size. As this character is very unreliable, more or less smaller specimens also occurring among our material of the forma typica (Batu Islands!), I doubt the validity of the present variety.

Allostethus indicum (Burmeister), var. **maculatum** nov. var.

Leiden Museum:

Celebes, Tondano, E. A. Forsten, 1 ♀ (holotype).

Distinguished by a distinct, about round and large testaceous spot on each elytrum, situated slightly anterior of the centre and even extending on the vertical sides, but not reaching the median margins. Elytra rather short in the present specimen, 1.5 length of pronotum.

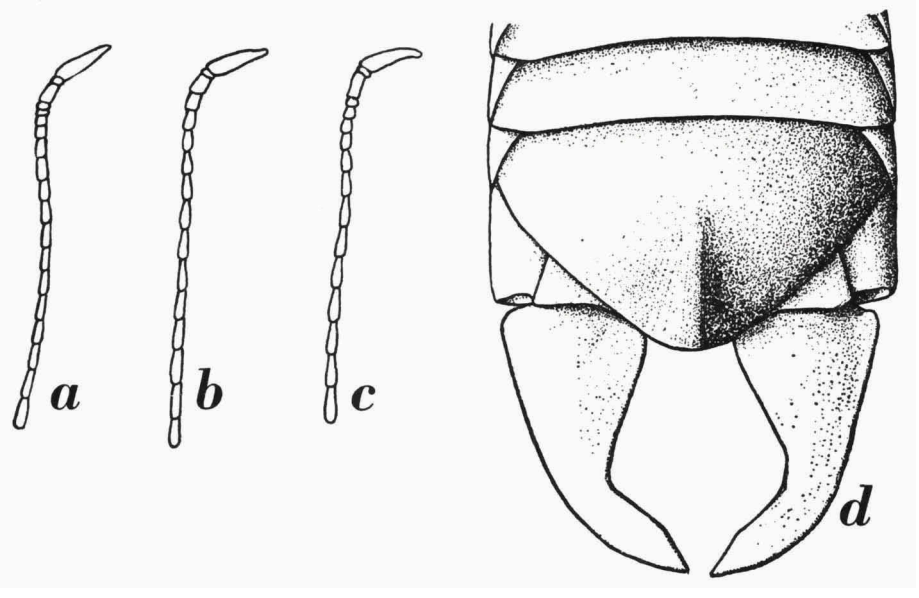

Fig. 6. a, *Gonolabidura javana* nov. spec., antenna of male. b, *Gonolabidura boschmai* nov. spec., antenna of male. c, *Gonolabidura piligera* (De Bormans), antenna of female. d, *Gonolabis javana* (De Bormans), penultimate ventral segment and forceps of male in ventral view. a, × 7.5; b, × 8; c, × 9; d, × 23.

Gonolabidura piligera (De Bormans) (fig. 6c)

Anisolabis piligera De Bormans, 1900, p. 453.

Gonolabidura piligera, Borelli, 1926, p. 252; —, idem, 1926a, p. 389; —, idem, 1927, p. 69; —, Hebard, 1927, p. 24.

Leiden Museum:

Sumatra, Suban Ajam, VII 1916, E. Jacobson, 1 ♀.

Amsterdam Museum:

Sumatra, Manindjan, M. Weber, 1 ♂.

Shape slightly more slender than in the next species. Legs unicolorous, testaceous. Shape of antennal segments somewhat variable: in comparison to those of fig. 6c the third may be slightly shorter, the fourth and fifth slightly longer (though never as short and transverse as in the next species).

Gonolabidura javana nov. spec. (figs. 6a, 7a & b)

Leiden Museum:

Java, Tjinjiruan, Malabar Mountains, West Java, 1700 m, X, XII 1909, H. W. van der Weele, 2 ♂♂ (holotype and paratype); Preanger, West Java, H. W. van der Weele, 1 ♂ (paratype); Garut, West Java, 1893, F. Adèr-Verver, 1 ♂ (paratype); Pangerango, X 1908, E. Jacobson, 1 ♂ (paratype, "*Anisolabis* sp.", det. Burr); W. J. E. Hekmeyer, 1 ♂ (paratype), 1 ♀ (allotype).

Amsterdam Museum:

Java, Nongkodjadjar, XII 1921?, MacGillavry, 1 immature.

There is a striking resemblance with the previous species but the few and small differences (e.g., shape of penultimate ventral segment, shape of antennal segments, bicolorous legs) show a remarkable constancy.

The characters agreeing with the previous species and those easily taken from the figures are omitted from the present description.

Antennal segments darker than in *piligera,* only one or two distal segments (17th-22th) lighter yellowish. Antennae generally mutilated, maximal number of segments 22 with the apical segment very light yellowish (specimen from Tjinjiruan). Shape of fourth and fifth antennal segments slightly variable, transverse, distinctly shorter and thicker than in *piligera*; the further segments shorter and thicker too, but in a minor degree, the seventh about as long as broad, the next longer and cylindrical, gradually becoming more ovate in the apical segments.

Pronotum slightly longer, mesonotum somewhat shorter than in *piligera,* but these differences appearing after a very close comparison only, and are possibly due to individual variability.

Posterior dorsal segment smooth with several longitudinal rows or bands of points; median longitudinal furrow indistinct. Posterior margins of second to fourth (fifth) dorsal abdominal segments distinctly irregular, with small protuberances.

Mesosternum slightly variable the angles sharper in the female than in the male specimens. Penultimate ventral segment quite broad, triangular,

more rounded than in the previous species, with a blunt apex which may even be slightly truncate.

This species seems to occur on Java only, in contradistinction with *piligera,* reported from Sumatra only. There is, however, in the collection

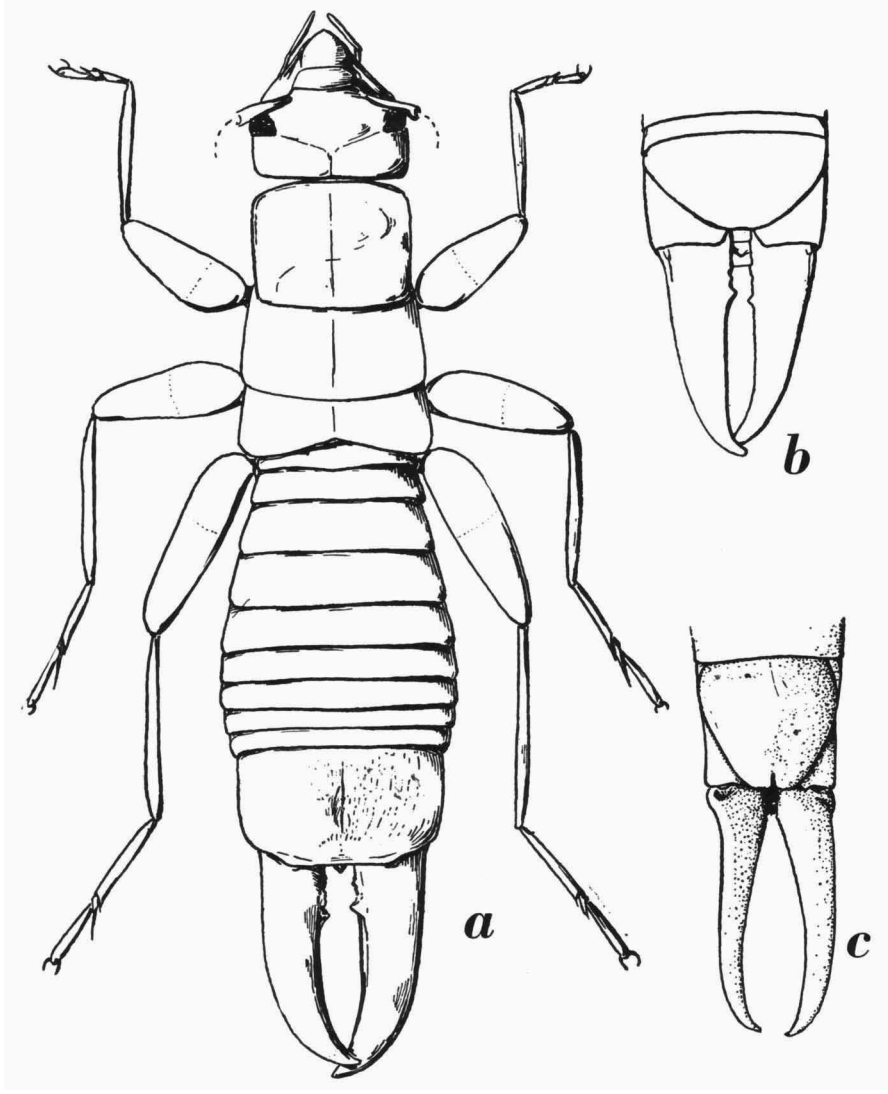

Fig. 7. a, b, *Gonolabidura javana* nov. spec. a, habitus of male im dorsal view; b, penultimate ventral segment and forceps of male in ventral view. c, *Acrania bakeri* Borelli, penultimate ventral segment and forceps of female in ventral view. a, b, × 7; c, × 6.5.

of the Amsterdam Museum, a male specimen identified by Burr (1905) as "*Gonolabis piligera* Borm.", from Sumatra (Manindjan, M. Weber), which shows a slightly better agreement with the present species, and consequently has been included provisionally in the *javana* material.

Total length of male 13-20 mm, forceps 2.5-4 mm; immature 11 mm in total length.

Gonolabidura boschmai nov. spec. (figs. 6b, 8)

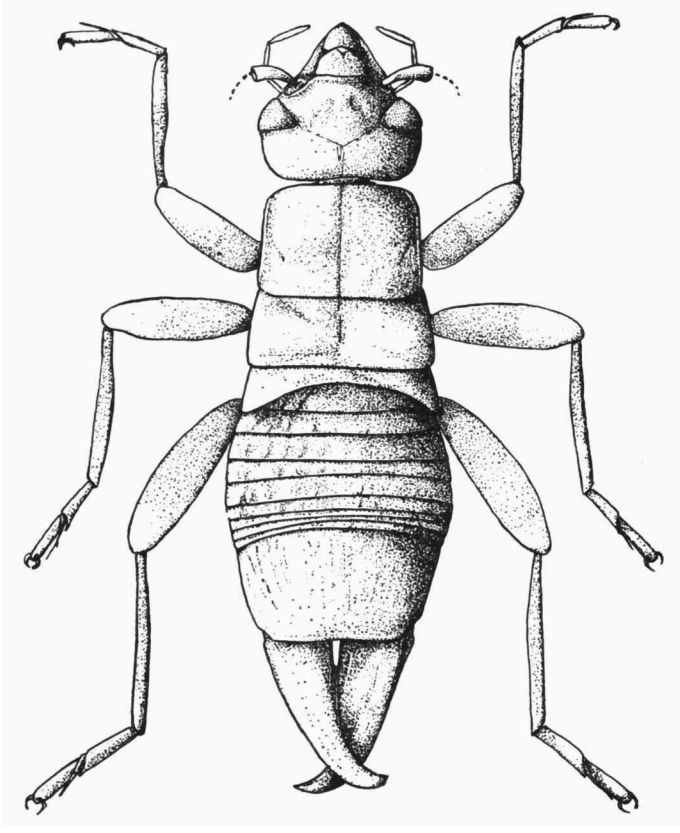

Fig. 8. *Gonolabidura boschmai* nov. spec., habitus of male in dorsal view. × 8.

Leiden Museum:

Celebes, Malino, 7 VIII 1939, H. Boschma, 1 ♂ (holotype).

This species is distinguished by the very short and broad shape, the almost black color, the shape and coloration of the antennal segments, and the very long and sparse hairs on the lateral parts of the abdomen and on

the femora. Furthermore, it seems to be the only representative of the genus on Celebes.

The almost triangular smooth head is shining black, with distinct occipital sutures, the posterior margin truncate. The rather small and not very prominent eyes castaneous, their diameter about equal to postorbital length of head.

Antennal segments hairy, almost black, excepting a slightly lighter thirteenth, a distinctly lighter and castaneous fourteenth, and a very light yellowish fifteenth segment in the left antenna (total sixteen segments); the right antenna has but fifteen segments, all dark.

Pronotum very dark castaneous, meso- and metanotum very dark too, almost black. Sternites testaceous. Femora very dark brown with a light testaceous distal half; tibiae the same, but with a lighter distal third; tarsi testaceous.

Basal antennal segment strongly widened apically, slightly longer than eye; second segment very short, third about half the length of first, cylindrical; fourth about half the length of third, more globular and slightly transverse; fifth hardly longer than broad, globular; the further segments gradually lengthening, becoming slightly conical, near the apex more or less ovate.

Pronotum quadrangular, sides slightly diverging backwards. Median suture distinct, pro- and metazona of about equal length, hardly tumid, mesozona slightly impressed, sides distinctly curved upwards. Width slightly less than head immediately behind eyes, about 1.5 in own length.

Mesonotum hardly tumid, width a distinct median suture, not keeled, the slightly convex sides distinctly diverging backwards; some long hairs along the sides. Exposed length almost half the length of the pronotum.

Metanotum with a distinct median suture, some long hairs laterally, a strongly concave posterior margin: length along sides about 1.5 median length, which is about half the length of the mesonotum.

Abdomen broadening toward sixth segment, gradually narrower beyond, strongly contracted in the present specimen, with some long hairs near the sides. Free margins of anterior five segments with distinct and irregular protuberances; all except posterior dorsal segment with a row of fine short hairs along the free margins, also occurring along the free margins of pro-, meso-, and metanotum.

Posterior dorsal segment very large, tumid, its sides strongly converging backwards, the surface smooth though finely striate, this texture becoming more irregular near the truncate posterior magin. Sternites of the common type, mesosternum angular. Penultimate ventral segment broad and rounded.

Forceps short, stout, strongly tapering, round in cross section, with an internal keel and an indistinct blunt proximal tooth. Slightly curved upwards in lateral view, the tops somewhat curved inwards and crossing left over right.

Legs rather short, the anterior pair shortest, femora thick and strong, about as long as pronotum in anterior pair; femora of posterior legs longest, about equal to length of pro- and mesonotum together. Femora with long dark hairs, the slender tibiae with few long hairs but, especially on distal part, with several short hairs. Tarsi hairy, together slightly shorter than tibiae of same legs.

Total length 12.5 mm, forceps 2.5 mm. On account of the rather peculiar shape, some further measurements are given: length of head 2.5 mm, posterior dorsal segment 1.9 mm, pro-, meso-, and metanotum 3.3 mm; width of sixth abdominal segment 4 mm, pronotum (anteriorly) 2.6 mm, mesosternum (posteriorly) 3 mm.

Named after the collector of the type specimen, Prof. Dr. H. Boschma, Director of the Leiden Museum.

Allostethella doriae (Dubrony)

Forficula Doriae Dubrony, 1879, p. 379, fig.
Allostethella doriae, Burr, 1912e, p. 316; —, Borelli, 1932, p. 180; —, idem, 1932b, p. 81.

Leiden Museum:

Sumatra, Mahan Pandjang, X 1877, Sumatra Expedition, 1 ♀ ("*Psalis femoralis* Dohrn, var., ♀"); Anai Cleft, Sumatra's West Coast, 500 m, 1926, E. Jacobson, 4 ♀♀, 7 immature.

All have the characteristic Allostethid shape of the mesosternum, well developed wings, orange spots on the elytra (Borelli, 1932b), but differ slightly from Burr's diagnosis of the genus (1913a, p. 25) by having the posterior margin of the metasternum truncate.

Peculiar seems the variability of shape, length, and number of antennal segments. Generally the tenth or eleventh segment is light testaceous, but in one specimen there is a remarkable difference between the two antennae: one is normal, and has the tenth segment lighter, in the other antenna the eighth shows the lighter coloration. However, the length of the segments in the second antenna being distinctly greater, the distance between head and testaceous segment is the same in both antennae.

Subfamily ESPHALMINAE

Esphalmenus lativentris (Philippi)

Forficula lativentris Philippi, 1863, p. 217.
Esphalmenus lativentris, Hebard, 1920, p. 338.

Leiden Museum:

South America, Amargo — San Carlos, (Valdivia), Gurbea, 4 VI 1938, Miss Andreas, 2 ♂♂, 3 ♀♀.

Subfamily PSALINAE

Titanolabis (**colossea** (Dohrn)?)

Forcinella colossea Dohrn, 1864, p. 286.

Leiden Museum:

Nias, Gunung Sitoli, J. P. Kleiweg de Zwaan, 1 ♀.

This species has been reported from Australia, Fiji Islands, New Zealand, New Caledonia, New Hebrides, Burma, and China, erroneously from Brazil, but up to the present never from the Indo-Australian Archipelago; it consequently seemed to inhabit two distinctly separated areas. The present report, however, narrows the distributional gap, though it does not disprove Burr's supposition (1910, p. 82) that the two areas "probably" are inhabited by two separate species.

If true, Burr's supposition would mean that the present specimen represents the East Asian species, or possibly a third form occupying to an uncertain extent the intermediate regions. The single and moreover female specimen is of course insufficient for a decision in this matter; it has provisionally been identified as *colossea* Dohrn.

Total length 21.5 mm, forceps 3.5 mm.

"**Titanolabis** sp.n."

Titanolabis sp. n. Burr, 1915b, p. 115.

Leiden Museum:

Simalur, Sinabang, IV 1913, E. Jacobson, (1 ♀), ova.

Only the label reading "no. 500 ♀ + ova *Titanolabis* n. sp." remains, the specimen must be considered lost. This is to be regretted as Burr (l.c.) mentioned the specimen with only the short remark: "much smaller size, and longer and narrower thoracic plates" (than in *colossea*).

Gonolabis electa Burr

Gonolabis electa Burr, 1910, p. 79, pl. 3 fig. 21; —, Borelli, 1926, p. 255; —, idem, 1927, p. 70; —, idem, 1932b, p. 82; —, Hebard, 1927, p. 26.

Leiden Museum:

Sumatra, Anai Cleft, Sumatra's West Coast, 500 m, 1926, E. Jacobson, 1 ♂.
Java, Garut, West Java, about 700 m, IV 1929, W. C. van Heurn, 1 ♂, 1 ♀.

Amsterdam Museum:

Sumatra, Singkarak, M. Weber, 1 ♂ ("*Gonolabis sumatrana* Borm.", det. Burr, 1905).
Java, Buitenzorg, I 1921, L. J. Toxopeus, 1 ♂.

The specimen originally identified by Burr as *sumatrana* considerably differs from another specimen of the latter species, also identified by Burr. It obviously must be regarded as belonging to the present species. The Buitenzorg specimen has the forceps slightly less abruptly curved, the abdomen somewhat more slender.

Gonolabis minor Borelli (1926, p. 253) is probably a synonym of the present species. In case this opinion proves wrong, the Buitenzorg specimen may be regarded as belonging to Borelli's species.

The resemblance with the South American species of *Esphalmenus* is remarkable, though merely incidental.

Gonolabis sumatrana De Bormans

Gonolabis sumatrana De Bormans, 1900, p. 452; —, Borelli, 1927, p. 70; —, idem, 1932, p. 181; —, idem, 1932b, p. 82; —, Hebard, 1927, p. 25.

Leiden Museum:

Java, Gunung Pangerango, 11 XI 1898?, J. Büttikofer, 1 ♂ (det. Burr).

This must be the specimen mentioned by Burr (1910a, p. 172). It is in a bad condition.

The present species has been reported from the Malay Peninsula, Sumatra, Simalur, Java, Borneo (Borelli, 1932, p. 181), and Celebes (Burr, 1912c, p. 74). The resemblance with *G. javana* (De Bormans) is very close but this species has a distinct keel on the penultimate ventral segment, lacking in *sumatrana*. The territories of both species seem to overlap.

Gonolabis oblita Burr

Gonolabis oblita Burr, 1910a, p. 172, pl. 46 figs. 6, 12; —, idem, 1912a, p. 26; —, Borelli, 1926, p. 225; —, idem, 1932, p. 181.

Leiden Museum:

Java, Srondol, Semarang, VIII 1909, E. Jacobson, 1 ♀ (det. Burr); Semarang, III 1910, E. Jacobson, 1 ♂.
Simalur, "jungle", VII 1913, E. Jacobson, 1 ♀.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 1 ♀ ("*Gonolabis javana*", det. Burr, 1905).

The Javanese specimens in the collection of the Leiden Museum have been mentioned in a previous paper (Burr, 1912a).

The identification of the single female specimen from Simalur should be taken with some reserve. There are, however, no important morphological differences in comparison with the Srondol female; the annuli on the femora are only slightly less distinct. The principal difficulty is the lacking of reports from Sumatra, probably due to incomplete knowledge; Burr (1912e, p. 316) even reported the present species from Luzon.

Gonolabis javana (De Bormans) (fig. 6d)

Anisolabis javana De Bormans, 1883, p. 63, pl. 2 fig. 4.
Gonolabis javana, Borelli, 1926, p. 252.

Leiden Museum;

Malay Peninsula, P. J. van der Does de Bye, 2 ♂♂.

I hesitatingly identified these Malayan specimens on account of the hitherto known distribution of *javana* and the lack of comparative material. Judging by the literature, however, the few differences are very small (size: body 8.5-10.5 mm, forceps 1.5-1.7 mm; legs not annulated, with a brown band), consequently the present identification seems justified.

Both specimens have a rather blunt, though distinct, median longitudinal keel on the penultimate ventral segment, possibly slightly less sharp than indicated in literature. The lateral angles of the abdominal segments seem somewhat less acute than in *G. electa* Burr.

Gonolabis acuta nov. spec. (fig. 9a, b)

Leiden Museum:

Java, Garut (environs), West Java, XII 1928, W. C. van Heurn, 1 ♂ (holotype).

Amsterdam Museum:

Java, Tjibodas, M. Weber, 1 ♂ (paratype, "*Gonolabis javana* Borm.", det. Burr, 1905).

Distinguished by the very dark coloration, the size, the strongly widening abdomen, the very acute sides of the abdominal segments, the smooth penultimate ventral segment, the angular curvature of the forceps. Except in size, it most closely resembles *G. electa* Burr.

The description has been made after the specimen from Garut (holotype).

Coloration: almost completely black or dark castaneous, only the distal parts of femora and tibiae, the tarsi, second, and part of fifteenth antennal segments testaceous.

Head in dorsal view markedly rounded, tumid between antennal insertions and distinctly impressed transverse occipital suture. Posterior part flattened except laterally, behind eyes. Posterior margin truncate with a distinct

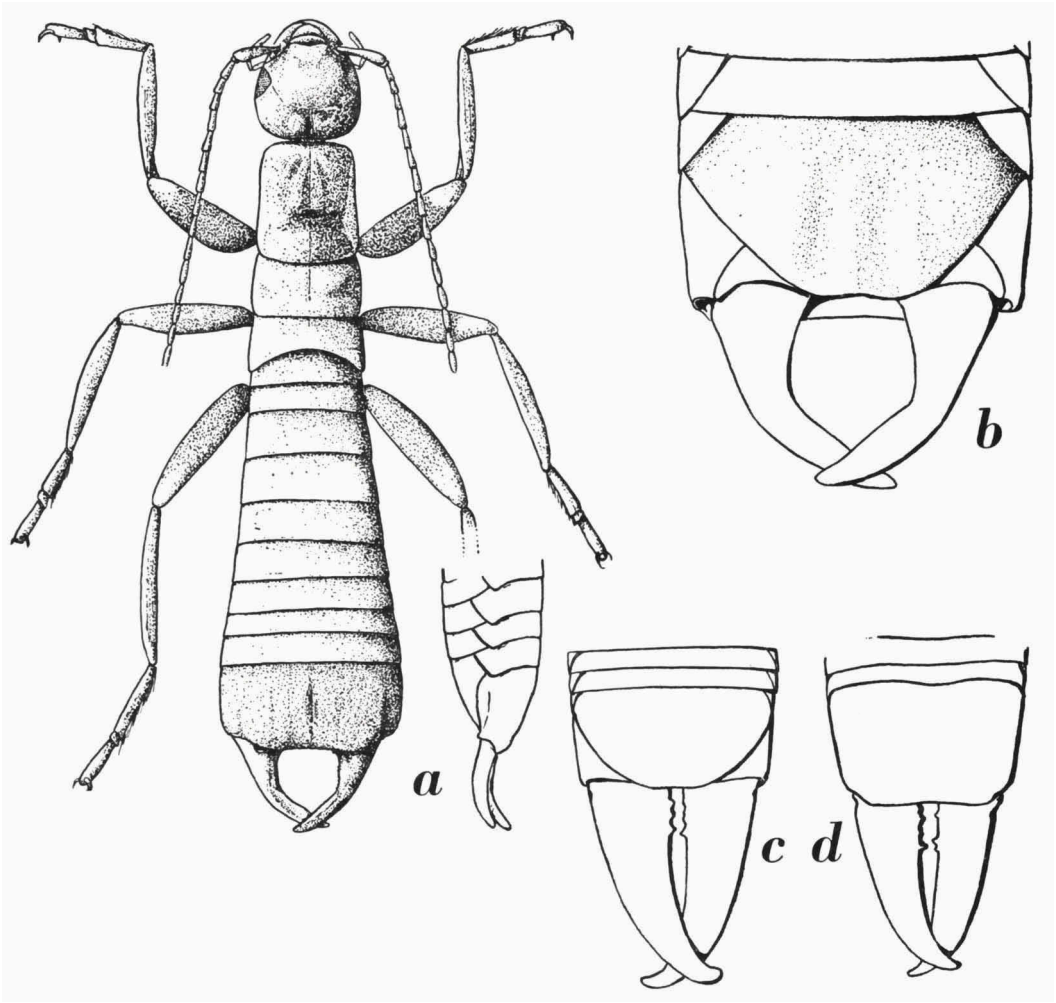

Fig. 9. a, b, *Gonolabis acuta* nov. spec. a, habitus of male in dorsal view; b, penultimate ventral segment and forceps of male in ventral view. c, d, *Anisolabis marginalis* (Dohrn). c, posterior part of abdomen and forceps of male in ventral view; d, posterior part of abdomen and forceps of male in dorsal view. a, × 7.15; b, × 18; c, × 7.5; d, × 7.3.

median concavity. Some hairs on lateral parts of occiput and before tumid zona. Eyes not very prominent, diameter not quite equal to postorbital length of head.

Basal antennal segment about as long as postorbital head, elongately club-shaped. Second segment very short, about quadrate; third cylindrical, about half the length of basal segment; fourth distinctly shorter, slightly longer than broad. Further segments gradually lengthening, growing more slender and conical, the apical segments ovate.

Pronotum slightly longer than broad, somewhat longer than head, but about as broad. Sides slightly diverging backwards, the lateral margins of a somewhat lighter coloration. A distinct longitudinal line, originating slightly behind anterior margin, runs through the undeep median concavity, slightly widening close behind the middle of the pronotum. Sides straight and curved upwards, posterior margin somewhat rounded, anterior margin truncate. Some sparse hairs on shoulders.

Mesonotum about half the length of pronotum but a little broader, sides slightly convex, median line rudimentary, surface finely covered with small impressed points.

Metanotum in median line somewhat longer than half the mesonotum, posterior margin strongly concave; hardly broader than mesonotum. Indistinct rest of median suture on anterior part only, almost wholly covered by mesonotum. Surface as posterior part of mesonotum.

Abdominal segments also covered with small impressed points, lacking on a narrow smooth band along the free margins of each segment only. Free margins with a row of very fine short hairs. Sides strongly diverging backwards, ninth or tenth segment about twice the width of first, which is slightly narrower than the metanotum. Lateral angles of abdominal segments very acute, pointed, but with the apices slightly rounded. Posterior dorsal segment smooth, with impressed points less distinct than in other segments, tumid, with a distinct elongate median concave area. Posterior margin with indistinct, rounded, tumid zonae slightly protruding above bases of forceps, hardly concave between these, laterally obliquely truncate. Penultimate ventral segment broad, angular, apex truncate; surface slightly convex with two inconspicuous longitudinal grooves separated by a very indistinct median ridge. Sternites as in *G. javana* (De Bormans).

Forceps closely resembling those in *G. electa* Burr and *G. javana* (De Bormans), the angles rather distinct and proximal.

Legs rather slender, more slender than in *G. javana*; tarsi hairy, femora and tibiae with some hairs.

Total length 14.9 mm, forceps 1.9 mm.

The paratype in the collection of the Amsterdam Museum, originally identified by Burr as *G. javana,* has an almost flat penultimate ventral segment, in contradistinction with *javana* (Burr, 1910, p. 174: "with a prominent central compressed crest or ridge").

Anisolabis marginalis (Dohrn) (fig. 9c, d)

Forcinella marginalis Dohrn, 1864, p. 288.

Leiden Museum:

Japan, P. F. von Siebold, 2 ♂♂ ("*Forcinella japonica* Dohrn").

These specimens are the types of the present species. They have been examined by De Bormans.

Anisolabis mauritanica (Lucas)

Forficesila mauritanica Lucas, 1846, p. 4, fig. 1

Leiden Museum:

North Africa, Algeria, H. ten Kate, 1 ♀; Algeria, J. J. van Vollenhoven, 1 ♀; Algeria, A. Legras, 1 ♀.

Color variable: first specimen very dark castaneous, partly almost black; second specimen almost completely black; third specimen considerably lighter castaneous. Legs testaceous in all specimens, only in the first specimen the distal parts of femora and tibiae dark.

Anisolabis annulipes (Lucas)

Forficesila annulipes Lucas, 1847, p. 84.

Anisolabis annulipes, Burr, 1906, p 9; —, idem, 1912a, p. 26; —, Borelli, 1932, p. 101; —, Chopard, 1922, p. 180; —, idem, 1951, p. 322; —, Willemse, 1952, p. 4.

Leiden Museum:

Europe, Southern France, Arles, S. J. van Ooststroom, 24 IV 1938, 1 ? (damaged).

Sumatra, Supajang, IV 1877, Sumatra Expedition, 1 ♂; Rawas, V 1878, Sum. Exp., 2 ♀♀; Tandjong Morawa, B. Hagen, 1 ♀; Anai Cleft, 920 m, E. Jacobson, 9 ♀♀ or immature.

Krakatoa, V 1908, E. Jacobson, 1 ♂ (det. Burr).

Java, Ambarawa, E. W. A. Ludeking, 1 ♀; Preanger, H. W. van der Weele, 1 ♂; Depok, II 1908, E. Jacobson, 1 ♀; Batavia, V 1908, E. Jacobson, 1 ♀; Wonosobo, IV 1909, E. Jacobson, 1 ♀; Telaga Mendjer, V 1909, E. Jacobson, 1 ♂ (det. Burr); Semarang, I 1910, E. Jacobson, 1 ♀, 1 immature; Garut and environs, about 700-1500 m, 1928, W. C. van Heurn, 1 ♂, 1 ♀; Garut, XII 1928, W. C. van Heurn, 1 ♂; Garut, IV 1929, W. C. van Heurn, 1 ♀; Pudjon, about 1200 m, XI 1933, W. C. van Heurn, 1 ♀; Surabaya, 1933/1936, W. C. van Heurn, 1 immature; Tengger Mountains, about 1800 m, VII 1934, W. C. van Heurn, 1 ♀; Bremi, Probolingo, 1000 m, XI 1934, W. C. van Heurn, 1 ♂, 1 ♀.

Celebes, Tondano, E. A. Forsten, 1 ♂.

South Africa, Jonkershoek, 1938, H. J. Lam & A. D. J. Meeuse, 1 ♂.

Locality unknown, 1 ♂.

Amsterdam Museum:

Netherlands, Amsterdam, IV 1913, D. MacGillavry, 1 ♂, 1 ♀ (det. MacGillavry).

Sumatra, Singkarak, M. Weber, 1 immature (det. Burr, 1905).

Java, Western part, 1919, (W. C. van Heurn?), 1 ♀; Buitenzorg, 1921, W. C. van Heurn, 2 immature.

New Guinea, Manokwari, V 1903, New Guinea Expedition, 1 ♂ (det. Burr); Etna Bay, 1904/1905, Koch, 1 ♀.

Central America, Cuba, Pinar del Rio, 16-29 V 1933, H. J. MacGillavry, 4 ♂♂, 1 ♀, 8 immature; Santa Cruz de los Pinos, 8 II 1933, H. J. MacGillavry, 1 immature; Bonachea, 21 III 1933, H. J. MacGillavry, 1 ♀; Puerta Ancon, San Vicente, 5-6 VII 1933, H. J. MacGillavry, 2 ♀♀.

The present collections show a wide range of variation in several characters. The annuli around the femora, though generally very distinct, sometimes are more inconspicuous or even completely lacking. A considerable series shows an almost complete intergradation in this character.

The antennal annulus, more or less completely covering one or two segments, may be situated anywhere between the eleventh and sixteenth segments, in one specimen (Jonkershoek, S. Africa) even on the ninth only, and may become obsolete. Differences between left and right antenna on the same specimen occur.

The shape of the forceps, generally strongly asymmetrical in the males, also shows a very wide range of variation.

The discrimination of female and immature specimens after the external morphological characters only, is very difficult, especially when no accompanying male specimens are available.

Some of the Cuban specimens have been "sieved from mango leaves" or "fruits (of) *Oreodoxa regia*".

Specimens from Semarang ("*Anisolabis* spec."), Telaga Mendjer, Krakatoa and Manokwari have been used by Burr for previous publications (l.c.).

Anisolabis maxima (Brullé)

Forficula (*Forficesila*) *maxima* Brullé, 1838, p. 74.

Amsterdam Museum:

Canary Islands, Mt. Bermeja, Teneriffe, 1425 m, (20-27) IX 1935, B. H. Klijnstra & D. L. Uyttenboogaart, 3 ♂♂, 5 ♀♀, 3 immature (partly det. C. Willemse).

Anisolabis maritima (Géné)

Forficula maritima Géné (MS Bonelli), 1832, p. 9.

Anisolabis maritima, Chopard, 1922, p. 179; —, idem, 1951, p. 322, fig. 503; —, Houlbert, 1924, p. 229, pl. 5 fig. 1.

Leiden Museum:

Java, Batavia, III 1868, M. L. Ritsema, 1 ♂; S. Müller, 1 immature; A. J. van Eyndhoven, 2 ♂♂ ("*Brachylabis maritima,* Géné teste Dohrn"); Preanger, H. W. van der Weele, 1 ♀; ?" Ind. or.", C. G. C. Reinwardt, 1 ♀.

Timor, Nenas and environs, Mutis Mountains, IX 1937, W. P. de Roever, 1 ♀.

Japan, 1 ♂ ("var."), 1 ♀.

Africa, Congo, A. A. van Bemmelen, 1 ♀.

Central America, West Indies, St. Martin, H. E. van Rijgersma, 1 ♀.

South America, Surinam, Paramaribo, W. C. van Heurn, 1 ♀; Surinam, Lucie River, 1910, K. M. Hulk, 1 ♀.
North America, Carolina, 1 ♀ (*"Albipes"*).
Locality unknown, 3 ♂♂, 2 ♀♀, 1 immature.

Amsterdam Museum:

Sumatra, Kurintji, 7300 m, VIII 1921, F. Pratt, 1 immature (or small ♀ ?).
Central America, Cuba, San Blas, 1-9 III 1933, H. J. MacGillavry, 1 ♂ (abdomen only).

