ORTHOPTEROLOGICAL NOTES IV
NOTES ON INDOMALAYAN AND AFRICAN PTEROPHYLLINAE (TETTIGONIIDAE)

by

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with 12 text-figures

The present paper contains a number of new facts concerning Indomalayan Pterophyllinae, which came to my attention after the publication of my first paper on this subfamily (De Jong, 1938 [1])).

Further it contains the description of new species: *Cymatomera blötei* and *Tegrolcinia karnyi*, an allotype: ♂ *Olcinia dentata* De Jong, three plesioallotypes: ♂ *Phyllomimus punctiger* Karny, ♀ *Tympanoptera annulata* Karny, and ♂ *Heteraprium inversum* (Brunner v. Watt.), and it gives more details about a number of genera and their interrelation, e.g., *Morsimus* Stål and allied genera. More details are also given of a number of species hitherto insufficiently known, indomalayan as well as african species.

Moreover, some material is mentioned which I identified for other institutions, viz., the Zoölogisch Museum at Amsterdam, the Museum voor het Onderwijs at The Hague, and the Zoologisches Institut at Halle a.d. Saale, for the loan of which I express my gratitude to the Directors of these institutions.

A special word of thanks is due to Mr. C. Willemse (Eygelshoven) for his willingness to place his library and his african Pterophyllids at my disposal.

The classification used here, as well as in my first paper on this subject, is based on the excellent fundamental work by Brunner von Wattenwyl "Monographie der Pseudophylliden" (1895), Kirby's Synonymic Catalogue (1906, 1910), Hebard's elaborate paper on Orthoptera from the Far East (1922), and many papers by Karny (1907-1931).

From Dr. Max Beier in Vienna I received valuable information concerning synonyms and the place of some species and genera in the system, for which I express my sincere thanks.

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1) My paper "On Indomalayan Pterophyllinae" was published November 10th 1938 as an academical thesis. On May 25th 1939 it appeared in "Zoologische Mededelingen" vol. 21, with exactly the same numbering of pages but without the preface and summary in the Dutch language. Though Zool. Meded., vol. 21 can be consulted for the text, in cases of priority the 10th of November should be taken into account.

The greater part of the present paper has been written during the years of occupation. After that time again some collections were sent to me for identification. The study of a series of some species resulted in new synonyms. I shall refer to this material only very superficially as it will be dealt with in a separate paper. Change in activities after 1946 delayed publication. So I could still study Beier's "Revision der Pseudophyllinen", which was published in Madrid, 1954 (Trabajos del Instituto Español de Entomologia).

For synonyms and literature of most genera and species already mentioned in my first paper on the subject I shall refer to the corresponding pages there, and to Beier's paper. Though he published the solutions to some of my problems, in a number of cases I cannot accept his views and I give my own vision.

PSEUDOPHYLLINI

Mustius Stål

Mustius Stål, 1874, p. 50; Karsch, 1890, p. 272; 1891a, p. 79; 1891b, p. 336; 1893, p. 136; Pictet & Saussure, 1892, p. 6; Brunner von Wattenwyl, 1895, pp. 9, 24; Sjöstedt, 1901, p. 28; Kirby, 1906, p. 290; Rehn, 1914, p. 185; Beier, 1954, p. 17.

Mustius superbus Sjöstedt

Mustius Afzelii Karsch (nec Stål), 1891a, p. 81 (lines 1-23 from bottom), pl. 2 fig. 1, 1a; 1893, p. 136; Brunner von Wattenwyl, 1895, p. 25 (part.), pl. 1 fig. 1; 1897, p. 5, pl. 4 fig. 41; Bolívar, 1906, p. 352.

Mustius superbus Sjöstedt, 1901, p. 29; 1912, p. 18; 1933, p. 13, pl. 13 fig. 3; Griffini, 1906, p. 375; 1908, p. 39; Beier, 1954, p. 18.

Mustius Superbus Kirby, 1906, p. 291.

Mr. Willemse's collection

Cameroons: ♀ and 1 ♂, Victoria 1.

Amsterdam Museum

Cameroons: 1 ♀, de Groot leg.

The specimens fully agree with the description by Sjöstedt, and with the figures given by Karsch and Brunner von Wattenwyl. The differences of this species from *M. afzelii*, for which it had been mistaken by various authors, are clearly pointed out by Sjöstedt (1901, pp. 28-30).

Zabalius Bolívar, I.

Zabalius Bolívar, I., 1886, p. 346; 1906, p. 353; Rehn, 1914, p. 185; Beier, 1954, p. 22.

Mataeus Karsch, 1890, p. 272; 1891a, pp. 76, 82; 1891b, p. 336; Brunn, 1891, p. 271; Brunner von Wattenwyl, 1895, pp. 9, 26; Krauss, 1901, p. 292.

Phyllotribonia Pictet & Saussure, 1892, p. 10.

Bolívar (1906, p. 353) deals with some species of the genus *Zabalius*. As he gives critical notes on some of the species of this genus mentioned in Brunner von Wattenwyl's "Monographie der Pseudophylliden", we may assume that when he does not add notes of the kind, Brunner has interpreted the species in the same way as Bolívar, especially when species established by the latter are under consideration. The species are dealt with in the following order: *Z. guineensis* Bol., *Z. apicalis* Bol., *Z. granulicollis* Karsch.

For the first-mentioned species Bolívar gives no comments as to the synonyms, so I presume that Brunner's description is correct. Concerning *apicalis* Bol. he emphasises that *apicalis* Br. v. Watt. is a different species, and that *latipennis* Karsch is synonymous with *apicalis* Bol. *Z. apicalis* Br. v. Watt, appears to be synonymous with *Z. granulicollis* Karsch.

Griffini (1908, p. 39) especially mentions "*Z. apicalis* Bol., nec Brunner", and "*Z. lineolatus* (Stål), teste Kirby", thus indicating his sources of information. As appears from the literature quoted he refers to *guineensis* Bol. when using the name *lineolatus*.

Sjöstedt (1912, p. 18) considers *Z. guineensis* Bol. and *Z. lineolatus* (Stål) separate species, and he denies the synonymy of *Z. longipennis* Karsch with *Z. lineolatus* (Stål), established by Kirby (1906, p. 291).

However, Beier (1954, p. 23) in his revision gives many synonyms, while *lineolatus* Stål appears to have priority over *guineensis* Bol.

Zabalius apicalis Bolívar, I. (fig. 1 a-g)

Mustius (*Zabalius*) *apicalis* Bolívar, I., 1886, p. 346.
Mataeus latipennis Karsch, 1891, pp. 83, 84; Brunner von Wattenwyl, 1895, pp. 27, 28; Karny, 1915, p. 122.
Mataeus Casamancae Pictet & Saussure, 1892, p. 23, pl. 3 figs. 13 a-c.
Zabalius Cazamancae (err. impr.) Kirby, 1906, p. 291.
Zabalius Latipennis Kirby, 1906, p. 291.
Zabalius apicalis Bolívar, I., 1906, p. 353; Griffini, 1908, p. 39; Ebner, 1943, p. 262; Beier, 1954, p. 28; 1957, p. 51.
Mataeus granulicollis Karsch, 1890, p. 266; 1891a, pp. 83, 85, pl. 2 fig. 2.
Mataeus apicalis Brunner von Wattenwyl, 1895, pp. 27-29.
Zabalius Apicalis Kirby, 1906, p. 291.
Zabalius granulicollis Bolívar, I., 1906, p. 353.
Zabalius casamancae Rehn, 1914, p. 185.
Zabalius latipennis Rehn, 1914, p. 51.

Mr. Willemse's collection

Africa: Cameroons: 1 ♀, Victoria; Togo: 1 ♀.

Halle a.d. Saale Museum

Africa: Togo: 1 ♀ and 1 ♂, leg. Dr. Schm.

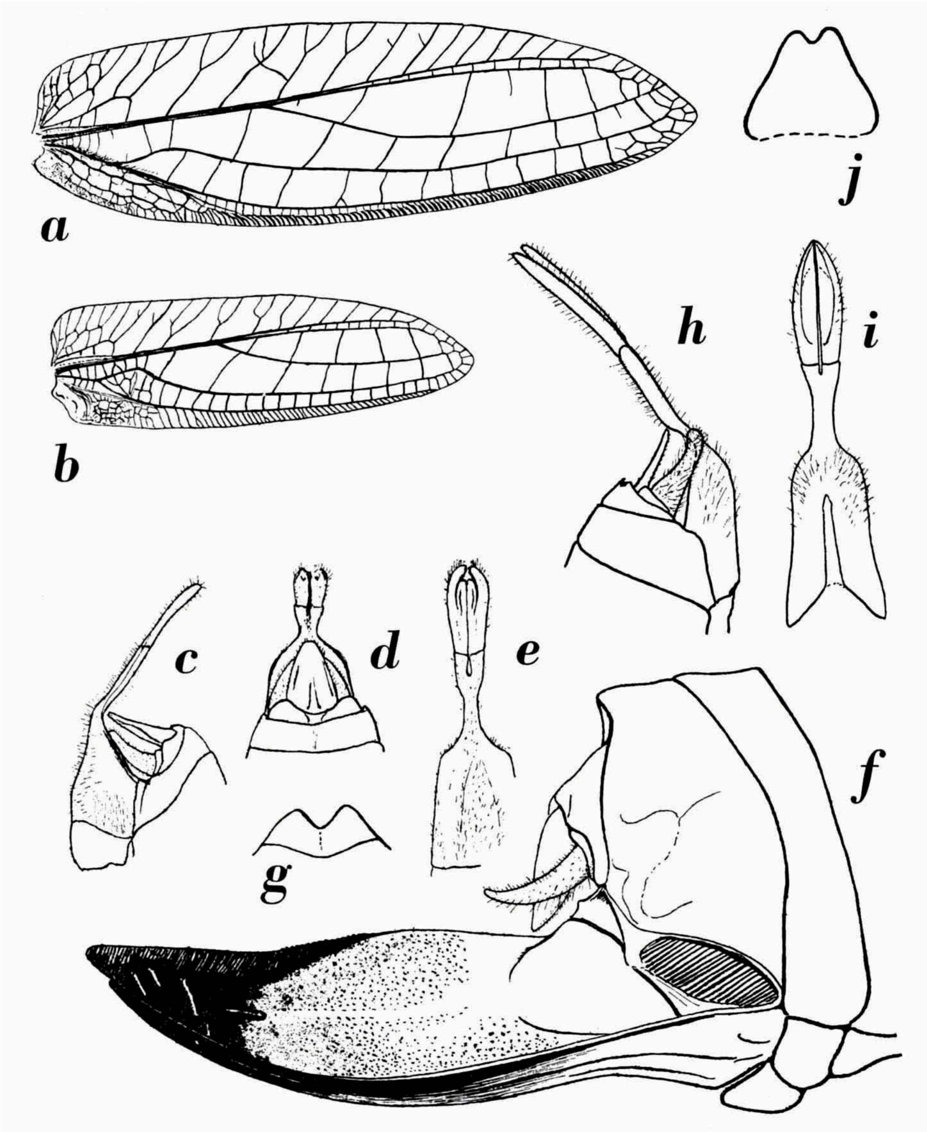

Fig. 1. a-g, *Zabalius apicalis* Bol.: a, ♀ right tegmen; b, ♂ right tegmen; c-e, ♂ abdominal appendages, lateral, dorsal, and ventral view respectively; f, ♀ abdominal appendages, lateral view; g, ♀ subgenital plate; h-j, *Zabalius lineolatus* Stål; h-i, ♂ abdominal appendages, lateral, and ventral view respectively; j, ♀ subgenital plate. a-b × 1½ other figures × 5 (In d, e and i the stalk and styli are drawn somewhat shortened).

All specimens agree with the description by Karsch. Many years ago I drew the elytra (fig. 1a, b) and the abdominal appendages (fig. 1c-i) of the specimens from the Halle Museum which details may be a help for further investigations. The shape of the subgenital plate (fig. 1e-g) appears to differ in the various species, in the ♂♂ as well in the ♀♀. The ♂ specimen from Togo possesses a red spot between the antennal scrobes.

Zabalius ophthalmicus Walker

Pseudophyllus ophthalmicus Walker, 1869, p. 400.
Mataeus orientalis Karsch, 1891a, p. 83, 85; Brunn, 1891, p. 271; Brunner von Wattenwyl, 1895, pp. 27, 30; Schulthess Schindler, 1898, p. 206; Krauss, 1901, p. 292; Reh, 1913, p. 199.
Zabalius Orientalis Kirby, 1906, p. 292.
Zabalius orientalis Rehn, 1914, p. 186; Chopard, 1935, p. 8; Beier, 1954, p. 30.
Zabalius ophthalmicus Beier, 1957, p. 52.

Leiden Museum

Africa: Natal 1 ♀; Transvaal 1 ♂, leg. Dr. Hellenberg.

Mr. Willemse's collection

Africa: South-West Africa: 1 ♀, Manow.

This species can be distinguished from the preceding by the concolorous oblique cross veins in the post-medial area (called "anal area" by Brunner von Wattenwyl, l.c., p. 27) and the nearly smooth pronotum with only a few shining granules. It was stated to occur in Eastern Africa only. Brunner von Wattenwyl records the species from Tanganyika and Zanzibar. Our specimens from Natal and Transvaal, as well as that in Mr. Willemse's collection, from South-West Africa, suggest that the species is distributed over a much wider area. Beier (1954, p. 30) also mentions Angola, which supports my view.

The abdominal appendages of ♀ and ♂ strongly resemble those of the preceding species.

Zabalius lineolatus Stål (fig. 1 h-j)

Pseudophyllus aridus Walker, 1869, p. 399 ♀ [2]).
Pseudophyllus lineolatus Stål, 1873, p. 48 ♀; Sjöstedt, 1933, p. 10, pl. 6 fig. 4.
Cratylus lineolatus Stål, 1874, p. 68.
Mustius (*Zabalius*) *Guineensis* Bol., I., 1886, p. 342.
Mataeus longipennis Karsch, 1891a, pp. 83, 84; 1891b, p. 336.
Mataeus Guineensis Brunner von Wattenwyl, 1895, pp. 27, 28.
Mataeus guineensis Sjöstedt, 1901, p. 31.

2) The ♀ described by Walker does not belong to the same species as the preceding ♂ of *Pseudophyllus aridus* Walk.

Zabulius lineolatus Kirby, 1902, p. 467.
Zabalius guineensis Bol., I., 1906, p. 353; Anon., 1910, p. 582; Sjöstedt, 1913, p. 18.
Zabalius Lineolatus Kirby, 1906, p. 291 (partim).
Zabalius lineolatus Griffini, 1908, p. 39; Giglio Tos, 1908, p. 19; Beier, 1954, p. 23; 1957, p. 50.

Mr. Willemse's collection

Africa: Cameroons, 1 ♀ and 1 ♂. Locality unknown: 1 ♂.

Karsch (1891 a, p. 84) described ♀ and ♂ of this species and gave measurements. The present specimens agree with both description and measurements. Brunner von Wattenwyl (1895, t. 1 figs. 3a and 2b) figured the ♂. Judging by those figures, however, the incision of the subgenital plate is rather deep, about half the length of the stalk-like part of the subgenital plate. In the ♂ before me, which undoubtedly belongs to *Z. lineolatus*, this incision is very short as is shown in fig. 1i. A more extensive material will be necessary to determine in how far this character is subject to variation. Another possibility is that the specimens which till now have been regarded as one species *Z. guineensis* Bol., will prove to represent two closely related species. According to the data and keys, which at present (Beier, 1954) are at our disposal, the above-mentioned specimens should be reckoned to *Z. lineolatus* Stål.

Beier (1954, p. 23) established a far-reaching synonymy.

Fig. 1 j shows the subgenital plate of the ♀.

Cratioma Bolívar, I.

Cratioma Bol., I., 1906, p. 394. For synonyms and literature see: De Jong, 1938, p. 2. Add: Elera, 1895, p. 209; Henry, 1944, p. 189; Beier, 1954, p. 38.

Cratioma dilatatum Karny (fig. 2c)

Cratioma dilatatum Karny, 1923, pp. 164, 165, fig. 25; 1924, p. 173; 1926b, p. 133; 1927, pp. 5, 6; De Jong, 1938 (1939), p. 3, fig. 1; Beier, 1954, p. 41, fig. 14.

Geneva Museum

Borneo: 1 ♀.

The specimen from the Geneva Museum corresponds in nearly all respects with Karny's description and shows no obvious differences from the figure. The here-mentioned specimen originates from a locality new for the species, which was recorded from Johore in the Malay Peninsula and from Sumatra. Its occurrance in Borneo is not surprizing, still interesting.

The shape of the supraanal plate of this ♀ is oviform, slightly notched at the tip (fig. 2c). The measurements of the specimen follow here (in mm):

Total length	71	Length alae	65
Length antennae	83	Length anterior femora	7
Length elytra	64	Length posterior femora	18
Breadth elytra	25	Length ovipositor	18

Cratioma oculatum Karny

Cratioma oculatum Karny, 1926b, p. 113, pl. 4 fig. 9; 1927, pp. 5, 6; De Jong, 1938 (1939), p. 6; Beier, 1954, p. 43, fig. 17.

Amsterdam Museum

Borneo: 1 ♀, Sambas, leg. 's-Gravesande Guicherit.

The specimen differs very little from Karny's figure. The differences are mainly found in the secondary and tertiary veins in the borders and the apical zone of the tegmina. As these regions are generally subject to considerable variation I consider these differences caused by individual variation, and to be of no importance.

Cratioma fenestratum (Stoll)

Gryllus Tettigonia fenestratus Stoll, 1813, p. 12, pl. 5a fig. 13.
Conocephalus inflatus Thunberg, 1815, p. 276.
Locusta (Pseudophyllus) fenestrata de Haan, 1842, p. 203.
Pseudophyllus fenestratus Walker, 1869, p. 401.
Cratylus inflatus Stål, 1874, p. 68.
Cratylus fenestratus Pictet & Saussure, 1892, p. 14, pl. 1 figs. 5 and 5a; Brunner von Wattenwyl, 1895, p. 34, pl. 1 fig. 6.
Cratylus fenestratum Karny, 1923, p, 165; 1924, p. 173.
Cratioma fenestratum De Jong, 1938 (1939), p. 2; Beier, 1954, p. 45.

The list of synonyms and literature of this species has slightly been altered, since Beier separated the Ceylon species *C. myops* Serv. from *C. fenestratus*. This species apparently is limited to Amboina only. Atkinson (1882, p. 155) mentions *Pseudophyllus fenestratus* from N.W. India. However, without his specimens it is impossible to determine which species was meant.

Pseudophyllus Serville

Pseudophyllus neriifolius (Lichtenstein)

Locusta neriifolia Lichtenstein, 1796, p. 82.
Gryllus Tettigonia neriifolius Stoll, 1813, p. 11, pl. 4a fig. 11.
Pseudophyllus graniger Serville, 1839, p. 467; Walker, 1869, p. 410; Karsch, 1887, p. 259.
Locusta (Pseudophyllus) granigera de Haan, 1842, p. 204.
Cleandrus graniger Stål, 1874, 67; Pictet & Saussure, 1892, p. 13, pl. 1 figs. 3 en 4;

Brunner von Wattenwyl, 1895, p. 39, pl. 1 fig. 9; Koningsberger, 1908, p. 62; Reh, 1913, p. 200; Dammerman, 1919, p. 100.

Pseudophyllus neriifolius Atkinson, 1882, p. 155; Krauss, 1903, p. 748; Caudell, 1927, p. 32; Chang, 1935, p. 36 (per errorem).

Cleandrus neriifolius Kirby, 1906, p. 295; 1910, p. 572; Bruner, 1915, p. 272; Karny, 1920, p. 207; Karny 1924, p. 173; 1926b, p. 114; 1926c, p. 275; Ebner, 1927, p. 6; 1928, p. 54; De Jong, 1938 (1939), pp. 14-16; 1945, p. 6; Beier, 1954, p. 53.

Cleandrus (Pseudophyllus) graniger Dammerman, 1929, p. 133.

Eleven new data were added to the list of synonyms and literature.

The newer investigations in the genus by Beier revealed the identity of *Pseudophyllus teter* Walker with *P. fortis* auct. (for synonyms cf. De Jong, 1938 (1939), p. 17 and Beier, 1954, p. 52).

Onomarchus uninotatus (Serville)

To Beier's almost complete list of synonyms and literature of the here-mentioned species (1954, l.c., p. 60), I give some additions:

Pseudophyllus tenebrosus Walker, 1869, 410; Atkinson, 1882, p. 155.

Onomarchus mandarinus Karny, 1924, p. 280; 1926b, p. 115; 1929, p. 192; Ebner, 1927, p. 7; 1934, p. 3; Willemse, 1933, p. 8.

Brunneana Uvarov

Brunnea, Brunner von Wattenwyl, 1895, pp. 10, 44; Kirby, 1906, p. 296; Karny, 1924, p. 181; De Jong, 1938 (1939), p. 28.

Brunneana Uvarov, 1939, p. 458; Beier, 1954, p. 70.

Again the genus *Brunnea* Brunner von Wattenwyl contains only one species, the type species *cincticollis* (Brunner von Wattenwyl, 1895, p. 45, pl. 2 fig. 12), as *Brunnea transversalis* Karny (1924, p. 181) appeared to belong to *Onomarchus cretaceus* (Serv.) (1839, p. 470) (cf. De Jong, 1938, p. 25), and as *Brunnea Vrazi* Bol. (1898, p. 141) ought to be placed into the genus *Despoina* Brunner v. Watt. (1895, pp. 12, 68) as will be shown below. Karny (1926 b, p. 112, pl. 3 fig. 3) redescribed *Brunnea cincticollis* Brunner v. Watt. as *Pseudophyllus pomposus*.

However, this species does not fit in with the characters of *Pseudophyllus*, especially as far as concerns the shape of the pronotum, the colour of the antennae, and the armament of the hind legs (cf. De Jong, 1938, p. 28).

As the generic name is preoccupied by *Brunnea* Dupont, 1834, for a genus of fishes, Uvarov (1939) replaced it by *Brunneana*.

PHYLLOMIMINI

Dr. Beier informed me of the fact that *Aprion virescens* Serv., the type species of *Aprion* Serv., is not a *Phyllomimus* species as I assumed, but is the well-known species *Timanthes lobifolius* (De Haan). So the name *Phyllomimus* should be restored for the genus as interpreted by Brunner von Wattenwyl and Karny, and *Aprion* should be placed into the synonymy of *Timanthes* for reasons that will be explained there. Consequently the tribus should be named Phyllomimini again. In his excellent "Revision der Pseudophyllinen" Beier gives a number of very good keys to genera and species. I admire his work but I cannot agree with him in all details and synonymies.

Mioacris Pictet & Saussure

Mioacris Pictet & Saussure, 1892, p. 7; Karny, 1924, p. 187; Karny, 1925, p. 116; 1927a, p. 275; De Jong, 1938 (1939), p. 31; Beier, 1954, p. 76.

Mioacris longicauda (Burmeister) (fig. 2a, b)

Pseudophyllus longicaudus Burmeister, 1838, p. 698; Walker, 1869, p. 401.
Locusta (Aprion) longicauda De Haan, 1842, p. 207; Karny, 1920, pp. 174, 208.
Chlorotribonia major Brunner von Wattenwyl, 1895, p. 51 ♀, nec ♂.
Mioacris major Kirby, 1906, p. 298.
Promeca longicauda Kirby, 1906, p. 299.
Mioacris longicauda Karny, 1920, pp. 174, 208; 1924, p. 186; 1926b, p. 116; 1927a, p. 7; 1927b, p. 13 (descr. of Burmeister's ♀ type); De Jong 1938 (1939), p. 39, fig. 5 m; 1945, p. 6; Beier, 1954, p. 82, fig. 41.

Amsterdam Museum

Borneo: 1 ♂, Banjermassin, 11-1935, leg. P. J. Pijpers.

In my opinion the present specimen must be identified as *M. longicauda* (Burm.). However, there is rather little information about this species. Burmeister's description is based on one ♀ from Singapore. De Haan mentions 1 ♀ from Padang (Sumatra) and 1 ♂ from "New Holland" but this locality is wrong. Walker only cites Burmeister, and in my own paper I could only record De Haan's specimens. Brunner von Wattenwyl gave more accurate details and measurements of one ♀ from Sumatra, and of one ♂ from Borneo (Kina Balu), but as to the exact relationship he expresses his doubts. Most useful details came from Karny who stated the position of *Chlorotribonia major* as a synonym of *Mioacris longicauda,* and who mentions a number of ♂♂ and ♀♀ from various localities in the Malay Peninsula (1926).

In 1926 Karny described a colour-variation ab. *albosignata* from S-Sumatra: 2♂♂, and a number of ♂ and ♀ larvae. Dammerman found this variety in the Riou-Archipel (1926, p. 314). Till now only the ♀ right tegmen has been figured(De Jong, 1938 (1939), fig. 5 m). In fig. 2a and b I now figure the ♂ abdominal appendages of the specimen from Bandjermassin. The very long styli on the slightly bifurcated stalk are longer and more slender than in any of the closely related species.

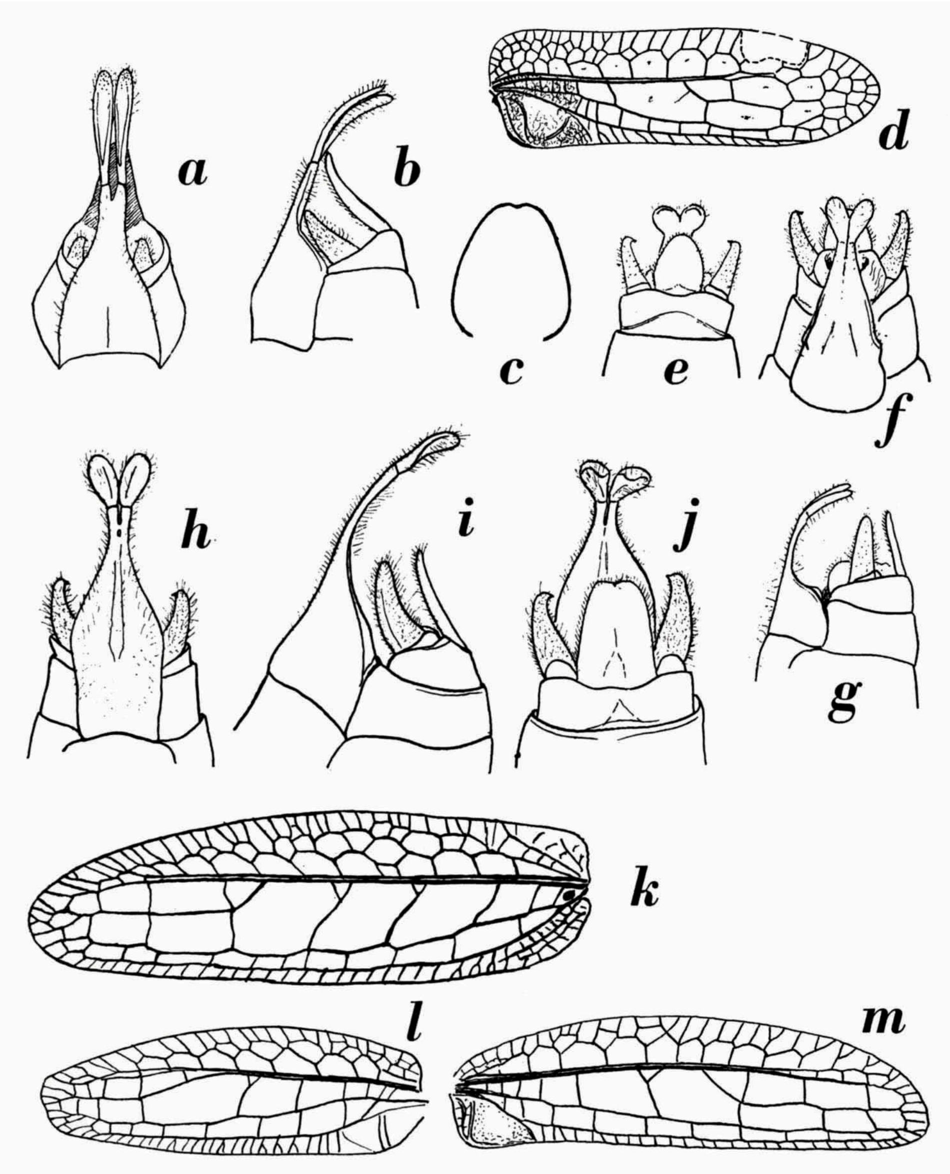

Fig. 2. a-b, *Mioacris longicauda* (Burm.) ♂, abdominal appendages, ventral and lateral view respectively; c, *Cratioma dilatatum* Karny, ♀ subgenital plate; d-g, *Phyllomimus punctiger* Karny, ♂; d, right tegmen; e-g, abdominal appendages, dorsal, ventral and lateral view respectively; h-m, *Phyllomimus detersus* (Walker); h-j, ♂ abdominal appendages, ventral, lateral and dorsal view respectively; k, ♀ left tegmen (type *Microprion philippinensis* Pict. & Sauss., Geneva Mus.); l, ♂ left tegmen (Geneva Mus., det. Karny: *P. detersus* Walk.); m, ♂ right tegmen. d, k, l, and m × 1½, other figures × 5.