The specimen collected by Reinwardt, with the indication "Ind. or." only, probably comes from Java; the male "var." from Japan shows no distinguishing characters supporting this indication; the specimen from Surinam, Lucie River, was collected "in een plas op een rots" (in a pool on a rock).

As in the previous species, the identification of single female or immature specimens after external morphological characters only is difficult and should be taken with some reserve. The present material shows a considerable variability in coloration as well as in shape, length, and degree of curvature of the forceps.

Anisolabis (**angulifera** (Dohrn) ?)

Brachylabis angulifera Dohrn, 1864, p. 294.
Anisolabis angulifera, Burr, 1910c, p. 448 (note a); —, idem, 1912c, p. 77; —, idem, 1915a, p. 528, fig. 59; —, Borelli, 1923, p. 416.

Leiden Museum:

Africa, Liberia, A. A. van Bemmelen, 1 ♀; Congo, A. A. van Bemmelen, 1 ♀.

Burr (1910c) stated concerning this species: "I am not yet prepared to discriminate satisfactorily between this species and *A. annulipes*"; afterwards (1912c) he even regarded them as synonymous. A reliable identification of single female specimens seems impossible, the present identification is only provisional.

Anisolabis owenii Burr

Anisolabis owenii Burr, 1911b, p. 40.

Leiden Museum:

Africa, Liberia, Cape Mount, 1896, Demery, 1 ♂.

A rather rare species. The coloration is brown and castaneous; antennae with twenty segments, the sixteenth with a slightly lighter coloration. The shape of the penultimate ventral segment is very characteristic.

Anisolabis incisa Borelli

Anisolabis incisa Borelli, 1914, p. 268, fig. 2.

Leiden Museum:

Africa, Liberia, Cape Mount, 1896, Demery, 6 ♂♂, 5 ♀♀, 1 immature.

I doubt whether the many African species of *Anisolabis* hitherto described all are valid; probably many of these are mere varieties or local races.

The present species, however, can easily be distinguished by the distinctly incised penultimate ventral segment.

Anisolabis nana nov. spec. (fig. 10a)

Amsterdam Museum:

Java, Buitenzorg, 1921, W. C. van Heurn, 2 ♂♂ (holotype and paratype), 8 ♀♀ (allotypes), 6 immature; West Java, 1919, (W. C. van Heurn ?), 1 ♀ (allotype).

This species distinctly differs from those hitherto recorded from Java by the shape of the pronotum, the small size, the equiform male forceps, the shape of the mesosternum, the coloration, and some characters of minor importance.

Coloration brown or castaneous; clypeus, narrow lateral bands along pronotum, basal parts of forceps, basal part of first antennal segment (or whole segment), antennal annulus (situated between tenth and fifteenth segment, generally thirteenth and fourteenth), and sometimes the apical parts of the further antennal segments considerably lighter, yellowish. The legs wholly yellowish or with a more or less distinct darker annulus on the femora.

The specimens are very smooth, shining, with only few short hairs on body, some sparse stronger hairs on sides of occiput and between antennae, antennal segments hairy; sparse hairs on forceps, femora (especially on proximal part, many short strong hairs on tarsi. An inconspicuous cloth of minute hairs on abdomen.

Most morphological characters can be found in the accompanying figure.

Head hardly tumid between eyes and insertions of antennae. Occipital sutures distinct. Basal antennal segment long and slender, slightly club-shaped, almost equal to length of postorbital head; second quadrate, cylindrical; third twice longer than second, fourth distinctly and fifth slightly shorter than third segment, all slightly club-shaped; further segments gradually longer, more slender, and more distinctly club-shaped. There are 15-17 segments.

Pronotum generally with a shallow transverse concave zone at about half its length, its shape slightly varying between about square and somewhat transverse. Median sutures distinct on pro-, meso-, and anterior part of metanotum.

Abdominal segments covered with minute pores in which the very tiny hairs are implanted. Posterior dorsal segment distinctly protruding above bases of forceps. Between and behind these a median triangular and about funnel-shaped plate, ending narrow close before broadened apex of py-

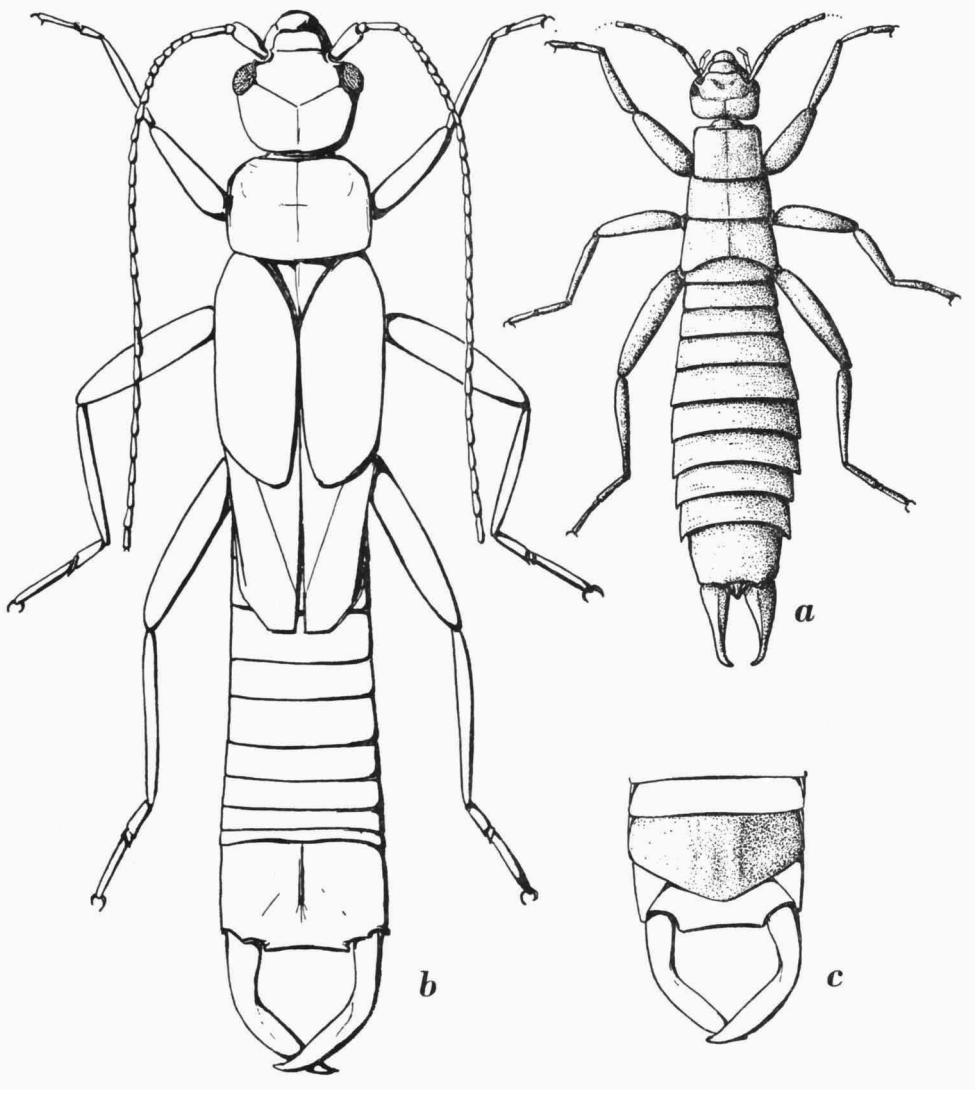

Fig. 10. a, *Anisolabis nana* nov. spec., habitus of male in dorsal view. b, c, *Dendroiketes(?) novaeguineae* nov. spec. a, habitus of male in dorsal view; b, posterior part of abdomen and forceps of male in ventral view. a, × 9.6; b, × 5.6; c, × 5.3.

gidium. Sides of abdomen subangular, not very sharp. Pygidium situated between and before proximal origin of internal ridges of forceps.

Mesosternum about truncate, posterior lateral angles rectangularly rounded, rather sharp. Penultimate ventral segment rounded, broad.

Forceps symmetrical or almost symmetrical, short, strongly tapering, straight, the tops slightly bent inwards; upper suface rounded, inner keel distinct, with small inconspicuous blunt teeth.

Total length 8.6 mm, forceps 1 mm.

The female specimens show no special structural differences excepting the slightly less acute sides of the abdominal segments. The female forceps are rather strongly tapering, straight, and contiguous.

Anisolabis surinamensis nov. spec. (fig. 11)

Amsterdam Museum:

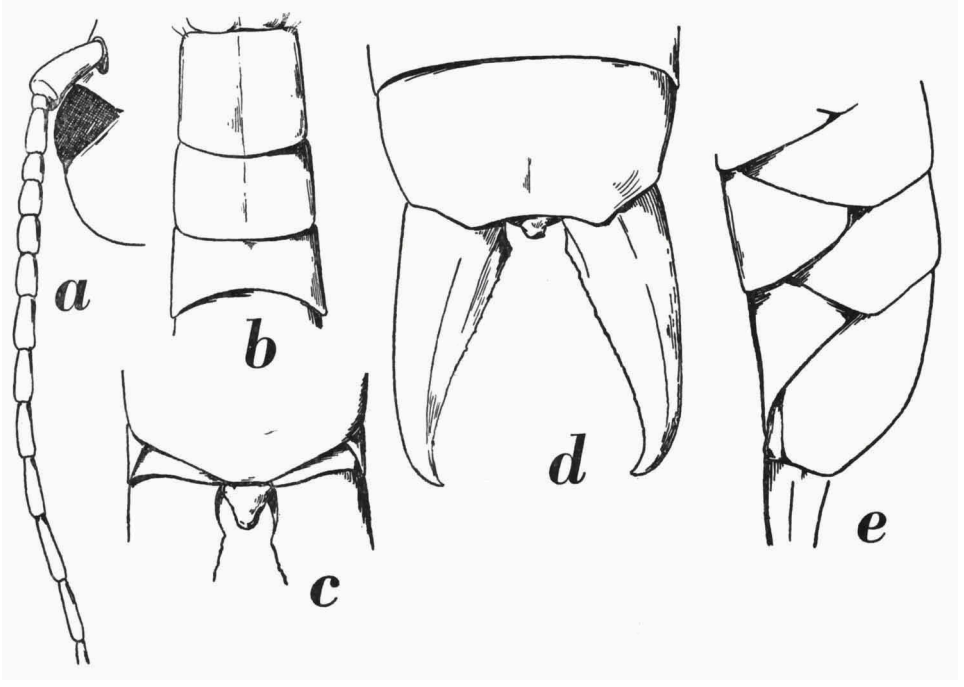

Fig. 11. *Anisolabis surinamensis* nov. spec. a, antenna of female; b, pro-, meso-, and metanotum of male in dorsal view; c, penultimate ventral segment and pygidium of male in ventral view; d, posterior dorsal segment and forceps of male in dorsal view; e, apical part of abdomen of male in lateral view. a, × 14.7; b, × 10; c, d, × 13.3; e, × 16.

Surinam, Lucie River, VII-VIII 1926, Surinam Expedition, 1 ♂ (holotype); Surinam River (3° 6′ N., 56° W.), 31 VIII 1908, J. H. A. T. Tresling, 1 ♀ (allotype).

The present specimens show a superficial resemblance with atypical examples of *A. annulipes* (Lucas) (coloration unicolorous, forceps symmetrical), and also with specimens of *A. maritima* (Géné), but the size is about intermediate. A closer investigation reveals more differences.

Colors and markings are not distinctive: the female is rather dark brown or castaneous, partly almost black, the male specimen considerably lighter, reddish brown; ventral surface somewhat lighter. Antennae brown, basal segment and, more or less, second and proximal part of third segment lighter. Legs testaceous yellow. No antennal or femoral annuli.

Antennae with 15 segments. Basal segment strong, club-shaped, about equal to diameter of eye or postorbital length of head; second short, globular, third considerably longer, more than half the basal segment; fourth but slightly longer than half the third; further segments gradually lengthening, seventh equal to third, and becoming more slender.

Abdominal sides rounded, not acute. Penultimate ventral segment triangular, the apex bluntly rounded.

Forceps symmetrical, short, contiguous, straight, the tops curved inwards.

Sexual dimorphy as usual. Penultimate ventral segment in female specimen slightly more rounded.

For further characters I refer to the figures.

Anisolabis spec.

Leiden Museum:

Java, Ranu Kumbolo, near Gunung Smeru, 2000 m, E. Jacobson, 1 immature.
South America, Surinam, Paramaribo, W. C. van Heurn, 1 immature?
Africa, Cape Mount, Liberia, 1896, Demery, 5 ♀♀.

Euborellia janeirensis (Dohrn)

Forcinella janeirensis Dohrn, 1864, p. 285.
Anisolabis janeirensis, De Bormans, 1893, p. 5, pl. 1 figs. 8, 9; —, idem, 1900, p. 44; Caudell, 1907, p. 168.
Euborellia janeirensis, Hebard, 1920, p. 338.

Amsterdam Museum:

South America, Venezuela, Palo Grande, San Christobal, 20 VII 1930, H. J. MacGillavry, 1 ♂, 2 ♀♀.

Antennal annulus on twelfth and thirteenth, thirteenth and fourteenth, or thirteenth to fifteenth segments, in contradistinction with data in literature (twelfth segment only). In comparison with the figures given by De Bor-

mans (l.c.), the only difference seems to be the slight divergence backwards of the sides of the pronotum.

Euborellia ambigua (Borelli)

Anisolabis ambigua Borelli, 1906, p. 3.
Euborellia ambigua, Hebard, 1917, p. 234.

Amsterdam Museum:

Central America, Cuba, Hormiguero, 10-28 II 1933, H. J. MacGillavry, 1 ♀.

Antennae without annuli. Further differences in comparison with the previous species, mentioned by Borelli, seem invalid.

Burr (1913a, p. 30) regards this species as conspecific with *janeirensis*; according to Hebard: "This species is closely related to *Euborellia janeirensis*".

Euborellia moesta (Serville)

Forficesila moesta Serville (MS Géné), 1839, p. 28.
Euborellia moesta, Chopard, 1922, p. 180, figs. 440, 441; —, Houlbert, 1924, p. 229, pl. 5 fig. 2; —, Chopard, 1951, p. 323, fig. 498.

Amsterdam Museum:

France, Antibes, 17 V 1927, MacGillavry, 1 ♂, 1 ♀.
Italy, Rapallo, E. Everts, coll. MacGillavry, 1 ♀ ("*Anisolabis moesta* Géné", det. MacGillavry).

The female from Rapallo probably is not yet adult, the total length being only 11 mm.

Euborellia stâli (Dohrn)

Forcinella Stâli, Dohrn, 1864, p. 286.
Borellia stâli, Burr, 1910, p. 88; —, idem, 1912c, p. 75.
Euborellia stali, Borelli, 1926, p. 255; —, idem, 1932b, p. 82; —, Hebard, 1927, p. 27.

Leiden Museum:

Sumatra, Tandjong Morawa, Serdang, B. Hagen, 1 ♂.

Amsterdam Museum:

Sumatra, Medan, 20 m, 27 VII 1921, J. B. Corporaal, 1 ♂.
Java, Buitenzorg, 1919/1920, W. C. van Heurn, 1 ♀.

A comparison with the material of *Psalis plebeja* (Dohrn) does not support Hebard's opinion that both these forms should represent the same species, *plebeja* being "based on a macropterous female, *stâli* on a female having narrowly ovate, lateral tegminal pads". The present material contains no intermediary forms.

Euborellia astrucci Burr

Euborellia astrucci Burr, 1911, p. 779.

Leiden Museum:

India, Shembaganur, Madura District, M. Burr, 2 ♂♂, 1 ♀ (det. Burr).

Euborellia minuta (Caudell)

Anisolabis minuta Caudell, 1907, p. 168; —, Hebard, 1927, p. 27.
Euborellia minuta, Hebard, 1920, p. 338.

Amsterdam Museum:

Central America, Cuba, Pinar del Rio, 16-29 V 1933, H. J. MacGillavry, 1 ♂, 1 ♀ (♂: "sieved from mango leaves").

Both specimens are very small, the male 11 mm, the female, though abnormally stretched and with partly disconnected abdominal segments, still 13 mm only.

Euborellia spec.

Amsterdam Museum:

East Indies, Flores, Maumere, M. Weber, 1 immature ("larva, M. Burr, 1905").

Possibly belongs to *Euborellia stăli* (Dohrn).

Psalis percheron (Guérin)

Forficula percheron Guérin, 1838, pl. 7.
Psalis percheron, Burr, 1912e, p. 316.
Spandex percheron, Hebard, 1917, p. 232.

Leiden Museum;

Central America, Antilles, St. Thomas, 1 ♂ ("*Elegans* Klug").
Locality unknown, 1 ♀.

Judging by the present scant material, this species distinctly differs from the closely related *gagathina* in size and coloration.

Psalis gagathina (Burmeister)

Forficula gagathina Burmeister (MS Klug), 1838, p. 753.
Psalis gagathina, Burr, 1912c, p. 73; —, idem, 1912e, p. 316.

Leiden Museum:

Central America, Porto Rico, 1 ♀.

Identification uncertain on account of the very bad condition (head and pronotum lacking) and the truncate metasternum. It may belong to *Psalis americana* (Pal. de Beauvois), in previous literature sometimes presumed conspecific with the present species.

Psalis americana (Palisot de Beauvois)

Forficula americana Palisot de Beauvois, 1817, p. 165, pl. 14 fig. 1.
Psalis americana, Caudell, 1907, p. 167; —, Hebard, 1920, p. 338.

Leiden Museum:

Central America, St. Domingo, 1 ♂.
North America, Canada, 1 ♀.

Amsterdam Museum:

Locality unknown, 1 ♂ ("*Psalidophora distincta*? Guér. var. — wenn aus Cuba").

Distinct large orange spots on the elytra; *distincta* is a synonym of *americana*.

Psalis femoralis (Dohrn)

Labidura femoralis Dohrn, 1863, p. 321.
Psalis femoralis, Borelli, 1926, p. 255; —, Hebard, 1927, pp. 26, 28.

Leiden Museum:

Sumatra, Bungamas, J. C. van Hasselt, 1 ♀; Tandjong Morawa, Serdang, B. Hagen, 1 ♀ ("*Labidura* spec?").

Amsterdam Museum:

Java, Tjigembong, Preanger, V 1915, J. B. Corporaal, 1 ♀ ("*Labidura lividipes* Duf., s.sp. *vicina* Luc.??", det. MacGillavry).

In two almost simultaneous papers on *Psalis plebeja* (Dohrn) and the present species, Borelli gives an account of several discriminating characters while, on the other hand, Hebard defends a synonymy between these species.

With Borelli's discriminating characters our material is easily to be divided into two groups, so that provisionally I regard the two forms as separate species.

The generic name *Psalis* Serville possibly should be restricted to tropical American species only (Hebard, l.c.).

Psalis plebeja (Dohrn)

Labidura plebeja Dohrn, 1863, p. 322.
Psalis plebeja, Burr, 1912b, p. 227; —, idem, 1915b, p. 115; —, Borelli, 1926, p. 255; —, idem, 1927, p. 70; —, Hebard, 1927, p. 27.

Leiden Museum:

Sumatra, Rawas, V 1878, Sumatra Expedition, 1 ♀; Deli, L. P. de Bussy, 1 ♂ (det. Burr).
Simalur, Sinabang, III 1913, E. Jacobson, 1 ♀; Sibigo, VIII 1913, E. Jacobson, 1 ♀ (det. Burr).

Amsterdam Museum:

Java, Slawi Tegal, 1909, F. T. Valck Lucassen, 1 ♂.

The specimens identified by Burr have been mentioned in his publications.

Psalinae, spec. incert.

Amsterdam Museum:

Surinam, Lucie River, VII-VIII 1926, Surinam Expedition, 1 ♀.

The very flat and broadening abdomen seems to be caused at least partly by artificial deformation; the head is strongly indented, the antennae are flattened, obviously artificially too.

One of the forceps is mutilated, the truncate(?) mesosternum damaged by the pin. Eighteen segments in each antenna.

The few remaining distinctive characters seem to indicate a close relationship with *Eulabis* (or *Metalabis*, cf. Burr, 1915a, p. 538) *saramaccensis* Zacher (1910, p. 378).

Subfamily LANDICINAE

Epilandex burri (Borelli)

Landex burri Borelli, 1921, p. 81.
Epilandex burri, Hebard, 1927, p. 27; —, Borelli, 1932, p. 181.

Leiden Museum:

Sumalur, Lasikin, IV 1913, E. Jacobson, 1 ♂ ("*P. plebeja* (Dohrn)", det. Burr).

The present specimen, previously identified by Burr (1915b, p. 115) as *Psalis plebeja* (Dohrn), proved to belong to a different species. On account of the shape of the antennal segments, of the forceps, and of the abdominal sides (acute, with distinct crest) it belongs to the genus *Landex* Burr as defined by Borelli (1921, pp. 79, 80), though the "repli tuberculiforme médian qui se prolonge en pointe au delà du bord posterieur" is not distinct. The name *Landex* has been changed afterwards in *Epilandex* by Hebard.

The specimen closely agrees with Borelli's *Epilandex burri* though slightly differing in a few characters: penultimate ventral segment smooth, pygidium short and quadrangular with slightly spinous angles.

Burr's figure (1910, pl. 3 fig. 18) of "*Psalis femoralis* (Dohrn)" probably represents the present species.

Subfamily LABIDURINAE

Nala lividipes (Dufour)

Forficula lividipes Dufour, 1828, p. 340.
Nala lividipes, Burr, 1912a, p. 26; —, Chopard, 1922, p. 180; —, Houlbert, 1924, p. 231; —, Chopard, 1951, p. 323.

Leiden Museum:

Sumatra, Padang, E. Piaget, 1 ♀ ("*Labidura Dufouri* Desmarest"); Padang, 1877/1878, Sumatra Expedition, 2 ♀♀ ("*L. Duf.*"); Manna, M. Knappert, 1 ♀.

Java, Besuki, J. Semmelink, 1 ♀ ("*L. Dufouri* Desm."); East Java, C. Mulié, 1 ♀ ("*L. Duf.*"); Batavia, C. de Gavere, 2 ♀♀ ("*L. Duf.*"); East Java, M. C. Piepers,

1 ♀; G. F. Wienecke, 1 ♀, 1 ?; Semarang, VIII, IX 1909, I, X 1910, E. Jacobson, 6 ♀♀; Meester Cornelis, 11 II 1929, J. Sonneveldt, 1 ♀, 1 ?; Garut, about 700-1000 m, VIII, IX 1929, X, XI 1930, W. C. van Heurn, 4 ♀♀.

Celebes (South), XII 1936, J. van der Vecht, 1 ♀.

Amsterdam Museum:

Sumatra, Padang, 1919, De Groot, 1 ♀.

Java, Malang, K. W. Dammerman, 1 ♀; Madiun, 1921, A. E. Kerkhoven, 1 ♀; Tjandiroto, 1886, (C. A. J.?) Oudemans, 1 ♀ ("*L. meridionalis* Duf.", det. Burr, 1905).

The polymorphy in this species seems to exist in the male specimens only, an account of which is given separately. Both formae may occur in the same locality.

The names on the old labels, *Labidura meridionalis* Dufour and *Labidura Dufouri* Desmarest, are both synonyms of *Nala lividipes* (Dufour).

Nala lividipes lividipes (Dufour)

Leiden Museum:

Java, G. F. Wienecke, 1 ♂; Semarang, X, XI 1909, X, XI 1910, E. Jacobson, 4 ♂♂.

The common forma with armed forceps.

Nala lividipes vicina (Lucas)

Leiden Museum:

Java, Batavia, C. de Gavere, 2 ♂♂ ("*L. Duf.*"); Semarang, J. Haak, 1 ♂; Batavia, Sijthoff, 1 ♂ ("*L. castanea* Serv."); G. F. Wienecke, 1 ♂; Semarang, XI 1909, VIII, IX 1910, E. Jacobson, 4 ♂♂ (one det. Burr); Meester Cornelis, 11 II 1929, J. Sonneveldt, 2 ♂♂.

Celebes (South), XII 1936, J. van der Vecht, 1 ♂.

The forma with smooth forceps. It still remains uncertain whether the morphological differences should be regarded sufficient for subspecific discrimination.

Forficula castanea Serville is a synonym of *lividipes* Dufour.

Nala tenuicornis (De Bormans)

Labidura tennuicornis De Bormans, 1900, p. 446.
Nala tenuicornis, Borelli, 1926, p. 256.

Amsterdam Museum:

Java, Buitenzorg, 1921, W. C. van Heurn, 1 ♀.

Sumatra, Fort de Kock, M. Weber, 1 ♀ ("*Diplatys ridleyi* Kirby", det. Burr, 1905); Padang, 2 m, 1926, E. Jacobson, 1 ♀.

The specimen from Fort de Kock has a slightly more elongate pronotum and an almost complete lack of markings, but in all further particulars it closely agrees with the further material and the descriptions in literature.

Labidura riparia (Pallas)

Forficula riparia Pallas, 1773, p. 727.

Labidura riparia, Burr, 1910, p. 99, pl. 4 fig. 33; —, Chopard, 1922, p. 181, figs. 437, 438; —, Rehn, 1924, p. 372; —, Borelli, 1927, p. 70; —, Günther, 1934, p. 503; —, Chopard, 1951, p. 324, fig. 504; —, Willemse, 1952, p. 4, fig. 1.

Leiden Museum:

Europe, Netherlands, Meyendel, 27 IX 1923, J. van der Vecht, 1 ♀ (abdomen only); Meyendel, 4 IX 1931, F. P. Koumans, 1 ♀; Meyendel, VI 1932, J. A. W. Groenewegen, 1 ♂; Austria, 1 ♂ ("*Gigantea* Fabr."); Triest, 1 ♀; Annot, Basses Alpes, 6 IX 1927, A. Reclaire, 1 ♂, 2 ♀♀.

Africa, Egypt, F. Klug, 1 ♀, 2 immature; Tripoli, 1 ♂; Ambriz, S.W. Africa, Zoological Garden Rotterdam, 1 ♂; Bloemfontein, E. van Olden, 3 ♂♂ ("var.").

Asia, Tandjong Morawa, Serdang, B. Hagen, 2 ♀♀; Sumatra, Lake Toba, B. Hagen, 3 ♀♀, 1 immature; Nias, 4 X 1908, E. E. W. G. Schroeder, 1 ♂, 1 ♀, 2 ??; Japan, 1 ♂.

America, Venezuela, Caracas, J. W. van Lansberge, 1 ♂; Brazil, 1 ♂; Colombia, 1 ♂ ("*Suturalis* Burm."); Porto Rico, 1 ♀ ("*Bivittata* Klug"); Cuba, 1 ♂, 1 ♀; La Plata, 12 VII 1924, J. H. Jurriaanse, 1 ♀.

Locality unknown, 6 ♂♂, 7 ♀♀, 1 immature, 1 ?; (Java?), A. J. van Eyndhoven, coll. Van Lennep, 1 ♂.

Amsterdam Museum:

Europe, Netherlands, Meyendel, 2 VIII 1923, D. MacGillavry, 1 ♂ (det. H. C. Blöte); IJmuiden, 1935, 1 ♂ ("import"?, det. C. Willemse); France, Bordeaux, 1901, D. MacGillavry, 1 ♂ ("*Forficula gigantea*?").

Africa, Gran Canaria, 3 IV 1925, D. L. Uyttenboogaart, 1 ♀; Congo, 1887, A. E. van Giffen, 1 ♂ (det. Burr, 1905); Congo, 1888, A. E. van Giffen, 1 ♀ (det. Burr, 1905); Landana, Angola, De Groot, 1 ♂; Natal National Park, near Mahai River, 21 X 1938, H. Engel, 1 ♀; South Africa, near Orange River, IX 1894, M. Weber, 1 immature, 3 ?? (imm.: det. Burr, 1905).

Asia, Sumatra, Solok, 1 ♂ (det. Burr, 1905).

America, Buenos Ayres, 1891, Loman, 1 ♀ (det. Burr, 1905); Surinam, Paramaribo, Halfhide, 1 ♂; Cuba, Puerta Ancon, 5-6 VII 1933, H. J. MacGillavry, 1 immature.

This extensive material, collected in so many different localities, distinctly illustrates the enormous variability in the present cosmopolitan species. Intermediate forms between all known varieties seem to occur. Only the specimens evidently belonging to the more easily discriminated variety *inermis* Brunner have been taken from the present material, these are enumerated separately.

The principal variation is shown by the following characters: the coloration and color markings, the development of the denticles at the posterior margin of the posterior dorsal segment, the shape and armature of the forceps, and the size.

Some specimens (Nias, Cuba, one from unknown locality) have two teeth on each branch of the forceps, as already described by Borelli. The same peculiarity was found in one of the male specimens of the variety *inermis*.

The Buenos Ayres specimen is very small, total length 16 mm, and brachypterous, the wings completely covered by the elytra.

Labidura riparia (Pallas), var. **inermis** Brunner

Labidura riparia, Burr, 1912a, p. 26; —, Borelli, 1927, p. 70.
Labidura riparia (Pallas), var. *inermis* Brunner, 1882, p. 5; —, Burr, 1910, p. 100, pl. 4 fig. 34; —, Borelli, 1926, p. 256; —, idem, 1932, p. 182; —, Chopard, 1922, p. 181; —, idem, 1951, p. 325.

Leiden Museum:

Europe, Switzerland, Bignasco (Tessin), 2 X 1929, K. Martin, 2 ♀♀.
Asia, West Java, Tjinjiruan, 1700 m, X, XI, XII 1909, III 1910, H. W. van der Weele, 3 ♂♂, 4 ♀♀, 1 immature; Java, Preanger, H. W. van der Weele, 3 ♂♂, 9 ♀♀, 11 immature; Garut, West Java, 1893, F. Adèr-Verver, 1 immature; Java, Semarang, XII 1909, E. Jacobson, 1 ♀ (det. Burr); Djocja, XII 1909, E. Jacobson, 1 immature; Garut and environs, 700-1500 m, IX 1927, 1928, VII, VIII 1930, W. C. van Heurn, 5 ♂♂, 9 ♀♀, 2 immature; Tjiliwung, Puntjak Cleft, VI 1932, W. C. van Heurn, 1 ♀; Sumatra, Tinging, Lake Toba, B. Hagen, 1 ♀.

Amsterdam Museum:

Asia, Java (West), 1919, (W. C. van Heurn?), 4 ♀♀, 3 immature; Buitenzorg, 1919-1920, W. C. van Heurn, 1 ♀.

In general, this seems to be a well defined variety; only a few specimens more or less closely approach some of the more aberrant specimens of the forma typica.

Characteristic for this variety seem the smaller size, the darker coloration, the smooth posterior dorsal segment, and the slightly shorter and generally smooth forceps. Only one specimen has on each branch of the forceps two small teeth, the proximal, however, very inconspicuous; generally even the stronger distal tooth is hardly visible.

The two Swiss specimens are included here although they are both slightly larger than the East Asian specimens, one of them is distinctly lighter in coloration too. Both being female, the inclusion in the present variety is less easy to decide upon and should be taken with some reserve. The specimens from Semarang and Djocja have already been mentioned by Burr (1912a).

Labidura vanheurni nov. spec. (fig. 12)

Leiden Museum:

Java, Bandung, 1925, F. C. van Heurn, 1 ♂ (holotype).

The general shape, the prominent shoulders and, principally, the long, slender, and gently curved forceps make the present species easy to distinguish.

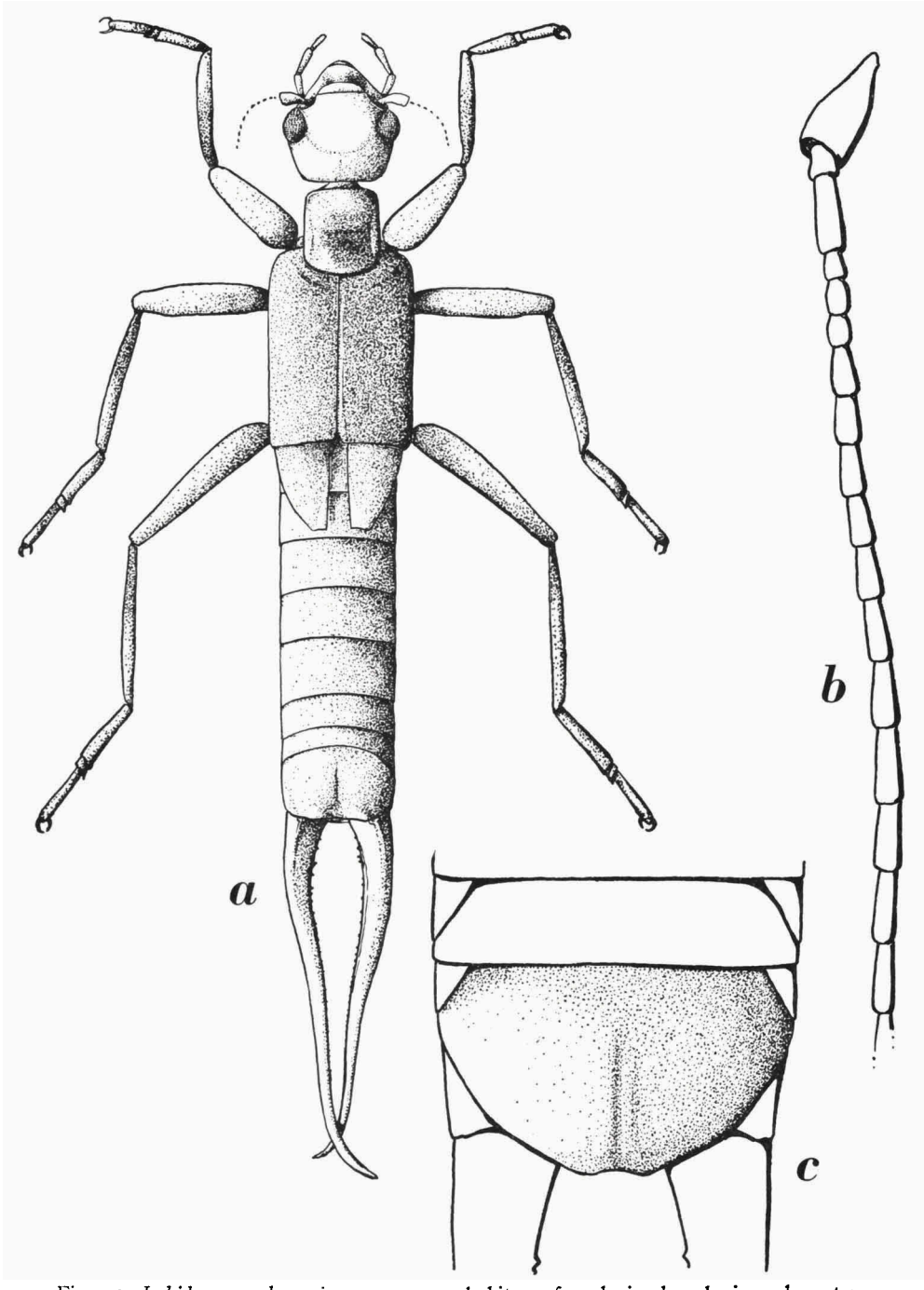

Fig. 12. *Labidura vanheurni* nov. spec. a, habitus of male in dorsal view; b, antenna of male; c, penultimate ventral segment of male in ventral view. a, × 7.6; b, × 25; c, × 22.

Head very dark, almost black, covered with a thin coat of minute light hairs; eyes black; first to third antennal segments yellowish, further segments brown, all covered with minute whitish hairs. Pronotum blackish with narrow lateral submarginal bands lighter, yellowish; elytra and wing-scales brown, the apices of the wing-scales lighter. Abdomen very dark brown or black, but with a very inconspicuous coat of minute whitish hairs dorsally, lacking on almost the whole ultimate dorsal segment and in narrow submarginal bands on some posterior segments; this coat of hairs gives the impression of a much lighter coloration of the abdomen. Sternites brown, lighter near insertions of posterior legs. Legs yellowish brown, hairy, with indistinct brown markings on femora and darker proximal parts of tibiae; tarsi yellowish.

For most morphological characters I refer to the figure.

Head tumid, rounded pentangular. Antennal segments about as in *riparia* Pallas, slightly more slender; 23 in number.

Pronotum small, the tumid prozona bordered backwards by an undeep transverse concave zona; sides not curved upwards. Surface of elytra with a slightly irregular texture, without hairs.

Abdomen subcylindrical; an inconspicuous row of very small tubercles along the free margins of most segments; a marginal row of slightly longer whitish hairs on all but the posterior dorsal segments. Ventral segments with long hairs, especially close to free margins; all except the penultimate segment with a short longitudinal median line anteriorly.

Posterior dorsal segment slightly sloping, tumid, with a distinct median longitudinal concave area; protuberances above forceps slight; surface smooth, with indistinct impressed points, with few hairs anteriorly and on sides only. Connected without suture with pygidium, which is of the common shape.

Penultimate ventral segment broad, rounded, the indistinct median furrow bordered laterally by two even more inconspicuous ridges. Sternites considerably narrower than in *riparia,* hairy, the metasternum with a truncate posterior margin and rather sharp angles, the mesosternum distinctly rounded.

Forceps flattened ventrally, with a dorsal keel on the short diverging basal part only; proximal inner margin with some distinct blunt teeth, becoming inconspicuous more distally.

Legs, especially tarsi, very elongate.

Total length 20.5 mm, forceps 6.5 mm.

Labidura minor nov. spec. (fig. 13)

Leiden Museum:

Sumatra, Tanangtalu, V 1915, E. Jacobson, 1 ♂ (holotype).

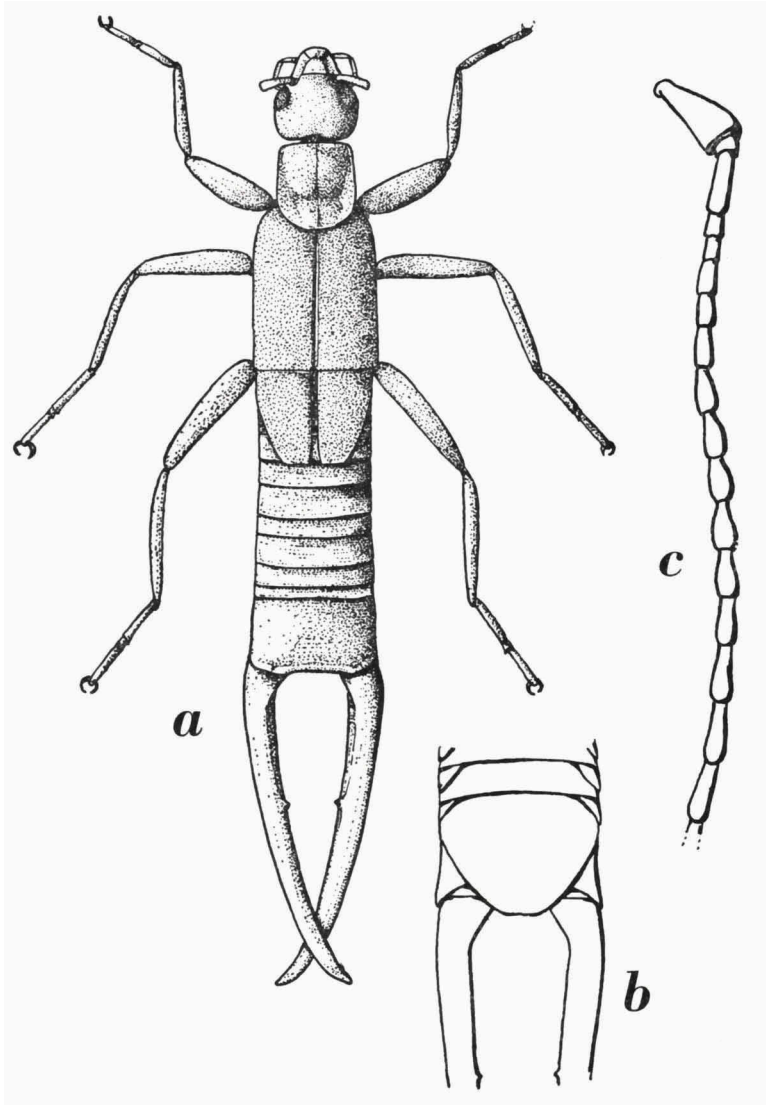

Fig. 13. *Labidura minor* nov. spec. a, habitus of male in dorsal view; b, posterior part of abdomen and proximal part of forceps of male in ventral view; c, antenna of male. a, × 7.7; b, × 10; c, × 28.

This is a small species, superficially resembling small male specimens of *Irdex nitidipennis* (De Bormans), though distinctly differing in the special Labidurid characters.

Head yellowish brown with a coat of yellow hairs, the antennae yellow or brownish yellow; pronotum brown with narrow lighter bands along sides; elytra and wing-scales brown, the texture of their surface slightly irregular, wing-scales with apical margins narrowly bordered with yellow, their sides with a slightly lighter coloration. Abdomen brown, the ventral surface covered with a coat of fine yellow hairs, less distinct on the dorsal surface. Sternites brown and yellowish brown, hairy. Legs testaceous, without markings.

Head tumid, rounded, posterior margin slightly concave; eyes not very prominent, diameter hardly more than postorbital length of head. First antennal segment club-shaped or conical, slightly longer than diameter of eye, second segment transverse, third elongate and cylindrical, the further segments about as in *riparia,* but more slender (none transverse or quadrate), the distal segments considerably elongate.

Pronotum with slightly diverging sides, anterior margin slightly rounded, posterior margin broadly rounded, maximal width about equal to width of head, distinctly longer than broad. Prozona tumid, further surface flat, sides not curved upwards, median suture indistinct.

Elytra each slightly narrower than pronotum and about twice its length; shoulders strongly rounded, posterior margin squarely truncate. Wing scales about as long as pronotum, apex truncate.

Abdomen slender, inconspicuously widening backwards, the surface covered with fine impressed points. All segments with rounded sides; posterior dorsal segment transverse, its sides slightly diverging backwards, posterior margin truncate between indistinct protrusions above inner margins of forceps, oblique laterally, a triangular area immediately before the median truncate part of posterior margin flattened or subconcave, other parts tumid. Penultimate ventral segment broad, triangular, rounded, apex truncate. Sternites as in *riparia,* but considerably more elongate, less broad.

Forceps resembling those in males of *Irdex nitidipennis* (De Bormans): a short basal part diverging, tapering, the flat inner surface forming distinct inner dorsal and ventral ridges; further abruptly (though slightly) curved inwards, beyond this almost straight, the tops somewhat curved inwards, proximal half subcylindrical, distal half with an irregular blunt inner ridge beginning with a distinct blunt tooth.

Legs without peculiar characters.

Total length 16 mm, forceps 5.4 mm.

Labidura spec.

Leiden Museum:

Java, E. Jacobson, 1 ♀.

Forcipula decolyi De Bormans

Forcipula decolyi De Bormans, 1900, p. 444: —, Burr, 1910, p. 91, pl. 3 fig. 25.

Amsterdam Museum:

New Guinea, Cleft Bivouac, 15 X 1912, G. Versteeg, 1 ♂.

Thirty-eight antennal segments. Wings well developed, wing-scales about one third of the length of the elytra, subequal to length of pronotum.

Tomopygia abnormis (De Bormans)

Cylindrogaster abnormis De Bormans, 1883, p. 59, pl. 2 fig. 1.
Tomopygia abnormis, var. Burr, 1912a, p. 27.

Leiden Museum:

Java, Semarang, VII 1910, E. Jacobson, 1 ♀ ("var.", det. Burr).

Amsterdam Museum:

Java, Tjigembong, Preanger, V 1915, J. B. Corporaal, 1 ♀.

According to the available data, the specimen in the collection of the Leiden Museum has been identified by Burr as belonging to his variety and probably is one of the two specimens used for his description. However, there are differences in the date of collecting and the distinctly elongate shape of the fourth to sixth antennal segments. In our second specimen the fourth and fifth antennal segments are hardly longer than broad.

Subfamily BRACHYLABINAE

Antisolabis nov.? spec.

Leiden Museum:

Africa, Ivory Coast, Nigue, 16 V 1938, Miss Andreas, 1 ♀.

A superficial resemblance is shown with our specimens of *Leptisolabis punctata* (Dubrony) but the eyes, though rather large, are considerably smaller than in that species; moreover, the third and fourth antennal segments are not short or globular. A definite identification of this single female specimen is impossible, it possibly belongs to a new species.

Total length 13 mm, forceps 2 mm.

Nannisolabis javana nov. spec. (fig. 14)

Leiden Museum:

Java, Tjinjiruan, 1700 m, XII 1909, H. W. van der Weele, 1 ♀ (holotype); Preanger, H. W. van der Weele, 1 ♀ (paratype).

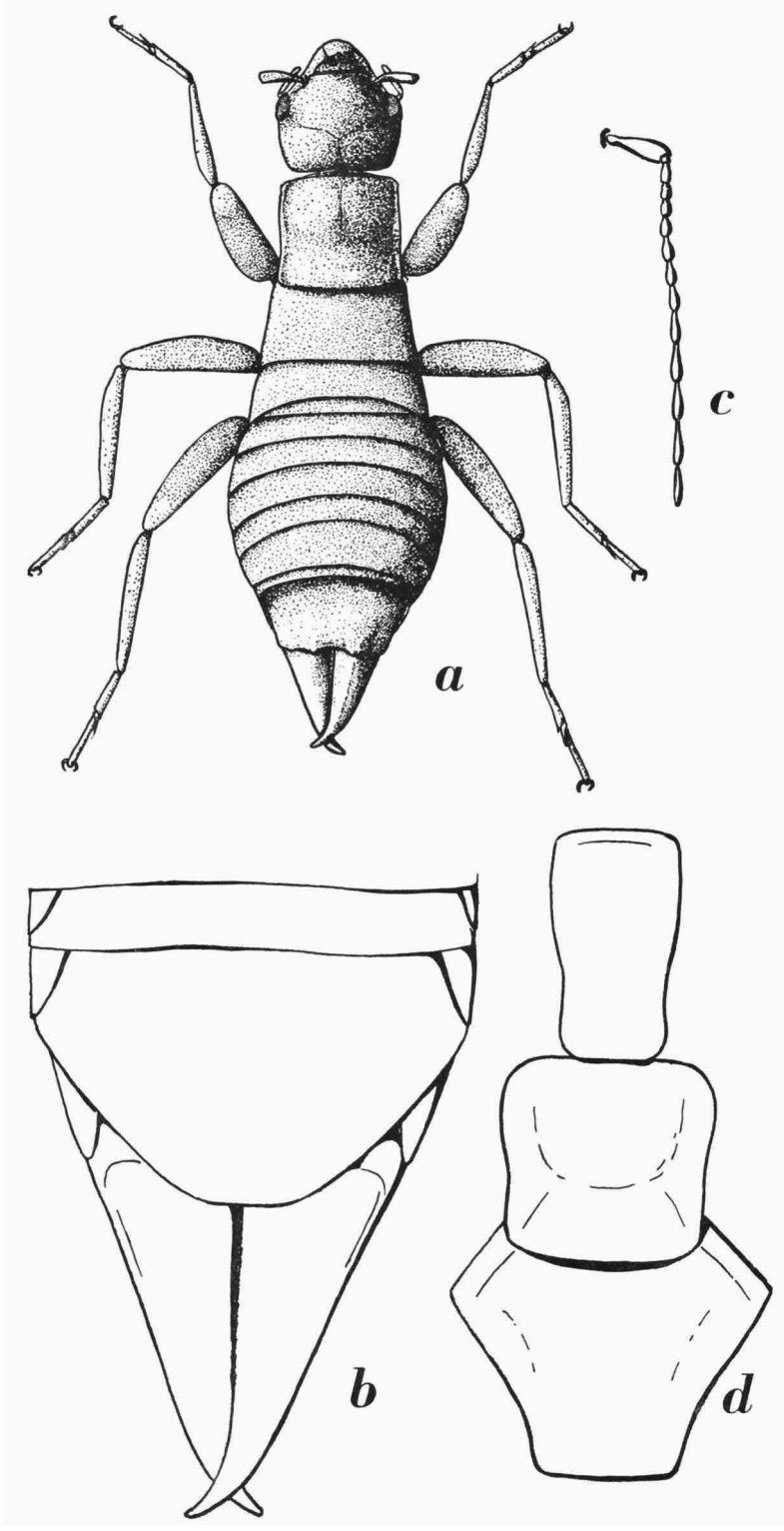

Fig. 14. *Nannisolabis javana* nov. spec. a, habitus of female in dorsal view; b, penultimate ventral segment and forceps of female in ventral view; c, antenna of female; d, sternites of female. a, × 9; b, × 27.5; c, × 14; d, × 24.5.

The only species from the same region with which some affinity is shown is *Nannisolabis dammermani* Borelli (1926, p. 257). Only the differences in comparison with *dammermani* are here given.

Head and body very dark brown, almost black, and covered with sparse hairs. Antennae with fourteen segments, twelfth and thirteenth yellowish, the other segments dark brown. Third antennal segment longer than broad, fourth hardly longer than broad and slightly shorter than third, fifth oval, about as long as third segment, distinctly longer than broad.

Pronotum quadrate, not longer than head, with a short median longitudinal shallow groove along the hardly tumid prozona; prozona indistinctly limited. Median suture indistinct.

Mesosternum without concave transverse furrow, with smooth sides; median suture indistinct, not quite reaching posterior margin.

Femora brown, a small apical part yellowish in one specimen only; tibiae rather dark, tarsi dark castaneous. Second tarsal segment about half the length of the third segment.

Abdomen slightly depressed with distinct tubercles on third dorsal segment only. Posterior dorsal segment smooth with very inconspicuous impressed points, its posterior margin with a slightly sinuate median part and small blunt tubercles above the forceps. Penultimate ventral segment broad, blunt, triangular and rounded, apex subtruncate.

Pygidium: a flat triangular and almost vertical plate between and above bases of forceps.

Total length 9.5-11.7 mm, forceps 1.5-1.7 mm.

Leptisolabis punctata (Dubrony)

Brachylabis punctata Dubrony, 1879, p. 357, fig.
Leptisolabis punctata, Burr, 1913, p. 313 (?); —, Borelli, 1926, p. 258; —, Hebard, 1927, p. 28.

Leiden Museum:

Java, S. Müller, 1 ♀.
Sumatra, Rawas, V 1878, Sumatra Expedition, 1 ♀; Tandjong Morawa, Serdang, B. Hagen, 1 ♂.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 1 ♂, 1 immature ("*Brachylabis punctata,* immature", det. Burr, 1905).
Sumatra, Manindjau, M. Weber, 1 ♂ ("*Brachylabis bifoveolata* Burr", M. Burr, det. 1905).

Müller's specimen is much more hairy and somewhat smaller than the other specimens; it is possibly not yet adult.

On the label of the specimen from Manindjan Burr gives the following additional data: "differs in keeled pronotum, squarer pronotum, paler colour, pale feet, ringed femora, but probably identical". In my opinion the present specimen can not belong to the genus *Ctenisolabis* Verhoeff (to which *bifoveolata* Bolivar has been removed) on account of the lack of keels on the mesonotum. Moreover, the genus (and certainly the present species) probably does not occur in the East Indies.

Subfamily PLATYLABIINAE

Platylabia major Dohrn (fig. 15)

Platylabia major Dohrn, 1867, p. 347; —, Burr, 1912a, p. 27; —, Borelli, 1926, p. 259; —, idem, 1927, p. 70; —, idem, 1932, p. 183; —, idem, 1932b, p. 83; —, Hebard, 1927, p. 29.

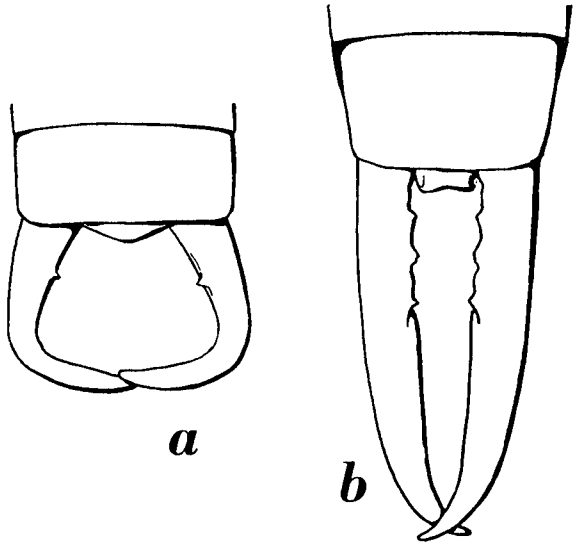

Fig. 15. *Platylabia major* Dohrn. a, forceps of male in dorsal view; b, forceps of female in dorsal view. a, × 20; b, × 23.

Leiden Museum:

Java, Gunung Ungaran, X 1910, Van Leeuwen, 1 ♀ (det. Burr); Garut, about 700 m, X-XI 1930, W. C. van Heurn, 1 ♀; Batavia, 1932/1933, W. C. van Heurn, 1 ♂.

Sumatra, Tanangtalu, V 1915, E. Jacobson, 1 ♀; Lau Rakit, Serdang, V 1910, J. B. Corporaal, 1 ♀.

Amsterdam Museum:

Sumatra, Lubuk Sikaping, 450 m, E. Jacobson, 1 ♂.

There is a distinct variability in the development of the proximal armature

of the female forceps and of the wings. In the present material, the specimen from Lau Rakit is brachypterous, with the wings completely covered by the elytra; the specimen from Batavia has the wings slightly exposed, in this respect forming a transition to the normally developed other specimens.

The specimen from Gunung Ungaran is mentioned in Burr's paper. The male is somewhat smaller than the female specimens, length 7.25 mm, forceps 1 mm.

Superfamily PARADERMAPTERA

Family APACHYIDAE

Apachyus beccarii Dubrony

Apachyus Beccarii Dubrony, 1879, p. 349 (*"Apachys"*).

Leiden Museum:

Moluccas, Morotai, H. A. Bernstein, 1 ♂.

Amsterdam Museum:

New Guinea, Tanah Tinggi, 30 km upstream from Tanah Merah, Upper Digul, VIII-IX, W. G. N. van der Sleen, 1 ♂.

The specimen from Tanah Tinggi has the posterior angles of the pygidium slightly more rounded laterally so that the pygidium is not of the normal pentangular shape but about triangular with the bases on both sides strongly rounded.

Apachyus chartaceus (De Haan)

Forficula (Apachya) chartacea De Haan, 1842, p. 239, pl. 23 fig. 7.
Apachyus chartaceus, Burr, 1912a, p. 27; —, Borelli, 1926, p. 259; —, idem, 1932b, p. 83; —, Hebard, 1927, p. 29.

Leiden Museum:

Java, Gunung Ungaran, X 1910, Van Leeuwen, 1 immature (det. Burr).
Sumatra, Padang Bessie, 1 ♂ (type); Bungus, 1 ♂, 1 ♀ (types); Rawas, V 1878, Sumatra Expedition, 2 ♀♀.
Borneo, Sakumbang, 1 ♀ (type); Sambas, West Borneo, 1891, J. Bosscha, 1 ♀.

Amsterdam Museum:

Sumatra, Lubuk Sikaping, 450 m, 1926, E. Jacobson, 1 ♀; Lau Rakit, 300 m, 2 IX 1921, J. B. Corporaal, 1 ♂.

The specimens from Padang Bessie, Bungus and Sakumbang are De Haan's types, as indicated on the labels they have been examined by De Bormans. The specimen from Bungus, Sumatra, was selected as lecto-holotype.

The immature specimen from the Gunung Ungaran was mentioned in Burr's paper.

Apachyus depressus (Palisot de Beauvois)

Forficula depressa Palisot de Beauvois, 1805, p. 36, pl. 1 fig. 5.
Apachys depressus, Burr. 1908a, pp. 53, 54.
Apachyus depressus, Rehn, 1924, pp. 375, 376 & 407, figs. 20-23.

Leiden Museum:

Africa, Liberia, 1888, F. X. Stämpfli, 1 ♂ ; Junk River, Liberia, F. X. Stämpfli, 1 ♂.

Apachyus murrayi Dohrn

Apachya Murrayi Dohrn, 1863, p. 44.
Apachys murrayi, Burr, 1908a, pp. 52, 54.
Apachyus murrayi, Rehn, 1924, pp. 375, 379 & 407, figs. 24, 25.

Leiden Museum:

Africa, Liberia, 1886-1887, E. Büttikofer, 1 immature.

Rehn does not mention the occurrence of the present species in occidental Africa. The identification of the single immature specimen should be taken with some reserve.

Apachyus sumatranus nov. spec. (fig. 16)

Leiden Museum:

Sumatra, Fort de Kock, XII 1913, E. Jacobson, 1 ♂ (holotype); Suban Ajam, VII 1916, E. Jacobson, 1 ♂ (paratype).

The present specimens are distinctly smaller than our examples of *chartaceus* and *beccarii,* and to a certain degree they differ from each other in size, in coloration, in the curvature of the forceps, and in bluntness of the apex of the anal process.

Head brownish yellow, a small anterior area brown, some brown behind the eyes; eyes black; proximal antennal segments brownish yellow, distal segments brown. Pronotum yellowish with anterior and lateral submarginal brown markings or with a completely brown prozona. Scutellum (yellowish) brown. Elytra yellowish, some brown along inner margin and on sides. Wings brown with yellow along inner and outer margins of exposed wing-scales. Abdomen and anal process yellowish brown or light brown, with two rows of darker spots on dorsal segments, the posterior dorsal segment almost wholly dark or with a distinct large median blotch. Forceps castaneous, in the smaller specimen with a dark apex. Brownish markings on legs indistinct, distal parts of third tarsal segments more or less brown.

Head flat, eyes hardly protruding, diameter of eye about equal to post-orbital length. Occipital sutures visible but indistinct. Antennae (18 segments) with slightly club-shaped basal segment, hardly longer than post-

orbital head; second antennal segment transverse, cylindrical, third slightly shorter than first segment, but very slender and subcylindrical; further segments more or less conical, the proximal very short (fourth and fifth together hardly longer than third), the distal segments more elongate, the eighteenth not yet surpassing the length of third antennal segment.

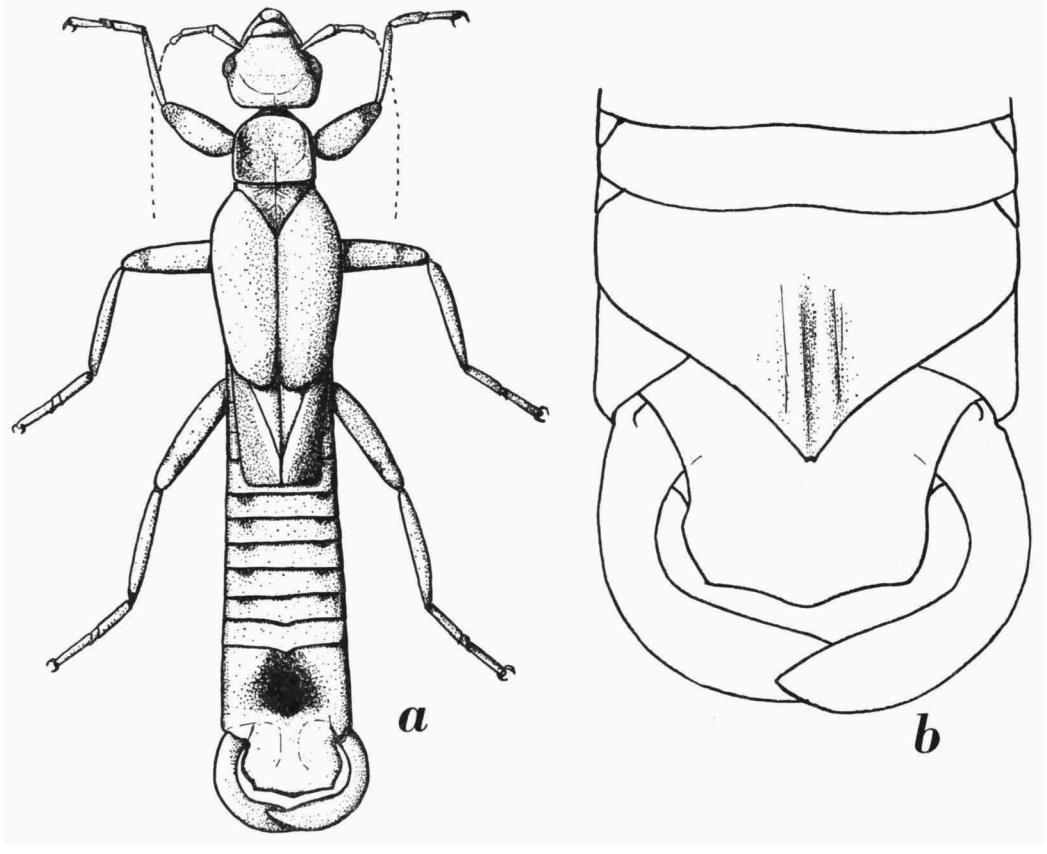

Fig. 16. *Apachyus sumatranus* nov. spec. a, habitus of male in dorsal view; b, apical part of abdomen and forceps of male in ventral view. a, × 8; b, × 25.

Pronotum with semicircular anterior half, flat or hardly tumid, with rather distinct median suture. Scutellum triangular, large, with distinct median suture.

Elytra with very narrow base, surface rather indistinctly punctulate. Wings well developed, slender, largely exposed, with punctulate surface of wing scales.

Abdomen strongly depressed, punctulate. Posterior dorsal segment with indistinct longitudinal median concave area, anal process transverse with blunt apical angle (slightly less blunt in smallest specimen). Penultimate ventral segment triangular, the very sharp median apex inconspicuously truncate or subemarginate; the longitudinal median furrow, bordered by two blunt ridges, very inconspicuous.

Forceps as in figure or the curvature more gradual (smaller specimen), proximal half rounded, distal part flattened and broadened.

Legs short, length of third tarsal segment subequal to first and second together or slightly longer.

Total length 11-13.7 mm, forceps 1.4-1.7 mm.

Dendroiketes (?) **novaeguineae** nov. spec. (fig. 10b, c)

Amsterdam Museum:

New Guinea, Cleft Bivouac, 12 X 1912, G. Versteeg, 1 ♂ (holotype).

The generic status of the present species is not completely certain. Except a few differences of minor importance (length of basal antennal segment moderate, not or hardly more than diameter of eye, drawn slightly too long in figure; third tarsal segment slightly longer than first and second together, about 1.5 first segment), the specimen distinctly disagrees with Burr's diagnosis of *Dendroiketes* Burr (1913a, p. 45) in the shape of the anal process. The very moderate development of the anal process, hardly deserving such a name, being the only distinctly aberrant character, the name *Dentroiketes* is provisionally accepted.

This species distinctly differs from *corticinus* Burr, probably also from *punctatus* Borelli (1923a, p. 5), founded on a single female specimen only, of which the male still has to be discovered.

Head yellow or brownish yellow, the lateral postorbital parts and a large interorbital blotch including the basal half of the clypeus brown; a dark brown band along the median occipital suture, a narrow band along occipital margins and all except basal three antennal segments slightly brownish. Eyes almost black. Pronotum very dark brown with two lighter yellowish spots at about three-fifth of length. Scutellum rather dark, gradually lighter backwards. Elytra brown, dark along median margins and sides, with a lighter, about ovate yellowish area on anterior halves, growing vague and approaching each other backwards. Wing-scales light brown, lateral and apical parts darker, proximal two-fifth and narrow band along median margin yellow.

Abdominal tergites dark brown, the darkness of the coloration increasing

backwards; three anterior segments with more yellowish marginal bands, a very clear and distinct similar band on fourth segment. Abdominal sternites dark castaneous, the median parts very dark; anterior sternites more yellowish laterally and along free margins.

Sternites of thorax brownish yellow with irregular brown or castaneous markings; on metasternum a brown blotch inversely heart shaped, the rostrad point broadly truncate.

Forceps very dark brown, almost black. Anal process very dark. Femora dark brown except distal part, tibiae and tarsi lighter with less conspicuous markings.

For most external morphological characters I refer to the figure.

Head rather flat, interorbital area and the two occipital halves slightly tumid. Sutures distinct, eyes prominent. Basal antennal segment rather thick, slightly club-shaped, of moderate length; second very short, third subequal to first but much more slender, cylindrical; fourth and fifth almost square, together slightly shorter than third segment; the further segments gradually longer and more slender, the apical segments almost cylindrical. Antennae consisting of at least 31 segments.

Pronotum with a slightly tumid prozona, a concave metazona, the sides curved upwards; median suture distinct. Sternites rather broad, the posterior margins of meso- and metasternum slightly concave with a very blunt median angle, margin of prosternum truncate or very inconspicuously convex.

Abdomen strongly depressed, though slightly less than in *Apachyus,* more than twice broader than high. Posterior dorsal segment with a distinct median furrow, the median posterior part covered with very small tubercles; not separated from the anal process by a transverse suture. Penultimate ventral segment obtusely triangular, punctulate, with a shallow median furrow bordered by two inconspicuous keels.

Anal process hardly developed, very broad but short, thick, transverse and rectangular in dorsal view, the posterior margin inconspicuously concave and laterally ending in two small teeth; a row of distinct and rather long hairs on the ventral surface, close before posterior margin; attached without sutures.

Forceps closely resembling those in *Apachyus,* the proximal halves about cylindrical, the distal halves strongly flattened and with distinct inner ridge.

Femora slightly compressed, tibiae slender, tarsi with first segment rather short, second short, both together distinctly shorter than the very long third tarsal segment.

Total length 25 mm, forceps 3 mm.

Superfamily EUDERMAPTERA
Family LABIIDAE
Subfamily NESOGASTRINAE

Nesogaster amoenus (Stål)

Forficula amoena Stål, 1855, p. 356.
Nesogaster amoenus, Burr, 1908b, pp. 45, 46; —, idem, 1915b, p. 116; —, Borelli, 1926, p. 259; —, idem, 1926a, p. 389; —, idem, 1927, p. 70; —, Hebard, 1927, p. 29.

Leiden Museum:

Sumatra, Harau Cleft, X 1913, E. Jacobson, 1 ♂, 1 ♀; Fort de Kock, XI 1913, E. Jacobson, 2 ♂♂; Buo, Highlands of Padang, II 1914, E. Jacobson, 1 ♂, 2 ♀♀.

Amsterdam Museum:

Sumatra, Fort de Kock, 920 m, 1926, E. Jacobson, 2 ♀♀; Lubuk Sikaping, 450 m, 1926, E. Jacobson, 1 ♀; Tandjong Gadang, 1000 m, 1926, E. Jacobson, 1 immature.

All adult specimens are brachypterous.

Nesogaster erichsoni (Dohrn)

Forficula ruficeps Erichson, 1842, p. 246 (nec Burmeister).
Nesogaster ruficeps, Burr, 1908b, pp. 45, 46; —, idem, 1913a, p. 49.
Apterygida Erichsoni Dohrn, 1862, p. 231.
Nesogaster erichsoni, Hebard, 1927, p. 29.

Leiden Museum:

Australia, Van Diemensland, 1 ♀ ("*Ruficeps* Klug"; "*Forficula oceanica* Le Guillon"); Victoria, "N. Holland", 1 ♂.
Unknown locality, 1 ♂.

Nesogaster minusculus Rehn

Nesogaster minusculus Rehn, 1946, p. 219, figs. 1-3.

Leiden Museum:

Simalur, Lasikin, IV 1913, E. Jacobson, 1 immature; Laut Tawar, VIII 1913, E. Jacobson, 1 ♂; Sinabang, VII 1913, E. Jacobson, 1 immature; Pulu Babi (islet near Simalur), IV 1913, E. Jacobson, 2 ♂♂, 6 ♀♀, 2 immature.

The specimens listed above were identified by Burr (1915b, p. 116) as *N. amoenus* (Stål). In the cited paper the number of specimens from the various localities is not altogether as given above, though the total number is the same. They correspond with *N. minusculus* recently described by Rehn. As our material is more extensive, and shows some variation, I give here some additional details.

The number of antennal segments varies from ten to twelve; one specimen has one antenna with twelve, the other with only eight segments, the latter apparently is not damaged. The medio-longitudinal sulcus, though indistinct, reaches the cephalic and caudal margins of the pronotum. The forceps are

generally even longer than the abdomen measured from the posterior margin of the elytra; the short concave region between the crenulate part of the internal lamellated ridge and the ultimate trigonal tooth can be far less developed than described and figured by Rehn, thereby forming an almost uninterrupted internal ridge. The shape of the male pygidium better agrees with Rehn's description than with his figure; it remarkably corresponds with Borelli's figure of the pygidium of his *N. intermedius* (1932a, p. 194, fig. 3) though the structure of the forceps shows that the two species are different.

Total length (male) 5.5-8 mm, (female) 5.3-6.8 mm; forceps (male) 1.8-3 mm, (female) 1.3-1.6 mm.

Nesogaster aculeatus (De Bormans)

Labia aculeata De Bormans, 1900, p. 456.
Nesogaster aculeatus, Rehn, 1946, p. 223.

Amsterdam Museum:

Moluccas, Buru (Station 1), X-XI 1921, L. J. Toxopeus, 1 ♂.

A brachypterous specimen.

Subfamily SPONGIPHORINAE

Spongiphora croceipennis Serville

Spongiphora croceipennis Serville, 1831, p. 31.

Leiden Museum:

South America, Brazil, A. J. van Eyndhoven, 1 ? ("*Psalidophora crocipennis,* Serv., teste Dohrn"); Brazil, 1 ♂.
Locality unknown, 1 ♂, 1 ♀.

A separate label indicates that the specimen from Brazil has been examined by De Bormans; at present it has lost its abdomen.

Vostox brunneipennis (Serville)

Psalidophora brunneipennis Serville, 1839, p. 30.

Leiden Museum:

North America, Canada, 1 ♀.
Locality unknown, 1 ♀.

Irdex nitidipennis (De Bormans)

Spongophora nitidipennis De Bormans, 1894, p. 382.
Irdex nitidipennis, Burr, 1921a, p. 27; —, idem, 1912b, p. 227; —, Borelli, 1926, p. 260; —, idem, 1927, p. 70; —, idem, 1932, p. 185: —, idem, 1932b, p. 85.

Leiden Museum:

Java, S. Müller, 1 ♂ ("*Labia pygidiata* Dubrony"); Preanger, H. W. van der Weele, 1 ♂; Gunung Ungaran, IX 1910, E. Jacobson, 2 ♀♀; Nongkodjadjar, I 1911, E. Jacobson, 4 ♀♀ (det. Burr); Gunung Gedeh, III 1911, E. Jacobson, 5 ♀♀ (det. Burr, one specimen: "*Chelisoches ritsemae* De Bormans").