Promeca fuscescens (De Haan)

Karny, when reviewing the types in the Halle an der Saale Museum already established the synonymy of *Pseudophyllus Junghuhni* Giebel with *Promeca fuscescens* (De Haan). I only recently saw this paper: Revision der Gryllacriden des Zoologischen Institutes in Halle a.S., sowie einiger Tettigoniiden-Typen von Burmeister und Giebel. Zeitschr. Naturwiss., vol. 88, 1927, pp. 1-14.

Phyllomimus Stål

Phyllomimus Stål, 1873, p. 44; 1874, p. 52; Brunner von Wattenwyl, 1895, p. 53; Hebard, 1922, pp. 188, 196; Karny, 1923, p. 170; 1924, p. 189; 1926b, p. 177; 1931, pp. 5, 52, 55; Chang, 1935, p. 38; Beier, 1954, p. 99.

Microprion Pictet & Saussure, 1892, p. 17; Kirby, 1906, p. 297 (ex parte); Karny, 1923, p. 185; Chang, 1935, p. 39; De Jong, 1938 (1939), p. 29.

Aprion De Jong, 1938 (1939), p. 42 (per errorem).

Phyllomimus detersus (Walker) (fig. 2 h-m)

Pseudophyllus detersus Walker, 1869, p. 46.

Pseudophyllus sinensis Walker, 1869, p. 46.

Phyllomimus granulosus Stål, 1873, p. 48; 1874, p. 69; Brunner von Wattenwyl, 1895, pp. 54, 55; Carl, 1914, p. 555; Karny, 1920, pp. 176, 179; Sjöstedt, 1933, p. 10.

Phyllomimus reticulosus Stål, 1877, p. 45; Brunner von Wattenwyl, 1895, pp. 54, 58; Elera, 1895, p. 210; Kirby, 1906, p. 299; Bruner, 1915, p. 273; Sjöstedt, 1933, p. 10, pl. 7 fig. 2; Beier, 1954, p. 115.

Microprion philippinensis Pictet & Saussure, 1892, p. 18; Bruner, 1915, p. 273.

Microprion elliptifolia Pictet & Saussure, 1892, p. 18, pl. 2 fig. 11; Karny, 1924, p. 185.

Phyllomimus truncatifolia Pictet & Saussure, 1892, p. 19, pl. 2 fig. 10.

Phyllomimus amplipennis Brunner von Wattenwyl, 1895, pp. 54, 56; Kirby, 1906, p. 299; Bruner, 1915, p. 273.

Phyllomimus rufatus Brunner von Wattenwyl, 1895, pp. 54, 56; Bruner, 1915, p. 273.

Phyllomimus detersus Kirby, 1906, p. 299; Bruner, 1915, p. 273; Karny, 1921, p. 611; 1923, p. 170; 1924, p. 189; 1926b, p. 117, fig. 28; 1931, p. 55, figs. 25, 26, 27; Bey Bienko, 1935, p. 403; Beier, 1954, p. 113, fig. 62.

Phillomimus detersus Chang, 1935, p. 38.

Amsterdam Museum

Sumatra: Pulu Raja, near Atjeh, leg. C. F. Kruisinga, 1 ♂.

The species is very scantily represented in the collections in the Netherlands. The only specimen known to me is the above mentioned male specimen in the Amsterdam Museum. This is rather strange as we learn from the publications by Karny and other authors that the species is distributed over rather a wide part of the Indo-malayan area: China (Hongkong), Philippine Islands, Celebes, Moluccas, Java, Sarawak, Singapore and Malay Peninsula. From these localities the presence of the species in Sumatra or the adjoinings islands might be expected.

As only few illustrations of the species have been published I figured the abdominal end of the ♂ from Pulu Raja, (figs. 2 h-j), and also the left tegmen (fig. 2m) as well as that of specimens I studied in the Basel Museum in 1938) (fig. 2k, l). For a photograph of a ♀ specimen I may refer to Sjöstedt (1933, pl. 7 fig. 2, type *Ph. reticulosus* Stål).

The subgenital plate of the ♂ is rather long and slender. The basal part is convex and relatively broad. It soon tapers into a rather long stalk with medial groove and apical incision. The thus formed cylindrical apices bear the somewhat spoon-shaped styli. The cerci are conical, strongly built, slightly curved in two directions. In dorsal view they are curved inwards, and in lateral view they show a distinct upward bend towards their apex. This apex is faintly swollen and is armed with a small thorn which is directed inwards. The supra-anal plate is oblong, notched at the apex, and very faintly incised in the middle. The last dorsal segment is broadly emarginated. The supra-anal plate is slightly hirsute along the borders. The subgenital plate too is sparsely pilose on its ventral surface and along the borders of stalk and styli. The cerci bear stronger hairs, placed more densely and rigidly on the evenly granulated surface.

The tegminal pattern seems to be subject to considerable variation but some general characters are always found: the preradial area takes about one third of the tegminal surface, and the connection between the Sc_2 and the anterior border is formed by a moderate number of veins which are generally triramose, and form a number of cells in this area. In the postradial area the M1 divides the surface into two parts of which the anterior one is largest. Here we find a relatively small number of transverse veins, sometimes bifurcated towards the R, and also the Rs which originates from the radial vein at about $^3/_5$ of its length. In the basal part of the postmedial area we find the tympanal instrument which in the genus is of normal dimensions, it occupies only one sixth of the tegminal length.

The armament of the legs of the ♂ is of the general type in *Phyllomimus*. The very small spines on the ventral margins of the anterior legs and the middle tibiae are concolorous and indistinct. The anterior legs show a long, slightly curved thorn on the dorsal part of the coxa. The middle femora show some 8-10 serrulations on the ventro-anterior ridge. The posterior femora are ventrally armed with 15-17 spines.

Measurements of the ♂ specimen (in mm):

Total length	50	Length tegmina	42
Length body	32	Breadth tegmina	12
Length pronotum	6½	Length wings	38
Breadth pronotum	7	Breadth wings	17
Length anterior femora	7	(antennae damaged)	
Length posterior femora	15½		

Phyllomimus ampullaceus (De Haan)

Locusta (*Aprion*) *ampullaceus* De Haan, 1842, p. 205; Karny, 1920, p. 175.
Phyllomimus ampullaceus Karny, 1924, p. 191; 1927a, p. 7; 1928, p. 2; De Jong 1945, p. 6; Beier, 1954, p. 118, fig. 66.
Aprion ampullaceum De Jong, 1938 (1939), p. 45, fig. 7 a, b.
Morsimus Ampullaceum Kirby, 1910, p. 304.

Mr. J. Lindeman's collection (Rotterdam Museum)

Java: 1 ♂ Soekaboemi.

This ♂ specimen shows no differences from the type ♂ of *ampullaceus*.

Concerning the identity of *Phyllomimus pallidus* Brunner von Wattenwyl I am not altogether sure. So I withdrew it from the synonymy of *P. ampullaceus*. Beier separated the Bornean specimens formerly placed with *ampullaceus* as a separate species, *P. borneensis*. A rather extensive material supports his views.

Phyllomimus punctiger Karny (fig. 2d-g)

Phyllomimus punctiger Karny, 1923, p. 171, fig. 28 (sec. Beier synonymous with *P. pallidus* Brunner von Wattenwyl, and with *P. boden-klossi* Karny. Beier, 1954. p. 112).

Leiden Museum

Nias: 1 ♂ (plesioallotype), 1911, leg. Kleiweg de Zwaan.

In the shape of the tegmina and the abdominal appendages the present specimen differs from all species known to me. In general characters it is a true *Phyllomimus*, and in my opinion it corresponds best with *Phyllomimus punctiger* Karny from Pulu Jarak near Malacca, which species, however, has been described in the female sex only.

As the sexual differences are generally found in the abdominal appendages, and in the tegmina, I shall describe these parts.

The abdominal end (figs. 2 e-g) is shaped as follows: the subgenital plate is very broad in the basal third, laterally curved upwards, and joining the last dorsal segment but one; then it suddenly narrows to half its original breadth, and further tapers slowly towards the apex. The apex is incised over a short distance, and bears the spoon-shaped styli. The supra-anal plate is distinctly oval, almost flat. The here-mentioned abdominal parts bear a faint hirsuteness along their borders. The last tergite is distinctly emarginate in the middle of the posterior margin. The strong conical cerci are straight but for the utmost tip, which is curved inwards and bears a small thorn. The cerci are clothed with a distinct rigid pile.

The basal part of the tegmina (fig. 2d) is broadened by the strongly developed sound-organ, which has about one fifth of the tegminal length.

Sc_1 reaches the anterior border at $^1/_4$ from the base. The veins Sc_2 and R diverge at $^2/_3$ of the tegminal length, Sc_2 reaches the anterior border at $^1/_5$ from the apex, R does so just before the apex. Rs leaves R in the middle of the tegmen at an angle of about 45°, and after the first connection with a transverse vein runs more or less parallel with R into the direction of the apex. However, in consequence of connections with transverse veins, and bifurcations, the Rs vein looks more or less crooked. The here-mentioned transverse veins run between R and Rs, and between Rs and M_1 at irregular intervals, M_1 and M_2 at once diverge at the base of the tegmen. They reach the hind border at $^1/_6$ and $^1/_4$ from the apex, respectively. The Cu veins form the intricate surroundings of the tympanal organ, as well as the strong nervures in it. The anal vein is found near the short basal border of the postradial area of the tegmen. In the centres of a number of cells dark spots are found as shown in fig. 2d.

In the following characters the specimen corresponds with Karny's description of the ♀ *Ph. punctiger*: "Disk of pronotum as in *detersus,* but rounded behind. Lateral lobes considerably longer than high, with obliquely truncate fore angle and bluntly rectangular hind angle; lower margin somewhat ascendent backwards. Fore angle set with some blunt teeth, lower margin without such. Humeral sinus distinct, better developed than in *detersus,* roundly emarginated." and "Tegmina—at base behind the radial vein a very small black dot visible with magnifying-glass only; a similar black dot in the middle of each cell between radial and medial vein, in distal half of tegmen. Mesosternum with slightly emarginate fore margin and obliquely truncate fore angles bearing some well developed tubercles. Metasternum considerably wider than mesosternum; both strongly transverse. Legs as in *detersus,* but hind femora beneath on outer margin with about 20 teeth which are blackish at apex".

As to the last-mentioned character there is a slight difference: in the ♂ specimen 23-25 small thorns are found on the lower outer margin, strongest near the knee and becoming smaller towards the base. Only the stronger of these thorns (more than half of them) are dark-tipped. Furthermore the armament of the legs is as follows: the posterior tibiae bear only 4-6 small crenules on their ribs. The anterior legs show a strong curved horn on the dorsal part of the coxa, and some 2 or 3 very faint crenulations on the ventral ribs of the femora. The middle femora only bear some 3-5 small thorns ventrally near the knee, and 3-4 insignificant ones are found on the ribs of the tibiae.

The general colour of the animal seems to have been some shade of green, as nearly all *Phyllomimus* are green. In the present specimen all colour has gone, probably in consequence of preservation in alcohol.

From the preceding description it appears that I am strongly inclined to consider the present male as belonging to *Pr. punctiger* Karny.

Measurements of the ♂ (in mm):

total length	42	length pronotum	6½
length of body	31	breadth pronotum	6
length tegmina	33	length anterior femora	6½
breadth tegmina	9½	length posterior femora	13
length wings	27	length antennae	48
breadth wings	9		

Tomias Karsch

Tomias Karsch, 1890, p. 272; 1891, p. 89; Brunner v. Watt., 1895, p. 62; Bolívar, I., 1906, p. 357; Kirby, 1906, p. 301; Beier, 1954, p. 136.
Semiophygas Karsch, 1896, p. 349; Kirby, 1906, p. 301; Beier, 1954, p. 134.

Dr Beier informed me of this synonymy (Aug. 1960).

Tomias hadrus (Karsch)

Semiophygas hadrus Karsch, 1896, p. 350; Kirby, 1906, p. 301; Beier, 1954, p. 135.
Semiophygas arescus Griffini, 1906, p. 373; 1908, p. 42.

Mr. Willemse's collection

Cameroon: 3 ♀♀, Victoria.

The species shows a superficial resemblance to *Phyllomimus ampullaceus* (De Haan), but it differs in the shape of the meso- and metasternum, the rim-shaped conchs of the auditory organs at the anterior legs, and the truncate tegmina.

Timanthes Stål

Aprion Serville (nec Cuvier & Valenciennes), 1839, p. 471; De Haan (partim), 1842, p. 204; Kirby (partim), 1906, p. 302.
Timanthes Stål, 1877, p. 45; Elera, 1895, p. 210; Kirby, 1906, p. 302; Karny, 1923, p. 175; 1924, p. 194; De Jong, 1938 (1939), p. 52; Henry, 1940, p. 322; Beier, 1954, p. 149.
Anaprion Uvarov, 1939, p. 458.

After my 1938 paper was published Dr. Beier informed me that *Aprion virescens* Serville (1839), the type species of *Aprion* Serv., is synonymous with *Timanthes lobifolia* (De Haan) = *Locusta (Aprion) lobifolia* De Haan (1842).

According to the International Rules of Zoological Nomenclature the name *Aprion virescens* Serv. has priority. However, both generic and specific names are preoccupied, as Cuvier & Valenciennes (1830, Histoire naturelle des Poissons, vol. 6, pp. 543, 544) already named a fish *Aprion virescens*. So the specific name of the insect remains *lobifolia* De Haan. On account of the priority of *Aprion* Cuvier & Valenciennes, Uvarov (1939) created a new name *Anaprion* for the orthopterous genus, but as *lobifolia* De Haan is congeneric with *signatipennis* Stål, the type species of *Timanthes* Stål (1877), this last-mentioned name is available for the genus, and *Anaprion* should be placed into the synonymy of *Timanthes* Stål. Kirby (1906) erroneously identified *Aprion* Serv. with *Tympanoptera* Brunner von Wattenwyl (nec Pictet & Saussure).

Timanthes lobifolius (De Haan)

Aprion virescens Serville (nec Cuvier & Valenciennes), 1838, p. 52; Kirby, 1906, p. 302.
Locusta (Aprion) lobifolia De Haan, 1842, p. 205, pl. 18 figs. 11, 12; Karny, 1920, pp. 176, 208.
Aprion lobifolia Walker, 1870, p. 425.
Timanthes lobifolius Brunner von Wattenwyl, 1895, p. 65, pl. 3 fig. 24; Kirby, 1906, p. 302; Rehn, 1909, pp. 196, 198; Bruner, 1915, p. 274; Karny, 1920, pp. 176, 208; 1922, p. 204; 1923, p. 172; 1924, p. 195; De Jong, 1938 (1939), p. 52; 1954, p. 7.
Timanthes virescens Beier, 1954, p. 151, fig. 86.

Mr. J. Lindeman's Collection (Rotterdam Museum)

Java: 1 ♂ and 1 ♀, W-Java, Soekaboemi, IV-1920.

Timanthes signatipennis Stål (figs. 3 a, b and 9 g, h)

Timanthes signatipennis Stål, 1877, p. 45; Elera, 1895, p. 210; Kirby, 1906, p. 302; Bruner, 1915, p. 274; Sjöstedt, 1933, p. 10, pl. 7 fig. 4; Henry, 1940, p. 323, fig. 1; Beier, 1954, p. 154.

Stockholm Museum

Philippines: 1 ♂ (holotype).

Stål's description runs as follows:

"Timanthes N.G.

Genus insigne, *Phyllomimo* proximum, a reliquis ad typum *Pseudophylli* referendis capite thoraceque depressioribus articulo primo antennarum longiore, magno, elytris reticulo subtiliore et densiore destitutis, posterius levissime angustatis, apice obtuse rotundatis, alis parviusculis, pone medium latissimis, divergens.

1. *T. signatipennis.* — Pallide sordide flavescens; granulis remotis pronoti elytrisque subcitrinis, horum maculis parvis ad marginem costalem et apicalem nec non signaturis tribus discoidalibus, his irregulariter annuliformibus, subsanguineofuscis. ♂. Long. cum elytr. 30 mill."

As this description is rather short, and not sufficient to compare the species with allied species, I feel justified to give a more elaborate description of the holotype. Through the benevolence of the director of the Stockholm Museum I could study the specimen, and I want to express my thanks at this place.

General colour light green. Tegmina with brown-bordered erosion-patches in cells between R, Rs, M_1 and M_2, and a number of dark brown spots (carmin-tinged) along the anterior margin and the apex up to the end of M_2. Prothorax greenish, with yellow tubercles on disk, and a row of brownish granules along ventral and anterior borders of lateral parts. Legs yellowish green, with the following parts brownish: anterior knees (dorsal apex of femora, and genicular lobes), conchi of auditory organs, and feet,

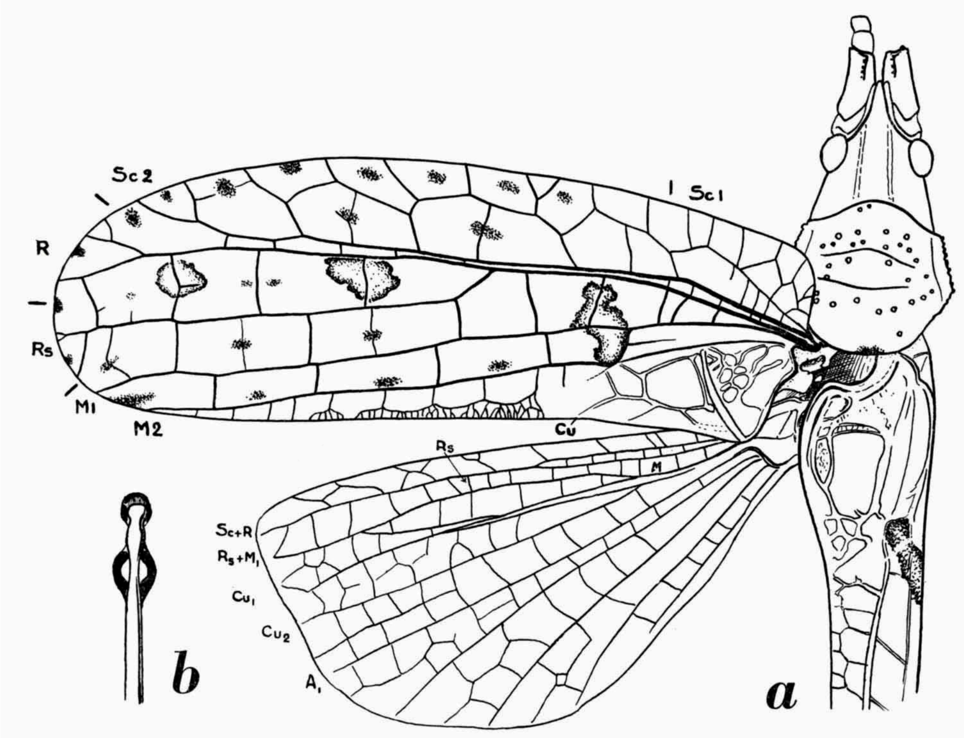

Fig. 3. a-b, *Timanthes signatipennis* Stål, ♂ holotype; a, dorsal view of head, prothorax, left tegmen and left wing; b, left anterior tibia, frontal view of proximal part and knee-cap. × 4.

middle knees and tarsi, and posterior feet. Wings hyaline with yellowish green veins.

Tegmina long ovate, three times as long as broad, greatest width in apical half. Apex evenly rounded. Anterior border evenly rounded. Posterior border nearly straight but rounded in apical third. Length of the stridulatory organ less than one third of the tegminal length. Sc_1 ending in anterior margin at one fifth from the tegminal base. Sc_2 ending just before apical curve. R and Rs terminating near apex. Preradial area about $^1/_3$ of total surface. Rs branching off at middle of R at angle of 45°, soon turning towards the apex, more or less parallel with R. M_1 and M_2 more or less parallel with Rs, but areas between the veins becoming narrower from R to posterior margin. Cubital and anal veins restricted to stridulation organ. Wings slightly reduced, shorter than tegmina, but broader, broadest in the middle; breadth about $^2/_3$ of length.

Head conical, prolonged between antennal scrobes; these distinctly bordered with brown. Processus with dorsal longitudinal groove. Eyes globular. Basal joints of antennae more or less cylindrical with some granules on the small elevated dorsal part, which is of light brown colour. Right antenna is missing from basal joint, left antenna is missing from 3rd joint. 2nd joint of left antenna has a tubercle on its surface. Frons rather long, colour not different from rest of head or body.

Anterior legs rather long and slender, dorsally smooth, femora bearing only one indistinct spine ventrally in apical half, tibiae with 4 small spines on each of the ventral edges. Auditory organ distinctly shell-shaped, symmetrical on each leg (fig. 3b).

Middle pair of legs dorsally smooth, femora bearing 4-5 (left and right respectively) smal spines on ventro-external edge, tibiae with 6-6 small thorns on ventro-internal edge, and 4-5 similar ones on ventro-external edge. Posterior legs, only left one present in type specimen. Femur: dorsally smooth, ventrally with 4 spines in apical third. Tibia: dorsally 1 spine on external rib, none on internal rib; ventrally 7 spines on external, and 4 on internal rib. Genicular lobes of all legs rounded. Anterior coxae with a long, thin, slightly curved spine, pointing forwards.

Prothorax more or less cylindrical, with two distinct transverse grooves, the posterior one in the middle. The disk bears a number of scattered yellow tubercles. Posterior border almost semi-circularly rounded, anterior border somewhat prolonged over the occiput. Lateral lobes rather short, bordered with reddish brown, and showing a number of dark brown granules, anterior angle blunt, posterior angle obliquely cut off towards posterior margin and humeral angle.

Prosternum with two indistinct teeth near anterior coxae. Mesosternum transverse, one and a half times as broad as long, almost rectangular, with an elevated border but without crenulations. Metasternum as broad as mesosternum, but shorter, the lateral borders slightly tapering posteriorly.

Abdomen with distinct dorsal crest (roof-shaped median line). Supra-anal plate rectangular, the sides only faintly tapering towards the notched posterior margin. Cerci rather short, broad at the base, curved interiorly at the top, which ends into a sharp tooth. Subgenital plate rather broad at the base, tapering strongly in the distal half, slightly incised at the top, the two apices each bearing a long foliaceous stylus.

Measurements of the ♂ holotype (in mm):

Total length	31	length posterior femora	14.5
length body + head	21.5	length pronotum	4.8
length elytra	23.2	breadth pronotum	5
length wings	18	breadth elytra	8
length anterior femora	8.3	breadth wings	9

Tympanophyllum Krauss

Locusta (*Aprion*) de Haan (partim), 1842, pp. 204, 205.
Tympanoptera (nec Pictet & Saussure) Brunner von Wattenwyl, 1895, pp. 11, 66; Hebard, 1922, p. 188.
Aprion Kirby (partim), 1906, p. 302; Hebard, 1922, p. 188.
Tympanophyllum Krauss, 1903, p. 764; Kirby, 1910, p. 572; Karny, 1924, p. 195; 1926a, p. 302; 1926b, p. 120; De Jong, 1938 (1939), p. 55; Beier, 1954, p. 157.

Tympanophyllum arcufolium (De Haan)

Locusta (*Aprion*) *arcufolia* De Haan, 1842, p. 205; Karny, 1920, pp. 177, 208.
Aprion arcufolia Walker, 1870, p. 425; Kirby, 1906, p. 302.
Tympanoptera extraordinaria Brunner von Wattenwyl, 1895, p. 67, pl. 3 fig. 26a; Rehn, 1909, p. 200; Karny, 1920, pp. 177, 178; Handlirsch, 1925, p. 452, fig. 364.
Aprion Extraordinaria Kirby, 1906, p. 302.
Tympanophyllum extraordinaria Kirby, 1910, p. 572.
Tympanophyllum arcufolium De Jong, 1938 (1939), p. 57, fig. 9a; 1945, p. 7; Beier, 1954, p. 161.
Tympanophyllum extraordinarium De Jong, 1938 (1939), p. 58.

Of the species *T. arcufolium* (De Haan) only ♀♀ were known, and *T. extraordinarium* (Brunner von Wattenwyl) was represented by ♂♂ only, without regarding a very incomplete description of one ♀ by Rehn in 1909. According to Dr. Beier these forms belong together, and I fully agree with him.

Gonyatopus Brunner von Wattenwyl

Gonyatopus Brunner von Wattenwyl, 1895, p. 62; Kirby, 1906, p. 301; Karny, 1924, p. 194; De Jong, 1938 (1939), p. 52; Beier, 1954, p. 165.

Gonyatopus pilosus Brunner von Wattenwyl

Gonyatopus pilosus Brunner von Wattenwyl, 1895, p. 63, pl. 3 fig. 23; Kirby, 1906, p. 301; Karny, 1924, p. 194; De Jong, 1938 (1939), p. 52, fig. 8b, i, j; 1945, p. 6; Beier, 1954, p. 167.

Leiden Museum

Borneo: 1 ♀ Balikpapan, leg. Ir. M. Hardonk.

Wageningen collection

Java: 1 ♀ and 1 ♂, Blawan, leg. H. Lucht, 25 VI 1935 and 21 IV 1939 respectively.
Borneo: 1 ♀, East Borneo, Sambodja.

Mr Hardonk presented a ♀ specimen of this species to the Leiden Museum. He caught it himself at Balikpapan. Both this ♀ specimen, and the one from Sambodja in the Wageningen collection show slightly shorter tegmina than the ♀♀ from Java.

The two ♀ specimens in the Wageningen collection show distinct dark spots along the R at the base of the basal transverse veins, at the bifurcation of M_1 M_2, and a larger somewhat kidney-shaped dark spot at the tegminal base behind the bifurcation of M_1 in the Cu-An area.

Despoina Brunner von Wattenwyl

Despoina Brunner von Wattenwyl, 1895, pp. 12, 68; Karny, 1924, p. 195; 1926b, p. 120; De Jong, 1938 (1939), p. 59; Beier, 1954, p. 175.
Despoena Kirby, 1906, p. 303.
Hapalophyllum Hebard, 1922, p. 193; Beier, 1954, p. 173.

Dr. Beier (Vienna) informed me of the synonymy: *Despoina submutica* Karny = *Brunnea vrazi* Bolívar, I. For the last-mentioned species Hebard (1922, p. 194) erected the genus *Hapalophyllum*. However, I cannot agree with Beier as to the place of the species near *Brunnea* in the tribus of Pseudophyllini as *Hapalophyllum vrazi* (Bol.). In my opinion the species should without any doubt be retained in the genus *Despoina* where Karny placed it, according to the shape of the head, the elytral venal pattern, the shape of the conchi of the anterior tibiae, and the sternum. Especially these last-mentioned characters at once determine the place of the species in the tribus of Phyllomimini, and not in the Pseudophyllini. The name *Hapalophyllum* should be placed into the synonymy of *Despoina*.

Despoina vrazi (I. Bolívar)

Brunnea Vrazi Bolívar, I., 1898, p. 141; Karny, 1924, pp. 181, 182.
Brunnea Vraxi Kirby, 1906, p. 296.
Hapalophyllum vrazi Hebard, 1922, p. 194; Beier, 1954, p. 174, fig. 100.
Despoina submutica Karny, 1929, p. 193, fig. 8; De Jong, 1938 (1939), p. 60.

As remarked above the shape of the head, the shape of the conchi of the auditory organs on the anterior femora, the sternum and the tegminal venal pattern all justify the insertion of this species into the genus *Despoina*. It differs distinctly from the two other species in the genus, in which the pronotum is dentate or spinose, while in *vrazi* it bears only dispersed small granules.

Tympanoptera Pictet & Saussure

Tympanoptera Pictet & Saussure, 1892, pp. 8, 19; Kirby, 1906, p. 303; Bruner, 1915, p. 274; Hebard, 1922, p. 188; Karny, 1924, p. 196; 1926b, p. 170; De Jong, 1938 (1939), p. 61; Beier, 1954, p. 180.
Oxyscelus Brunner von Wattenwyl, 1895, pp. 12, 70; Kirby, 1906, p. 203.

As Karny did not know all the ♂♂ and ♀♀ of the species he dealt with in his key to the species of the genus *Tympanoptera,* this key has got inadequate now.

As pointed out below *T. uvarovii* Karny ♂ should be considered the ♂ of *T. angustipennis* Brunner von Wattenwyl, which species was described after the ♀ only.

The description of the ♀ of *T. annulata* Karny (plesioallotype) will be found below. The ♂ of *T. angustissima* Karny has been described in my previous paper on the subject (1938, pp. 62-64, fig. 10 b-d).

Karny (1926b, p. 170, fig. 16) elaborately described the ♂ of *T. grioleti* Pictet & Saussure (1892, p. 20, figs. 15, 15a), a species of which only the ♀ has been known for a long time, though Pictet & Saussure figured the abdominal end of a ♂ (l.c., figs. 15b and 15c) which in al probability belongs to *T. grioleti* (vide Karny, 1926, b, pp. 170-172).

Tympanoptera brunneri n. nov.