Sumatra, Balim Muara, Labu, VII 1914, E. Jacobson, 1 ♀; Tanangtalu, V 1915, E. Jacobson, 1 ♂, 1 ♀; Sungal Kumbang, VIII, IX 1915, E. Jacobson, 2 ♀♀; Rimbo Pengadang, VI 1916, E. Jacobson, 1 ♀; Air Njuruk, VIII 1916, E. Jacobson, 1 ♀; Gunung Teleman, V, VI 1917, E. Jacobson, 8 ♂♂, 3 ♀♀; Anai Cleft, 500 m, 1926, E. Jacobson, 1 ♂.

Borneo, Gunung Kenepai, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀.

Malay Peninsula, P. J. van der Does de Bye, 1 ?.

The specimens from the Gunung Ungaran, Gunung Gedeh, and from Nongkodjadjar have been examined by Burr (1912a, b).

Most of the specimens belong to the common macropterous form, only the examples from the Gunung Gedeh and the specimen collected by Müller have shorter wings, generally hardly projecting beyond the elytra. As brachypterous specimens seem to occur in a restricted area of Java only, this form may represent a local race. Furthermore, there is a striking resemblance with *Chaetospania balinensis* Günther (1934, p. 513, fig. 11), possibly indicating a synonymy with the present species.

One specimen from the Gunung Gedeh has been identified by Burr (1912b, p. 229) as *Chelisoches ritsemae* De Bormans, in my opinion erroneously. The abdomen of the Malayan specimen is mutilated.

All female specimens, including those possibly belonging to the following varieties, are enumerated among the present material as only the males show a distinct polymorphy.

Irdex nitidipennis (De Bormans), var. **linguiformis** Borelli

Irdex nitidipennis (De Bormans), var. *linguiformis* Borelli, 1932, p. 185; —, idem, 1932b, p. 85, fig. 5.

Leiden Museum:

Java, Gunung Gedeh, 1200-1300 m, XI 1914, E. Jacobson, 1 ♂.

Sumatra, Gunung Teleman, V 1927, E. Jacobson, 1 ♂.

The specimen from the Gunung Gedeh is brachypterous and seems to represent a local form restricted to a small area of Java only. It has been mentioned by Burr (1912b).

This variety has also been reported from the Malay Peninsula and Borneo and consequently is not restricted to a definite area.

Irdex nitidipennis (De Bormans), var. **brachypyge** nov. var. (fig. 17c)

Leiden Museum:

Java, Wonosobo, IV 1909, E. Jacobson, 1 ♂ (holotype); Nongkodjadjar, I 1911, E. Jacobson, 3 ♂♂ ("*I. nitidipennis*", det. Burr); Tjiliwung, about 1000 m, VI 1932, W. C. van Heurn, 1 ♂; Bremi, Probolinggo, 1000 m, XI 1934, W. C. van Heurn, 1 ♂.

These specimens have a very short and transverse pygidium sloping beneath the distinct proximal internal teeth of the forceps; the apex of the

almost semicircular pygidium is shortly emarginate, two rather sharp small teeth are situated just beneath the posterior part of the large triangular armature of the forceps.

The four javanese specimens collected by Jacobson have been mentioned by Burr (1912a, b).

Irdex novaeguineae nov. spec. (fig. 18a)

Amsterdam Museum:

New Guinea, "South New Guinea", 8 XII 1912, G. Versteeg 1 ♀ (holotype).

Closely related to the previous species but showing a few distinct characters which seem sufficient to establish a new species although the only available specimen is a female. In general, the characters agreeing with *Irdex nitidipennis* (De Bormans) were omitted in the present description.

Dorsal surface of head flat; eyes whitish; antennae with 11 segments (mutilated), hairy, brownish yellow, basal segment darker brown.

Pronotum dark brown with lighter lateral bands, covered with sparse long yellowish hairs; slightly broader and shorter than in *nitidipennis*, about square, hardly narrower than head, with straight lateral and posterior margins, the posterior angles rounded; almost completely covering the triangular scutellum.

Elytra and wing-scales dark brown with some sparse but very long yellowish hairs. The dark brown abdomen also covered with a sparse cloth of hairs on the dorsal surface, more or less lacking along median line; a more dense cloth of shorter hairs on ventral surface; distinct submarginal rows of short yellowish hairs. Median area of posterior dorsal segment smooth; some inconspicuous tubercles on tumid parts above insertions of forceps, more distinct tubercles laterally immediately before posterior angles. Penultimate ventral segment slightly broader than in *nitidipennis*, the apex somewhat truncate. Posterior margin of metanotum distinctly emarginate between the two rounded posterior angles.

Pygidium in general appearance resembling the pygidium in *nitidipennis*; the tumid basal part is considerably broader and has two distinct lateral tubercles situated close before the rectangular lamelliform apical part; posterior margin slightly sinuate, indistinctly tridentate.

Forceps slightly stouter than in *nitidipennis*; the dorsal internal ridge inconspicuous on basal half of forceps, the ventral internal ridge more distinct and with a very conspicuous tooth at about one third of the length of the forceps. For further characters I refer to the figure.

Total length 16.5 mm, forceps 4.2 mm.

Spongovostox semiflavus (De Bormans)

Spongophora semi-flava De Bormans, 1894, p. 385

Spongovostox semiflavus, Burr, 1915b, p. 116; —, Borelli, 1926a, p. 390; —, idem, 1932b, p. 83, fig. 2.

Apovostox semiflavus, Hebard, 1927, p. 32.

Leiden Museum:

Sumatra, Fort de Kock, XI 1913, E. Jacobson, 1 ♀; Buo, Highlands of Padang, II 1914, E. Jacobson, 2 ♀♀.

Simalur, Sinabang, IV 1913, E. Jacobson, 1 ♀ (det. Burr).

The specimen from Simalur has been mentioned by Burr (1915b); the specimen from Buo is darker and has brown antennal segments.

Spongovostox guttulatus (Burr) (fig. 18c, d)

Spongophora guttulata Burr, 1897, p. 314.

Spongovostox guttulatus, Burr, 1912b, p. 228.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 1 ♀ (det. Burr).

Amsterdam Museum:

Sumatra, Tandjong Merah, 22 m, 4 VIII 1921, J. B. Corporaal, 1 ♀.

The specimen from Java was mentioned by Burr (1912b); in several respects, however, the peculiarities of the specimen differ from those given in the original description of *guttulatus.*

The antennae yellowish, with a darker brown basal segment. The pronotum distinctly trapezoidal, anteriorly narrower than head, slightly broader posteriorly. Elytra with a yellow dorso-lateral band, the posterior part very narrow and inconspicuous. Wing-scales yellow, a distinct brown submarginal band close along inner margin. Proximal half of femora and a small vaguely limited proximal part of tibiae brown. Forceps reddish testaceous, rather straight, with a distinct quadrangular dorso-internal protuberance close behind the base, some irregular teeth along second and third quarter gradually diminishing apicad, the smooth tops slightly but distinctly curved inwards.

The second specimen shows an almost complete conformity to the original description.

Spongovostox pygidiatus (Dubrony)

Labia? pygidiata Dubrony, 1879, p. 364, figs.

Spongovostox pygidiatus, Borelli, 1926, p. 260; —, idem, 1927, p. 70.

Apovostox pygidiatus, Hebard, 1927, p. 31; —, Borelli, 1932, p. 183; —, idem, 1932a, p. 195; —, idem, 1932b, p. 83.

Leiden Museum:

Sumatra, Fort de Kock, XI 1913, E. Jacobson, 1 ♀; Tanangtalu, V 1915, E. Jacobson, 1 ♀; Sungal Kumbang, IX 1915, E. Jacobson, 2 ♀♀; Air Njuruk, Dempu, 1400 m,

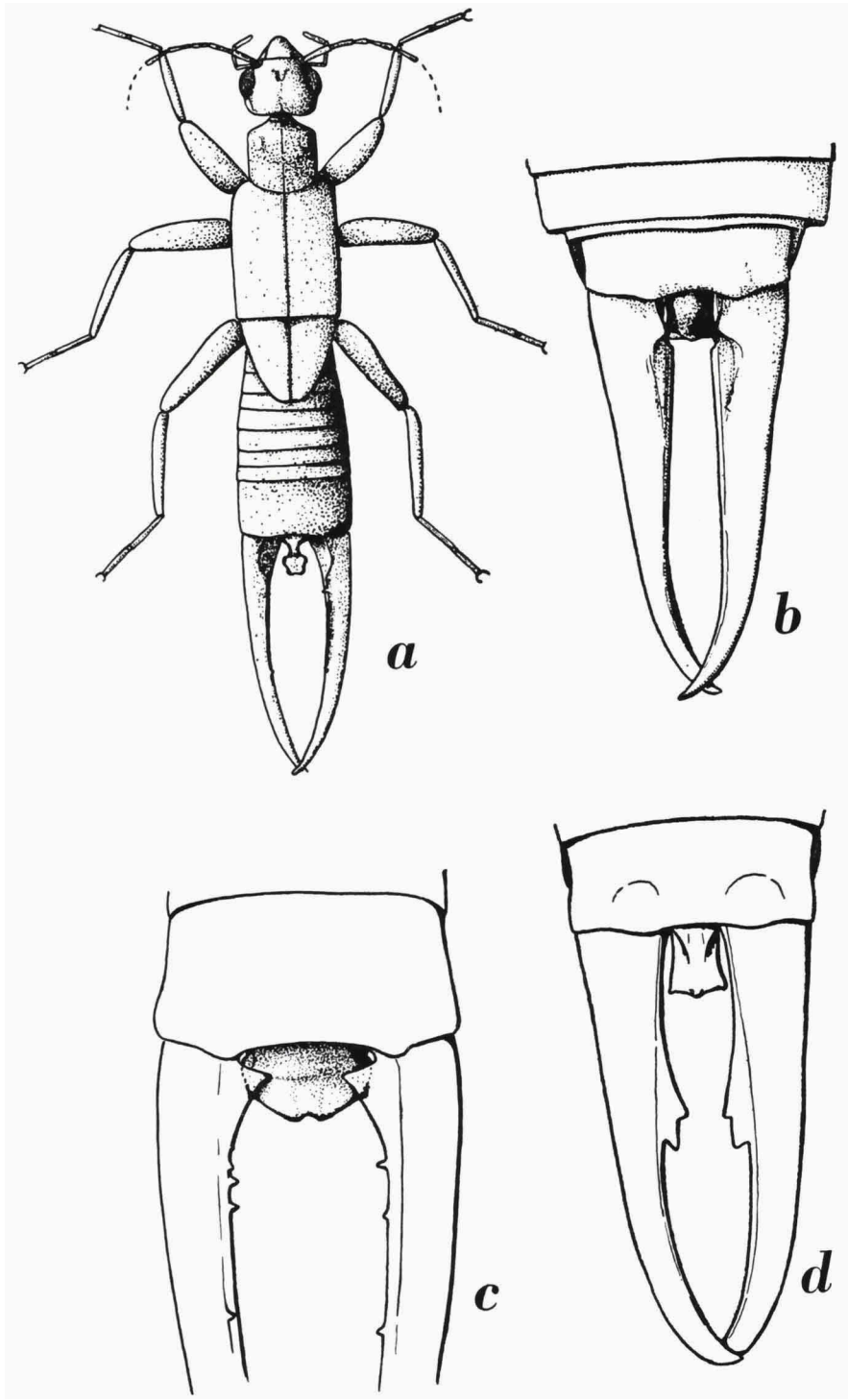

Fig. 17. a, b, *Spongovostox sumatranus* nov. spec. a, habitus of male in dorsal view; b, posterior part of abdomen and forceps of female in dorsal view. c, *Irdex nitidipennis* (De Bormans), var. *brachypyge* nov., posterior dorsal segment, pygidium, and proximal part of forceps of male in dorsal view. d, *Chaetospania thoracica* (Dohrn), forceps of male (from Simalur) in dorsal view. a, × 10; b, d, × 25; c, × 17.

VIII 1916, E. Jacobson, 1 ♀; Gunung Teleman, V, VI 1917, E. Jacobson, 2 ♂♂, 1 ♀, Anai Cleft, 500 m, 1926, E. Jacobson, 1 ♂.

Locality unknown, 1 ♂, 1 ♀.

Some variation, especially in the shape of the pygidium, seems to occur. One of the male specimens from the Gunung Teleman (V 1917) has the pygidium about as represented in Dubrony's original figure; it has a somewhat paler color and slightly shorter, hairy antennal segments. The second male specimen from the Gunung Teleman (VI 1917) has the posterior margin more emarginate, the median part deeply concave, the lateral parts less deeply.

Spongovostox sumatranus nov. spec. (fig. 17a, b)

Leiden Museum:

Sumatra, Sungal Kumbang, IX 1915, E. Jacobson, 1 ♀ (allotype); Gunung Teleman, V, VI 1917, E. Jacobson, 3 ♂♂ (holotype and 2 paratypes), 3 ♀♀ (allotypes).

Superficially this species resembles a small variety of *Irdex nitidipennis* (De Bormans), but it differs in several characters, e.g., the peculiarly shaped pygidium. A close relationship with *pygidiatus* is evident.

In general I refer to the figure for the morphological characters.

Coloration: brownish yellow with the darker brown markings not sharply defined, more distinct in the females; the apical antennal segments, the pronotum (especially the lateral parts), the elytra, and the wing-scales paler. A pale transverse band on wing-scales, immediately behind posterior margin of elytra, indistinct or lacking.

Head rather tumid; antennal segments slightly more slender than in *pygidiatus,* fifteen in each antenna. Pronotum subquadrate, sides straight, posterior margin broadly rounded, prozona moderately tumid, median suture distinct.

Posterior margin of ultimate dorsal segment distinctly concave between two slightly convex parts projecting above insertions of forceps, oblique and almost straight lateral of these. The dense cloth of minute hairs lacking in four more or less distinctly defined longitudinal bands ending slightly before posterior margin. In the male specimens there is an indistinctly concave area situated immediately before the thickened median portion of the posterior margin of the ultimate dorsal segment; a short median longitudinal line is hardly visible; tumid parts before and above insertions of forceps. In female specimens an about flat median area, the tumid parts slightly less developed.

Penultimate ventral segment broadly rounded, twice as broad as long, the apex subtruncate in females, slightly concave in male specimens.

The male pygidium with a sloping pyramidal or conical basal part rather abruptly widening into the oblique flat quadrangular apical plate; this plate

with more or less distinctly concave sides and posterior margin, rounded angles, the apical (inferior) part very thin.

The female pygidium with a sloping convex basal part, slightly narrowing distad, with two subdentate converging ridges; the apex laterally lamellate, the apical margin about straight with an indistinct median convexity and with rather sharp lateral angles.

Forceps slender, in male gently curved inwards with two pairs of teeth (in one specimen the distal tooth on one of the forceps lacking); in female specimens the forceps about straight except the inwards curved apices. Covered with rather long hairs.

Total length (male) 9.5-10.3 mm, (female) 7.6-8.2 mm, forceps (male) 3-3.3 mm, (female) 1.6-1.9 mm.

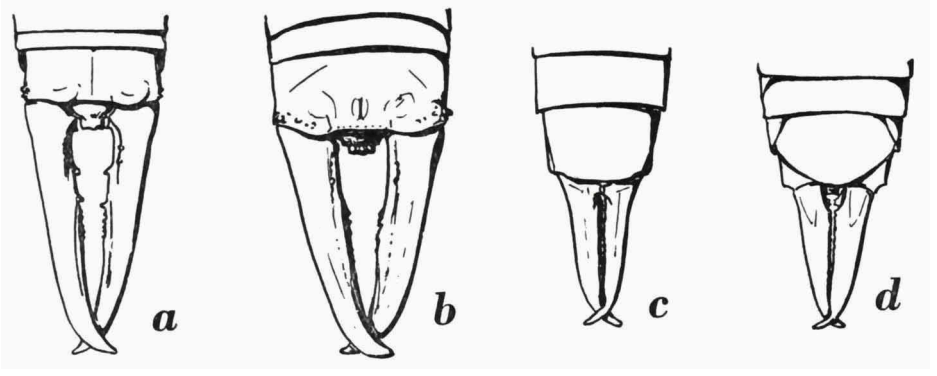

Fig. 18. a, *Irdex novaeguineae* nov. spec., apical part of abdomen and forceps of female in dorsal view. b, *Sphingolabis novaeguineae* nov. spec., apical part of abdomen and forceps of female in dorsal view. c, d, *Spongovostox guttulatus* (Burr). c, apical part of abdomen and forceps of female in dorsal view; d, apical part of abdomen and forceps of female in ventral view. a, × 8; b, c, × 10; d, × 9.

Subfamily LABIINAE

Chaetospania feae De Bormans

Chaetospania feae De Bormans, 1894, p. 390.

Chaetospania feae, Burr, 1912b, p. 228; —, Borelli, 1926, p. 261; —, idem, 1927, p. 70; —, idem, 1932, p. 187; —, idem, 1932b, p. 86; —, Hebard, 1927, p. 33.

Leiden Museum:

Java, S. Müller, 3 ♀♀ ("*Labia pygidiata* Dubrony"); Nongkodjadjar, I 1911, E. Jacobson, 1 ♂ (det. Burr).

Sumatra, Tandjong Morawa, Serdang, B. Hagen, 1 ♀ ("*Labia mucronata* Stål"); Fort de Kock, XI 1913, E. Jacobson, 1 ♂; Sungal Kumbang, IX 1915, E. Jacobson, 1 ♂; Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♂.

The male specimen from Nongkodjadjar has been mentioned by Burr. The identification of the female specimens is here given with some reserve.

Chaetospania thoracica (Dohrn) (fig. 17d)

Platylabia thoracica Dohrn, 1867, p. 348.

Chaetospania thoracica, Burr, 1912a, p. 28; —, idem, 1912b, p. 228; —, idem, 1915b, p. 116; —, Borelli, 1926, p. 261; —, idem, 1927, p. 71; —, idem, 1932b, p. 85; —, Hebard, 1927, p. 37; —, Günther, 1934, p. 507, figs. 5 & 6.

Leiden Museum:

Java, Batavia, III 1908, E. Jacobson, 2 ♂♂, 2 ♀♀, 1 immature (det. Burr); Gunung Ungaran, IX 1910, E. Jacobson, 1 ♀ (det. Burr); Nongkodjadjar, I 1911, E. Jacobson, 1 ♂ (det. Burr).

Sumatra, Serapai, VII 1915, E. Jacobson, 1 ♂; Suban Ajam, VII 1916, E. Jacobson, 1 ♀.

Simalur, Sinabang, I 1913, E. Jacobson, 1 ♂ (det. Burr).

Amsterdam Museum:

Sumatra, Sibolangit, 550 m, 15 X 1921, J. B. Corporaal, 1 ♂; Fort de Kock, 920 m, 1926, E. Jacobson, 1 ♂.

The specimens from Java and Simalur have been mentioned in Burr's papers.

The shape of the male forceps shows a wide range of variation; the specimens from Java agree with Günther's fig. 6, the specimens from Sumatra and Simalur with his fig. 5 or represent a third variety figured in the present paper.

Chaetospania borneensis (Dubrony)

Forficula Borneensis Dubrony, 1879, p. 381, figs.

Chaetospania borneensis, Burr, 1912b, p. 228; —, Borelli, 1926, p. 261; —, idem, 1927, p. 71; —, idem, 1932, p. 187; —, Hebard, 1927, p. 36, pl. 3 fig. 2; —, Günther, 1929, p. 74.

?*Chaetospania feuerborni* Günther, 1932, p. 474, figs. 2, 3; —, idem, 1934, p. 512, fig. 10.

Leiden Museum:

Java, S. Müller, 2 ♂♂, 1 ♀ ("*Labia pygidiata* Dubrony"); Batavia, IX 1907, E. Jacobson, 1 ♀ ("*Chaetospania* spec."); Nongkodjadjar, I 1911, E. Jacobson, 1 ♂, 3 ♀♀ (♂: "*Chaetospania borneensis* Dubrony"; ♀♀: "*Irdex nitidipennis* Bormans").

Sumatra, (?)Barung Pulau, VII 1915, E. Jacobson, 1 ♂.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 1 ♀ ("*Labia laminata* Burr", type, "♂").

The specimens from Nongkodjadjar were mentioned in Burr's paper, the females erroneously as *Irdex nitidipennis* (De Bormans). The Sumatran specimen is very small, total length 7.4 mm, forceps 2.4 mm, an internal tooth at about half the length of the forceps; abdomen strongly contracted, wings reaching to eighth or ninth segment (in other specimens to third or fourth only). The male specimens collected by Müller have the forceps slightly more slender with two very small internal teeth at about one-third

and two-third of their length, the pygidium somewhat narrower, showing a close agreement with Günther's figure of *feuerborni*.

The female specimens only differ from Hebard's figure by having a very small second internal tooth at about half the length of the forceps.

The specimen presumed to be the male type of *Labia laminata* Burr doubtless belongs to the present species and is a female. Accepting the accompanying data, the locality mentioned by Burr (New Guinea) must be erroneous and the name *laminata* is a synonym of *borneensis* Dubrony.

Chaetospania dichroma Hebard

Chaetospania dichroma Hebard, (5 IV) 1927, p. 34, pl. 3 fig. 1.
Chaetospania sumatrana Borelli, (15 IV) 1927, p. 71, figs.

Leiden Museum:

Sumatra, Anai Cleft, 500 m, 1926, E. Jacobson, 2 ♀♀.

These specimens are topotypes. According to Borelli, "Une partie des exemplaires est conservé dans les collections du Musée de Turin et de Mr. Ed. Jacobson, l'autre, dont les types, sera déposée dans les collections du Musée de Leyden". However, none of the types were found in the present collections.

Chaetospania tricuspidata Burr

Chaetospania tricuspidata Burr, 1906, p. 9; —, idem, 1913a, p. 54.

Amsterdam Museum:

New Guinea, Timmena River, 7 IV 1903, New Guinea Expedition, 1 ♂ ("type").

As indicated, this is Burr's type of the present species. In comparison with our material of *thoracica* Dohrn, it is considerably more robust, slightly longer, and has differently shaped forceps and pygidium. The synonymy with *thoracica* (Burr, 1913a) consequently can not be accepted.

On account of the inadequacy shown in some respects by Burr's description, some further data are given.

Head reddish brown, clypeus and labrum more yellowish; eyes dark, antennae pale yellowish with slightly darker brown basal segment. Pronotum reddish brown with indistinctly paler lateral parts of metazona more yellowish. Wing-scales reddish brown to dark brown, femora pale brownish, tibiae and tarsi paler yellowish brown.

Head with slightly concave posterior margin, very short longitudinal median suture, rather distinct transverse suture; eyes small, not prominent. Antennal segments longer and stronger than in *thoracica,* head larger than in *thoracica.*

Pronotum subquadrate, anterior margin slightly convex, posterior margin distinctly convex, sides inconspicuously converging backwards. Prozona tumid, median suture indistinct.

Elytra and wings well developed, tips of wing-scales short truncate, apical margins of elytra slightly oblique and truncate.

Abdomen distinctly less slender than in *thoracica;* posterior dorsal segment as in *thoracica,* before bases of forceps slightly tumid with convex posterior margin; penultimate ventral segment broadly rounded with truncate apex.

Pygidium rather closely agreeing with our male specimen from Simalur of *thoracica* (fig. 17d), of about the same total length, the parallel sides shorter and ending in a small tooth, the apical part about triangular with slightly concave sides and a distinctly protruding median tooth at the about rectangular apex. This in contradistinction with the truncate apex in *thoracica.*

Forceps straight, the apical third increasingly curved inwards, the tops almost transverse; proximal half stronger than in *thoracica,* triangular in cross-section: outer and dorsal internal ridges rounded, ventral internal ridge sharper, ending in a very small but distinct tooth at half the length of the forceps; distal half elliptical in cross-section, apex sharp.

Total length 10.4 mm, forceps 8 mm.

?**Chaetospania** spec.

Leiden Museum:

New Guinea, Sekru, VII 1897, S. Schädler, 1 ♂.

A badly damaged specimen.

Forceps more or less as in previous species, in general straight but with the distal quarter distinctly curved inwards. The armature very complex: a distinct dorsal internal ridge beginning with a rather sharp conspicuous tooth close behind pygidium, directed transversely; beyond this tooth the ridge continues inconspicuously dentate, ending at a second transverse sharp, more triangular tooth, situated at about half the length of the forceps. The ventral internal ridge begins near the lateral angles of the truncate pygidium and has a very distinct transverse tooth, directed slightly backward, situated somewhat behind the proximal dorsal tooth; beyond this tooth, the ventral ridge is almost obsolete, but an internal horizontal lamina originates slightly behind the distal upper tooth and ends at about one-fifth before the apex with a distinct sharp tooth; apical fifth round or oval in cross-section, curved inwards.

Pygidium short, in dorsal view about transversely cylindrical, sides vertical, dorso-lateral ridges sharp and somewhat converging; along distal margin of this subcylindrical part a slightly narrower and very short transverse lamina with rather sharp lateral angles and a subconcave posterior margin.

The specimen must have been rather small, 8.5-9 mm in total length, forceps 1.8 mm.

Sphingolabis semifulva (De Bormans)

Sparatta semi-fulva De Bormans, 1884, p. 183.
Sphingolabis furcifera De Bormans, 1884, p. 194.
Sphingolabis semifulva, Borelli, 1926, p. 262; —, idem, 1927, p. 73; —, Günther, 1932, p. 478, fig. 5.

Leiden Museum:

Sumatra, Sidjundjung, VII 1877, Sumatra Expedition, 1 ♀; Batang Singalang, 1 ♂ („*Sphingolabis furcifera* De Bormans"); Fort de Kock, XI 1913, E. Jacobson, 1 ♂; "Kalung." (probably Kalubang, Highlands of Padang), XII 1913, E. Jacobson, 1 ♂, 1 immature; Buo, Highlands of Padang, II 1914, E. Jacobson, 1 ♀.

The specimen from Sidjundjung must be the type of the present species, the specimen from Batang Singalang is the type of *furcifera* De Bormans.

Sphingolabis hawaiiensis (De Bormans)

Forficula hawaiensis De Bormans, 1882, p. 341, figs.
Sphingolabis hawaiiensis, Burr, 1913, p. 314.

Leiden Museum:

Sumatra, Padang, S. Müller, 1 ♂.

A distinct proximal tooth at about one-quarter of the length of the forceps; an irregularly dentate ridge originates shortly behind proximal tooth, ending at a much smaller but still distinct tooth at about five-seventh of the length of the forceps.

According to Burr (1913) reported from Hawaii, New Guinea, and Lombok.

Sphingolabis novaeguineae nov. spec. (fig. 18b)

Amsterdam Museum:

New Guinea, North River (South New Guinea), IX 1909, H. A. Lorentz, 1 ♀ (holotype).

The description of the single female specimen as a new species is justified on account of the very peculiar shape of the forceps. It further differs from the closely related *S. hawaiiensis* (De Bormans) in coloration and, less distinctly, in some characters of minor importance.

Head dark brown, anterior half of clypeus more yellowish; proximal antennal segments rather dark brown, gradually lighter distad. Pronotum dark brown with lighter yellowish lateral parts. Elytra and wing-scales brownish yellow, elytra darker brownish anteriorly and along the lateral and median margins, the apices of wing-scales dark. Abdomen dark yellowish brown, all (except ultimate) segments with a distinct submarginal

row of short light yellowish hairs. Forceps and legs brownish yellow, proximal half or third of femora considerably darker brown.

Head elongately pentagonal, especially the labrum rather long and sharp. Dorsal surface flattened, subconcave on both sides of median occipital suture, posterior margin slightly concave, eyes rather prominent and almost as long as postorbital head. Basal antennal segment slightly club-shaped, subequal to diameter of eye; second segment hardly longer than broad, cylindrical; third about half the length of first, subcylindrical, growing inconspicuously thicker distally; fourth about equal to third, the further segments gradually longer and more slender, subconical, the apical segments oblong, subovate; consisting of thirteen segments.

Pronotum subquadrate, angles and sides slightly rounded, flat, prozona hardly tumid; median suture distinct; slightly narrower than head. Rather strong hairs on whole surface, less dense than on head, stronger than on antennal segments.

Elytra rather broad, $1\frac{1}{2}$ times pronotum, shoulders distinct; length twice the pronotum, posterior margin straight and oblique. Wing scales prominent, only slightly shorter than pronotum, near apex broadly rounded laterally, shortly truncate at apex. Both elytra and wing-scales smooth, covered with sparse hairs.

Dorsal abdominal segments slightly tuberculate along free margins, punctulate, shining, covered with sparse hairs. Posterior dorsal segment with a completely smooth median area, a narrow posterior part covered with small tubercles; close before these tubercles a concave part with an inconspicuous median furrow; tuberculate tumid areas immediately before bases of forceps; median part of posterior margin subconcave, lateral parts obliquely truncate; sides hardly converging backwards. Penultimate ventral segment broadly rounded, the apex hardly convex. Mesosternum rather broad, posterior margin truncate, angles rounded; metasternum with subconcave posterior margin, angles less rounded.

Pygidium prominent, the basal part broad and tumid, strongly sloping, sides converging backwards; behind two distinct lateral, slightly projecting transverse protuberances a slightly narrower rectangular transverse laminal part with parallel sides, an almost straight subsinuate apical margin, and slightly rounded lateral angles. Ventral surface flat.

Forceps strong, straight, the apices curved gently inwards, tapering, triangular in cross-section, the ventral surface of proximal half slightly concave; dorsal ridge moderately developed, rounded, extending on proximal third of forceps only; each with three proximal tubercles, the first near the apex of the pygidium. Internal ventral ridge originating lateral of pygidium,

increasingly developed to almost lamellate, with a distinct tooth at about one-third of length of forceps, beyond the tooth gradually narrower and with some dentification; a smooth ridge along slightly depressed apical third of forceps. Covered with numerous very long and pale hairs.

Legs rather short.

Total length 13 mm, forceps 2 mm.

Labia minor (Linnaeus)

Forficula minor Linnaeus, 1758, p. 423.

Labia minor, Chopard, 1922, p. 182, figs. 442, 443; —, idem, 1951, p. 325, figs. 501, 505; —, Willemse, 1952, p. 3, fig. 2.

Leiden Museum:

Europe, Netherlands, Pietersberg, VII 1908, MacGillavry, 1 ♀; Vlieland, 30 VIII 1929, A. Reclaire, 1 ♂ (det. H. C. Blöte); Rijswijk, 26 III 1923, A. Gijzen, 1 ♂, 1 ♀; Rijswijk, 26 III 1923, J. van der Vecht, 1 ♂, 1 ♀; Rijswijk, 26 III 1923, Voorburg, 6 V, VI, 1927, H. C. Blöte, 2 ♂♂, 1 ♀ (det. Blöte); Voorburg, 15 IV 1939, H. Teunissen, 1 ♀; Tyrol, Bolzano, IV 1899, H. J. Veth, 3 ♀♀.

Asia, Sumatra, Buo, Highlands of Padang, III 1914, E. Jacobson, 1 ♂.

North America, Montreal, M. Burr, 3 ♀♀ (det. Burr); Pennsylvania, 1 ♂ ("*Nana* Klug").

Amsterdam Museum:

Europe, Netherlands, Amsterdam, 19 VIII 1921, J. C. H. de Meijere, 1 ♂; Amsterdam, VIII 1923, D. MacGillavry, 1 ♂ (det. MacGillavry); Amsterdam, 6 VIII 1927, D. MacGillavry, 1 ♂; Amsterdam, 9 VII 1941, L. Vari, 1 ♀; Bergen op Zoom, 9-14 VI 1920, P. van der Wiel, 1 ♂, 1 ♀; Bergen op Zoom, 11 VI 1920, D. MacGillavry, 2 ♂♂, 3 ♀♀ (det. MacGillavry); Bloemendaal, VII 1913, D. MacGillavry, 1 ♂, 2 ♀♀, 1 immature (det. MacGillavry, immature: "(♀?), larva"); Den Haag (The Hague), V 1915, VIII 1916, X 1920, E. J. G. Everts, 6 ♂♂, 9 ♀♀, 1 immature (det. MacGillavry; one ♀ without date); Dieren, VI 1917, D. MacGillavry, 1 ♀ (det. MacGillavry); Gulpen, 7 VIII 1902, Schuyl, 1 ♂; Heemstede, Schouwen, 22 & 26 VI 1935, P. van der Wiel, 2 ♀♀; Houthem, IX 1915, D. MacGillavry, 1 ♂ (det. MacGillavry); Kollum, 10 VII 1901, H. W. van der Weele, 1 ♀ (det. MacGillavry); Leiden, D. MacGillavry, 1 ♀ (det. MacGillavry); Mijdrecht, 7 X 1922, P. van der Wiel, 2 ♂♂, 3 ♀♀ (det. MacGillavry); Mijdrecht, 3 V 1923, P. van der Wiel, 14 ♂♂, 10 ♀♀ (det. Willemse), 1 ♂, 2 ♀♀ (det. MacGillavry); Nunspeet, 29 VIII 1931, P. van der Wiel, 1 ♀ (det. Willemse); Ossendrecht, 18 IX 1918, F. W. B(urger?), 2 ♀♀ (det. MacGillavry); Putten, Veluwe, 17 IX 1932, P. van der Wiel, 1 ♂, 1 ♀ (det. Willemse); Putten, 17 IX 1932, A. Reclaire, 1 ♂ (det. Willemse); Putten, 20 VIII 1932, J. Th. Oudemans, 1 ♂; Rotterdam, VIII 1909, D. L. Uyttenboogaart, 1 ♀ (det. MacGillavry); Spaarndam, 12, 26 X 1921, J? B..., 2 ♂♂ (det. MacGillavry); Ulestraten, "waterval", 17 IX 1933, P. van der Wiel, 1 ♀ (det. Willemse); Valkeveen, 29 IX 1923, A. C. Nonnekens, 1 ♀; W(amel??), III 1916, ?, 1 ♂; Weert, VI 1914, D. MacGillavry, 1 ♀ (det. MacGillavry); Westenschouwen, 23 VI 1935, D. L. Uyttenboogaart, 1 ♀; Westenschouwen, 23 VI 1935, P. van der Wiel, 1 ♂; Netherlands, 2 ♀♀; Belgium, La Hulpe, 27 VIII-19 IX 1927, H. J. MacGillavry, 1 ♂, 1 ♀; Germany, Wiesbaden, 13-17 V 1921, Th. C. Oudemans, 1 ♀ (det. MacGillavry); Corsica, Aj(accio?), IV, V 1921, D. L. Uyttenboogaart, 3 ♀♀ (det. MacGillavry).

The specimen from Buo, Sumatra, is slightly different: posterior margin

of head somewhat more concave, pronotum more rounded, sides of pronotum slightly diverging rostrad, elytra and wing-scales darker brown.

One of the specimens from Spaarndam, Netherlands, has unequally developed forceps and has been regarded by MacGillavry as a hermaphrodite.