Beier (1954, p. 181) gives a key to the species, including 6 new species and 2 new subspecies, which is very useful. However, I cannot agree with him calling one species "*Tympanoptera rhodei* nov. spec" (♀) as *Aprion Rhodei* Brunner von Wattenwyl already has a specific status as *Acauloplacella rhodei* (♂), I propose a new name *T. brunneri*.

Tympanoptera annulata Karny (fig. 4)

Tympanoptera annulata Karny, 1924, pp. 198, 201; Willemse, 1933, p. 8; De Jong, 1938 (1939), p. 64; Beier, 1954, p. 186.

Leiden Museum

New Guinea: Southern New Guinea (Exploration '07), 1 ♂ (holotype).

Amsterdam Museum

New Guinea: Southern New Guinea, Exp. Versteeg 1912/13, 10 IX 1912, 1 ♀ (plesio-allotype).

Willemse (1933, p. 8) only mentions 1 ♂ and 1♀ from Moemi (= Momi), New Guinea, 5 III 1929, but no special details concerning the ♀ of this species are given by him. I therefore made a description of the ♀, with some additional remarks on the ♂.

The ♀ of *T. annulata* Karny is the largest *Tympanoptera* known to me. It is about $1^1/_2$ times as long as the ♂, and $1^1/_4$ times as long as the ♀ of *T. angustissima* Brunner v. Watt.

The colour of the ♀ specimen before me is yellowish brown with a faint greenish tinge at the tegminal base and on the head. In the basal half of the tegmina the veins are light brown, towards the apex they are more yellowish.

The legs are for the greater part yellowish or yellowish brown. The femora of the posterior legs show a darker, more reddish brown colour. As Karny suggested when describing the ♂ holotype, which is pale yellowish white, it is rather probable that the living animal was light green. In their basal half the elytra (fig. 4 a, b) show a number of dark spots in the centres of the cells, the greater part near the hind margin. There is one dark spot at the base between the costal and the subcostal veins, both in ♂ an ♀. In the ♀ type no spots occur between the radial vein and the medial vein. In the ♂ two spots are present in this region. In the ♀ the area between the branches of the medial vein show 3 spots in the right tegmen but 5 in the left, the most

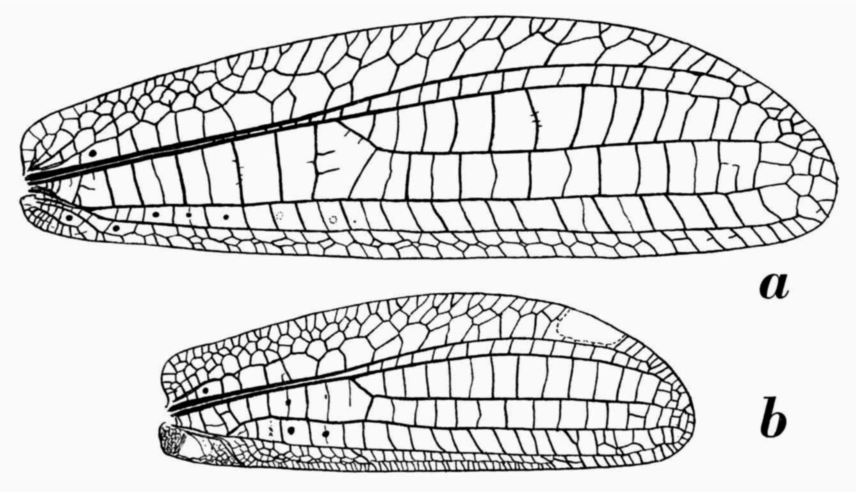

Fig. 4. a-b, *Tympanoptera annulata* Karny; a, right tegmen of ♀ (plesioallotype); b. right tegmen of ♂ (holotype). × 1½.

apical of which lies about as far from the base as the origin of the radial branch vein. The ♂ holotype possesses two spots only in this region. Further, in the ♀, one spot is found between the medial and the cubital veins, and one between this last-mentioned vein and the anal vein. Both these spots are situated near the tegminal base. No spots are found in the ♂ in these regions.

The elytra (fig. 4a) of the ♀ are slightly more than 3 times as long as broad, long ovate, rounded at the top. The anterior margin is only faintly curved in the basal two thirds, the apical third is evenly curved. The posterior margin is nearly straight as far as about one sixth of the length from the top, then strongly curved. The subcostal and radial veins run together for about $^1/_3$ of their length, then diverge slightly and run almost parallel to end in the anterior margin far before the apex. The radial branch vein is emitted at

$^2/_5$ of the length of the radial vein. It leaves at an acute angle of about 50°, then it forms an obtuse angle and runs almost parallel with the radial vein. It ends close to the top. The branches of the medial vein run nearly parallel with each other, with the radial branch vein, and with the posterior tegminal margin. The cubital vein ends in the posterior tegminal margin at about $^3/_4$ of the length.

In the preradial area one cell at the base between the costal and the subcostal veins bears a distinct dark brown spot. The following cells along the subcostal vein are alternately smaller and larger as far as slightly beyond the middle. In the ♂ specimen these alternating smaller and larger cells continue as far as three quarters of the length.

In the figure of the holotype (Karny 1924, fig. 80) the cells at the base of the apical quarter of the preradial area are drawn very regularly in a way I never met in *Tympanoptera*. Exactly this region appears to be damaged in the holotype. So in all probability it was already damaged when figured in Buitenzorg. Karny already mentioned (l.c. p. 199) that the transverse veins originating from the radial branch vein were drawn in too large a number. I here give a more correct figure of the ♂ right tegmen (fig. 4b) in which the missing part is indicated.

In ♀ and ♂ the number of transverse veins in the various areas of the postradial part of the tegmina is almost equal. Between the radial vein and the radial branch vein 13-14 transverse veins are found, 14-15 between the radial branch vein and the anterior branch of the medial vein. These figures, however, are not fixed, as a number of the transverse veins originally are tertiary veins which subdivide the cells. They are thinner and often curved, and in a direction different from that of the normal transverse veins. Especially in the area between the branches of the medial vein this is obvious. The orignal number of cells is 15 to 17. The number of transverse veins, the thin ones included, however, runs from 23 to 28. These numbers are taken from the left and right tegmina of ♂ and ♀.

The wings of the ♀ are slightly shorter than the tegmina, faintly coloured at the top.

The head is smooth, rounded, but prolonged between the antennae. The top of this fastigium verticis is rounded, its dorsal surface is slightly concave, not grooved. The eyes are globular, prominent, light brown. In the middle of the front, below the fastigium verticis, the antennal scrobes touch over about their whole length. The anterior borders protrude as a conchiform tubercle. The basal antennal joints are irregularly cylindrical and show a small thorn at the apical internal margin. The antennae are long and slender. As a whole they show a great number of dark rings which cover a varying number of joints, their general colour, however, is light yellowish. The colour of the basal part of the antennae of the type ♀ is as follows: the basal and second joints are yellowish, then follows one black joint, two yellow, three black, etc., in a rather irregular succession.

The prothorax is almost as long as broad. It shows two distinct transverse grooves, the anterior of which is situated at one third of the length, the posterior in the middle. On the lateral lobes the transverse grooves have a short longitudinal connection. On the disk of the pronotum as well as on its border a rather small number of small granules are found. The ventral borders of the lateral lobes are distinctly crenulated. Their anterior corners bear some thorn-like crenules (in ♀ as wel as in ♂). The posterior margins of the lateral lobes and of the disk are almost smooth.

The prosternum bears no distinct ventral spines. The mesosternum is almost quadratic. The fore margin is straight, the fore angles are rounded. The lateral borders are slightly convex. The hind border is straight. At the base the metasternum is broader than it is long. It tapers towards the caudal margin, which is about half as long as the anterior one.

The ♀ subgenital plate is heart-shaped, incised at the top. The ovipositor is relatively long, nearly one third of the total length. It is about 6 times as long as broad. The dorsal edge is straight, the ventral edge is evenly curved towards the top. The supra-anal plate is long ovate, about $1^1/_2$ times as long as broad, faintly incised at the top. The cerci are rather thin, faintly curved and are ending into small spines.

Measurements in mm:	♀	♂
Total length (without antennae)	83	53,5
Length body (♀ incl. ovipositor, ♂ incl. styli)	63	30
Length body (excl. these parts, measured dors.)	35	25,5
Length prothorax	8,5	6
Breadth prothorax	8	6.5
Length elytra	72,5	46
Breadth elytra	20	15
Length alae	65	43
Length antennae (♀ : what is left)	86	94
Length anterior femora	10,5	9
Length anterior tibiae	11,5	10
Length middle femora	12	8,5
Length middle tibiae	11	9
Length posterior femora	23	17,5
Length posterior tibiae	22	18
Length ovipositor (measured ventrally)	28	—
Length styli	—	3,4

Tympanoptera angustipennis (Brunner von Wattenwyl)

Oxyscelus angustipennis Brunner von Wattenwyl, 1895, p. 71.
Tympanoptera angustipennis Kirby, 1906, p. 303; Karny, 1924, p. 196; De Jong, 1938 (1939), p. 61, fig. 10a; Beier, 1954, p. 190.
Tympanoptera uvarovii Karny, 1924, pp. 196, 200; 1926b, p. 170, fig. 16; Willemse, 1933, p. 8; De Jong, 1938 (1939), p. 64, fig. 10e; Beier 1954, p. 187, fig. 106.

Leiden Museum

New Guinea: Hoesin Bivak, III and IV 1910, 1 ♂ (holotype *T. uvarovii* Karny); Between "Modderlust" and Karwan, 18 V 1910, leg. P. N. van Kampen, 1 ♀.

Mr. Willemse's collection

New Guinea: Sakoemi, leg. Prince Leopold, 1 ♀.

From the comparison of the specimens mentioned above with those of the other species of *Tympanoptera*, especially *T. angustissima* Karny and *T. annulata* Karny of which the Leiden Museum possesses the holotypes, I conclude that *T. uvarovii* Karny should be considered the ♂ of *T. angustipennis* Br. v. W., and that Mr. Willemse (1933) was right when he considered 1 ♂ and 1 ♀ to belong to the same species which, however, he called *T. uvarovii*. I had the opportunity to see the ♀ in his collection, which undoubtedly belongs to *angustipennis* (cf. De Jong, 1938, p. 64).

When comparing the tegminal pattern of the two specimens in the Leiden Museum (cf. De Jong, 1938, figs. 10 a and e) the striking resemblance of many details is obvious, e.g., the place where the radial branch veins takes its origin, the number of transverse veins between the radial vein, the radial branch vein, and the anterior branch of the medial vein (about 9 in each area, slightly varying (8-10) according to the length of the tegmina which are relatively shorter in the ♂). Along the subcostal vein the cells are not alternately small and large as in *annulata* Karny, but of about equal size and shape, slightly smaller towards the apex. The head and pronotum in both specimens do not show any essential difference. The head is somewhat elongate, the vertex prolonged, slightly dilated at the base between the antennal scrobes, faintly grooved dorsally and not protruding beyond the antennal scrobes. In the ♂ the dorsal surface of the head is smooth, in the ♀ there is a faint but distinct median groove. The antennal basal joint (first joint) is somewhat inflated and of an almost rectangular shape, with a small thorn on the dorso-external apical angle. The rest of the antennae is of normal shape, slender, almost filiform.

The pronotum is nearly smooth but for a number of dispersed blunt granules which are closest in the anterior half and are more isolated towards the caudal part of the pronotum. The anterior and the posterior margins both are broadly rounded. The posterior margin is smooth, the anterior bears some granules. On the disk two transverse grooves are found, of which the posterior is situated in the middle.

The sternum in both specimens is of exactly the same shape.

The mesosternum is almost quadratic, the metasternum is longer than broad, its sides converge caudally.

The legs are slender with very small spines along the ventral ribs of the femora and tibiae. The posterior femora only possess some more strongly developed spines ventrally near the apex.

Measurements of the specimens in the Leiden Museum (in mm):

	♀	♂ (holotype *T. uvarovii*)
Total length	55	44
Length pronotum	6	5,5
Breadth pronotum	6	4,5
Length elytra	49	36
Breadth elytra	6	4,5
Length alae	46	33
Breath alae	19	16
Length anterior femora	9	7,5
Length posterior femora	19	14
Length ovipositor	19	—
Length antennae	75	65

Morsimus Stål

Morsimus Stål, 1877, p. 44; Kirby, 1906, p. 304; Karny, 1924, pp. 201, 202; De Jong 1938 (1939), p. 66; Beier, 1954, p. 192.

Aprion (nec Serville) Pictet & Saussure, 1892, pp. 9, 20, 26.

Acanthoprion Pictet & Saussure, 1892, pp. 12, 26.

When studying the literature of *Morsimus* and the closely related genera it appears that, except in Kirby's catalogue, and in Sjöstedt's list of types in the Stockholm Museum, the genotype *M. areatus* Stål is mentioned only very few times. When I saw Sjöstedt's figure (1933. Ark Zool., vol. 25 A (13), pl. 7 fig. 1) I wondered whether this species might be synonymous with some other species known to me from the adjacent countries.

From Sjöstedt's figure I first supposed that *Morsimus albomarginatus* Hebard (1922) or *Zatricaprion reticulatus* Karny (1923) might yield the solution, but there are some points in the original description which exclude both species at once.

The original diagnoses of the genus and the genotype run as follow:

"Morsimus N.G.

Onomarcho proximum genus, pronoto carina longitudinali instructo, posterius minus producto et multo obtusiore, sulco posteriore fere in medio pronoti posito, obis lateralibus extrorsum multo minus angustatis, venis ulnaribus prope basin in unam conjunctis prosternoque bispinose divergens.

1. *M. areatus.* — Pallide olivaceo-flavescens; pronoto granulato; venis transversis areae discoidalis elytrorum in series transversas continuas dispositis, posterius anguste carneo-marginatis. ♀. Long. cum elytr. 58 mill."

This diagnosis of *M. areatus* shows a great similarity to *Z. reticulatus* Karny but the diagnosis of *Morsimus* contains two distinct characters which in my opinion exclude already any close relationship, viz., the median carina on the prothorax, and, especially, the distinct spines on the prosternum.

In 1947 I could study the type specimen of *Morsimus areatus* and this investigation revealed many details which will be useful for further study of the group of allied genera, which were united in *Morsimus* by various authors.

Brunner von Wattenwyl (1895) mentions the genus *Aprion* with *Morsimus* as a synonym. In the last-mentioned genus he unites a number of species which show among each other some superficial resemblance: size, more or less distinct crest on disk of thorax, shape of tegmina. However, his generic diagnosis though rather elaborate loses its value as it excludes the genotype of *Morsimus* where it runs: "Prosternum muticum".

As was mentioned before (p. 15) the generic name *Aprion* is already preoccupied, as well as *Aprion virescens* Serv. which for a long time had been a somewhat mythical species, for no one knew exactly what Serville meant by it, until it was discovered by Dr. Beier to be *Timanthes lobifolia* (De Haan). Krauss (1903, p. 764) created the name *Heteraprium* for the species in the genus *Aprion* auct. nec Serville: "Da nach Brunner die typische Art (*virescens* Serv.) des von Serville 1839 aufgestellten Genus *Aprion* nicht in das von Haan und Brunner unter dem alten Namen definirte Genus gehört [3]), so bezeichne ich letzteres mit dem neuen Namen *Heteraprium*. Ob das von Stål 1878 aufgestellte Genus *Morsimus* (typische Art: *areatus* Stål von den Philippinen) mit *Heteraprium* zusammenfällt, ist fraglich und bedarf noch näherer Untersuchung." As *Aprion virescens* Serv. is *Locusta (Aprion) lobifolia* De Haan = *Timanthes lobifolia* (De Haan), Krauss is not altogether right in giving the name *Heteraprium* for the species placed into *Aprion* by de Haan and Brunner von Wattenwyl. In my opinion he only saw Brunner's paper which contains a remarkable note concerning the genus "*Aprion* De Haan", (l.c. p. 72) viz.: "Der Name

3) As is shown below Krauss's idea concerning *A. virescens* Serv. is based on a wrong statement by Brunner. So he isolates this species on other grounds than Beier does.

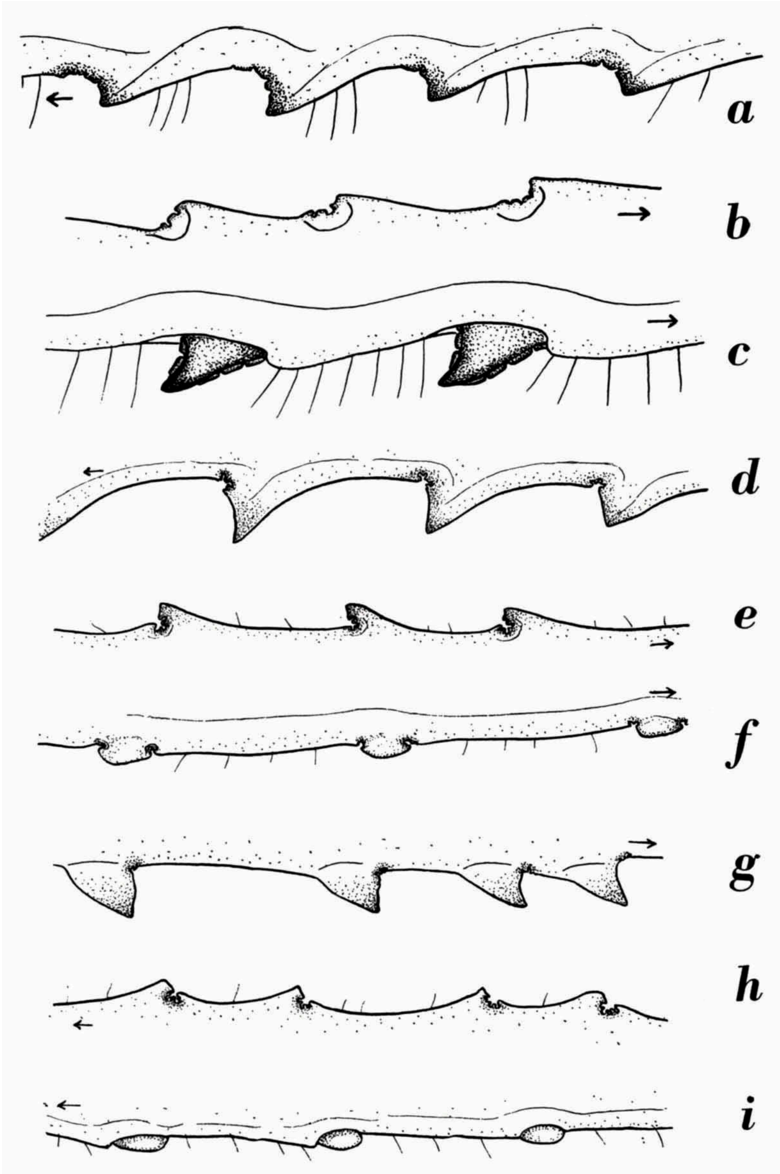

Fig. 5. a-c, *Morsimus areatus* Stål, ♀ holotype; d-f, *Papuaprium immunis* (Brunner v. Watt.), ♀ (paratype of *Acauloplax regularis* De Jong); g-i, *Heteraprium inversus* (Brunner v. Watt.), ♀. a, d, g, ventral margin of posterior femur, near apex; b, e, h, dorsal margin of posterior tibia, below knee; c, f, i, ventral margin of posterior tibia, below knee. × 20.

stammt von S e r v i l l e. Allein die beiden von diesem Autor angeführten Species gehören nicht hieher. D e H a a n beschreibt einige hieher gehörende Species unter diesem Namen. P i c t e t und S a u s s u r e haben das Genus ungefähr so definirt wie hier."

According to the modern rules of nomenclature this note represents perfect nonsense, as Brunner says in other words that the genotype does not belong to the genus. According to Krauss's statement the name *Heteraprium* might be used for *Aprion* Brunner v. Watt. but if *Morsimus areatus,* which is not found in Brunner's Monograph, belongs to the same group of species, the name *Morsimus* is available. On closer investigation the species united as *Aprion* by Brunner can be divided into some distinct groups which I separate as distinct genera. The tegminal pattern, together with the armament of the posterior legs, and the shape of the pronotum generally give sufficient details to identify genera and species.

For the details of the genotype of *Morsimus* I may refer to the new description of the holotype, which I give below (p. 32). I depicted the details of the legs of this and closely related species (figs. 5, 6 and 8) [4]), and these already furnish data for the interrelation of the species. In most of the species the ventral dentition of the posterior femora is very similar, but the ventral spines of the posterior tibiae show distinct differences. In *M. areatus* (fig. 5c) they are stout protruding triangular thorns, the edges of which are interrupted several times.

Closest related in this respect is *Zatricaprion reticulatus* Karny (figs. 6 i, 8 f, i, l and r) in which the compound spinulae lie more or less within the elevated rim of the tibiae, only the outer edge being interrupted in a similar way as in *M. areatus.* A very aberrant type of spinulae is found in *Heteraprium brunneri* Krauss (fig. 5 i): small and blunt, but they constitute separate structures. In *Locusta oleifolius* F (fig. 6 f), and *Aprion obliquevenosus* Brunner von Wattenwyl (fig. 6 c) the compound spinulae are still part of the elevated rim of the tibiae. In this respect *Aprion immunis* Brunner von Wattenwyl (fig. 5 f) is intermediate between *A. oleifolius* and *H. brunneri.*

The character of the crested, distinctly roof-shaped pronotum is found in *M. areatus, L. oleifolius, A. obliquevenosus, A. immunis, H. brunneri,* and a number of other species, grouped under *Aprion* by Brunner von Wattenwyl. In *Zatricaprion reticulatus* only in some specimens a slightly elevated median line is at most visible, but no sharp ridge or row of crenules, and the pronotum is not roof-shaped.

4) In these figures the small arrows point towards the knee.

The tegminal pattern as an indication concerning the interrelationship of the species shows some remarkable details, which form an easy help to classify the species. I distinguish three groups:

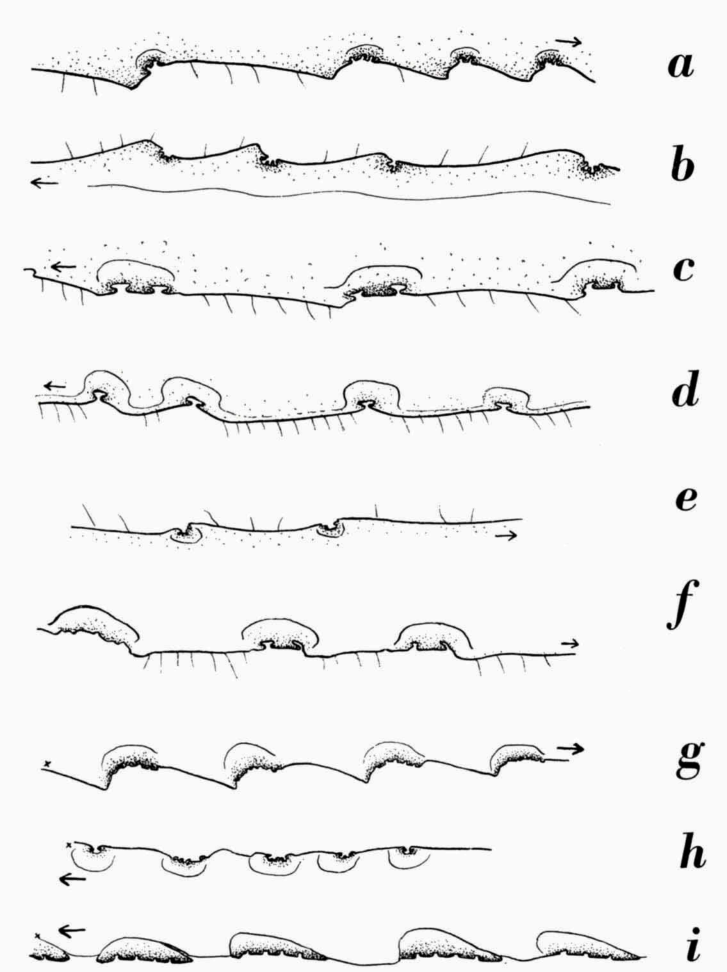

Fig. 6. a-c, *Paramorsimus obliquevenosus* (Brunner v. Watt.), ♀; d-f, *Paramorsimus oleifolius* (De Haan), ♀; g-i, *Zatricaprion quadratus* (Rehn), ♀ specimen C; a, d, g, ventral margin of posterior femur, near apex; b, e, h, dorsal margin of posterior tibia, below knee; c, f, i, ventral margin of posterior tibia, below knee. a-f, × 40; g-h, × 20.

a. A very simple tegminal pattern, in the preradial area with transverse veinlets from the Sc_2 to the anterior margin, forming only a few distinct cells in the basal half (like in fig. 7 a), the cells between R, Rs and M_1

are rectangular, subquadratic or lozenge-shaped, and always few in number. The transverse veins may be subcontiguous or not.

b. A more intricate pattern, in the preradial area as well as in the postradial area. In the preradial area the cells along the Sc_2 are alternately larger and smaller, in the postradial area between the rectangular transverse veins oblique veins are found, which makes the total pattern rather complicated.

c. The third pattern shows large and small cells in the preradial area like in group *b*, and the transverse veins between R and M_2 are present in a fairly great number (De Jong, 1938, fig. 10 f).

Venation *a*. is found in *Morsimus areatus* Stål, together with a roof-shaped prothorax, and big compound spinulae; in *Locusta oleifolia* F. and in *Aprion obliquevenosa* Brunner v. Watt., together with a roof-shaped prothorax and rather simple spinulae; in *Zatricaprion reticulatus* Karny, together with an almost smooth disk of pronotum, and again intricate spinulae.

Venation *b*. is found in *Heteraprium brunneri* Krauss (= *Aprion inversus* Brunner) together with a roof-shaped pronotum and peculiarly reduced spinulae.

Venation *c*. is found in a number of species in *Aprion* Brunner v. Watt.: *rhodei, immunis, serraticollis* Bol., and ? *oceanicus* Pict. & Sauss., and in *Acauloplax asiatica* Br. Watt. and *Togona philippina* Hebard (1922). Here the pattern is connected with the roof-shaped prothorax and rather primitive spinulae (fig. 5 f).

From the above mentioned data I conclude that the material thus far included in *Morsimus* Stål is rather heterogeneous, and I propose the following division which corresponds in great outlines with the results laid down in Dr. Beier's Revision der Pseudophylliden (1954).

Morsimus Stål, genotype: *M. areatus* Stål.
simple tegminal pattern (type *a*), roof-shaped pronotum, intricate compound spinulae.

Paramorsimus Beier, genotype: *Locusta oleifolia* F.
simple tegminal pattern (type *a*), roof-shaped pronotum, rudimentary type of spinulae.
Other species: *obliquevenosus* Br. v. W., *acutelaminatus* Br. v. W., *suspectus* Br. v. W., *carinatus* Walker, and ?*confinis* Br. v. W. (sec. Beier also: *robustus* Br. v. W. and *fruhstorferi* Beier).

Zatricaprion Karny, genotype: *Z. reticulatus* Karny 1923 = *Morsimus quadratus* Rehn 1909.
simple tegminal pattern (type *a*), almost smooth pronotal disk, flat compound spinulae.

Heteraprium Krauss, genotype: *H. brunneri* Krauss 1903 = *Morsimus inversus* Br. v. W. 1895.
intricate tegminal pattern (type *b*), roof-shaped pronotum, reduced type of spinulae.

Acauloplacella Karny, genotype: *Acauloplax asiatica* Br. v. W. (and sg. *Papuaprium* Beier, type: *Morsimus serraticollis* Bolívar, I.)
intricate tegminal pattern (type *c*), roof-shaped pronotum, rudimentary type of spinulae.
Other species [5]: *rhodei* Br. v. W., *immunis* Br. v. W., *insularis* Beier, *philippina* Hebard, *asiatica* Br. v. W.

Morsimus areatus Stål, (figs. 5 a-c, 7)

Morsimus areatus Stål, 1877, p. 44; Elera, 1895, p. 209; Kirby, 1906, p. 305; Bruner, 1915, p. 274 (sep, p. 80); Sjöstedt, 1933, p. 10.

Stockholm Museum

Philippine Islands: 1 ♀ "Asirigan" (probably: Surigao near Leyte), 12-14 V 1861, leg. Semper (holotype) No. 196.

The study of the above mentioned specimen enabled me to give a new description of the species. From the new details, and from the figures I give here, it may be possible to establish the synonymy in the genus, and to settle the position of the other species versus *areatus*.