Labia curvicauda (Motschulsky)

Forfiscelia curvicauda Motschulsky, 1863, p. 2, pl. 2 fig. 1.
Labia curvicauda, Burr, 1912a, p. 28; —, idem, 1912b, p. 228; —, idem, 1913, p. 314; —, idem, 1915b, p. 116; —, Borelli, 1926, p. 263; —, idem, 1926a, p. 390; —, idem, 1927, p. 73; —, idem, 1932, p. 189; —, idem, 1932a, p. 196; —, idem, 1932b, p. 86; —, Hincks, 1947, p. 531, figs. 6-8.

Leiden Museum:

Java, Batavia, I 1908, E. Jacobson, 1 ♂; Batavia, III 1908, E. Jacobson, 5 ♂♂, 2 ♀♀, 15 immature (all det. Burr); Wonosobo, IV 1909, E. Jacobson, 1 immature; Semarang, VI 1909, I 1910, E. Jacobson, 1 ♂, 2 ♀♀, 1 ?; Gunung Ungaran, IX 1910, E. Jacobson, 1 ♂ (det. Burr), 1 ♀.

Sumatra, Manna, 1902, M. Knappert, 2 ♂♂, 1 ♀ (one ♂: "*L. luzonica*"); Palembang, M. Knappert, 1 ♂, 1 ♀.

Simalur, Pulu Pandjang, VI 1913, E. Jacobson, 1 ♂ (det. Burr); "jungle", VII 1913, E. Jacobson, 1 ♀.

Timor, IV 1930, W. C. van Heurn, 1 ♂.

Amsterdam Museum:

Java, Slawi Tegal, 1909, F. T. Valck Lucassen, 1 ♀ ("*Labia Wallacei* Dohrn ♀?", det. MacGillavry); Buitenzorg, 1921, W. C. van Heurn, 1 ♂.

Cuba, San Blas, 1-9 III 1933, H. J. MacGillavry, 1 ♂.

The specimens from the Gunung Ungaran, Semarang, Wonosobo, and Batavia have been mentioned by Burr. The female specimen from Slawi Tegal, Java, has the forceps slightly more slender than the other female specimens.

Labia curvicauda (Motschulsky), var. **flavicollis** Burr

Labia flavicollis Burr (MS De Bormans), 1903b, p. 235.
Labia curvicauda (Motschulsky), var. *flavicollis,* Borelli, 1926, p. 263.

Leiden Museum:

Java, Wonosobo, IV 1909, E. Jacobson, 1 ♀; Nongkodjadjar, I 1911, E. Jacobson, 1 ♂, 1 ♀ (det. Burr).

These specimens are easily distinguished by the pale yellowish coloration of the pronotum. They have been mentioned by Burr ("*Labia curvicauda* Motsch.").

Labia pilicornis (Motschulsky)

Forfiscelia pilicornis Motschulsky, 1863, p. 2.
Labia pilicornis, Burr, 1912a, p. 28; —, idem, 1912b, p. 228; —, idem, 1915b, p. 116; —, Borelli, 1926, p. 263; —, idem, 1926a, p. 390; —, idem, 1927, p. 73; —, idem, 1932, p. 189; —, idem, 1932b, p. 86; —, Hebard, 1927, p. 40.

Leiden Museum:

Java, Ambarawa, E. W. A. Ludeking, 1 ♀ ("*Labia amana* Stål, var."); Batavia, III, V, VI 1908, E. Jacobson, 1 ♂, 3 ♀♀; Semarang, VII 1909, I 1910, E. Jacobson, 2 ♀♀, 1 ? (?: det. Burr); Djocja, II 1911, E. Jacobson, 1 ♀ (det. Burr); Meester Cornelis, 1930, J. Sonneveldt, 1 ♂.

Sumatra, Manna, M. Knappert, 1 ♀; Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♀.

Simalur, Sinabang, VI, VII 1913, E. Jacobson, 5 ♀♀ (det. Burr).

Celebes, Makassar, X 1927-IV 1928, J. Sonneveldt, 2 ♂♂, 1 ♀.

Moluccas, Ambon, III 1922, F. Kopstein, 1 ♂.

Amsterdam Museum:

Java, Buitenzorg, 1921, W. C. van Heurn, 1 ♂.

The specimens from Semarang, Batavia, Djocja, and Simalur have been mentioned in Burr's papers. The specimen from Djocja has a somewhat darker coloration and slightly thicker antennal segments, these characters probably causing the addition of a question mark to Burr's identification, lacking in his paper. The same aberrant characters occur in the specimen from Ambarawa.

Labia mucronata (Stål)

Forficula mucronata Stål, 1860, p. 303.

Labia mucronata, Burr, 1912a, p. 28; —, Borelli, 1926, p. 264; —, idem, 1927, p. 73; —, idem, 1932, p. 189; —, idem, 1932b, p. 86; —, Hincks, 1947, p. 529, fig. 5.

Leiden Museum:

Java, Batavia, XII 1908, I 1909, E. Jacobson, 1 ♂ (det. Burr), 1 ♀; Gunung Ungaran, X 1910, E. Jacobson, 1 ♀; Gunung Ungaran, X 1910, Van Leeuwen, 1 ♂.

Sumatra, Manna, M. Knappert, 1 ♂, 1 ♀; Bungamas, J. C. van Hasselt, 1 ♀.

Amsterdam Museum:

Java, Tjigembong, Preanger, V 1915, J. B. Corporaal, 2 ♂♂, 3 ♀♀; Ardja Sari, Preanger, 1920, 1 ♀.

Sumatra, Medan, 20 m, 1, 9, 10 VIII 1921, J. B. Corporaal, 3 ♀♀, 3 immature.

The specimens from Batavia and the Gunung Ungaran, collected by Jacobson, have been mentioned by Burr.

Labia karnyi Borelli

Labia karnyi Borelli, 1926, p. 263; —, idem, 1927, p. 73; —, idem, 1932a, p. 196.

Leiden Museum:

Sumatra, Fort de Kock, X, XI 1913, E. Jacobson, 4 ♂♂; Tanangtalu, V 1915, E. Jacobson, 1 ♀.

Amsterdam Museum:

Sumatra, Harau Cleft, IV 1911, F. C. Drescher, 1 ♂.

Labia annulata (Fabricius)

Forficula annulata Fabricius, 1793, p. 4.

Labia arcuata Scudder, 1876, p. 257; —, Hebard, 1917, pp. 240, 241, pl. 16 fig. 6; —, Willemse, 1952, p. 4.

Leiden Museum:

South America, Surinam, Paramaribo, W. C. van Heurn, 1 ♀.

Amsterdam Museum:

Europe, Amsterdam, IX 1903, D. L. Uyttenboogaart, 1 ♀ ("*Labia arcuata* Borm. ♀ ?", det. MacGillavry; "*Labia annulata* Fabr. ♀ = *arcuata* Scudd.", det. Rich. Ebner, 1923).

The specimen from Paramaribo has the apical lateral angles of the pygidium more produced with sharp points, as described by Hebard: "♀. Pygidium with lateral angles produced in minute, acute points, each scarcely longer than its proximal width ...", in contradistinction with De Bormans's figure (1893, pl. 1 fig. 19).

The specimen from Amsterdam must have been imported, the present species occurring only in Central and South America.

Labia pratti nov. spec. (fig. 19a, b)

Amsterdam Museum:

Sumatra, Peak of Korintji, 7300 m, VIII 1921, F. J. Pratt, 2 ♂♂ (holotype and paratype).

The present species distinctly differs from the other species of this genus occurring in the same region. It seems closely related to *Labia pendleburyi* Borelli, but is easily distinguished, e.g., by the shape of the pygidium and the pronotum .

Head, pronotum, and elytra very dark, two small triangular lateral spots on pronotum lighter yellowish. Wing-scales slightly lighter, abdomen still somewhat lighter, dark brown. Basal antennal segment brown, the other segments conspicuously paler but gradually more brownish apicad. Proximal part of femora slightly brownish. All other parts brownish yellow. The whole specimen covered with inconspicuous sparse hairs, rather long and pale on forceps, partly longer and strong on femora, short but more dense on antennae.

Head rounded pentangular, sides behind eyes hardly converging backwards, posterior margin about straight, surface distinctly tumid, sutures invisible, slightly longer than broad; eyes not prominent, diameter slightly less than postorbital length of head. Basal antennal segment slightly but distinctly club-shaped, about as long as postorbital head; second segment subquadrate, cylindrical, third much more elongate, second and third segments together almost equal in length to basal segment but much more slender; fourth about as long as third but with the proximal half slightly thicker, subovate, fifth segment again slightly longer; further segments hardly more elongate, subovate. Thirteen segments in total.

Pronotum trapezoidal, width subequal to head, angles conspicuously

rounded, sides slightly convex; maximal width hardly more than length. Median suture distinct, prozona slightly tumid, meta- and mesozona flat, sides curved upwards, especially anterior half.

Elytra together hardly broader than pronotum, shoulders indistinct,

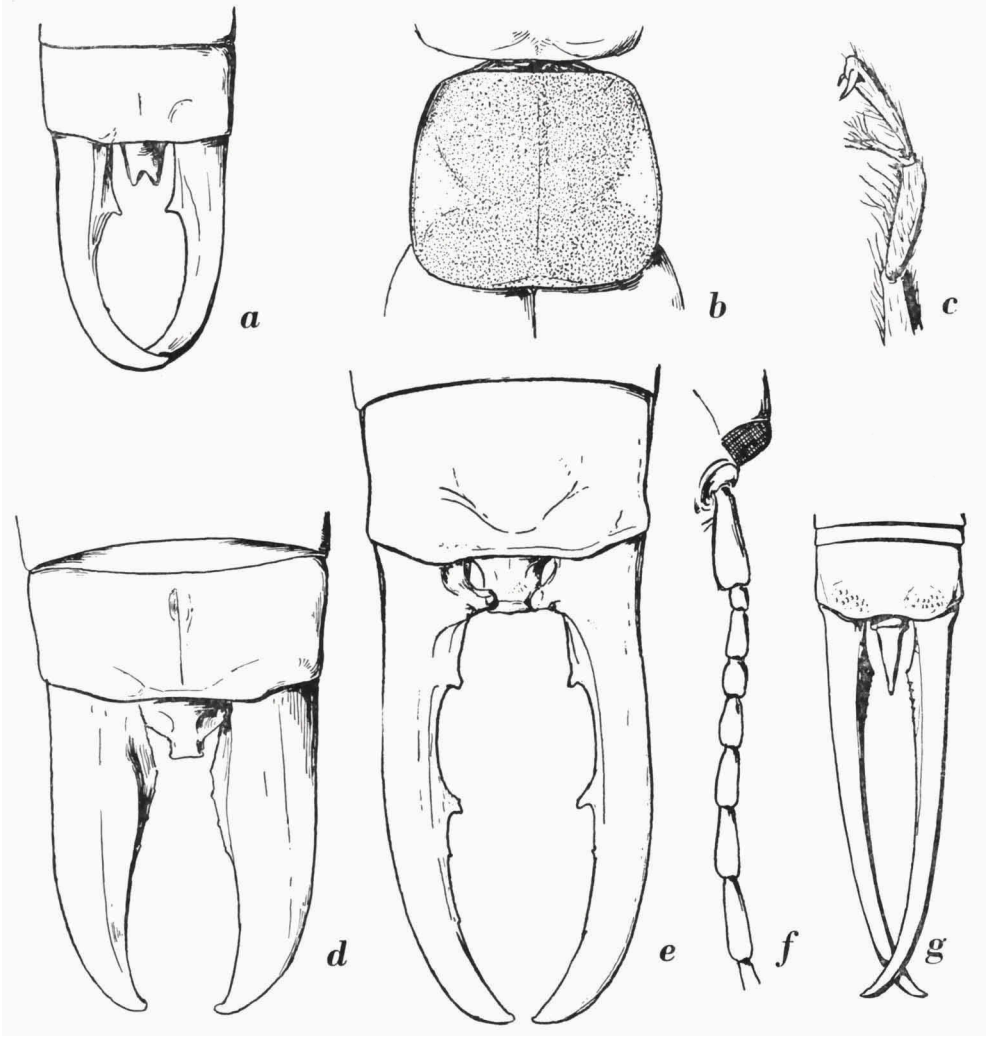

Fig. 19. a, b, *Labia pratti* nov. spec. a, posterior dorsal segment and forceps of male in dorsal view; b, pronotum of male. c, d, *Proreus coloratus* (Burr). c, tarsus of female; d, apical part of abdomen and forceps of female in dorsal view. e, f, *Proreus corporaali* nov. spec. e, posterior dorsal segment and forceps of male in dorsal view; f, antenna of male. g, *Enkrates elegans* (De Bormans), apical part of abdomen and forceps in dorsal view. a, × 24; b, e, f, × 28; c, × 32; d × 21.6; g, × 6.

anterior portion covered by pronotum, exposed length 1½ pronotum, sides about parallel, apical margins obliquely truncate.

Wing-scales prominent, length 2/5 exposed elytra, outer margin strongly rounded, apex truncate.

Abdomen slender, sides almost parallel, fifth or sixth segment broadest. Posterior dorsal segment subrectangular, convex, posterior median region slightly concave; posterior margin almost straight, subsinuate; tumid parts before insertions of forceps; a short longitudinal median line. Penultimate ventral segment broadly rounded, apex subtruncate. Posterior margin of mesosternum subconvex or truncate. Glued to substratum with metasternum.

Pygidium prominent, basal part tumid, lamellate apically, slightly longer than broad, sides somewhat converging backwards, posterior margin with a deep V-shaped incision.

Forceps strong (though varying in degree), bases remote, half to three-fifth straight, distal part strongly curved inwards, apex directed about transverse; a large flat triangular tooth, directed obliquely backwards, at about one-third of the length of the forceps, a second and very inconspicuous blunt tooth at about two-third, both directed inwards; cross-section of forceps generally oval, ventral proximal surface slightly flattened.

Total length 7.5 mm, forceps 1.2 or 1.3 mm.

Labia spec.

Leiden Museum:

Europe, Netherlands, Den Haag (The Hague), 28 XII 1891, Mrs. Bolten, 1 ♀ ("in Brazil tobacco").

Amsterdam Museum:

Asia, West Java, 1919, W. C. van Heurn, 1 ♀.
Central America, Cuba, San Cristobal, 11-29 VI 1933, H. J. MacGillavry, 1 ♀.

The specimens from Den Haag and San Cristobal are badly damaged; the specimen from Java seems closely related to *L. curvicauda* (Motschulsky), but is much smaller and more slender, with a paler coloration, the straight proximal parts of the forceps distinctly remote, triangular in cross-section, with a slightly denticulate conspicuous ventral internal ridge; a tumid quadrangular pygidium, the apical margin straight.

Prolabia luzonica (Dohrn) (fig. 20)

Labia luzonica Dohrn, 1864, p. 427.

Leiden Museum:

Java, Buitenzorg, H. J. Veth, 1 ♀; Semarang, VII 1910, E. Jacobson, 1 ♀; "Java", E. Jacobson, 1 ♀.

Up to fourteen antennal segments, fourth generally less conspicuously elongate than in figure, the further segments gradually lengthening. A very deep transverse concave area behind the distinctly tumid prozona of the pronotum.

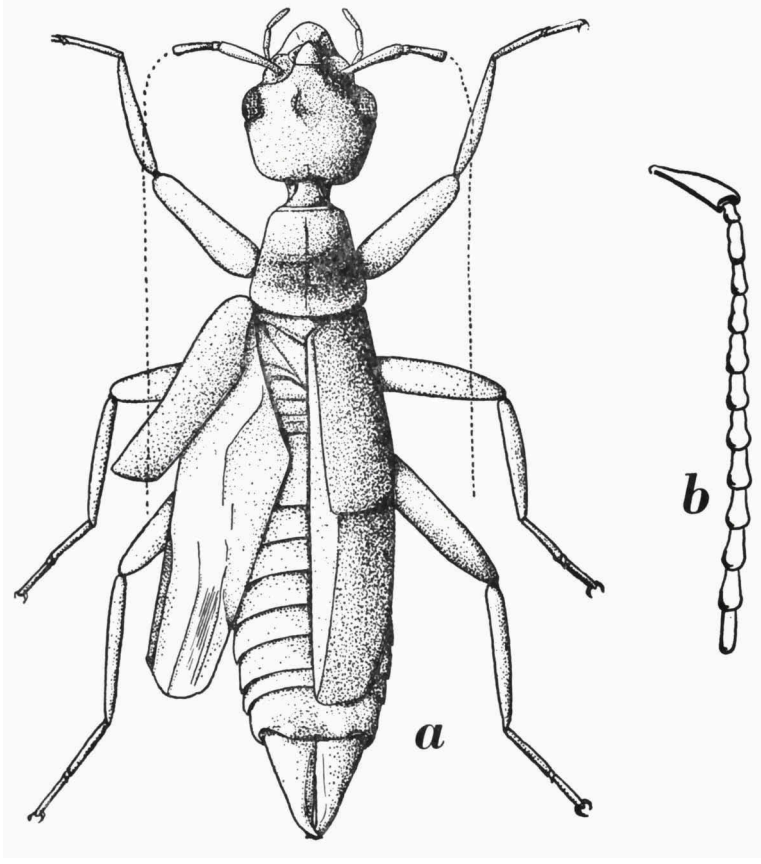

Fig. 20. *Prolabia luzonica* (Dohrn). a, habitus of female in dorsal view; b, antenna of female. a, × 24; b, × 36.

Prolabia unidentata (Palisot de Beauvois)

Forficula unidentata Palisot de Beauvois, 1817, p. 165, pl. 14 fig. 3.
Prolabia unidentata, Hebard, 1920, p. 348.

Leiden Museum:

North America, (Canada?), 1 ♂.

The locality probably is the same as in the two specimens of *Vostox brun-*

neipennis (Serville); all three were originally identified as "*Spongiphora croceipennis* Serv.".

Prolabia arachidis (Yersin)

Forficula arachidis Yersin, 1860, p. 509, pl. 10 figs. 33-35.
Apterygida arachidis, Burr, 1909, p. 17.
Prolabia arachidis, Burr, 1912a, p. 28; —, idem, 1915b, p. 116; —, Borelli, 1926, p. 265; —, idem, 1926a, p. 390; —, idem, 1927, p. 73; —, Günther, 1934, p. 506, figs. 3, 4; —, Hincks, 1947, p. 534, fig. 9; —, Chopard, 1922, p. 182, fig. 444; —, idem, 1951, p. 326, fig. 502; —, Houlbert, 1924, p. 234, pl. 5 fig. 5.
Prolabia (Apterygida) arachidis, Willemse, 1952, p. 4.
Labia grandis Dubrony, 1879, p. 366.
Labia? grandis, Burr, 1909, p. 15.
Marava grandis, Burr, 1912a, p. 28; —, Günther, 1929, p. 74.
Labia Wallacei Dohrn, 1864, p. 427.
Marava wallacei, Burr, 1912b, p. 228; —, idem, 1913, p. 314.

Leiden Museum:

Java, A. J. van Eyndhoven, 1 ♂, 1 ♀ ("*Labia gravidula* Gerst."); Garut, 1893, F. Adèr-Verver, 1 ♀; Semarang, XII 1900, X-XII 1910, E. Jacobson, 3 ♂♂, 2 ♀♀ (3 ex.: "*Marava grandis* Dubrony", 1 ex.: "*Prolabia arachidis* Yers.", all det. Burr); Babakan, Guwa Lawa (cave), Banjumas, III 1911, E. Jacobson, 11 ♂♂, 10 ♀♀ (19 ex.: "*Marava grandis* Dubrony", 1 ex.: "*Marava wallacei* Dohrn", 1 ex.: "*Irdex nitidipennis* Borm.", all det. Burr); Batavia, 1932/1933, W. C. van Heurn, 1 immature.

Sumatra, Peak of Indrapura, XII 1877, Sumatra Expedition, 1 ♂ ("*Labia gravidula* Gerst.").

Simalur, Bangkal, V 1913, E. Jacobson, 1 ♂, 1 ♀.

Borneo, Sambas, 1891, J. Bosscha, 2 ♀♀; Sugut, Sandakan Bay, Prakke, 3 ♀♀.

New Guinea, Sekru, VII 1897, S. Schädler, 1 ♂, 1 immature; 1866, H. A. Bernstein, 1 immature; "between bivouac near the Jasa (River) and Njao", 14 VI 1910, New Guinea Expedition, P. N. van Kampen, 1 ♀.

Africa, Liberia, 3 ♂♂, 2 ♀♀, 4 immature; Liberia, P. F. X. Stämpfli, 11 ♂♂, 14 ♀♀, 16 immature; Liberia, A. Demery, 1 ♂, 1 ♀, 9 immature; Liberia, "in a box", 3 ♂♂, 7 ♀♀, 3 immature.

South America, Surinam, 1883, 1 ♀ ("*Labia gravidula* Gerst.").

Australia, Melbourne, Van Kaathoven, 1 ♂ ("*Labia grandis* Dubrony").

Amsterdam Museum:

Europe, Amsterdam, in kitchen of monkey-house, Zoological Garden, 7 & 23 IX 1925, P. van der Wiel, 1 ♂, 2 ♀♀ (det. MacGillavry); Amsterdam, V 1903, D. L. Uyttenboogaart, 1 ♀ (det. MacGillavry).

Asia, Java, Buitenzorg, 12 VII 1882, Oudemans, 1 ♀ ("*Labia dolicha* Burr", det. Burr, 1905); Malang, VIII 1910, P. Buitendijk, 1 ♀; West Java, 1919, (W. C. van Heurn?), 2 ♀♀; Buitenzorg, 1921, W. C. van Heurn, 2 ♀♀.

Moluccas, Buru (Station 1), IV-IX 1921, I-III 1922, L. J. Toxopeus, 3 ♀♀.

New Guinea, Lake Sentani, 19 IV 1903, New Guinea Expedition, 1 ♀; Manokwari, 2 V 1903, New Guinea Expedition, 1 ♂ ("*Labia pulchriceps* Borm.", det. Burr, 1905); Etna Bay, 1904/1905, Koch, 1 ♀.

South America, Surinam, Paramaribo, D. MacGillavry, 8 ♂♂, 4 ♀♀ (det. MacGillavry).

Locality unknown, don. Koloniaal Instituut, Amsterdam, 1 ♂.

A very variable species; the various forms have previously been described as separate species, e.g., *arachidis* Yersin, *grandis* Dubrony, and *wallacei* Dohrn; intermediate forms occur in the present collection.

The eyes are generally rather large, in some specimens more or less smaller, very small in the specimen collected by Bernstein in New Guinea. The armature of the male forceps may vanish completely. The usual variations occur in the development of the wings and in the coloration.

On account of the shape of the pronotum, two distinctly differing forms can be distinguished: the first has the pronotum rectangular, sides almost parallel, slightly transverse; the second has the sides of the pronotum conspicuously diverging backwards, the general impression of the shape more distinctly transverse. To the second form belong, e.g., the specimen from Etna Bay, New Guinea, and (probably) the specimen from Noord River, New Guinea, mentioned by Burr (1909), of which he remarked: "It is probably only an aberration".

Most specimens are brachypterous, well developed wings occur in the specimens from Semarang, Buru, Lake Sentani, and Melbourne, some of which have been collected together with brachypterous specimens.

The specimen from Etna Bay is very dark and has a very broad abdomen, probably caused by artificial deformation; it is, moreover, very robust, total length 10.5 mm, forceps 2.5 mm, maximal width of abdomen (fourth segment) 3.4 mm.

Several of the present specimens (Semarang, Guwa Lawa, Bangkal, between Jasa River and Njao) have been mentioned by Burr. The Amsterdam specimens must have been imported.

Prolabia nigrella (Dubrony)

Labia nigrelia Dubrony, 1879, p. 370.
Prolabia nigrella, Burr, 1912a, p. 28; —, idem, 1912b, p. 228; —, Borelli, 1927, p. 73.
Labia myrmeca Burr, 1908, p. 96.

Leiden Museum:

Java, Semarang, 1896, E. Jacobson, 1 ♀ ("*Labia myrmeca* Burr, type").
Sumatra, Deli, L. P. de Bussy, 1 ♀ (det. Burr).

Amsterdam Museum:

Sumatra, Medan, 20 m, 1917, VIII 1921, J. B. Corporaal, 2 ♀♀.

The specimens from Semarang and Deli have been mentioned by Burr.

The three Sumatran specimens are of about the same shape, but the Javanese specimen is of only about half their size and differs in several characters; Burr's description of the Javanese specimen is very accurate.

The three Sumatran specimens have the antennal segments slightly more

slender, the first and third somewhat longer; the elytra have about twice the length of the pronotum and are dark brown with a pale spot on the anterior three-fifth; wings well developed, the prominent wing-scales about half the length of the elytra, pale yellowish with a broad brownish longitudinal band along the median margins; forceps very short, stouter and more curved upwards than in the Javanese specimen.

(**Pro**)**labia** spec.

Amsterdam Museum:

America, Surinam, VIII-IX 1900, D. L Uyttenboogaart, 1 immature ("*Labia* sp. larva", det. Burr, 1905).

Subfamily SPARATTINAE

Auchenomus javanus (De Bormans)

Platylabia javana De Bormans, 1883, p. 65, fig. 6.
Auchenomus javanus, Burr, 1913, p. 314; —, Borelli, 1920, p. 7; —, idem, 1926, p. 265.
Mecomera Modiglianii De Bormans, 1900, p. 460.

Amsterdam Museum:

Java, Buitenzorg, M. Weber, 2 ♂♂, 2 ♀♀ (1 ♂ & 1 ♀: "*Mecomera modiglianii* Borm.", det. Burr, 1905); Buitenzorg, 1921, W. C. van Heurn, 1 ♀.
New Guinea, Upper Digul, 150 km upstream from Tanah Merah, VIII-IX 1929, W. G. N. van der Sleen, 1 ♂.

In the male specimens a distinct variability can be observed in the armature of the posterior dorsal segment and in the armature and shape of the forceps.

Auchenomus setulosus (Burr) (fig. 21)

Sparatta setulosa Burr, 1900, p. 92.
Auchenomus setulosus, Borelli, 1920, p. 7; —, idem, 1932b, p. 89.
Auchenomus fulvus Borelli, 1915, p. 5; —, idem, 1920, p. 7.

Leiden Museum:

Sumatra, Sungal Kumbang, IX 1915, E. Jacobson, 1 ♀.

Only a single female specimen being available, the present identification should be taken with some reserve.

Auchenomus minutus nov. spec. (fig. 22)

Leiden Museum:

Sumatra, Serapai, VII 1915, E. Jacobson, 1 ♂ (holotype).

This is a very small species, furthermore easily distinguished by the shape of the forceps.

Head dark castaneous, punctulate, covered with inconspicuous sparse short hairs; eyes greyish; antennae yellowish brown, gradually paler distad, covered with very fine pale hairs. Pronotum brown, with short pale yel-

lowish hairs, a few stronger hairs at shoulders. Elytra brownish yellow, translucent, seeming much darker on account of the very dark brown wings beneath, and covered with short yellow hairs. Wing-scales very dark brown, almost black, slightly lighter along internal and apical margins, covered with short yellow hairs. Dorsal surface of abdomen very dark brown except the more yellowish, first, second, and posterior part of ultimate segments; covered with short pale hairs, some longer hairs along sides. Forceps slightly reddish testaceous, with sparse yellow hairs, several rather long. Legs brownish yellow, pale, proximal parts of femora brownish.

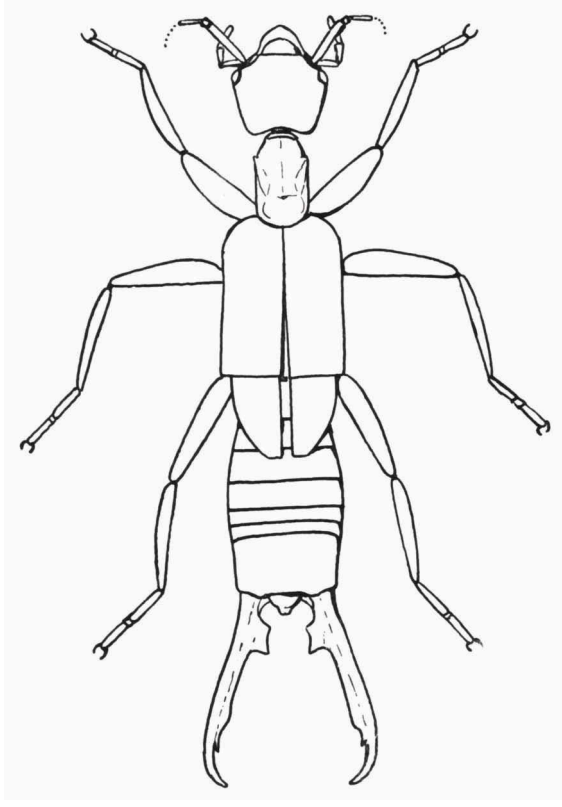

Fig. 21. *Auchenomus setulosus* (Burr), habitus of female in dorsal view. × 11.

For most of the external morphological characters I refer to the figure.

Head flat, slightly concave between the small eyes; occipital region divided in two strongly rounded halves by the distinct median incisure of the posterior margin, and the short conspicuous median suture; transverse suture obsolete. Antennal segments less elongate than in the previous species; basal

segment very long, about equal to postorbital length of head, very slender club-shaped; second segment subquadrate, third longer, slightly less than half the basal segment, cylindrical or subconical; fourth slightly longer, fourth and fifth together about equal to basal segment; the further segments gradually somewhat lengthening, subclavate, the ultimate (thirteenth) segment still distinctly shorter than the basal segment.

Pronotum about as long as head but considerably more narrow; anterior margin subrectangular, forming a distinct neck separated from the tumid prozona by a transverse suture; the further pronotum flat, median suture distinct.

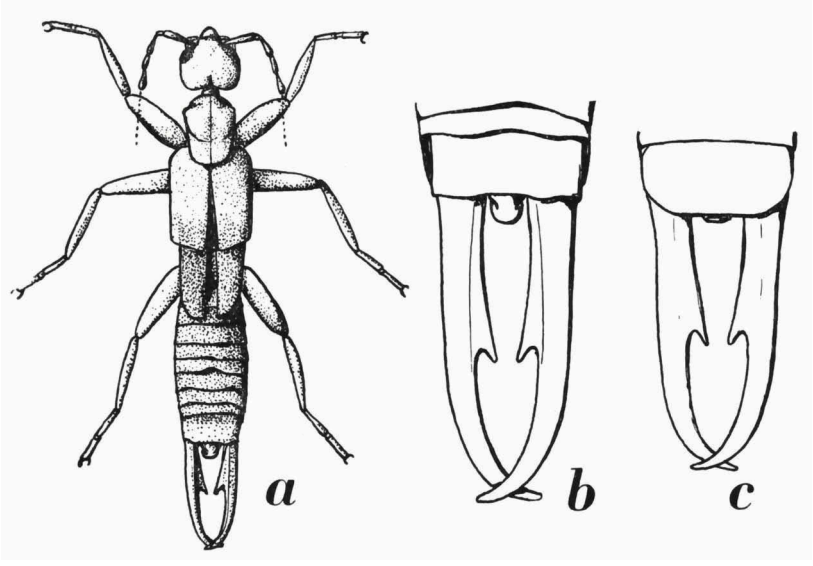

Fig. 22. *Auchenomus minutus* nov. spec. a, habitus of male in dorsal view; b, posterior part of abdomen and forceps of male in dorsal view; c, posterior part of abdomen and forceps of male in ventral view. a, × 11; b, × 26; c, × 25.

Elytra forming conspicuous sholders, wing-scales very long and with truncate apex.

Abdomen flattened, sides gently convex, maximal width at about seventh segment. Posterior dorsal segment flat with distinct tumid parts immediately before insertions of forceps. Penultimate ventral segment very broad, rounded, apex broadly truncate.

Pygidium with a steeply sloping trapezoidal basal part, the apical part broadly rounded with two inconspicuous small lateral teeth, the whole pygidium about as long as broad.

Forceps very slender, proximal two-thirds straight, apical third curved inwards, tops crossing; along proximal half a dorsal internal ridge, about rectangular in cross-section, becoming obsolete distally; a distinct ventral internal ridge increasingly developed and becoming laminate, ending at a large flat triangular internal tooth directed obliquely backwards.

Legs rather strong and short, without distinctive characters.

Total length 6 mm; forceps 1.5 mm.

Labiidae, spec. incert.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 3 immature.

Amsterdam Museum:

Java, Buitenzorg, 1921, W. C. van Heurn, 1 immature.

Family CHELISOCHIDAE

Subfamily CHELISOCHINAE

Chelisochella superba (Dohrn)

Lobophora superba Dohrn, 1865, p. 71.
Chelisochella superba, Borelli, 1932b, p. 89.

Leiden Museum:

Sumatra, Air Kumanis, III 1915, E. Jacobson, 1 ♂; Tebing Tinggi, F. J. Weynman, 1 ♀.

Malay Peninsula, H. Deyrolle, 1 ♀ ("*Lobophora superba* Dohrn").

?**Kleiduchus** spec. (nov.?)

Leiden Museum:

Borneo, Balikpapan, VII 1912, Kampmeinert, 1 immature.

The tarsal segments are very short and broad. A definite identification of the single immature specimen is at present impossible. It has been captured in a "nest of *Polyrhachis cephalotes*, Emery".

Proreus simulans (Stål)

Forficula simulans Stål, 1860, p. 302.
Proreus simulans, Burr, 1912a, p. 29; —, idem, 1912b, p. 228; —, Borelli, 1926, p. 267; —, idem, 1932, p. 189; —, idem, 1932a, p. 196; —, idem, 1932b, p. 90.

Leiden Museum:

Java, Ambarawa, E. W. A. Ludeking, 1 ♂, 2 ♀♀ ("*Chelisoches simulans* Stål"); Batavia, C. de Gavere, 1 ♂; Batavia, IX-XII 1907, X, XII 1908, E. Jacobson, 12 ♂♂, 6 ♀♀; Semarang, XI 1909, I, V, X-XII 1910, E. Jacobson, 3 ♂♂, 4 ♀♀; Tandjong Priok, 1908, P. Buitendijk, 1 ♀.

Sumatra, Bungamas, Palembang, J. C. van Hasselt, 2 ♀♀ ("*Chelisoches simulans* Stål"); Tandjong Morawa, B. Hagen, 2 ♂♂, 2♀♀ ("*Chelisoches simulans* Stål"); Mahan Pandjang, IX 1877, Sumatra Expedition, 1 ♀; Muara Labu, XI 1877, Sumatra Expedition, 1 ♀; Surulangun, Rawas, IV 1878, Sumatra Expedition, 1 ♀; Rawas, V 1878, Sumatra Expedition, 2 ♀♀; Kutur, V, VI 1878, Sumatra Expedition, 2 ♀♀;

Air Kumanis, III 1915, E. Jacobson, 1 ♀ ; Sandaran Agung, IX 1915, E. Jacobson, 1 ♀ ; Sabang, VII 1908, P. Buitendijk, 1 ♂.

Banka, Toboali, 2 XII 1935, J. van der Vecht, 1 ♂.

Borneo, Pulu Lampeh, P. Bleeker, 1 ♀ ; Sambas, 1890, Th. F. Lucassen, 1 ♂.

Locality unknown, 2 ♀♀ (1 ex.: "*Lobophora modesta* Stål").

Amsterdam Museum:

Java, Tjandiroto, 1886, Oudemans, 1 ♀ ("*Chelisoches simulans* Stål", det. Burr, 1905); Preanger(?), don. E. M. Beukers(?), 1906, 1 ♀ ; Blitar, East Java, IX 1912-IV 1913, W. H. J. van der Beek, 1 ♀ ; Tjilatjap, VI 1917, F. C. Drescher, 1 ♀ ; Bandung-Dago, Preanger, 3 III 1930, F. C. Drescher, 1 ♂.

Sumatra, Bulu Tjina, 2 VIII 1921, J. B. Corporaal, 1 ♂ ; Naga Kosiangan, 3 VIII 1921, J. B. Corporaal, 1 ♂ ; Bandar, 90 m, 5 VIII 1921, J. B. Corporaal, 1 ♀ ; Lau Rakit, 300 m, 29 VIII, 6 IX 1921, J. B. Corporaal, 2 ♀♀ ; Medan, II 1933, 2 ♀♀.

Borneo, Barabei, 1883, A. Pool, 1 ♀ ("*Chelisoches simulans* Stål", det. Burr, 1905).

There have been two female specimens from Muara Labu, Sumatra, but one is lost, only the label remaining. Several of the specimens collected by Jacobson have been mentioned in Burr's papers.

Proreus simulans (Stål), var. **modestus** (Stål)?

Forficula modesta Stål, 1860, p. 302.

Proreus simulans (Stål), var. *modestus,* Borelli, 1926, p. 267.

Leiden Museum:

Locality unknown, 1 ♀.

The coloration of the head is rather dark, the wings are strongly abbreviated, about two-thirds of the length of the elytra, the longitudinal bands on the elytra inconspicuous.

The abdomen is mutilated, the apical segments, the pygidium, and the forceps are lacking.

The specimen was originally identified as *Proreus melanocephalus* (Dohrn), a species in which brachypterous specimens hitherto never seem to have been reported. It has probably been collected in the Dutch East Indies.

On account of the present bad condition, the identification of the specimen remains doubtful.

Proreus melanocephalus (Dohrn)?

Lobophora melanocephala Dohrn, 1865, p. 75.

Proreus melanocephalus, Burr, 1910, p. 138 ("type (b)").

Leiden Museum:

Java, H. Kuhl & J. C. van Hasselt, 1 ♂ ("*Forficula tricolor* Dohrn", "*Melanocephala* Hag.").

In comparison with Burr's description, the present specimen shows some differing characters: fourth antennal segment hardly shorter than third, the next gradually longer, the sixth already distinctly longer than the third; wing-scales very dark brown, almost black, about the same color as the head; posterior dorsal segment truncate between remote forceps, distinctly

tumid before bases of forceps, the surface with a broad concave median area bordered by a slight ridge along posterior margin; forceps with a blunt tooth close behind half its length.

In consequence of the cited differences, the present identification should be taken with some reserve.

Proreus ludekingi (Dohrn)

Lobophora Ludekingi Dohrn, 1865, p. 73.

Proreus ludekingi, Borelli, 1926, p. 268; —, idem, 1927, p. 73; —, idem, 1932b, p. 90; —, Hebard, 1927, p 42.

Leiden Museum:

Java, P. Bleeker, 1 ♀.

Sumatra, Tapanuli, 1 ♀; Supajang, IV 1877, Sumatra Expedition, 1 ♂ ("*Chelisoches Ludekingi* Dohrn, ♂, var. a"); Tandjong Morawa, Serdang, B. Hagen, 1 ♀ ("*Chelisoches Ludekingi* Dohrn, var. b, ♂"); E. W. A. Ludeking, 2 ♂♂ ("*Lobophora Ludekingi* Dohrn, type"); Fort de Kock, XI 1913, E. Jacobson, 6 ♂♂, 3 ♀♀; Sandaran Agung, 1915, E. Jacobson, 1 ♀; Sumatra's West Coast, E. Jacobson, 1 ♂.

Borneo, Putus Sibau, VI 1894, Borneo Expedition, J. Büttikofer, 1 ♀.

Malay Peninsula, P. J. van der Does de Bye, 1 ♀.

Locality unknown (Malay Peninsula?), P. J. van der Does de Bye, 1 ♀.

Amsterdam Museum:

Sumatra, Bandar, 90 m, 5 VIII 1921, J. B. Corporaal, 1 ♂; Lau Rakit, 300 m, 28 VIII 1921, J. B. Corporaal, 1 ♀; Sibolangit, 550 m, 15 X 1921, J. B. Corporaal, 1 ♀, 1 immature; Fort de Kock, 920 m, 1926?, E. Jacobson, 1 ♂.

The present collection contains Dohrn's types and the two specimens after which De Bormans (1884, p. 199) described his two forms; the specimen described as the aberrant male variety b is a normally shaped female.

The male specimen from Bandar is very short and broad, strongly built, with short blunt forceps, but seems to be artificially deformed.

Proreus coloratus (Burr) (fig. 19c, d)

Labidurodes coloratus Burr, 1906, p. 9.

Amsterdam Museum:

New Guinea, Manikion region, 14-20 II 1903, New Guinea Expedition, 1 ♀ ("*Labidurodes coloratus* Burr, ♂, type").

Burr wrongly identified the present specimen as a male; the length of the forceps is approximately 2 mm; the further description proved accurate.

The second tarsal segments distinctly show very long lobes, reaching to slightly beyond half the distal segment. The specimen consequently must belong to the present family, Chelisochidae, and almost certainly to *Proreus* Burr.

Proreus corporaali nov. spec. (fig. 19e, f)

Amsterdam Museum:

Sumatra, Sibolangit, 550 m, 15 X 1921, J. B. Corporaal, 1 ♂ (holotype)

Characteristic are the shape of the pygidium and the armature of the forceps.

Head orange, labrum and sides much darker to almost black, eyes black; antennal segments very dark brown, only the eleventh segment very pale, all segments with sparse dark hairs. Pronotum orange with a very dark brown anterior margin, and a testaceous metazona; a few strong hairs at or near the rather sharp anterior angles. Elytra and wing-scales brown, a rather vague lighter longitudinal band along lateral margins. Abdomen reddish brown, pygidium almost black, forceps light testaceous, slightly reddish near base, gradually more red and darker distad. Anterior pair of femora brown, irregular brown markings on other femora, tibiae brown, tarsi pale, the other parts of the legs light brownish yellow.

Shape of head, pronotum, elytra, and wing-scales as in *ludekingi*. Head rather flat, occipital sutures distinct. Basal antennal segment strong, club-shaped, slightly longer than postorbital head; second segment very short, hardly longer than broad, cylindrical; third segment twice the length of second or slightly more; fourth somewhat shorter, subconical, together with second and third about equal to basal segment; fifth about as long as third, the further segments gradually longer, subclavate, the apical segments distinctly longer than basal segment, almost ovate; up to sixteen segments in total.

Pronotum with a distinct median suture.

Abdomen punctulate; posterior dorsal segment smooth, only slightly tumid before bases of forceps, median part hardly concave. Penultimate ventral segment broadly rounded.

Pygidium with a steeply sloping basal part, gradually becoming less steep towards the sublaminate rectangular apical part.

Forceps strong, gently curved, with a blunt and slightly bicuspid internal tooth projecting above pygidium, a small additional denticle dorso-caudate at the base of these teeth; an internal ventral ridge with a strong tooth at about a third of the length of the forceps, a second at two-thirds or three-fifth, sometimes bicuspid, one or two inconspicuous denticles on distal third.

For further characters I refer to the figure.

Total length 11 mm, forceps 2.4 mm.

Proreus ritsemae (De Bormans) (fig. 23a, b)

Chelisoches Ritsemae De Bormans, 1884, p. 185.

Chelisoches ritsemae, Burr, 1910, p. 139, pl. 9 fig. 87; —, idem, 1912b, p. 229; —, Borelli, 1926, p. 269; —, idem, 1927, p. 77, fig. 9.

Proreus ritsemae, Borelli, 1932, p. 189; —, idem, 1932b, p. 90; —, Hebard, 1927, p. 42.

Leiden Museum:

Sumatra, Muara Labu, XI 1877, Sumatra Expedition, 1 ♂; Pasumah Estate, Palembang, VIII 1916, E. Jacobson, 1 ♀.
Nias, 4 X 1908, E. E. W. G. Schröder, 1 ♂.

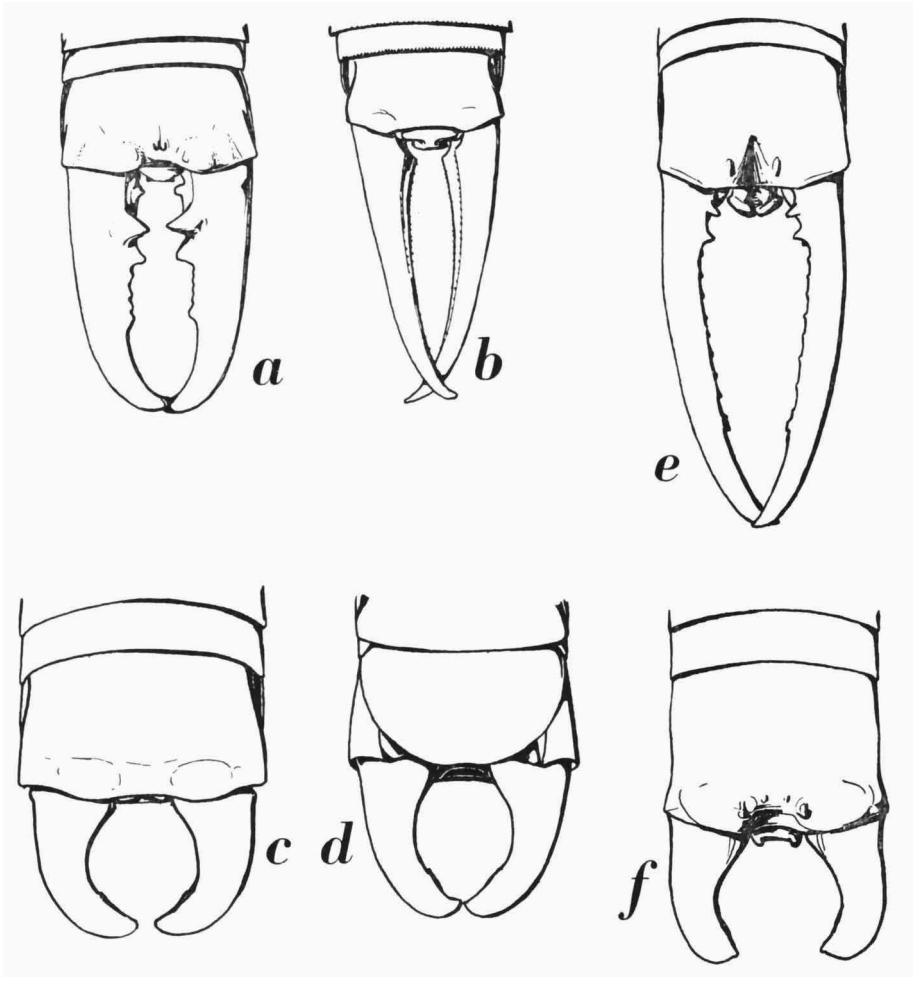

Fig. 23. a, b, *Proreus ritsemae* (De Bormans). a, apical part of abdomen and forceps of male in dorsal view; b, apical part of abdomen and forceps of female in dorsal view. c, d, *Proreus sobrius* (De Bormans). c, apical part of abdomen and forceps of male in dorsal view; d, apical part of abdomen and forceps of male in ventral view. e, *Enkrates elegans* (De Bormans), var. *burri* nov., apical part of abdomen and forceps of male in dorsal view. f, *Enkrates elegans* (De Bormans), var. *inermis* nov., apical part of abdomen and forceps of male in dorsal view. a, × 7.5; b, × 10; c, e, f, × 9; d, × 8.5.

Amsterdam Museum:

Sumatra, (don.) 1914, A. Weiss, 1 ♀.
Riouw Archipelago, Bintang, Kitjang, 16-30 XII 1935, A. van der Heyde, 1 ♀

The single male specimen from Muara Labu must be De Bormans's type; the second male specimen is slightly different: pronotum about quadrate, the forceps shorter and with the irregularly dentate ridge along third fifth of their length replaced by a smooth ridge ending at a more developed tooth.

Proreus fuscipennis (De Haan)

Forficula (Psalidophora) fuscipennis De Haan, 1842, p. 241.
Proreus fuscipennis, Borelli, 1932b, p. 90.

Leiden Museum:

Sumatra, Padang, S. Müller, 2 ♂♂, 1 immature, 1 ? (2 ♂♂: "*fuscipennis* De Haan, type"); Batang Singalan, 1 ♂, 1 ♀ (both: "*fuscipennis* De Haan, type").

Most of these specimens are indicated as the types, but De Haan gives different localities: Batang Singalan and Krawang.

The female specimen from Batang Singalan has only one distinct proximal and internal tooth on both forceps, the right further smooth, the left with two very inconspicuous denticles at about half its length. The female pygidium is tumid, rounded trapezoidal, the apex slightly truncate in dorsal view.

A synonymy with *Proreus ritsemae* (De Bormans), as proposed by Burr (1910, p. 139) seems improbable, the present specimens having the forceps considerably longer, more slender, and of a different shape, the male armature of the forceps about as in De Bormans's figure (1900, p. 86, fig. 33).

Proreus sobrius (De Bormans) (fig. 23c, d)

Chelisoches? sobrius De Bormans, 1884, p. 188.
Proreus sobrius, Hebard, 1927, p. 43.

Leiden Museum:

Sumatra, Padang, E. W. A. Ludeking, 1 ♂ ("Type, *Forficula sobria* Dohrn, teste Dohrn"; "*Chelisoches? sobrius* Dohrn").

The present specimen seems to have been named *sobrius* first by Dohrn, but he never published this name. The present condition of the specimen is very bad, the antennae and the legs are almost completely lacking.

The head is about as long as broad, the sulci are distinct and deep. The pronotum brownish yellow, also about as long as broad, the sides faintly convex. The elytra brownish yellow, the well developed wing-scales slightly darker, brownish along the internal margin. The single remaining basal

antennal segment is pale yellow. The posterior dorsal segment smooth, shining, slightly tumid before insertions of forceps, the median area subconcave. The rectangular pygidium is almost perpendicular, with strong projecting lateral apical angles, but without a median rounded projection as mentioned by Hebard. The forceps are slightly depressed, transverse. For further characters I refer to the figures and to De Bormans's very accurate description.

Proreus spec. (nov. ?)

Leiden Museum:

Borneo, Balikpapan, 8 VII 1912, Kampmeinert, 1 ♀.

The most distinctive characters are as follows: pronotum hardly longer than broad, sides straight and inconspicuously diverging backwards, posterior angles rounded, anterior margin V-shaped, converging rostrad, and passing into a broad neck, posterior margin slightly emarginate; pygidium with a slightly tumid trapezoidal basal part, its width twice its length, and a narrower transverse rectangular lamellate apical part, the apical margin straight with an inconspicuous median cusp and slightly accentuated lateral angles; forceps straight with apical part gently curved inwards, apices directed obliquely in- and backwards, acute; inner margins of forceps sinuate on account of the unequal development of a denticulate internal ridge along the proximal half, most developed with a proximal tooth lateral of the apex of the pygidium, and at about half the length of the forceps; cross-section of proximal half of forceps subtriangular, distal half oval.

Total length 13 mm, forceps 2.4 mm.

Chelisoches morio (Fabricius)

Forficula morio Fabricius, 1775, p. 270.

Chelisoches morio, Burr, 1906, p. 10; —, idem, 1909, p. 15; —, Burr, 1912a, p. 29; —, idem, 1912b, p. 229; —, idem, 1913, p. 314; —, Borelli, 1926, p. 268; —, idem, 1926a, p. 391; —, idem, 1932, p. 190; —, idem, 1932a, p. 196; —, idem, 1932b, p. 91; —, Hincks, 1947, p. 537, fig. 10.

Leiden Museum:

Java, Buitenzorg, 1 ♂ ("*Rufitarsus* Serv."); Buitenzorg, J. van der Hoeven, 1 ♂; "Java occ.", M. C. Piepers, 1 ♂; Batavia, C. de Gavere, 1 ♂; Ambarawa, E. W. A. Ludeking, 1 ♀; Tandjong Priok, IX 1909, P. Buitendijk, 1 ♂; Tandjong Priok, VII 1930, P. Buitendijk, 4 ♂♂, 4 ♀♀; Batavia, X-XII 1907, I-VIII, X, XII 1908, I 1909, E. Jacobson, 16 ♂♂, 12 ♀♀; Semarang, II, III, V, VII-XII 1910, E. Jacobson, 19 ♂♂, 8 ♀♀ (one ♂: "*Enkrates elegans* Borm.", det. Burr); Wonosobo, V 1909, E. Jacobson, 1 ♂; Gunung Ungaran, VI 1910, E. Jacobson, 1 ♀; Bandung, II 1916, E. Jacobson, 9 ♂♂, 6 ♀♀, 7 immature; Garut and environs, 700-1500 m, 1928, VIII, IX 1929, X, XI 1930, W. C. van Heurn, 18 ♂♂, 20 ♀♀, 18 immature; Batavia, 1932/1933, W. C. van Heurn, 1 ♀; Surabaia and environs, 1936, I-VI 1936, W. C. van Heurn, 1 ♂, 1 ♀.

Sumatra, Padang, S. Müller, 4 immature ("*albomarginata* De Haan, type"); Batang Singalang, 1 ♀, 1 immature ("*albomarginata* De Haan, type"); Sumatra Expedition 1877/1878, 1 ♀; Palembang, M. Knappert, 1 ♀; Padang, E. Piaget, 1 ♀ ("*Chelisoches laetior* Dohrn, mutilé"); Air Kumanis, III 1914, E. Jacobson, 1 immature; Balun, Highlands of Padang, VII 1914, E. Jacobson, 1 ♀, 2 immature; Fort de Kock, 920 m, 1926, E. Jacobson, 1 ♂, 1 ♀; Pulu Radja, Deli, 6 VII 1918, F. C. van Heurn, about 800 ♂♂, ♀♀, and immature.

Nias, Gunung Sitoli, J. P. Kleiweg de Zwaan, 1 ♀.

Natuna Islands, A. L. van Hasselt, 1 immature.

Borneo, Pleihari (South East Borneo), J. Semmelink, 1 ♂, 1 immature; Sintang, 1894, Borneo Expedition, 2 ♂♂; Bugan, VII 1894, Borneo Expedition, 1 ♂; Pontianak, M. Weber, 1 ♂; Pulu Laut, 1896, J. Scherpbier, 1 ♀.

Celebes, Gorontalo, C. B. H. von Rosenberg, 1 ♂, 3 ♀♀; Siau (near Celebes), 12 VI 1930, Snellius Expedition, 1 ♂.

Sumbawa, J. W. van Lansberge, 1 ♂.

Moluccas, North Halmaheira, H. A. Bernstein, 2 ♀♀; Tidore, 24-29 IX 1929, Snellius Expedition, 1 immature; Obi-Latu, 23-27 IV 1930, Snellius Expedition, 1 ♀; Damar Islands, Teun, 20 IV 1923, 1 ♂, 1 ♀, 1 immature.

New Guinea, Sekru, V, VII 1897, S. Schädler, 2 ♂♂, 1 ♀; Sekru, 1898, K. Schädler, 1 ♀; Hollandia, "papuatuin", 1911, P. N. van Kampen, 1 ♀.

New Caledonia, A. Fauvel, 1 ♂, 1 ♀; Aru Islands, C. B. H. von Rosenberg, 1 ♀.

Locality unknown, P. J. van der Does de Bye, 1 ♀ (probably from the Malay Peninsula); "no. 2731", 2 ♂♂ (probably from Australia); 3 ♂♂, 3♀♀.

Amsterdam Museum:

Java, 1862, 1 ♂ ("*Pygidicrana Saussurei*?, ♂, Dohrn, si l'exemple vient du Mexique"); Solo, Malang, 1872, Van Raalte, 1 ♂ ("*Lobophora morio*"); Tjandiroto, 1886, Oudemans, 1 ♀ (det. Burr, 1905); Preanger(?), 1906, E. M. Beukers(?), 1 ♂; Buitenzorg, M. Weber, 1 ♀ (det. Burr, 1905); "Java(?)", J. G. Ploem?, 3 ♀♀ (det. Burr, 1905); West Java, 1919, W. C. van Heurn (?), 2 ♂♂, 1 immature; Buitenzorg, 1921, W. C. van Heurn, 2 ♂♂, 1 ♀, 6 immature.

Sumatra, Manindjau, M. Weber, 1 ♂, 1 ♀ (both det. Burr, 1905); Tolvek, 1907, Sumatra Expedition, J. P. Kleiweg de Zwaan, 1 ♂; Sumatra's East Coast, 1930, Miss Scheffer, 1 ♀.

Celebes, (South Celebes), 2-6 II 1921, L. J. Toxopeus, 1 immature ("on board and ashore").

Moluccas, Ambon, 1880, Ten Hoet?, 1 ♀ (det. Burr, 1905); Buru (Station 1), 10 II-16 III 1921, I-III 1922, L. J. Toxopeus, 1 ♂, 4 immature; Buru (Sataion 6), 21-24 IV 1921, L. J. Toxopeus, 1 immature.

New Guinea, Lake Sentani, 2-19 IV, 16 IV 1903, New Guinea Expedition, 1 ♀, 1 immature (det. Burr, 1905); Merauke, 4 V 1903, New Guinea Expedition, 1 ♀; Lake Jamur, 7 VIII 1903, New Guinea Expedition, 2 ♀♀ (det. Burr, 1905); Noord-Rivier, IX 1909, H. A. Lorenz, 1 ♂; Cleft Bivouac, 25 X 1912, G. Versteeg, 1 ♀; Beaufort, 8 XI 1912, G. Versteeg, 1 ♀; Upper Digul, 400 km N. from Merauke, 1926, A. Kalthofen, 1 ♂, 1 ♀.

Locality unknown, 1 ♀, 1 immature.

The coloration varies between light reddish brown or even light yellowish, and very dark brown or black. The antennal annulus is generally situated at about the fourteenth to seventeenth segments, but a considerable variation in this character occurs, even differences between the two antennae on the same specimen have been observed; a female specimen from Garut, Java,

has the pale annulus on the eighth to tenth and the proximal part of the eleventh segment.

A remarkable variability is also shown in the shape of the male forceps, sometimes closely resembling those in *Proreus ludekingi* (Dohrn), *Proreus ritsemae* (De Bormans), *Enkrates elegans* (De Bormans), etc. The shape of the female forceps is much more uniform.

Although the present collection contains four immature specimens from Padang and one female from Batang Singalang indicated as types of *F. (Psalidophora) albomarginata* De Haan (1843, p. 241), only another immature specimen from Batang Singalang can be regarded as such on account of the indications given in De Haan's description.

Several of the specimens collected by Jacobson and the New Guinea Expedition have been mentioned by Burr.

Chelisoches annulatus Burr

Chelisoches annulatus Burr, 1906, p. 10.

Amsterdam Museum:

New Guinea, Tawarin, 14-20 VI 1903, New Guinea Expedition, 1 ♂, 1 ♀ (det. Burr, 1905).

These must be Burr's types. The original description being very short, I give the following additional information.

Posterior dorsal segment of male immediately before bases of forceps slightly protruding and tumid, with two very conspicuous denticulate crests parallel with posterior margin; the otherwise smooth median area with two distinct, slightly compressed teeth, situated side by side close to the median line; posterior margin slightly concave, the lateral parts truncate and inconspicuously oblique.

In the female specimen several small denticles on the tumid parts before the insertions of the forceps, but no crests; the two teeth on the median area much smaller; the median part of the posterior margin less concave, almost truncate.

Male forceps dilated inwards along proximal half, with a very strong triangular tooth situated slightly beyond half the length of the forceps and directed inwards and somewhat backwards; slightly more distad a smaller and distinctly bicuspid tooth; an irregular internal protuberance at about the beginning of the apical quarter; the top gently curved inwards.

Female forceps straight, the proximal part triangular in cross-section, the apical part more ovate, the distinct inner ridge irregularly denticulate.

Chelisoches spec.

Amsterdam Museum:

Sumatra, Sibolangit, 12 X 1921, J. A. Loerzing, 1 immature.

Enkrates elegans (De Bormans) (fig. 19g)

Chelisoches elegans De Bormans, 1900, p. 464.
Enkrates elegans, Burr, 1912a, p. 29; —, idem, 1912b, p. 229.

Leiden Museum:

Java, W. E. L. Hekmeyer, 1 ♂; Wonosobo, IV, V 1909, E. Jacobson, 1 ♂, 3 ♀♀ (all det. Burr); Gunung Ungaran, X 1909, E. Jacobson, 1 immature (det. Burr); Nongkodjadjar, I 1911, E. Jacobson, 1 ♂, 2 ♀♀ (all det. Burr).
Sumatra, Suban Ajam, VII 1916, E. Jacobson, 2 ♂♂ (det. Burr).

Amsterdam Museum:

Sumatra, North Korintji Valley, 5000 m, IX-X 1921, F. J. Pratt, 2 ♀♀.

The specimens from Wonosobo and Nongkodjadjar have been mentioned by Burr. All male specimens have the apical margins of the pygidium emarginate, in accordance with Burr's figure (1913a, pl. 6 fig. 5). One of the female specimens from Korintji is remarkably large: total length 22 mm, forceps 8 mm.

Enkrates elegans (De Bormans), var. **burri** nov. var. (fig. 30e)

Leiden Museum:

Java, Wonosobo, IV 1909, E. Jacobson, 1 ♂ (holotype).

This specimen has previously been mentioned by Burr (1912a, p. 29). For the distinctive characters, to be found in the shape of pygidium and forceps, I refer to the figure.

Total length 18.5 mm, forceps 5.5 mm.

Enkrates elegans (De Bormans), var. **inermis** nov. var. (fig. 30f)

Leiden Museum:

Java, Tjiliwung, Buitenzorg, about 1000 m, VI 1932, W. C. van Heurn, 1 ♂ (holotype), 1 ♀.

The forceps of the male are very short, stout, and without armature. The female shows no aberrant characters, but has been included here because both specimens were captured together at the same locality.

For further distinctive characters I refer to the figure. Total length 16 mm, forceps 2.3 mm.

Enkrates spec. (nov.?)

Amsterdam Museum:

Sumatra, Lubuksikaping, 450 m, 1926, E. Jacobson, 1 ♀.

Though a close relationship seems evident, the present species differs from *Enkrates elegans* (De Bormans) in several characters: head and basal antennal segment light reddish testaceous; pronotum slightly longer, about

square, posterior margin broadly rounded; forceps shorter and stronger, straight, with an internal denticulate ridge, the proximal third behind the pygidium dilated inwards and with stronger denticles; pygidium short, tumid, trapezoidal, partly very steep, the apical part rectangular and transverse, the apical angles with small cusps.

Total length 13 mm, forceps 3 mm.

Hamaxas feae (De Bormans)

Chelisoches feae De Bormans, 1894, p. 393.

Hamaxas feae, Borelli, 1926, p. 269; —, idem, 1927, p. 77; —, idem, 1932, p. 190; —, idem, 1932b, p. 92; —, Hebard, 1927, p. 45.

Leiden Museum:

Java, Batavia, I 1908, E. Jacobson, 1 ♀.

Sumatra, Padang, IX 1913, E. Jacobson, 1 ♀; Air Kumanis, III 1914, E. Jacobson, 1 ♂; Fort de Kock, VIII 1914, E. Jacobson, 1 immature; Muara Kiawai, VI 1915, E. Jacobson, 1 ♀; Suban Ajam, VII 1916, E. Jacobson, 1 ♂.

Amsterdam Museum:

Sumatra, Lau Rakit, 300 m, 31 VIII 1921, J. B. Corporaal, 1 ♀.

Judged by the present material a very variable species; among the various forms of armature of the male forceps occur the variations mentioned by Hebard; the coloration varies between wholly dark brown and partially light brown or even yellowish; the coloration of the legs varies between tawny and dark brown.

The antennal segments are distinctly more elongate than in *Enkrates* Burr. The third segment is hardly longer than the fourth, the fifth equal to or slightly longer than the third, but there is a considerable range of variation in this character, even sometimes between the two antennae on the same specimen.

Forficula Albertisii Dubrony (1879, p. 378, fig.) seems very closely related and may prove to be conspecific.

Hamaxas quadrituberculatus Burr

Hamaxas quadrituberculatus Burr, 1915b, p. 117, fig.

Leiden Museum:

Simalur, Sinabang, III, VII 1913, E. Jacobson, 2 ♂♂, 5 ♀♀ (types, det. Burr); "jungle", VII 1913, E. Jacobson, 1 ♂, 1 ♀ (types, det. Burr); Sibigo, VIII 1913, E. Jacobson, 1 ♀ ("*N. amoenus* Stål", det. Burr); Laut Tawar, VIII 1913, E. Jacobson, 4 ♀♀ ("*N. amoenus* Stål", det. Burr).

Nias, J. P. Kleiweg de Zwaan, 2 ♀♀.

The differences in comparison with the previous species are very slight. The present specimens have no antennal annulus, a character rarely occurring in *feae* (♀ from Padang, only the apical segments paler!); the forceps are

slightly weaker and inconspicuously more slender; the color is much darker, especially in the specimens from Simalur.

On account of the variability of the shape of the forceps in both *feae* and *quadrituberculatus,* and the unreliability of the coloration as a distinctive character, the present melanistic species possibly will have to be reduced to subspecific rank, *Hamaxas feae quadrituberculatus* Burr.

Hamaxas semiluteus (De Bormans)

Chelisoches semiluteus De Bormans (apud Burr), 1899, p. 259.
Hamaxas semiluteus, Borelli, 1926, p. 269.

Amsterdam Museum:

Java, Ardja Sari, Preanger, 1920, 1 ♂, 1 ♀.

The male specimen with six, the female with four proximal antennal segments pale yellowish, the further segments brown. The female pygidium with a rounded tumid basal part, a transverse quadrangular lamellate apical part with prominent sharp angles.

Hamaxas nigrorufus (Burr)

Spongiphora nigrorufa Burr, 1902, p. 480, pl. 20 fig. 3.
Hamaxas nigrorufus, Burr, 1913, p. 315; —, Borelli, 1926, p. 270.
Hamaxas papuensis Burr, 1909, p. 16.

Leiden Museum:

New Guinea, Hollandia, 1910, New Guinea Expedition, P. N. van Kampen, 1 ♂; Sekru, VII 1897, S. Schädler, 1 ♀.

Amsterdam Museum:

New Guinea, Etna Bay, 1904/1905, Koch, 2 ♂♂, 1 ♀; Upper Digul, 150 km upstream from Tanah Merah, VIII-IX 1929, W. G. N. van der Sleen, 1 ♀.

The male specimen from Hollandia has been mentioned by Burr (1913); the specimens collected near the Etna Bay must belong to Burr's type material of *Hamaxas papuensis,* conspecific with *nigrorufus* Burr.

Hamaxas spec.

Leiden Museum:

Sumatra, Sungal Kumbang, IX 1915, E. Jacobson, 1 ♀.

There is a rather close agreement with *Hamaxas quadrituberculatus* (Burr), recorded only from Simalur and Nias. It might be a melanistic specimen of *Hamaxas feae* (De Bormans).

Family FORFICULIDAE

Subfamily CHELIDURINAE

Chelidura aptera (Charpentier)

Forficula aptera Charpentier (MS Megerle), 1825, p. 69.

Chelidura aptera, Chopard, 1922, p. 183, fig. 460; —, idem, 1951, p. 328, fig. 513; —, Houlbert, 1924, p. 240, pl. 5 fig. 7.

Leiden Museum:

Spain, Martinet, Lerida, IX 1930, N. Tinbergen, 6 ♂♂, 9 ♀♀.

Chelidura pyrenaica (Géné)

Forficula pyrenaic: Géné (MS Bonelli), 1832, p. 15.
Chelidura pyrenaica, Chopard, 1922, p. 184, figs. 457, 459, 461; —, idem, 1951, p. 329, figs. 507, 514, 515; —, Houlbert, 1924, p. 239, pl. 5 fig. 8.

Leiden Museum:

Spain, Martinet, Lerida, IX 1930, N. Tinbergen, 1 ♂.

Mesochelidura peringueyi (Burr)

Chelidura Peringueyi Burr, 1903, p. 275.
Mesochelidura péringueyi, Burr, 1911a, p. 9, fig. 5.

Leiden Museum:

Africa, Stellenbosch, Cape Colony, 360 m, III, IV 1911, M. Burr, 2 ♂♂, 2 ♀♀ (det. Burr).

The male specimens belong to the form *macrolabia* Burr (1911a, fig. 5b).

Mesochelidura brongersmai nov. spec. (fig. 24)

Leiden Museum:

Africa, Mbabane, Swaziland, 17 X 1938, L. D. Brongersma, 1 ♂ (holotype).

The most distinctive characters are the very small rudimentary elytra, the strong development of the armature of the posterior tergite, and the shape of the proximal internal dilated laminae of the forceps.

The specimen is brownish yellow, the head slightly reddish, the abdomen castaneous, the forceps lighter castaneous.

Head smooth, tumid, sutures obsolete. Antennae with thirteen segments.

Pronotum hardly tumid, sides curved upwards, median suture indistinct and along anterior three-quarter only.

Elytra rudimentary, smaller even than in *Mesochelidura kaffir* (Burr, 1911a, p. 12, fig. 7), forming inconspicuous lateral flaps only; meso- and metanotum exposed, slightly convex, posterior margin of metanotum strongly emarginate.

Abdomen broadest at about seventh or eighth segment, the sides almost straight, with distinct tubercles or tubulae on third and fourth segments. Posterior dorsal segment subrectangular, the sides hardly converging backwards, width twice the length, smooth, tumid, with two very long and strong spines situated close before the posterior margin, directed obliquely backwards; distinctly concave and sloping between and behind the spines; posterior margin about straight. Penultimate ventral segment triangular, rounded, the apex subtruncate.

Pygidium distinct, projecting, trapezoidal, tumid, the sides sloping, the apex concave with a small median cusp, the angles slightly projecting.

Forceps slender, the proximal internal laminae very large, much broader than in *M. kaffir*.

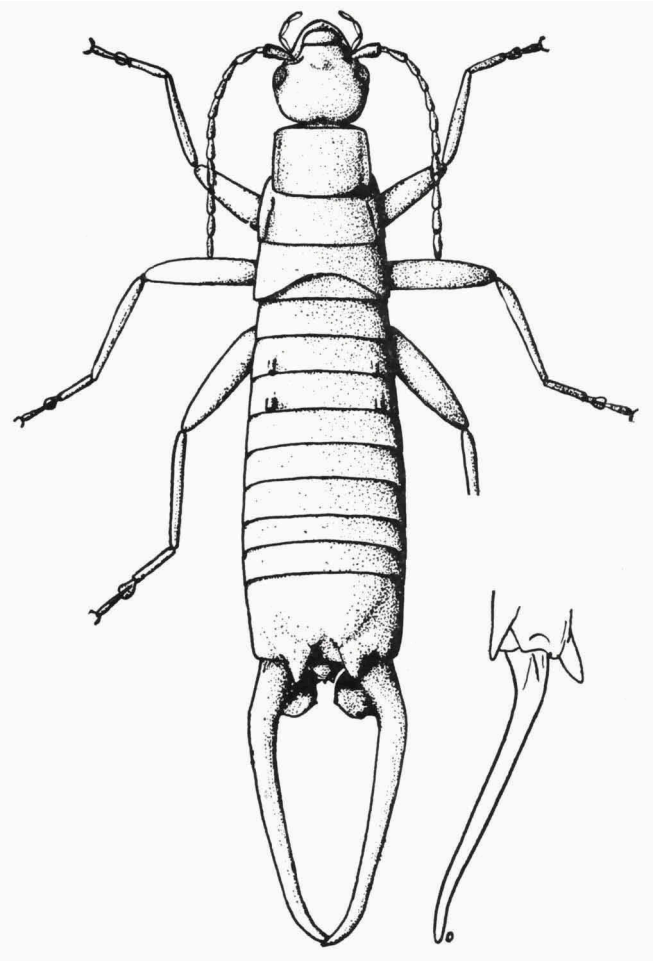

Fig. 24. *Mesochelidura brongersmai* nov. spec., habitus of male in dorsal view. × 9.