General colour yellowish, probably greenish in the living insect, elytra with reddish and whitish bordures along the anterior border and along the main transverse veins. The shape of the elytra (fig. 7a) is elongate, somewhat lanceolate, the anterior border is almost evenly curved from the slightly dilated base to the apex. The posterior border is only faintly curved, the apex is nearly acuminate. The preradial area occupies about one quarter of the total elytral surface. The radial vein reaches the anterior border at a short distance before the elytral apex, it is almost straight from the base to about $^5/_6$ of its length, then slightly curved backwards. The subcostal vein (Sc_2) runs nearly parallel and very close to the radial vein. They diverge only slightly in the apical $^2/_5$. The Sc_2 reaches the anterior border before the radial vein at about $^1/_5$ from the apex. The transverse veins in the preradial area are directed obliquely towards the anterior border, in the basal half they are bifurcated and form some cells, the pattern is, however, little intricate. The Rs vein takes off at a sharp angle at $^2/_5$ of

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5) I did not yet have the opportunity to examine all species, united as *Acauloplacella* by Beier (l.c., p. 210 ff.).

the tegminal length. The area between R and Rs is broader than that between Rs and M_1, and the area between M_1 and M_2 again is narrower than the preceding area. The transverse veins between R and M_2 are contiguous or

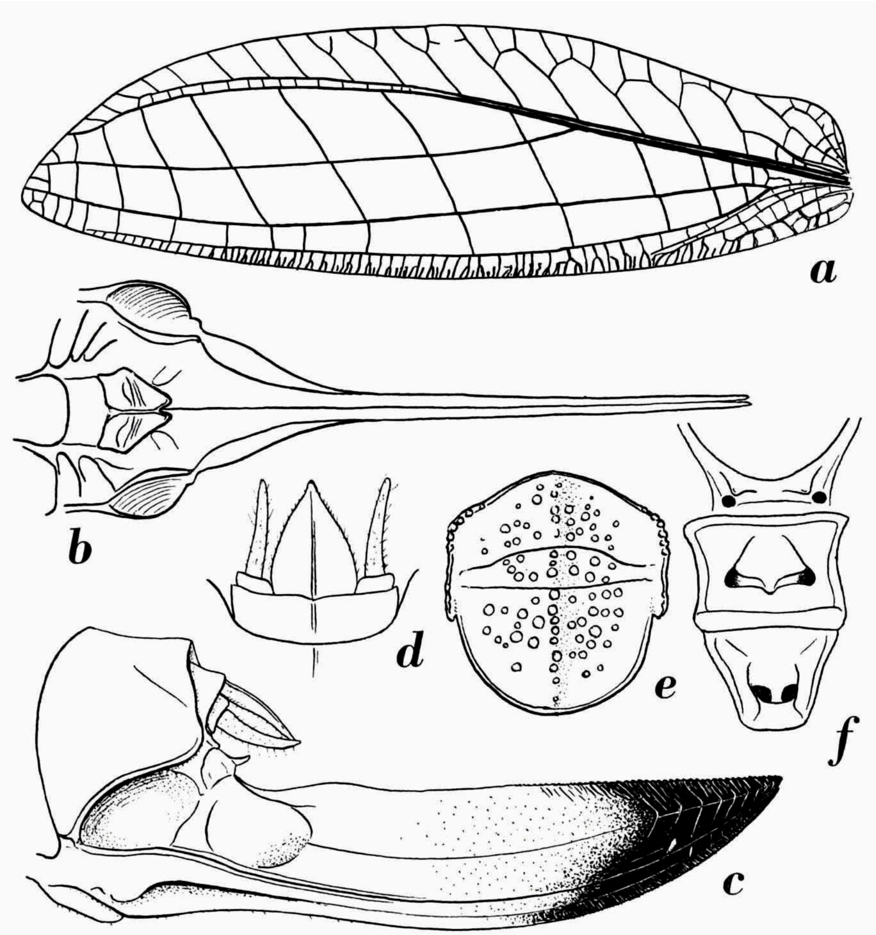

Fig. 7. *Morsimus areatus* Stål, ♀ holotype; a, left tegmen; b-d, abdominal appendages, ventral, lateral, and dorsal view respectively; e, prothorax, dorsal view; f, sterna. a, × 2; other figures about × 5.

subcontiguous; they are bordered proximally by a whitish line, and distally by a reddish one. On stronger magnification the cells show a network of greenish tertiary veinlets, surrounding small areas of faint purple, which structure is just visible with the naked eye. The pattern in similar to that in *Rhomboptera honorabilis* Brunner v. W. or in *Cratioma oculatum* Karny, but no basal patch is found like in the last-mentioned species. The alae (hind wings) are fully developed, transparent, as long as the elytra, 1½ times as broad as the elytra.

The head is smooth, slightly conical. The vertex is prolonged between the antennal scrobes, the apex reaches somewhat before their anterior extremities, it is rather sharply pointed, its apical part dorsally grooved. In the present specimen the antennae are slightly damaged. What remained of the left one is almost as long as the body but the antennae may have been longer than the whole animal. They are composed of many joints of various length, each from 2 to 3 times as long as broad. The basal joint is rather big, cylindrical, slightly swollen, and shows a tooth at the internal apex, the second joint too is somewhat swollen, more or less pear-shaped, biggest at the base. The antennal scrobes are of the shape normal in the group, but between them something like an ocellus is found, a transparent slightly inflated portion of the face. Further the face and the genae are smooth and ochraceous like almost the whole animal. The eyes are globular, very light brown. Below the eyes there is a very faint longitudinal impression towards the mandibles, but no distinct groove. The mouth-parts are of normal shape, the clypeus is about twice as broad as long, the anterior margin shows a faint curve so as to form two indistinct lobes. The labrum is nearly circular. The mandibles are black along their sharp edges. The maxillae and labial palpae are slender, their apex is slightly broadened, all these parts are pale.

The pronotum (fig. 7 e) is about as long as broad, the dorsal part almost cylindrical, prolonged slightly in front, and semicircular at the posterior border. On the disk two transverse grooves are found of which the posterior one is situated almost in the middle. The surface is covered by a number of blunt granules, a row of which forms a slightly elevated median crest. Towards the lateral flaps the granules disappear. These lateral parts are subquadratic, bearing granules along the anterior angle. The humeral angle is slightly over 90°.

The prosternum (fig. 7 f) bears two thorns, just before the prothoracic apertures. These thorns are about half as long as they are broad at the base, and are directed ventrad. The mesosternum is subquadratic, slightly broader than long, distinctly bordered. The anterior border is nearly straight. The apertures, connected by a faint groove, are found at equal distances from all margins. Anteriorly the metasternum is as broad as the mesosternum, but posteriorly it tapers to about half this size. The metasternum is about as long as the mesosternum. The apertures are found close to the posterior margin.

The abdomen is of normal shape, ochraceous, all segments bear a distinct dorsal median keel, less distinct on the anterior half of the first and second segments, and on the 7th and 8th segments. The ovipositor is half as long as the abdomen. Ventrally it is evenly curved in the posterior half towards the apex, dorsally it is nearly straight. The anterior half is nearly straight. The supraanal plate (fig. 7 d) is triangular, with curved sides and sharp apex, roof-shaped, ridged in the median line. The cerci are nearly straight, faintly curved upwards. The subgenital plate is triangular, the apex is triangularly incised in the middle (fig. 7b). The 8th abdominal segment is slightly inflated. The ovipositor is ochraceous at the base, light brown in the middle, and black at the apex (fig. 7 c). This dark part is prolonged along the dorsal and ventral borders to about the middle.

The armament of the legs is as follows:

anterior legs: femora dorsally smooth, ventro-external 2-3 small spines, ventro-internal 4-5 small spines; tibiae dorsally smooth, ventro-external 2 and ventro-internal 4-5 small spines.

middle pair of legs: femora dorsally smooth, ventro-external smooth, ventro-internal 7 and 2 + 2; tibia dorsally 17 compound spinulae, ventro-internal 3 small spines.

posterior legs: femora dorsally smooth, ventro-external 12 serrulations near knee (fig. 5 a), ventro-internal 7 and 9 small spines; tibiae dorso-external smooth, dorso-internal finely serrulated (fig. 5 b) (± 26) ventro-external ± 13 compound spinulae (fig. 5 c), ventro-internal smooth.

The conchi on the anterior legs are of a distinctly inflated type, their shape is similar on both sides of the legs. The coxae of the anterior legs bear a distinct long spine dorsally which is directed forwards.

Measurements of the holotype ♀ (in mm):

total length	60,5
length body, included head and ovipositor	48
length body + head, dorsally, without ovipositor	34
idem, ventrally	31
length ovipositor dorsally	14.8
length ovipositor ventrally	18.5
length pronotum	7
breadth pronotum	6
length elytra	54
breadth elytra	16
length wings	51
breadth wings	24
length anterior femora	7
length posterior femora	15

The orginal description is cited on p. 27 at the top.

Paramorsimus Beier

Paramorsimus Beier, 1954, p. 203 (p. 204: Key to the species).

Medium sized, greenish yellow animals. Elytra of the shape normal in the tribe, generally anterior border evenly curved, posterior border almost straight. Preradial area with simple transverse veinlets, only few of them bifurcated, and forming cells near the tegminal base only. Venal pattern in the postradial area simple. Pronotum roof-shaped. Ventral margins of posterior tibiae with a rudimentary type of spinulae.

Genotype: *Locusta oleifolia* Fabricius.

Paramorsimus oleifolius (Fabricius), (fig. 6 d-f)

Locusta oleifolia Fabricius, 1793, p. 35.
Pseudophyllus oleifolius Serville, 1839, p. 470; Atkinson, 1882, p. 155.
Locusta (*Aprion*) *oleifolia* De Haan, 1842, p. 205; Karny, 1920, pp. 179, 208.
Zumala oleifolia Walker, 1869, p. 416.
Aprion maculifolia Pictet & Saussure, 1892, p. 21, pl. 3 fig. 19.
Aprion maculifolius Brunner von Wattenwyl, 1895, p. 75; Rehn, 1909, p. 200.
Morsimus oleifolia Kirby, 1906, p. 304.
Morsimus maculifolius Karny, 1927a, p. 8.
Morsimus oleifolius De Jong, 1938 (1939), p. 67; 1945, p. 7.
Paramorsimus oleifolius Beier, 1954, p. 205, fig. 117.

Leiden Museum

Borneo: 1 ♂, Mahakam, 1894, Borneo Exp. Dr. Nieuwenhuis.
Exact locality unknown: 1 ♀, ? Djaejan, 17 VII 1915.

The Ceylon specimens in the Geneva Museum (*A. oculatum* P. & S.) mentioned in my paper (1938, p. 67) do not belong to *oleifolius*, but to *Paramorsimus carinatus* (Walker) (cf. Beier, 1954, p. 205).

Zatricaprion Karny

Zatricaprion Karny, 1923, p. 172; 1924, p. 194; De Jong, 1938 (1939), p. 65.
Morsimus (partim), Beier, 1954, p. 192.

According to Beier *Zatricaprion* should be united with *Morsimus*, but though there is some similarity between them, the shape of the pronotum, the compound spinulae on the ventral margin of the posterior tibiae, and the absence of spines on the prosternum induce me to keep my opinion and to consider the first mentioned a separate genus.

Zatricaprion quadratus (Rehn), (figs. 6 g-i, 8)

Timanthes quadratus Rehn, 1909, p. 198, fig. 21 (♀ Sumatra).
Morsimus albomarginatus Hebard, 1922, p. 206, pl. 15 fig. 5, pl. 17 figs 8-11 (♀ Borneo).
Zatricaprion reticulatus Karny, 1923, p. 173, figs. 29, 30 (♀ and ♂, Sumatra and Borneo); 1924, p. 194; 1927a, p. 7, fig. 6.

Zatricaprion mjöbergi Karny, 1927a, p. 7, fig. 6 (♂ Sumatra); Sjöstedt, 1933, p. 10 (♂ Sumatra).

Zatricaprion quadratus De Jong, 1938 (1939), p. 65 (♀ and ♂, Sumatra and Borneo); 1945, p. 7 (♀ and ♂ Java).

Morsimus quadratus quadratus Beier, 1954, p. 194, fig. 109 (♀ and ♂, Malacca, Sumatra, Borneo ?).

Morsimus quadratus kästneri Beier, 1954, p. 195, fig. 110 (♀ and ♂ Java).

Leiden Museum

Sumatra: 1 ♀, Sumatra's Westkust, 1915 (labelled: cotype of *Zatricaprion reticulatus* Karny); 1 ♀, Serdang, leg. J. A. N. Schagen van Leeuwen; 1 ♀ Loeboekbangkoe, V 1905, leg. J. Menzel; 1 ♂ (B), Ajer Koemanis, III 1914, leg. E. Jacobson.

Borneo: 1 ♀, North Borneo (labelled: type of *Zatricaprion reticulatus* Karny).

Dr. D. MacGillavry's collection (Amsterdam Museum)

Java: 2 ♀♀, Ondern. Bojoe Kidoel, spring 1934, leg. Mrs. Blom-Koch.

Sumatra: 1 ♀, Deli, 1926; 1 ♂, S. Sumatra, 1927-'33, leg. Dr. J. van Tuyn.

Ir. P. A. Blijdorp's collection (Wageningen)

Java: 1 ♂ (A) and 1 ♀ (D), W. Java, 1935, leg. Mrs. M. E. Walsh.

Mr. Willemse's collection

Sumatra: 1 ♀, Tomiang, Rantau district, Atjeh.

Bali: 1 ♂, Prapetagoeng, W. Bali, 1500. V 1935.

When preparing my 1938 paper specimens of this species were only known from Sumatra and Borneo. Since then I saw a number of specimens from Western Java and one from Bali.

After a careful study of spinulae on the various borders of the femora and tibiae of this and related genera I found that *Morsimus albomarginatus* Hebard is generically different from *Morsimus areatus* Stål, and that it lies within the specific variation of *Zatricaprion quadratus* (Rehn). The shape of the tegmina, and their venal pattern as well as the shape of the pronotum are similar. The character used by Hebard to characterize his species, viz., the compound spinulae of the hind legs, appears to be of value for identification.

From my investigations results that:

a. in one and the same specimen the spinula are varying somewhat in shape on different parts of the same femur or tibia.

b. The figures given by Hebard (l.c., pl. 17 figs. 9-11) all are within the variability of *Zatricaprion quadratus* (Rehn). On similar grounds I established the synonymy of *Z. mjöbergi* Karny with *Z. quadratus* (Rehn).

c. My studies on the spinulae of the hind legs without any doubt exclude any possibility of *Morsimus albomarginatus* Hebard being a synonym of *M. areatus* Stål.