Legs with a distinctly lobed second tarsal segment, first tarsal segment much longer and stronger than third.

For further characters I refer to the figure.

Total length 13.5 mm, forceps 4.3 mm.

In comparison with *M. kaffir* (literature only), the distinctive characters

seem to differ more in degree than in kind, but the range of variation existing in *kaffir* has not yet been established.

Subfamily ANECHURINAE

Allodahlia scabriuscula (Serville)

Forficula scabriuscula Serville, 1839, p. 38.
Allodahlia scabriuscula, Burr, 1912b, p. 229; —, idem, 1915b, p. 118; —, Borelli, 1926, p. 270; —, idem, 1926a, p. 391; —, idem, 1932, p. 190; —, idem, 1932b, p. 92.

Leiden Museum:

Java, Nongkodjadjar, I 1911, E. Jacobson, 6 ♀♀, 1 immature (all det. Burr); Sukabumi, E. le Moult, 1 ♀; Garut, 700-1000 m, 1929, W. C. van Heurn, 7 ♂♂, 11 ♀♀, 5 immature; Bremi, Probolinggo, 1000 m, XI 1934, W. C. van Heurn, 1 ♀; East Java, XI 1936, W. C. van Heurn, 1 ♀; Highland of Idjen, East Java, about 1600 m, XI 1936, J. van Heurn, 1 ♂, 6 ♀♀.

Sumatra, Padang, S. Müller, 4 ♂♂ ("*brachynota* De Haan, type"); Batang Singalang, 2 ♀♀, 1 ? ("*brachynota* De Haan, type"); Tandjong Andalas, Sumatra's West Coast, V 1914, E. Jacobson, 1 ♂.

Simalur, Sinabang, II 1913, E. Jacobson, 1 ♂, 1 ♀.

Borneo, Gunung Kenepai, Pondok, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀, 1 ?; Mahakkam, 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♂ (det. Burr); Long Blu-u, XI 1898, Borneo Expedition, A. W. Nieuwenhuis, 1 ♂; Balikpapan, 8 VII 1912, Kampmeinert, 2 ♀♀.

Formosa, Kosempo, 1908, H. Sauter, 4 ♂♂, 8 ♀♀, 1 immature.

Cochin China, Tayninh, E. le Moult, 1 ♀.

Locality unknown, A. J. van Eyndhoven, 1 ♀ ("*Anechura scabriuscula* Serv., ♀ = f. *brachynota* De Haan").

Amsterdam Museum:

Bali, Munduk, VII 1915, F. C. Drescher, 1 ♀.

The specimens from Padang and Batang Singalang are indicated as types, but this seems to be right for the specimens from Batang Singalang only as De Haan never mentioned Padang as type locality.

Allodahlia coriacea (De Bormans)

Anechura coriacea De Bormans, 1894, p. 403.
Allodahlia coriacea, Burr, 1910, p. 153, pl. 6 fig. 51; —, Borelli, 1932, p. 190.

Leiden Museum:

Sumatra, Suban Ajam, VII 1916, E. Jacobson, 1 ♂.

Borneo, Gunung Kenapai, Pondok, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♂.

Lithinus analis (Rambur)

Forficula analis Rambur, 1838, p. 10.

Amsterdam Museum:

Spain, Lagunas de las Yeguas, Sierra Nevada, 3000 m, IX 1935, D. L. Uyttenboo-

gaart, 5 ♂♂, 8 ♀♀ (all det. C. Willemse, two ex. with the indication "form with short edentate forceps").

The two male specimens with the quoted indication have the forceps short and strongly curved. One of the other male specimens is very small (total length about 8 mm, forceps 1.6 mm), and has the forceps hardly curved, smooth, with a distinct triangular sharp internal tooth lateral of the apex of the pygidium; this pygidium is flat, rectangular, transverse, apical margin straight with the angles slightly produced but not curved upwards as in the other male specimens.

Anechura bipunctata (Fabricius)

Forficula bipunctata Fabricius, 1781, p. 340.
Anechura bipunctata, Burr, 1910, p. 161; —, Chopard, 1922, p. 184, fig. 454; —, idem, 1951, p. 330, fig. 516; —, Houlbert, 1924, p. 242, pl. 5 fig. 11.

Leiden Museum:

Europe, Pyrenees, H. J. Veth, 1 ♂, 1 ♀; Switzerland, 1 ♀ ("*F. biguttata* Latr."); Valley of Charmy, Haute Savoie, 950-1200 m, VII 1938, C. de Jong, 1 ♀; Scheinige Platte, Berner Oberland, VI 1931, H. C. Blöte, 1 ♂; Ober Bergli, Kandersteg, 200 m, 10 VII 1937, H. C. Blöte, 1 ♀; Oeschinensee and environs, about 1600 m, 22, 23 VII 1937, H. C. Blöte, 3 ♂♂, 4 ♀♀, 3 immature.
Locality unknown, 2 ♀♀.

Amsterdam Museum:

Europe, Alp Grüni?, VIII 1920, D. MacGillavry, 1 immature (det. R. Ebner, VIII 1923).

Anechura bipunctata (Fabricius), var. **zubovskii** Semenov

Anechura zubovskii Semenov, 1901, p. 188; —, Burr, 1910, p. 160, pl. 6 fig. 52.

Leiden Museum:

Asia, Himalayas, Tibet, C?. Felder, 2 ♀♀, 2 immature.

The occiput is dark brown, not castaneous. The females have the posterior pair of femora longer than the elytra.

Subfamily FORFICULINAE

Chelidurella acanthopygia (Géné)

Forficula acanthopygia Géné, 1832, p. 13.
Chelidurella acanthopygia, Chopard, 1922, p. 185, figs. 458, 464-466; —, idem, 1951, p. 331, figs. 510-512; —, Houlbert, 1924, p. 243, pl. 5 fig. 12; —, Willemse, 1952, p. 4, fig. 5.

Leiden Museum:

Europe, Netherlands, 3 immature ("*Chelidura* (larva *Chel. acanthopygiae* ? Géné")); Houthem, Netherlands, 19 IX 1929, A. Reclaire, 2 ♂♂ (one ex.: "*Apterygida media* Hgb. (= *Chelidura albipennis* Meg.)", det. H. C. Blöte).

Amsterdam Museum:

Europe, Netherlands, Houthem, IX 1915, MacGillavry, 1 ♂, 2 ♀♀ (all det. MacGillavry); Denekamp, V 1918, MacGillavry, 2 ♀♀ (det. MacGillavry); Houthem, 22 IX 1929, P. van der Wiel, 2 ♂♂, 1 ♀ (all det. MacGillavry).

Doru lineare (Eschscholtz)

Forficula linearis Eschscholtz, 1822, p. 81.
Doru lineare, Hebard, 1917, p. 246; —, idem, 1920, p. 352.

Leiden Museum:

America, Mexico, 1 ♂, 1 ♀ (♀: "*Plagiata* Klug"); San Marcos, Nicaragua, C. F. Baker, 1 ♀ ("*Apterygida linearis* Esch."); Brazil, 1 ♀ ("*Taeniata* Klug"); Paramaribo, Surinam, Miss M. Koning, 1 ♀; Paramaribo, W. C. van Heurn, 1 ♀.
Locality unknown, 1 ♀, 1 ?.

Amsterdam Museum:

America, Puerto de Golpe, Marco Vazquez, Cuba, 18 V 1933, H. J. MacGillavry, 4 ♀♀; Puerta Ancon, Cuba, 21 V 1933, H. J. MacGillavry, 1 ♂; San Diego de los Baños, Etronque, Cuba, 30 V 1933, H. J. MacGillavry, 1 ♂; Paramaribo, Surinam, Halfhide, 1 ♂, 1 ♀.

Van Heurn's specimen from Paramaribo is brachypterous.

Apterygida albipennis (Charpentier)

Forficula albipennis Charpentier (MS Megerle), 1825, p. 68.
Apterygida albipennis, Chopard, 1922, p. 186, figs. 455, 456; —, idem, 1951, p. 232; —, Houlbert, 1924, p. 249, fig. 8, pl. 5 fig. 16; —, Willemse, 1952, p. 4, fig. 4.

Leiden Museum:

Europe, Netherlands, Schin op Geul, 1-4 IX 1924, H. C. Blöte, 3 ♀♀, 2 ??; Kijfhoek, 28 VIII, 13 IX 1925, H. C. Blöte, 2 ♂♂, 3 ♀♀; Noordwijkerhout, 19 VIII 1927, H. C. Blöte, 1 ♀; Eerbeek, 22 VIII 1927, H. Boschma, 1 ♂; Meerssen, 21-22 IX 1929, A. Reclaire, 1 ♂, 3 ♀♀; Barneveld, 12-14 IV 1943, E. A. M. Speyer, 1 ♂; Luxemburg, Sûretal, VIII 1936, 1 immature.

Amsterdam Museum:

Europe, Netherlands, Apeldoorn, 18 VIII 1911, "J.K.", 1 ♂ (det. MacGillavry; Bunde, Limburg, 7 VII 1931, MacGillavry, 1 ♀; Baarn, 29 VI 1924, P. van der Wiel, 2 ♀♀ (det. C. Willemse); Craailoo, 21 IX 1919, MacGillavry, 1 ♂, 4 ♀♀ (det. MacGillavry); Epen, Limburg, 8-10 VI 1934, MacGillavry, 2 ♀♀ (det. MacGillavry); Ermeloo, VI 1913, MacGillavry, 1 ♀ (det. MacGillavry); Geulle, Limburg, 15 VI 1919, MacGillavry, 2 ♀♀ (det. MacGillavry); Geulle, 19-25 V 1920, P. van der Wiel, 2 ♀♀ (det. MacGillavry); Houthem, IX 1915, MacGillavry, 3 ♂♂, 2 ♀♀ (det. MacGillavry); Houthem, VIII 1923, MacGillavry, 1 ♂; Hulshorst, VI 1919, F. W. Burger, 1 ♀ (det. MacGillavry); Laren, Noord Holland, 25 V 1913, MacGillavry, 1 ♀ (det. MacGillavry); Leuvenum, VI 1913, MacGillavry, 1 ♀ (det. MacGillavry); Lunteren, 10 VI 1915, MacGillavry, 1 ♀ (det. MacGillavry); Mook, VIII 1910, MacGillavry, 1 immature (det. MacGillavry); Nunspeet, VIII 1920, VII 1921, MacGillavry, 2 ♂♂, 1 immature (det. MacGillavry); Nunspeet, 7 VIII 1925, 15 VIII 1926, 12 VIII 1929, VIII 1932, MacGillavry, 4 ♂♂, 4 ♀♀; Oud Naarden, 14 IX 1924, MacGillavry, 5 ♂♂, 7 ♀♀; Reeuwijk, 2 VII 1922, A. C. Nonnekens, 4 immature (det. MacGillavry); Schaesberg (Valkenburg), Limburg, 14 VI 1923, MacGillavry, 1 ♂, 6 ♀♀ (det. MacGillavry); Schin op Geul, Limburg, 21 V 1926, P. van der Wiel, 1 ♀ (det. MacGillavry); Vaals, Limburg, 27-29 V 1927, 2-3 VI 1932, MacGillavry, 2 ♀♀;

Valkenburg, VII 1914, VI 1919, MacGillavry, 3 ♀♀, 1 immature (det. MacGillavry); Valkenburg, 19-25 V 1920, 14-19 VI 1923, P. van der Wiel, 2 ♂♂, 9 ♀♀ (det. MacGillavry); Veenendaal, VI 1910, VI 1915, MacGillavry, 7 ♀♀ (det. MacGillavry); Wageningen, 30 VIII 1915, MacGillavry, 3 ♂♂, 2 ♀♀ (det. MacGillavry); Winterswijk, 15, 17 VI 1921, MacGillavry, 4 ♀♀ (det. MacGillavry); Wijlre, Limburg, 25 V 1926, P. van der Wiel, 1 ♀ (det. MacGillavry).

Apterygida spec. (nov.?)

Leiden Museum:

Africa, Ogowe (West Africa), A. Fauvel, 1 ♀ ("*Sphingolabis Dietzi,* spec. nov.").

This specimen does not belong to the genus *Sphingolabis,* probably to *Apterygida*; judging by literature, it seems most close to *Apterygida coloniae* Burr (1911a, p. 14, fig. 9).

Guanchia canariensis (Burr)

Forficula canariensis Burr, 1905, p. 493.

Amsterdam Museum:

Canary Islands, Teneriffe, Cruz de Afuro, Monte Aguirre, 1400-1500 m, 20-27 IX 1935, B. H. Klijnstra, 1 ♂; Teneriffe, Cruz de Afuro, Monte Aguirre, 1400-1500 m, IX 1935, D. L. Uyttenboogaart, 1 ♀, 1 immature ("*Guanchia* spec.", "larva", det. C. Willemse).

Forficula ornata De Bormans

Forficula ornata De Bormans, 1884, p. 192.

Leiden Museum:

Sumatra, Padang, VII 1879, E. Piaget (D. Dunlop), 1 ♂; Highlands of Padang, IV 1914, E. Jacobson, 1 ♂; Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♀.

Amsterdam Museum:

Sumatra, Anai Cleft, IV 1911, F. C. Drescher, 1 ♀; North Korintji Valley, 5000 m, IX-X 1921, F. J. Pratt, 1 ♀.

The specimen from Padang must be the type. There seem to be no recent records of this rare species.

Forficula auricularia Linnaeus

Forficula auricularia Linnaeus, 1758, p. 423; —, Chopard, 1922, p. 186, figs. 436, 439, 445, 447; —, idem, 1951, p. 334, figs. 506, 517, 519; —, Houlbert, 1924, p. 244, pl. 5 fig. 13; —, Willemse, 1952, p. 1, fig. 3.

Leiden Museum:

Europe, 1 ♂; Netherlands, Abbega, 30 VIII, 14 IX 1942, Barneveld, 1-22 III 1943, Denekamp, 27 V 1928, Dwingelo, 29 VIII 1932, Ginneken, without date, Hoogeveen, 29 VIII 1932, Hulshorst, 10 VIII 1937, Leiden, 27, 28 IV 1916, 18 V 1916, 8 VI 1917, 14 VI 1924, Meiendel, 20 VII 1922, 19 VI, 21 X 1923, 18 X 1925, 13 IV 1926 (abdomen only), Moorbeek, 22 VII 1931, Rijswijk, 14 IX 1925, Rotterdam, 23 VIII 1924, 5 VIII 1925, Schokland, 16-22 VII 1942, The Hague, without date, Urk, 11-13 VII 1928, 26-28 IX 1928, 18 VII 1935, 11 VII 1942, Vlieland, 30 III 1929, Vught, 24 VIII 1933, "Netherlands", without date, various collectors, 50 ♂♂, 45 ♀♀, 14 immature;

England, Eastbourne, 9 IX 1929, H. C. Blöte, 1 ♂; Vorarlberg, Madloch Joch, 2200-2400 m, 11 VII 1932, L. D. Brongersma, 2 immature; Spain, El Escorial, 11 V 1933, A. L. Brandhorst, 1 ♂, 1 immature; Luxemburg, Diekirch, 20-25 VII 1937, E. A. Speyer, 1 ♀.

Africa, Tripoli, 1 ♂; Egypt, F. Klug, 1 ♂; British Central Africa, Blantyre, P. G. de Lange, 1 ♂; Madeira, 1 ♂.

Asia, Java, 1 ♂.

America, Santa Martha, Dirkse, 2 ♂♂.

Locality unknown, 4 ♂♂, 3 ♀♀, 1 ?.

Amsterdam Museum:

Europe, Netherlands, Aerdenhout, VIII 1913, Amsterdam, VIII? 1878, 31 VIII 1911, 9 IV 1914, 15 V 1914, 14 IV 1905, IX 1920, VI 1931, 30 VII 1942, Apeldoorn, 8 VIII 1917, Arnhem, 16, 22 X 1915, Baarn, autumn 1915, 10 X 1920, 1924, Barchem, VII 1904, Beetsterzwaag, 7-11 VI 1922, Bergen (aan Zee, Noord Holland), 3 VIII 1916, IX 1941, Breda, VIII 1925, Bussum, 7 IX 1916, Craailoo, 21 IX 1909, Denekamp, V 1918, Den Haag (The Hague), VIII 1916, VII 1924, (VII, VIII) ?, Doetinchem, 7 VI 1917, Driehuizen, near Alkmaar, 4 V 1883, Eefde, VII 1916, Epen, 29 VII 1916, Ermeloo, VI 1913, Geulle, Limburg, 12-16 VI 1919, Giessendam, 17 IV 1885, Gorsel, VI 1910, Groesbeek, 19 VII 1914, Haarlem, 24 IX 1929, 23 VII 1931, Havelte, 1-5 VIII 1935, Heemstede, 11 VIII 1930, Hilversum, 12 VI 1904, IX 1911, Hoek van Holland, De Beer, 10 VIII 1921, Houthem, IX 1915, VII 1916, Laag Soeren, VII 1924, Leeuwen, Gelderland, VII 1918, Leuvenum (Ermeloo), (8) VI 1913, Lunteren, VII 1917, Mook, VI 1912, Naardermeer, 8 VI 1926, Noordwijk aan Zee, 8 VII 1920, Nunspeet, VII 1921, 22 VIII 1922, 1-10 VIII 1924, 25 VIII 1924, 24 VIII 1925, 12 VIII 1929, Oldenzaal, VII 1916, Oosterbeek, VI 1911, Otterloo, VIII 1917, VII 1918, Princenhage, 19-23 VIII 1919, Putten, Gelderland, (11) VI 1916, Puttershoek, Beierland, 1923, Rechteren, Overijssel, 24 VII 1929, VII 1924, ?, Santpoort, VIII 1915, Scheveningen, 11 IX 1921, Sint Pieter, VII ?, Terschelling, VIII 1912, Ulvenhout, 22 VI 1919, Utrecht, 1919, Vaals, 27-29 V 1927, Valkenburg, Limburg, VII 1914, (11) VI 1919, Valkeveen, 7 V 1916, Veenendaal, VI 1915, Venlo, ?, Vlissingen, 7 VI 1920, Wamel, X 1916, Wapenveld, 1 V 1915, Weert, VI 1914, Wijk aan Zee, VIII 1911, Zeeburg, VI 1913, 10 V 1914, various collectors, 43 ♂♂, 59 ♀♀, 51 immature (almost all det. MacGillavry or Willemse); England, Kent, Hextable, IX 1923, M. MacGillavry, 1 ♂, 3 ♀♀ (all det. MacGillavry); Germany, Baden, Freiburg, 4 VIII 1927, H. MacGillavry, 1 ♀; Switzerland, Interlaken, VII 1913, MacGillavry, 1 immature (det. MacGillavry); Wangen, VIII 1913, MacGillavry, 2 immature (det. MacGillavry); Jura, Sissach — Laufelfingen, 23 VII 1927, H. MacGillavry, 1 ♂; Sardinia, Gulf of Orosei, Dorgali, VI-VII 1935, "Ham. or Silv. Mill.", 1 ♀; Yugoslavia, Knin, 26 VI-7 VII 1935, H. J. MacGillavry, 1 ♂, 1 ♀; Arandjelovac, 20 VII-2 VIII 1935, H. J. MacGillavry, 2 ♂♂, 1 ♀.

Canary Islands, Gran Canaria, Cruz de Tejeda, 1800 m, IX 1935, D. L. Uyttenboogaart, 1 ♂, 1 ♀ (det. Willemse).

The locality of the specimens presumed to be from Santa Martha (coll. Leiden Museum) is not completely certain, they were found in a load of bananas from that locality.

Forficula smyrnensis Serville

Forficula smyrnensis Serville, 1839, p. 38; —, Chopard, 1922, p. 187, fig. 446; — idem, 1951, p. 335, fig. 518; —, Houlbert, 1924, p. 245.

Amsterdam Museum:

Yugoslavia, Arandjelovac, 20 VI-2 VIII 1935, H. J. MacGillavry, 1 ♀.

The round yellow spots on the elytra are distinct. It is considerably larger than our female specimens of *auricularia*.

Forficula spec.

Leiden Museum:

Europe, Pyrenees, 1 ?.
Locality unknown, 1 ?.

Amsterdam Museum:

Europe, Netherlands, Laag Soeren, 20 VI 1926, D. MacGillavry, 1 immature.

The two specimens from the Pyrenees are mutilated, without abdomen or forceps. Originally they were identified as *Chelidura aptera* (Charpentier), probably erroneously.

The immature specimen is in a very bad condition; it may belong to *Forficula auricularia* L.

Subfamily EUDOHRNINAE

Eudohrnia metallica (Dohrn)

Forficula metallica Dohrn, 1865, p. 90.

Leiden Museum:

India, Tenasserim, Thagatà, IV 1887, L. Fea, 2 ♂♂, 1 ♀, 1 ?.

One specimen has the abdomen mutilated.

Kosmetor temora (Burr) (fig. 25a, b)

Opisthocosmia temora Burr, 1904, p. 312.
Kosmetor temora, Burr, 1910, p. 201, pl. 8 fig. 73.

Leiden Museum:

Sumatra, Fort de Kock, IX 1913, E. Jacobson, 1 ♂, 2 ♀♀; Rimbo Pengadang, VI 1916, E. Jacobson, 1 ♀; Pasumah Estate, Palembang, VI 1916, E. Jacobson, 1 ♀.

The armature of the forceps of the male specimen is slightly weaker than described in literature: some small sharp internal teeth along second quarter, few inconspicuous irregularities along third quarter, proximal and apical parts smooth, not hairy.

Kosmetor tagalensis Borelli (fig. 25c, d)

Kosmetor tagalensis Borelli, 1915a, p. 6; —, idem, 1926, p. 270.

Leiden Museum:

Java, Garut, Mrs. F. Adèr, 1 ♂; Tjinjiruan, 1700 m, X, XII 1909, H. W. van der Weele, 2 ♂♂, 1 ♀; Preanger, H. W. van der Weele, 2 ♀♀; Tjibodas, II 1916, E. Jacobson, 1 ♂.

Amsterdam Museum:

Java, Ardja Sari, 1920, F. C. Drescher, 1 ♀; Gunung Slamat, IV 1925, F. C. Drescher, 2 ♀♀.

The present specimens closely agree with the variety described by Borelli (1926) from Tjibodas. The wing-scales of the specimen from Tjinjiruan are brown, in the other specimens clear yellow.

Subfamily ANCISTROGASTRINAE

?Sarakas borellii Burr (fig. 26a, b)

Sarakas borellii Burr, 1912c, p. 105.

Leiden Museum:

South America, Surinam, Saramacca River, Surinam Expedition, P. J. de Kock, 1 ♂.

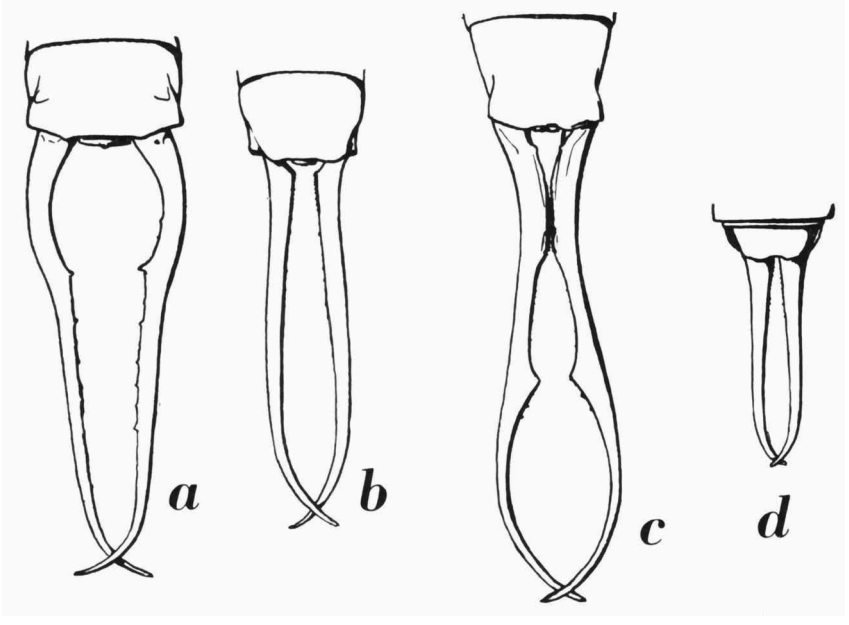

Fig. 25. a, b, *Kosmetor temora* (Burr). a, forceps of male in dorsal view; b, forceps of female in dorsal view. c, d, *Kosmetor tagalensis* Borelli. c, forceps of male in dorsal view; d, forceps of female in dorsal view. a, × 11; b, × 15; c, × 9; d, × 8.

The present identification is uncertain, principally on account of the lack of comparative material.

The antennae are mutilated, six segments in the left, five in the right antenna. The pale annulus of left antenna on third, fourth and proximal part of fifth segment, of right antenna on third and most of the fourth segment.

Elytra not keeled. Wings well developed, wing-scales dark with a pale internal part of the apex. Abdomen unicolorous, dark castaneous, all but

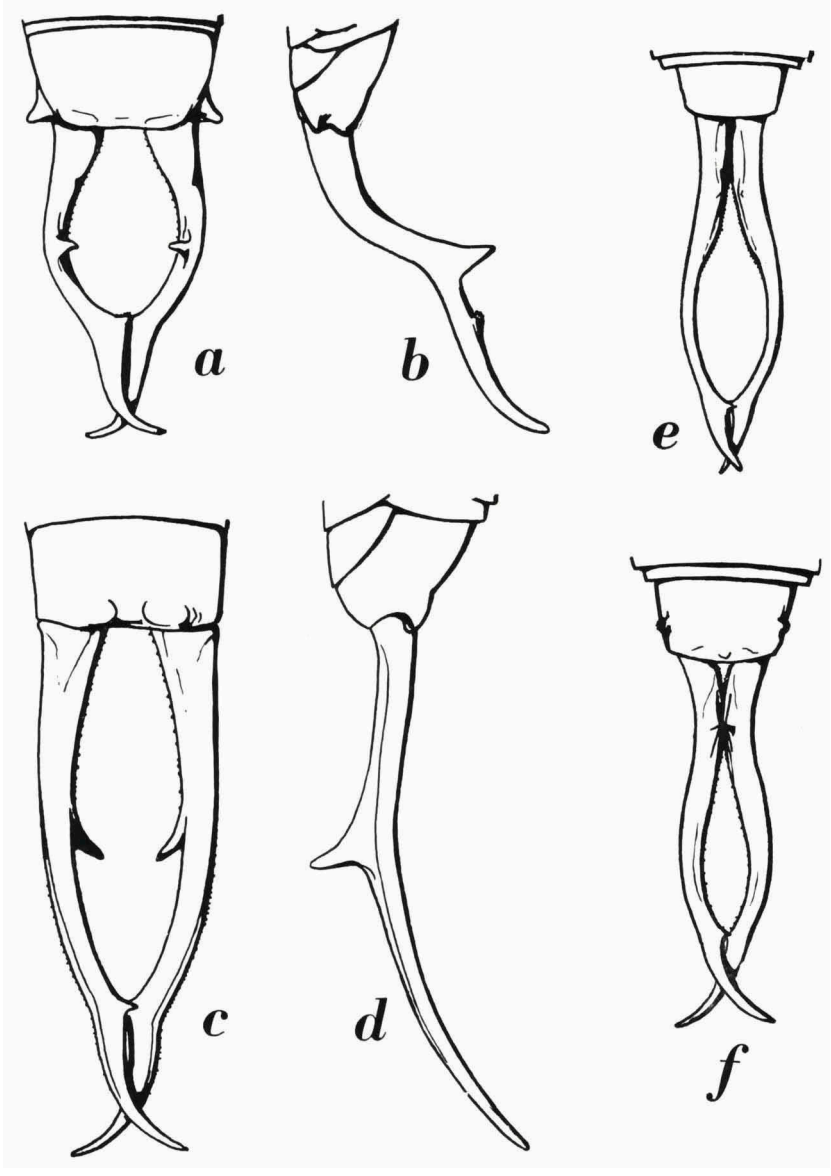

Fig. 26. a, b, ?*Sarakas borellii* Burr. a, forceps of male in dorsal view; b, forceps of male in lateral view. c, d, *Opisthocosmia centurio* Dohrn, var. *bidentata* nov. c, forceps of male in dorsal view; d, forceps of male in lateral view. e, *Cordax forcipatus* (De Haan), var. *brevicontigua* nov., forceps of male in dorsal view. f, *Cordax forcipatus* (De Haan), var. *formosana* nov., forceps of male in dorsal view. a, b, × 13.5; c, d, f, × 8.5; e, × 9.

apical segment slightly paler along free margins of tergites. Blunt lateral protuberances on fifth to ninth dorsal segments, very prominent on sixth and seventh.

Posterior dorsal segment with a strong oblique lateral tubercle. Penultimate ventral segment rounded with two distinct teeth before bases of forceps. Legs brownish yellow.

For further characters I refer to the figures.

Total length 10.5 mm, forceps 3 mm.

Subfamily OPISTHOCOSMIINAE

Skendyle aptera (Verhoeff)

Cosmiella aptera Verhoeff, 1902, p. 195.
Skendyle aptera, Borelli, 1926, p. 271.

Leiden Museum:

Java, Garut, Mrs. F. Adèr, 1 ♂; Garut, XII 1929-I 1930, W. C. van Heurn, 9 ♂♂, 9 ♀♀.

Amsterdam Museum:

Bali, Munduk, VII 1915, F. C. Drescher, 2 ♀♀.

Three of Van Heurn's male specimens have the internal teeth at half the length of the forceps less conspicuous and the forceps slightly more slender.

Skendyle javana (Burr)

Ancistrogaster javanus Burr (MS De Bormans), 1903a, p. 266.
Skendyle? javana, Borelli, 1926, p. 271.

Leiden Museum:

Java Crater Gunung Gedeh, 12 XI 1893, J. Büttikofer, 1 ♂, 1 ♀, 1 immature (all "*Anc. javanus* Borm., sec. Burr").

The keel on the elytra is very inconspicuous.

Skendyle spec.

Leiden Museum:

Timor, Nenas and environs, Mutis Mountains, IX 1937, W. P. de Roever, 1 ♀.

Very close to *Skendyle aptera* (Verhoeff), slightly smaller and with comparatively shorter forceps, the keels on the elytra less developed.

Total length 11 mm, forceps 2 mm.

Cosmiella rebus (Burr)

Opisthocosmia rebus Burr, 1900a, p. 53.
Cosmiella rebus, Burr, 1912b, p. 229; —, Hebard, 1927, p. 46.

Leiden Museum:

Java, Tjinjiruan, 1700 m, I 1910, H. W. van der Weele, 1 ♀; Nongkodjadjar, I 1911,

E. Jacobson, 4 ♂♂, 5 ♀♀, 1 immature (all det. Burr); Bremi, Probolinggo, 1000-2000 m, VII 1935, W. C. van Heurn, 3 ♀♀; Idjen Highland, about 1600 m, XI 1936, J. van Heurn, 3 ♀♀.

Amsterdam Museum:

Java, Nongkodjadjar, XII 1912?, R. MacGillavry, 1 ♂, 1 ♀, 1 immature (all det. MacGillavry).

The Nongkodjadjar specimens in the collection of the Leiden Museum have been mentioned by Burr.

Opisthocosmia centurio Dohrn

Opisthocosmia centurio Dohrn, 1865, p. 79; —, Borelli, 1932, p. 190; —, idem, 1932a, p. 200; —, idem, 1932b, p. 93.

Leiden Museum:

Sumatra, Surian, I 1878, Sumatra Expedition, 1 ♂; Tandjong Morawa, Serdang, B. Hagen, 1 ♀; Anai Cleft, 500 m, 1926, E. Jacobson, 13 ♂♂, 27 ♀♀, 13 immature.

Nias, 4 X 1908, E. E. W. G. Schröder, 1 ♀.

Borneo, Sambas, 1891, J. Bosscha, 1 ♀; Balikpapan, Kampmeinert, 1 ♀; Sinia(i) River, III 1894, Borneo Expedition, J. Büttikofer, 2 ♂♂; Longblu-u, Upper Mahakam, (XI) 1894, (XI) 1898, 1899, Borneo Expedition, A. W. Nieuwenhuis, 15 ♂♂, 20 ♀♀, 3 immature, 3 ?; Putus Sibau, 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀.

A considerable variation exists in the shape, size, and clearness of the spots on shoulders and wing-scales. Three specimens collected by Nieuwenhuis have the abdomen mutilated.

Opisthocosmia centurio Dohrn, var. **bidentata** nov. var. (fig. 26c, d)

Leiden Museum:

Java, Wijnkoop Bay, III 1908, E. Jacobson, 1 ♂ (holotype).

Sumatra, Anai Cleft, I 1926, E. Jacobson, 6 ♂♂.

Borneo, Gunung Kenepai, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♂; Longblu-u, XI 1898, Borneo Expedition, A. W. Nieuwenhuis, 1 ♂.

The proximal dorsal tooth on the forceps is lacking. For further characters I refer to the figures.

Opisthocosmia longipes (De Haan)

Forficula longipes De Haan, 1842, p. 242, pl. 23 fig. 13.

Opisthocosmia longipes, Borelli, 1926, p. 271; —, idem, 1932a, p. 200.

Leiden Museum:

Sumatra, Padang, S. Müller, 2 ♂♂, 2 ♀♀, 2 immature (all "*longipes* De Haan, type"); Solok, Highlands of Padang, 29 VII 1913, P. O. Stolz, 1 ♂, 1 ♀; Suban Ajam, VII 1916, E. Jacobson, 4 ♂♂, 2 ♀♀.

Borneo, Gunung Kenepai, Pondok, I 1894, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀.

Amsterdam Museum:

Sumatra, Fort de Kock, 920 m, 1926, E. Jacobson, 1 ♀.

One male specimen has a small but distinct proximal dorsal tooth on the forceps and the forceps much more gently curved, about as in the variety *bidentata* of the previous species (fig. 26c); in the other male specimens is the proximal dorsal tooth on the forceps obsolete.

Opisthocosmia spec.

Leiden Museum:

Java, Djocja, II 1911, E. Jacobson, 1 immature.

Amsterdam Museum:

Java, Tjibodas, M. Weber, 2 immature (det. Burr, 1905).

The Tjibodas specimens have been mentioned by Burr (1912b, p. 229).

Pareparchus minusculus (De Bormans)

Opisthocosmia minuscula De Bormans, 1884, p. 190.
Pareparchus minusculus, Borelli, 1927, p. 78.

Leiden Museum:

Sumatra, Agam, III 1877, Sumatra Expedition, 1 ♀.

This is the type specimen; it is in a very bad condition, the antennae, forceps, and legs except one femur lacking.

?**Timomenus bicuspis** (Stål)

Forficula bicuspis Stål, 1860, p. 301.
Timomenus bicuspis?, Burr, 1912b, p. 229.
Timomenus bicuspis, Borelli, 1926, p. 272; —, idem, 1932b, p. 93.

Leiden Museum:

Java, Gunung Gedeh, III 1911, E. Jacobson, 1 ♀ (det. Burr).

This specimen has been mentioned by Burr as an example which "cannot be determined with accuracy without the ♂".

Timomenus aesculapius (Burr)

Opisthocosmia aesculapius Burr, 1905, p. 236.
Timomenus aesculapius, Burr, 1910, p. 196, pl. 8 fig. 70; —, Borelli, 1927, p. 79.

Leiden Museum:

Java, 1924-1927, W. C. van Heurn, 1 ♂.

Amsterdam Museum:

Sumatra, Tandjung Gadang, 1000 m, 1926, E. Jacobson, 1 ♀; Fort de Kock, 920 m, 1926, E. Jacobson, 1 ♀.

The male specimen has a smooth posterior dorsal segment and accurately agrees with Burr's descriptions. It seems to be the first specimen reported from Java.

Timomenus spec.

Leiden Museum:

Java, Wonosobo, IV 1909, E. Jacobson, 1 ♀.
Sumatra, Serapai, VII 1915, E. Jacobson, 1 ♀.

The Sumatran specimen shows a rather close agreement with the previously mentioned specimen provisionally identified as *Timomenus bicuspis* (Stål), the few differences being as follows: coloration darker, especially head and pronotum almost black; forceps slightly longer and more slender with only the proximal third denticulate, the whole forceps covered with a dense cloth of hairs; antennal annulus at ninth (left) or tenth (right) segment. *Timomenus bicuspis,* however, has not hitherto been reported from Sumatra.

The specimen being female, I also refrain from provisionally identifying it as *Timomenus jacobsoni* Borelli (1927, p. 78), of which species I have no material available.

The Javanese specimen has been mentioned by Burr (1912a, p. 30), erroneously as *Eparchus* spec.

Eparchus insignis (De Haan)

Forficula insignis De Haan, 1842, p. 243, pl. 23 fig. 14.
Eparchus insignis, Borelli, 1926, p. 272; —, idem, 1927, p. 78; —, idem, 1932b, p. 95; —, Hebard, 1927, p. 47; —, Günther, 1934, p. 515.

Leiden Museum:

Java, H. Kuhl & J. C. van Hasselt, 4 ♂♂, 3 ♀♀ (types, indicated as "*insignis* Hagenb."); Garut, Mrs. F. Adèr, 1 ♂, 1 ♀, 1 immature; Preanger, H. W. van der Weele, 1 ♂, 3 ♀♀; Patjet, XI 1914, E. Jacobson, 1 ♀; Gunung Gedeh, 1200 m, XII 1912, E. Jacobson, 4 ♀♀; Garut, 700-1000 m, 1928, IV 1929, XII 1929-I 1930, W. C. van Heurn, 3 ♂♂, 9 ♀♀, 2 immature; Ardjuno, South of Gunung, VI 1931, W. C. van Heurn, 2 ♀♀, 1 immature; Tjiliwung, Buitenzorg, about 1000 m, VI 1932, W. C. van Heurn, 1 ♀.

Sumatra, Lebong, V 1878, Sumatra Expedition, 1 ♀; Rimbo Pengadang, VI 1916, E. Jacobson, 1 ♂.

Malay Peninsula, P. J. van der Does de Bye, 1 ♂, 1 ♀.

India, Bengal, 1 ♀.

Locality unknown, 1 ♂ (abdomen only).

Amsterdam Museum:

Java, Tjibodas, M. Weber, 9 ♂♂, 13 ♀♀ (det. Burr, 1905, 5 ♂♂ & 7 ♀♀: "*Opisthocosmia insignis* Haan"); Ardja Sari, Preanger, 1 ♂, 2 ♀♀ (det. MacGillavry; "Descriptio *Ancistrogaster championi* Borm. valde affinis", "*Opisthocosmia* spec.?", "*Eparchus insignis* Haan, XI 1923"); Tjigembong, Preanger, J. B. Corporaal, 1 ♀ (det. MacGillavry, XI 1923).

Sumatra, Gunung Merapi, 1800 m, 22 VI 1929, L. F. de Beaufort, 1 ♀.

Moluccas, Buru (Station 8), II 1922, L. J. Toxopeus, 1 immature; Buru (Station 9), 20 VI-19 VII 1922, L. J. Toxopeus, 1 ♂, 2 ♀♀, 1 ?; Buru (Station 12), 4-7 II 1922, L. J. Toxopeus, 2 immature.

*

A distinct variability is shown in the development of the abdominal tubercles. The specimen from the Gunung Merapi (Amsterdam Museum) is brachypterous, the wings hardly protruding beyond the rather short elytra.

Eparchus insignis (De Haan), var. **inermis** nov. var.

Leiden Museum:

Java, Preanger, H. W. van der Weele, 1 ♂ (holotype); Gunung Gedeh, 1200 m, XII 1912, E. Jacobson, 1 ♂; Garut, about 700 m, 1928, W. C. van Heurn, 1 ♂.

The proximal dorsal processes on the forceps are considerably less developed, completely lacking in Van der Weele's specimens; parallel with this reduction, the abdominal protuberances have disappeared, the male abdomen being completely smooth or provided with very inconspicuous remains of tubercles only. There are no intermediary stages in these characters connecting the present specimens with the typical form.

The variability in the development of the proximal dorsal processes on the forceps has already been mentioned by Hebard, but this author seems to have overlooked the parallel reduction of the abdominal protuberances.

Eparchus burri (Burr)

Opisthocosmia Burri Burr (MS De Bormans), 1903a, p. 267.
Eparchus burri, Burr, 1904, p. 304; —, idem, 1910, p. 194; —, idem, 1912b, p. 229.
Eparchus tenellus burri, Günther, 1932, p. 482, fig. 7.

Leiden Museum:

Java, Banjuwangi, 1909, 1910, D. MacGillavry, 1 ♂, 3 ♀♀ (1 ♂, 2 ♀♀: det. Burr); G. F. Wienecke, 1 ♂, 1 ♀.

Amsterdam Museum:

Java, Tengger Mountains, F. C. Drescher, 1 ♂.

This species appears to be very close to *Eparchus tenellus,* but I doubt if a synonymy or a reduction of the present species to subspecific rank is justified.

Burr (1904) at first discriminated *burri* and *tenellus* by a supposed difference in color (*burri:* "color niger"; *tenellus*: "color brunneus"); afterwards (1910) he changed his opinion: "*E. burri* is a little longer, but the coloration is the same and the forceps are very similar; there is this difference, that in *E. burri* the branches are quite decidedly arcuate and have a sharp tooth on the inner margin at the base of the oval enclosed area". Finally, Günther (1932) stated: "Die Unterscheidung der Arten *Ep. tenellus* De Haan, *Ep. burri* de Borm. und noch einer weiteren Art scheint mir demnach auf schwachen Füssen zu stehen und vornehmlich durch die grosse Variabilität in der Zangenausbildung der ♂♂ begründet zu sein"; already

in 1932 this author regarded *burri, tenellus* and *cruentatus* Burr as belonging to one "Rassenkreis".

The present material confirms that the color is of no value as a distinctive character, but furthermore shows that the shape of the male forceps, though variable, is a valid character for the discrimination of the species mentioned before.

As in *tenellus,* the male specimens of the present species have in dorsal view the forceps almost straight, hardly curved outwards, subcontiguous, with only the apices curved inwards. In lateral view, the forceps in *burri* are still about straight, directed slightly upwards, and with an inconspicuous dorsal tooth at about the end of the first quarter. In *tenellus* the proximal third is distinctly U-shaped, ending with a conspicuous sharp vertical dorsal tooth, the further forceps straight and horizontal.

The inner margin of the male forceps in *burri* is distinctly denticulate along more than two-third of their length, with a triangular internal tooth at about one-fifth before the apex directed obliquely downward but still visible in dorsal view. In *tenellus,* the inner margin shows a more sparse dentification, rather inconspicuous, and along a shorter part; moreover, the large tooth is directed more vertical and not or hardly visible in dorsal view.

An accurate identification of the females is practically impossible whenever no accompanying males are available.

The specimens from Banjuwangi have been mentioned by Burr.

Eparchus cruentatus Burr

Eparchus cruentatus Burr, 1909a, p. 115.
Eparchus tenellus cruentatus, Günther, 1932, p. 483, fig. 8.

Leiden Museum:

Java, Preanger, Patjet, XI 1914, E. Jacobson, 1 ♂.

The present specimen is badly damaged, head und legs are lacking. The dentification along the inner margins of the forceps is developed along the proximal part of the contiguous portion only.

Eparchus tenellus (De Haan)

Forficula tenella De Haan, 1842, p. 243.
Eparchus tenellus, Burr, 1912a, p. 30; —, Borelli, 1926, p. 272; —, Hebard, 1927, p. 46.
Eparchus tenellus tenellus Günther, 1932, p. 481, fig. 6.

Leiden Museum:

Java, H. Kuhl & J. C. van Hasselt, 2 ♀♀, 1 ? (types, all indicated as "*tenella* Hagb."); S. Müller, 1 ♀ (type?); Garut, Mrs. P. Adèr, 1 ♂; Semarang, XII 1909. E. Jacobson, 1 ♀ (det. Burr); Wonosobo, IV, V 1909, E. Jacobson, 3 ♀♀ (1 ex.:

"*Eparchus* sp.", det. Burr); Garut, 700-1000 m, 1928, W. C. van Heurn, 2 ♂♂; Bandung, 1925, F. C. van Heurn, 1 ♀; Malang, 8 IV 1933, J. G. Betrem, 1 ♂.

Sumatra, Silago, VI 1877, Sumatra Expedition, 1 ♀; Muara Labu, XI 1877, Sumatra Expedition, 1 ♀; Tandjong Morawa, Serdang, B. Hagen, 1 ♂; Fort de Kock, II 1914, E. Jacobson, 1 ♀; Air Njuruk, Dempu, 1400 m, E. Jacobson, 1 ♀; Rimbo Pengadang, VI 1916, E. Jacobson, 1 ♂; Anai Cleft, 500 m, 1926, E. Jacobson, 1 ♀.

Amsterdam Museum:

Java, Sumber Pakel, Dampit, 1916?, 1919, D. MacGillavry, 1 ♂, 6 ♀♀ (5 ♀♀: "*Eparchus burri* (Borm.)", det. MacGillavry); Blitar, IX 1912-IV 1913, W. H. J. van der Beek, 3 ♀♀.

Sumatra, Lau Rakit, 300 m, 29 VIII-8 IX 1921, J. B. Corporaal, 2 ♂♂, 4 ♀♀; Simpang Raja, Siantar, 400 m, 17 VIII, 7 IX 1921, J. B. Corporaal, 1 ♂, 1 immature.

The three specimens collected by Kuhl and Van Hasselt have been examined by De Bormans; these and possibly the specimen collected by Müller are the types of the present species.

The specimen from Semarang and probably those from Wonosobo, all collected by Jacobson, have been mentioned by Burr.

The identification of female or immature specimens without accompanying males from the same locality should be taken with some reserve, the discrimination between females of *burri* and *tenella* being practically impossible.

For further remarks I refer to the discussion of *Eparchus burri* (Burr).

Narberia biroi (Burr)

Opisthocosmia Birói Burr, 1902, p. 485, pl. 20 fig. 7.
Narberia biroi, Burr, 1913, p. 315; —, Günther, 1929, p. 83.

Leiden Museum:

New Guinea, Northern New Guinea, IX 1909, New Guinea Expedition, P. N. van Kampen, 1 ♂, 2 ♀♀.

Amsterdam Museum:

New Guinea, North River, IX 1909, New Guinea Expedition, H. A. Lorentz, 1 ♂; Bivouac Island, I 1910, New Guinea Expedition, H. A. Lorentz, 2 ♀♀; Beaufort River, South New Guinea, 10 XI 1912, G. Versteeg, 1 ♀; Peram, South New Guinea, I 1913, G. Versteeg, 1 ♀; Mamberamo, Pioneer Bivouac, I 1921, P. Wirz, 1 ♀; Upper Digul, 150 km upstream from Tanah Merah, VIII-IX 1929, W. G. N. van der Sleen, 1 ♂; Tanah Tinggi, 30 km upstream from Tanah Merah, VIII-IX 1929, W. G. N. van der Sleen, 1 ♀; Upper Digul, 400 km North of Merauke, leg. 1926, A. Kalthofen, 2 immature.

The specimens in the collection of the Leiden Museum have been mentioned by Burr.

Cordax armatus (De Haan)

Forficula armata De Haan, 1842, p. 243, pl. 23 fig. 12.
Cordax armatus, Burr, 1910, p. 185, pl. 7 fig. 66.

Leiden Museum:

Sumatra, Batang Singalang, 1 ♂; Padang, S. Müller, 1 ?.

Amsterdam Museum:

Sumatra, North Korintji Valley, 5000 m, IX-X 1921, F. J. Pratt, 1 ♂.

The specimens in the collection of the Leiden Museum have been examined by De Bormans; they are the types of the present species.

The development of the armature of the forceps can be much stronger than represented in Burr's figure. Both specimens in the Leiden Museum have the pronotum slightly longer than broad, the posterior margin broadly rounded, the anterior margin inconspicuously convex, the sides about straight and parallel or slightly converging backwards; the sides, moreover, somewhat curved upwards. The Korintji Valley specimen has the pronotum about as long as broad, and the sides slightly (though distinctly) diverging backwards, increasingly convex towards the rounded posterior angles.

Cordax forcipatus (De Haan)

Forficula forcipata De Haan, 1842, p. 242, pl. 23 fig. 11.
Eparchus forcipata, Burr, 1912a, p. 30.
Cordax forcipatus, Borelli, 1926, p. 272; —, idem, 1927, p. 79; —, idem, 1932, p. 190; —, idem, 1932a, p. 202; —, idem, 1932b, p. 95; —, Hebard, 1927, p. 47.

Leiden Museum:

Java, Preanger, H. W. van der Weele, 1 ♀; Pangerango, X 1908, E. Jacobson, 1 ♀.
Sumatra, Batang Singalang, 1 ? (type, "*forcipata* De Haan"); Padang, S. Müller, 2 ♂♂, 2 ♀♀ (types, "*forcipata* De Haan"); Sungal Kumbang, IX 1915, E. Jacobson, 1 ♀; Suban Ajam, VII 1916, E. Jacobson, 2 ♀♀; Air Njuruk, Dempu, 1400 m, VIII 1916, E. Jacobson, 1 ♂, 3 ♀♀; Gunung Teleman, V, VI 1917, E. Jacobson, 4 ♀♀ (one ex. det. Burr).
Borneo, Longblu-u, Mahakkam River, 1898, Borneo Expedition, A. W. Nieuwenhuis, 1 ♀.

The specimens from Batang Singalang and Padang have been examined by De Bormans; they are the types of the present species. The specimen from Pangerango has been mentioned by Burr.

The color markings on elytra and wing-scales are variable, the paler spots on the elytra may disappear completely. The specimen collected by Van der Weele is almost black, the spots on elytra and apices of wing-scales indistinct.

Cordax forcipatus (De Haan), var. **brevipennis** Borelli

Cordax forcipatus (De Haan), var. *brevipennis* Borelli, 1926, p. 273.
Cordax ?forcipatus, Burr, 1912c, p. 107.

Leiden Museum:

Java, Tjinjiruan, 1700 m, I 1910, H. W. van der Weele, 1 ♂.
Locality unknown, 1 ♂.

The present specimens are slightly smaller than usual, the color rathe dark (in contradistinction with Burr's description). The teeth on the forceps

are small but distinct, the elytra short and without pale spot, the wings not exposed.

Reported from Java and Lombok only.

Cordax forcipatus (De Haan), var. **brevicontigua** var. nov. (fig. 34e)

Leiden Museum:

Sumatra, Gunung Teleman, V 1917, E. Jacobson, 2 ♂♂ (one the holotype).

These specimens have the contiguous part of the forceps much shorter than usual, the enclosed ovate area more elongate.

Cordax forcipatus (De Haan), var. **formosana** nov. var. (fig. 26f)

Leiden Museum:

Formosa, Kosempo, 1908, H. Sauter, 1 ♂ (holotype), 2 ♀♀.

As in the previous variety, the contiguous proximal part of the forceps in the male specimen is very short, but the enclosed ovate area is still more elongate; the dorsal process is slightly more developed though not as much as in the common form; the inner margins are denticulate unto the large distal inner tooth, the apical part smooth, elongate, sharp, and gently curved. The forceps of the female specimens show no distinctive characters.

Cordax vankampeni Burr

Cordax van Kampeni Burr, 1913, p. 315.

Amsterdam Museum:

New Guinea, Upper Digul, Tanah Tinggi, 30 km upstream from Tanah Merah, VIII-IX 1929, W. G. N. van der Sleen, 1 ♂.

Opisthocosmiinae, spec. incert.

Leiden Museum:

Java, XII 1917, E. Jacobson, 1 immature; Gunung Gedeh, III 1911, E. Jacobson, 1 immature (det. Burr); H. W. van der Weele, 1 ♀.

Locality unknown, 1 immature.

The female specimen is brachypterous and possibly belongs to *Cordax forcipatus* (De Haan), var. *brevipennis* Borelli.

Subfamily DIASPERASTICINAE

Diasperasticus erythrocephalus (Olivier)

Forficula erythrocephala Olivier, 1791, p. 468.
Diasperasticus erythrocephalus, Rehn, 1924, pp. 396, 398, 412.

Leiden Museum:

Africa, Congo, P. Kamerman, 1 ♀; Congo, A. A. van Bemmelen, 1 ♂; Ogowe, A. Fauvel, 1 ♂; Liberia, Cape Mount, 1896, Demery, 2 ♂♂.

Amsterdam Museum:

Africa, Angola, District Lunda, 1200 m, 1927, P. A. Nannings, 1 ♂, 2 ♀♀.

Dermaptera, spec. indeterm.

Leiden Museum:

Europe, Netherlands, Leiden, 21 VII 1937, C. de Jong, 1 ? (head only, probably *F. auricularia* L.).

Asia, Sumatra, Fort de Kock, XI 1913, Sungal Kumbang, IX 1915, Java, Batavia, I 1909, Wonosobo, IV, V 1909, Semarang, IV, XII 1909, I, VII 1910, Gunung Ungaran, IX 1910, Nongkodjadjar, I 1911, Gunung Gedeh, III 1911, ("*Opisthocosmia* sp.(?), nympha, det. Burr, indeterminable"), E. Jacobson, 19 immature; Java, Tjinjiruan, Malabar Mountains, 1700 m, IV 1910, Preanger, without date, H. W. van der Weele, 3 immature.

Africa, forest 25 km W. of Ambahoabé, 7 XII 1938, H. J. Lam & A. D. J. Meeuse, 1 immature.

Amsterdam Museum:

Europe, Netherlands, Valkenburg (Limburg), 24-29 III 1921, P. van der Wiel, 1 ? (badly damaged).

America, Curaçao, Willemstad, 1934, 1 ?; Cuba, Sierra de Guane, 9 VII 1933, H. J. MacGillavry, 1 immature.

LITERATURE

(Literature by the same author in a single year not in chronological order).

Bey-Bienko, G. J., 1936. Insectes Dermaptères, Faune de l'URSS. Moscou & Leningrad, x, 240 pp., 67 figs.

Boeseman, M., 1952. Diplatys sumatranus, a new earwig from Sumatra. Zool. Meded. Mus. Leiden, vol. 31 no. 24, pp. 259-263, 1 fig.

Borelli, A., 1906. Forficole di Costa Rica. Boll. Mus. Zool. Anat. comp. Torino, vol. 21 no. 531, 19 pp., figs.

——, 1907. Ortotteri raccolti da Leonardo Fea nell'Africa occidentale. Ann. Mus. Stor. nat. Genova, ser. 3a, vol. 3 (43), pp. 345-390.

——, 1907a. Spedizione al Ruwenzori di S. A. R. Luigi Amedeo di Savoia Duca degli Abruzzi. Boll. Mus. Zool. Anat. comp. Torino, vol. 22 no. 558, 6 pp.

——, 1914. Dermatteri raccolti dal prof. F. Silvestri nell' Africa occidentale. Boll. Lab. Zool. Portici, vol. 8, pp. 264-274, 2 figs.

——, 1915. Dermatteri delle Isole Filippine (Nota II). Boll. Mus. Zool. Anat. comp. Torino, vol. 30 no. 705, 7 pp.

——, 1915a. Dermatteri delle Isole Filippine. Boll. Mus. Zool. Anat. comp. Torino, vol. 30 no. 697, 7 pp.

——, 1920. Di alcuni Dermatteri raccolti in Malesia dal prof. C. F. Baker. Boll. Mus. Zool. Anat. comp. Torino, vol. 35 no. 736, 9 pp., 1 fig.

——, 1921. Dermaptères nouveaux du Muséum de Paris. Bull. Mus. Hist. nat. Paris, vol. 27, pp. 77-83.

——, 1923. Dermaptères du Congo Belge. Rev. Zool. afr., Ghent, vol. 11, pp. 412-434.

——, 1923a. Dermatteri delle Isole Filippine (Nota VI). Boll. Mus. Zool. Anat. comp. Torino, vol. 38 no. 13 (new series), 20 pp.

——, 1926. Dermaptères de Java, Sumatra et îles voisines. Treubia, Buitenzorg, vol. 8, pp. 248-273.

——, 1926a. Spolia Mentawiensia, Dermaptera. J. Malayan Br. Asiat. Soc., Singapore, vol. 4 pt. 3, pp. 384-391, 2 figs.

BORELLI, A., 1927. Fauna Sumatrensis. Suppl. Ent., Berlin-Dahlem, vol. 15, pp. 69-80, figs.
——, 1932. Dermaptères du Mt. Kinabalu (B. N. Borneo). J. F. M. S. Mus. Kuala Lumpur, Singapore, vol. 17 pt. 1, pp. 179-190, 13 figs.
——, 1932a. Dermaptères du Mt. Kinabalu (B. N. Borneo). J. F. M. S. Mus. Kuala Lumpur, Singapore, vol. 17 pt. 1, pp. 191-202, 8 figs.
——, 1932b. Dermaptères de la Presqu'île Malaise. Bull. Raffles Mus. Singapore, vol. 7, pp. 80-95, 10 figs.
BORMANS, A. DE, 1900. Quelques Dermaptères du Musée civique de Gênes. Ann. Mus. Stor. nat. Genova, ser. 2a, vol. 20 (40), pp. 441-467.
BORMANS, A. DE (& H. KRAUS), 1900. Forficulidae (und Hemimeridae). Das Tierreich, 11, Berlin, xv, 142 pp., 47 figs.
BURR, M., 1900. Notes on the Forficularia. — V. Descriptions of new Species and a new Genus. Ann. Mag. nat. Hist., London (7), vol. 6, pp. 79-88, pl. 4 figs. 3, 5, 7.
——, 1900a. Forficules exotiques du Musée Royal d'Histoire Naturelle de Bruxelles. Ann. Soc. ent. Belgique, vol. 44, pp. 47-54.
——, 1902. On the Forficularia of the Hungarian National Museum of Budapest. Term. Füz., Budapest, vol. 25, pp. 477-488, pl. 20.
——, 1903. Notes on the Forficularia. — VIII. Five new Species from the de Bormans Collection. Ann. Mag. nat. Hist., London (7), vol. 11, pp. 270-277.
——, 1903a. Notes on the Forficularia. — VII. Some hitherto unpublished Descriptions of new Species, by the late M. Auguste de Bormans. Ann. Mag. nat. Hist., London (7), vol. 11, pp. 265-270.
——, 1903b. Notes on the Forficularia. — VII. Some hitherto unpublished Descriptions of new Species, by the late M. Auguste de Bormans. Ann. Mag. nat. Hist., London (7), vol. 11, pp. 231-241.
——, 1904. Observations on the Dermaptera, including revisions of several Genera, and descriptions of New Genera and Species. Trans. Ent. Soc. London, pt. 2, pp. 277-322.
——, 1905. Notes on the Forficularia. — IX. On new Species, with Synonymic Notes. Ann. Mag. nat. Hist., London (7), vol. 16, pp. 486-496.
——, 1906. Dermaptera, Rés. Exp. Sc. Néerl. Nouv. Guinée 1903. Nova Guinea, Leiden, vol. 5 pt. 1, pp. 9, 10.
——, 1907. Dermatoptera. Wissensch. Ergebn. der Schwed. Zool. Exp. n. d. Kilimandjaro, etc., 1905-1906, u. Leit. v. Prof. Dr. Yngve Sjöstedt, Upsala, 17. Orthoptera, pp. 1-12, pl. 1 figs. 1-8.
——, 1908. Two new Dermaptera in the collection of the Leyden Museum. Notes Leyden Mus., vol. 30, pp. 95-97.
——, 1908a. Notes on the Forficularia. — XII. Note on the Genus Apachys, Serv. Ann. Mag. nat. Hist., London (8), vol. 1, pp. 51-54.
——, 1908b. Notes on the Forficularia. — X. A Revision of the Nesogastrinae. Ann. Mag. nat. Hist., London (8), vol. 1, pp. 42-47.
——, 1908c. Notes on the Forficularia. — XIV. A Revision of the Pygidicraninae. Ann. Mag. nat. Hist., London (8), vol. 2, pp. 382-392.
——, 1909. Dermatoptera. Rés. Exp. Sc. Néerl. Nouv. Guinée 1907. Nova Guinea, Leiden, vol. 9 pt. 1, pp. 15-17.
——, 1909a. Notes on the Forficularia. — XVII. On new Species, a new Genus, and new Synonymy. Ann. Mag. nat. Hist., London (8), vol. 4, pp. 113-129.
——, 1910. Dermaptera (Earwigs). Fauna Br. Ind., London, xviii, 217 pp., 16 text-figs., 10 pls. (104 figs.).
——, 1910a. A preliminary revision of the Labiduridae, a family of the Dermaptera. Trans. Ent. Soc. London, pt. 3, pp. 161-203, pls. 46, 47.
——, 1910b. A revision of the Genus Diplatys, Serv. (Dermaptera). Trans. Ent. Soc. London, 1911, pp. 21-47, pls. 7, 8.
——, 1910c. The Dermaptera (Earwigs) of the United States National Museum. Proc. U. S. nat. Mus., Washington, vol. 38, pp. 443-467, 8 figs.

BURR, M., 1911. Contribution to our knowledge of Indian Earwigs. J. Asiat. Soc. Beng., Calcutta, vol. 7, 11, pp. 771-800.
——, 1911a. On some South African Dermaptera (Earwigs) in the South African Museum, Cape Town. Ann. S. Afr. Mus., London, vol. 10, pp. 1-17, 9 figs.
——, 1911b. Notes on the Forficularia. — XVIII. More new Species. Ann. Mag. nat. Hist., London (8), vol. 8, pp. 39-50.
——, 1912. A new species of Arixenia (Dermaptera). Ent. mon. Mag. London, (2), vol. 23, pp. 105-106, fig.
——, 1912a. On Dermaptera collected in Java by Mr. E. Jacobson. Notes Leyden Mus., vol. 34, pp. 25-30.
——, 1912b. Dermaptera from Java and Sumatra. Notes Leyden Mus., vol. 34, pp. 225-229.
——, 1912c. Die Dermapteren des k. k. naturhistorischen Hofmuseums in Wien. Ann. naturh. Mus. Wien, vol. 26, pp. 63-108.
——, 1912d. Nachträge zu meiner Bearbeitung der Dermapteren des k. k. naturhistorischen Hofmuseums. Ann. naturh. Mus. Wien, vol. 26, pp. 331-340, 16 figs.
——, 1912e. Über einige neue und interessante Dermapteren aus dem Königl. Zoolog. Museum Berlin. SitzBer. Ges. naturf. Fr. Berlin, pp. 311-330, 5 figs.
——, 1913. New Guinea Dermaptera, collected by Dr. P. N. van Kampen and K. Gjellerup (1910-1911). Tijdschr. Ent., The Hague, vol. 56, pp. 312-316.
——, 1913a. Dermaptera. Genera Insectorum, fasc. 122, Brussels, 112 pp., 9 pls.
——, 1913b. H. Sauter's Formosa-Ausbeute: Dermapteren. Ent. Mitt., Berlin-Dahlem, vol. 2, pp. 65-70, 4 figs.
——, 1914. Notes on the Forficularia. — XXI. Progress in Dermaptera in 1912 and 1913. Ann. Mag. nat. Hist., London (8), vol. 13, pp. 577-586.
——, 1915. On the Male Genital Armature of the Dermaptera. Part I: Protodermaptera (except Psalidae). J. R. micr. Soc. London, pp. 413-447, pls. 5-9, figs. 55-57.
——, 1915a. On the Male Genital Armature of the Dermaptera. Part II: Psalidae. J. R. micr. Soc. London, pp. 521-546, pls. 10-12, figs. 58-64.
——, 1915b. Dermaptera collected by Mr. Edw. Jacobson in Simalur. Tijdschr. Ent., The Hague, vol. 58 Suppl., pp. 115-118, fig.
——, 1922. H. Sauter's Formosa-Ausbeute: Dermapteren II. Arch. Naturgesch. Berlin, Abt. A, vol. 87 pt. 11, pp. 276-277.
BURR, M., & K. JORDAN, 1913. On Arixenina Burr, a Suborder of Dermaptera. Trans. 2nd Intern. Congr. Ent., Oxford, vol. 2, pp. 398-421, figs. 12-28.
CAUDELL, A. N., 1907. On some Forficulidae of the United States and West Indies. J. N. Y. ent. Soc., New York, vol. 15, pp. 166-170.
CHOPARD, L., 1922. Orthoptères et Dermaptères. Faune de France, Paris, vol. 3, pp. 173-212, figs. 436-466.
——, 1951. Orthoptéroïdes. Faune de France, Paris, vol. 56, pp. 317-337, figs. 495-525.
GÜNTHER, K., 1929. Die Dermapteren der deutschen Kaiserin Augusta-Fluss-Expedition 1912/13. Mitt. zool. Mus. Berlin, vol. 15, pp. 53-83, 10 text figs.
——, 1932. Die Dermapteren der Sunda-Expedition Dr. Rensch 1927 nebst Bemerkungen über einige weitere malayische und papuanische Dermapteren und über die tiergeographischen Beziehungen der Dermaptorenfauna von Insulinde SitzBer. Ges. naturf. Fr. Berlin, (1933), pp. 471-491, 8 figs.
——, 1932a. Die von Dr. Mayr 1928 auf Neu-Guinea gesammelten Dermapteren. Mitt. deutsch. ent. Ges. Berlin, vol. 3, pp. 69-72, 2 figs.
——, 1934. Die Dermapteren der Deutschen Limnologischen Sunda-Expedition. Arch. Hydrobiol., Stuttgart, vol. 12 Suppl., pp. 503-517, 11 figs.
HEBARD, M., 1917. Dermapterological Notes. Proc. Acad. nat. Sci. Philad., vol. 69, pp. 231-250, pl. 16 (11 figs.).
——, 1920. American Dermaptera of the Museum National d'Histoire Naturelle, Paris, France. Proc. Acad. nat. Sci. Philad., vol. 72, pp. 337-353, pl. 13 (10 figs.).

HEBARD, M., 1927. Studies in Sumatran Dermaptera. Proc. Acad. nat. Sci. Philad., vol. 79, pp. 23-48, pl. 3 (7 figs.).

HINCKS, W. D., 1939. The Belgian Congo species of the genus Dicrana Burr (Dermaptera: Pygidicranidae). Entom. mon. Mag., London, vol. 75, pp. 236-239.

——, 1947. Preliminary notes on Mauritian earwigs (Dermaptera). Ann. Mag. nat. Hist., London (11), vol. 14, (1948), pp. 517-540, 10 figs.

HOULBERT, C., 1924. Thysanoures, Dermaptères et Orthoptères de France et de la Faune Européenne. Encyclopédie scientifique, Bibliothèque de Zoologie, vol. 1, Paris, pp. 211-262, 8 text figs., pl. 5 (16 figs.).

JORDAN, K., 1909. Description of a new kind of apterous earwig, apparently parasitic on a bat. Novit. zool. Tring, London & Aylesbury, vol. 16, pp. 313-326, pls. 16-18.

JORDAN, K., & M. BURR, 1913. See Burr, M. & K. Jordan.

MENOZZI, C., 1935. Contributo alla conoscenza dei Dermatteri del Congo Belga. Rev. Zool. Bot. afr. Bruxelles, vol. 27, pp. 15-32, 10 figs.

REHN, J. A. G., 1916. The Stanford expedition to Brazil 1911, J. C. Branner Director. Dermaptera and Orthoptera, 1. Trans. Amer. ent. Soc. Philad., vol. 42, pp. 215-308, pls. 14, 15.

——, 1922. Contribution to our knowledge of the Dermaptera and Orthoptera of the Transvaal and Natal, Part I, Dermaptera and Blattidae. Ann. Transv. Mus., Cambridge, vol. 9 pt. 1, pp. 1-99, 4 pls.

——, 1924. The Dermaptera of the American Museum Congo Expedition, with a catalogue of the Belgian Congo species. Bull. Amer. Mus. nat. Hist., New York, vol. 49, pp. 349-413, 40 figs.

——, 1946. Five new species of earwigs of the Indo-Pacific genus Nesogaster (Dermaptera: Labiidae: Nesogastrinae). Proc. Acad. nat. Sci. Philad., vol. 98, pp. 219-239, 11 figs.

SEMENOV, A. P., 1901. Russian species of the genera Anechura Scudd. & Forficula (L.) Scudd., and their geographical distribution. Horae Soc. ent. Ross., St. Petersburg, vol. 35, pp. 185-201.

VERHOEFF, K. W., 1902. Über Dermapteren. Zool. Anz., Leipzig, vol. 25 no. 665, pp. 181-208.

——, 1904. Über Dermapteren. 5. Aufsatz: Zwei neue Gruppen. Arch. Naturgesch., Berlin, vol. 70, pp. 117-121.

WILLEMSE, C., 1952. De in Nederland voorkomende oorwormen. Wetensch. Meded., 4, Kon. Ned. Natuurhist. Ver., Amsterdam, 8 pp., 5 figs.

ZACHER, F., 1910. Zur Morphologie und Systematik der Dermapteren. Vorläufige Mitteilungen. Ent. Rundsch., Stuttgart, vol. 27 no. 5, pp. 29-30.

——, 1911. Studien über das System der Protodermapteren. Zool. Jahrb. (Syst.), Jena, vol. 30 pt. 4, pp. 303-400, figs. A-E3.

——, 1917. Die Geradflügler Deutschlands und ihre Verbreitung. Systematisches und synonymisches Verzeichnis der im Gebiete des Deutschen Reiches bisher aufgefundenen Orthopteren-Arten (Dermaptera, Oothecaria, Saltatoria). Jena, vii, 287 pp., with map.

For literature published before 1900 I refer to De Bormans (& Kraus) (1900) and Burr (1913a).