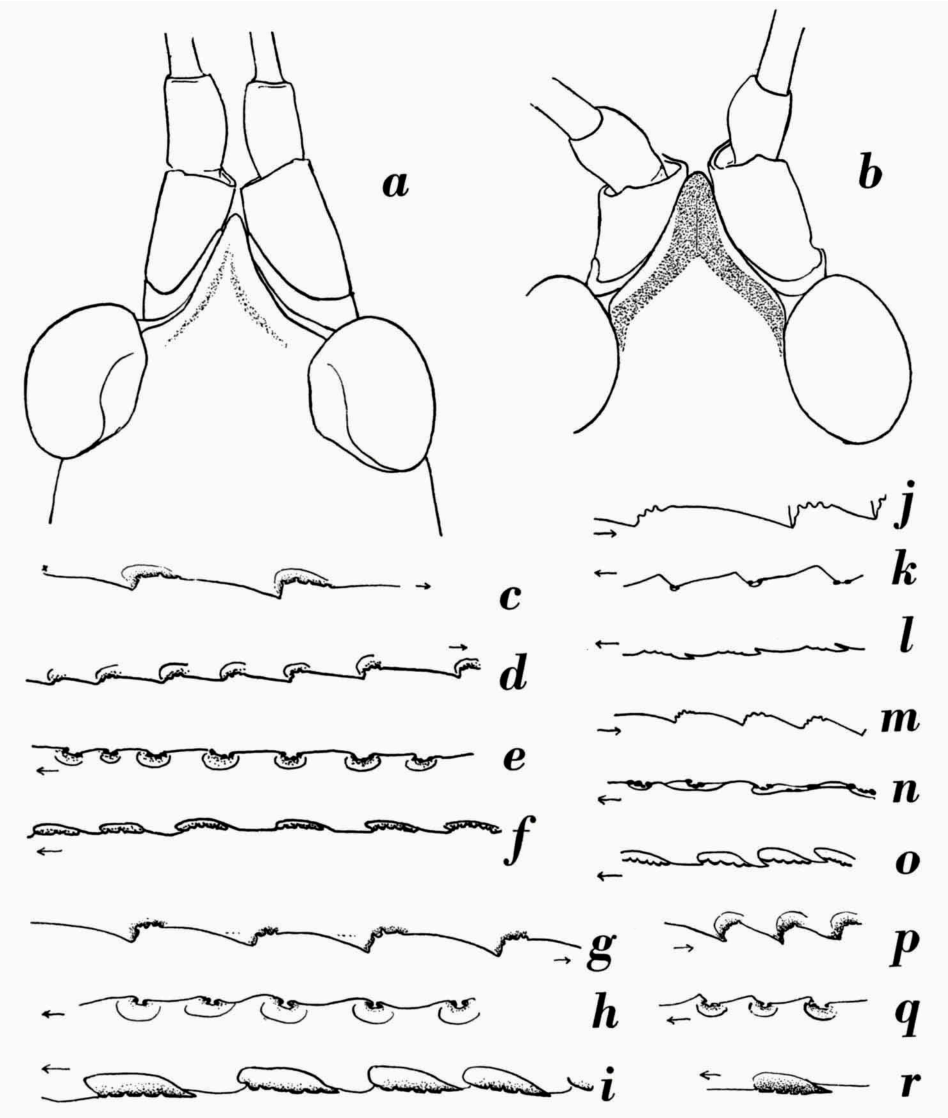

Fig. 8. *Zatricaprion quadratus* (Rehn); a, c-f, specimen A, ♂ from W. Java; a, head dorsally; b, g-i, specimen B, ♂ from Sumatra; b, head dorsally; j-l, Karny's figure of *Z. reticulatus* type (reduced $^{2}/_{3}$) m-o, Karny's figure of *Z. mjöbergi* type (reduced $^{2}/_{3}$); p-r, specimen D, *Z. quadratus* (Rehn), ♀ from W. Java (conform cotype from Borneo). c, d, g, j, m, and p, venral margin of posterior femur, near apex; e, h, k, n, and q, dorsal margin of posterior tibia, below knee; f, i, l, o, and r, ventral margin of posterior tibia, below knee. a-c, g-i, p-r, × 20, other figs × 10.

d. The differences given by Karny to distinguish *mjöbergi* from *reticulatus* appear to be of no specific value. The dark bordering of the vertex and the fastigium verticis is also found in many specimens of *reticulatus*, including the cotype from Borneo present in the Leiden collection (cf. figs. 8 a and b).

The spinulae of the hind legs are mentioned by Karny as a distinct character but his figures are drawn in a different way and show no essential differences. I was at the pains of drawing these details of many of the specimens available, and comparison of the figures shows within which borders the form varies (cf. figs. 6 g, 8 c, g, j, m, p; figs. 6 i, 8 f, i, l, o, r).

Concerning the abdominal appendages Karny writes that the ♂ genitalia of *mjöbergi* do not differ from those of *reticulatus* (1927 a, p. 7). This supports my views.

The type specimen of *reticulatus*, which was used for Karny's figure (1923, fig. 29), is damaged at the top of the left elytron which also is slightly shrunken. The artist who drew the figure reconstructed the top but unfortunately placed the utmost apex too near towards the anterior border. In consequence the general appearance of the elytron (tegmen) was considerably changed. Comparison with the right tegmen, and with the other specimens before me shows that the apex lies more in one line with the posterior margin, and that the apex is curved more sharply than in the above-mentioned figure. To show the real shape I figured the right tegmen of the same specimen (from Sumatra) (fig. 9 k).

Heteraprium Krauss

Aprion (partim) Brunner von Wattenwyl, 1895, p. 72.

Heteraprium Krauss, 1903, p. 764; Kirby, 1910, p. 572; Karny, 1923, p. 174; Beier, 1954, p. 218.

Morsimus (partim) De Jong, 1938 (1939), p. 66.

In *Heteraprium* the preradial area of the tegmina is characterized by alternating smaller and larger cells along the subcostal vein, which is not the case in *Morsimus* s. str.

Furthermore the genus is characterized by the intricate pattern in the postradial area (type b, p. 31), the roof-shaped pronotum, and the rudimentary spinulae on the ventral margin of the posterior tibiae (fig. 5 i).

Genotype: *H. brunneri* Krauss, 1903 = *Aprion inversus* Brunner von Wattenwyl, 1895.

Heteraprium inversum (Brunner von Wattenwyl), (fig. 9 a-e)

Aprion inversus Brunner von Wattenwyl, 1895, pp. 74, 77.
Heteraprium brunneri Krauss, 1903, p. 764, pl. 67 fig. 12; Kirby, 1910, p. 572; Karny, 1923, p. 174, fig. 31 ♀; Beier, 1954, p. 221.
Heteraprium inversum Krauss, 1903, p. 765; Karny, 1924, p. 202; Beier, 1954, p. 219, fig. 127.
Morsimus inversus De Jong, 1938 (1939), p. 68.
Morsimus inversus var. *brunneri* De Jong, 1938 (1939), p. 70.

Amsterdam Museum (collection Jacobson):

New Guinea: 1 ♂, Oranje Gebergte, 1927, leg. A. Kalthofen (plesioallotype).

When studying again the above-mentioned specimen in the Amsterdam Museum I found that besides the small differences I published in my paper of 1938, there were more characters in which the ♂ does not fit in with the descriptions of *Acauloplax asiatica* by Brunner and Karny. On closer investigation the venal pattern and the abdominal appendages appear to be distinctly differing from that species. The transverse veins in the tegmina alternately form and angle with, and are perpendicular to the longitudinal veins, especially in the areas between R, Rs M_1 and M_2 (fig. 9 b).

The black-bordered patches on the head and prothorax are broader than in the specimens of *A. asiatica* I could study, and also broader than figured by Karny. The area between the black lines is not finely granulated. The disk of the pronotum bears a number of distinct granules scattered all over the surface. The posterior border is nearly smooth. A number of small granules are found along the anterior border (fig. 9 a).

Distinct characters are found in the shape of the subgenital plate, which is broad in the basal half, the disk is somewhat convex, slightly tapering caudally, strongly narrowed just behind the middle, then prolonged into a thin stalk which is incised at the top. The two short branches bear the rather long and slender styli, which are about as long as the stalk itself (fig. 9 c-e). I came to the conclusion that the present ♂ specimen belongs to *Heteraprium inversum* (Brunner), after comparison with a rather extensive material from New Guinea, consisting of ♀♀ and ♂♂ from the same locality, freshly caught, and which obviously belong together. Brunner only described the ♀, the ♂ is much smaller, about $^2/_3$ of it, and much more slender.

Acauloplacella Karny, 1931

Acaulopiucella Karny (nom. nud.) 1931, p. 62.
Acauloplacella and subg. *Papuaprium* Beier 1954, p. 210.

The generic name has been established for a group of species which I might indicate as the asiatic species of *Acauloplax*. Though Brunner von

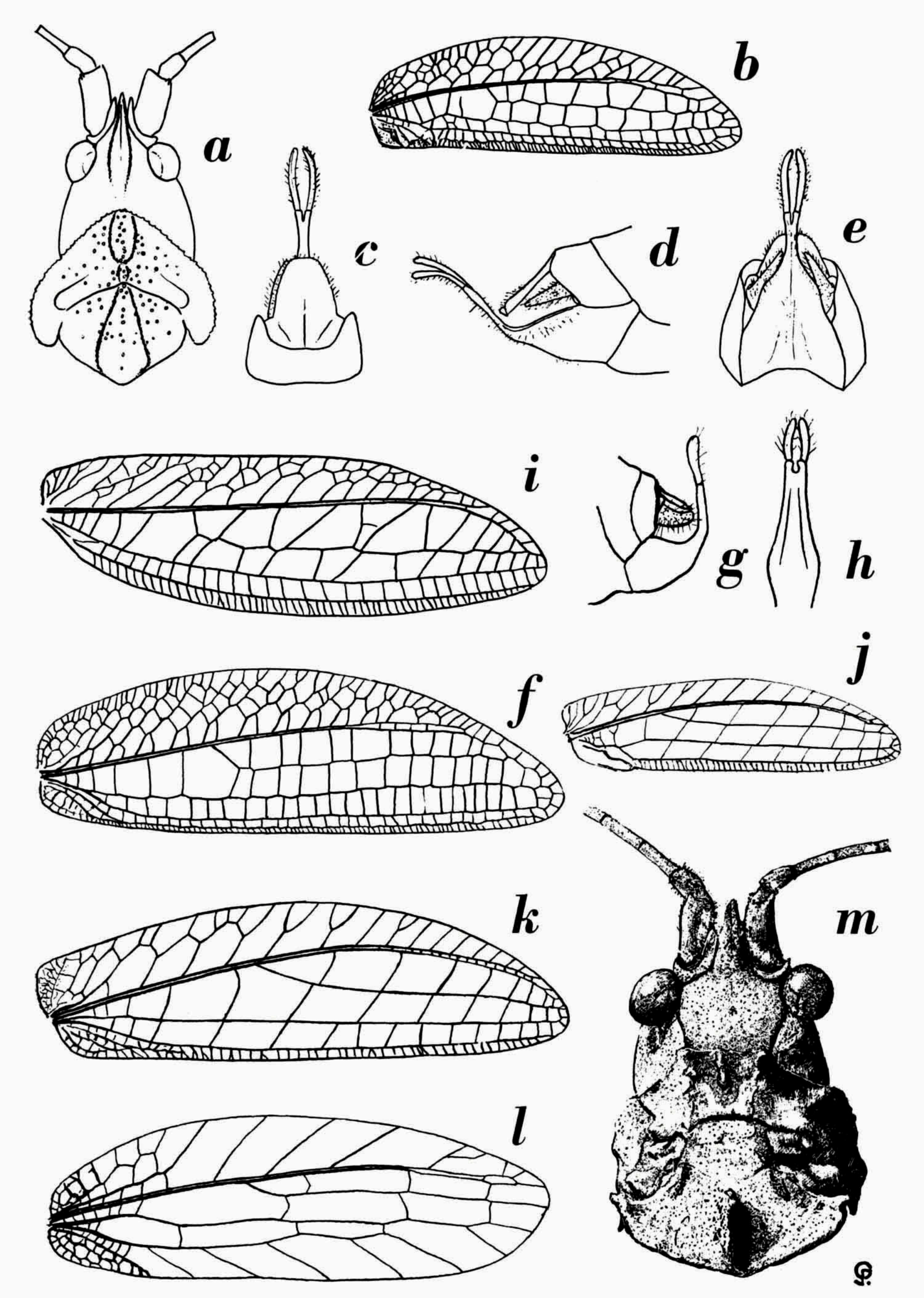

Fig. 9. a-e, i, *Heteraprium inversus* (Brunner v. Watt.); a-e, ♂ plesioallotype; a, head and prothorax, dorsally; b, right tegmen; c-e, abdominal appendages, dorsal, lateral and ventral view respectively; i, ♀, right tegmen; f, *Acauloplacella* (*Papuaprium*) *serraticollis* (Bol. I.), ♀ right tegmen; g-h, *Timanthes signatipennis* Stål, ♂ holotype, abdominal appendages, lateral and ventral view respectively; j-k, *Zatricaprion quadratus* (Rehn); j, ♂ (specimen A) right tegmen; k, ♀ (holotype of *Z. reticulatus* Karny) right tegmen; l-m, *Cymatomera blötei* nov. spec., ♀ cotype 1; l, right tegmen; m, head and prothorax. b, f, i, j, k, × 1½; l, × 1; other figs. about × 5.

Wattenwyl (1895) mentioned only one asiatic species, a closer study of the group revealed more species of *Acauloplax,* which together formed a new entity with the following characters: Except long rows of almost equally shaped (subquadratic) cells between R, Rs, M_1 and M_2, alternating small and greater cells are found along the subcosta 2 in the preradial area of the tegmina. The general shape of the tegmina is very much like that of *Morsimus,* with a strongly curved anterior margin and a nearly straight posterior one. Generally the apex is curved less sharply than in *Morsimus.*

In 1931 Karny suggested the generic name *Acauloplacella* for *Acauloplax asiatica* if it might happen to prove generically different from the african species, but according to the International Rules of Zoological Nomenclature, this name was not valid. However, Beier (1954, p. 209) gave it a status.

In 1938 I left *Acauloplax asiatica* Brunner von Wattenwyl in the genus *Acauloplax* Karsch, which was described from Africa, as like Karny I had not yet sufficient reasons for separating the two species placed into the genus by Brunner von Wattenwyl. Now after studying more material of more species, I could reach a better conclusion. I found several points in which *Acauloplax* and the species now united in *Acauloplacella* are distinctly different. The most essential characters are the granulation of the pronotum, the tegminal venation, and the shape of the ♂ genitalia. In *Acauloplax* the pronotum bears 3 distinct rows of granules, that are continued on the vertex, and of which the lateral ones are even prolonged on the fastigium verticis. Especially in lateral view these granules on head and fastigium are very obvious (Karsch, 1891a, pl. 3, fig. 9 a). The second particularity concerns the tegminal venation. The area between the radial vein and its branch contains a number of rather large, rectangular cells; in the next area the number of cells is much greater and the cells are much smaller (shorter). The third distinct difference is found in the ♂ genitalia, which are rather broad in the type species of *Acauloplax* (this name expresses the fact that the subgenital plate is not prolonged into a more or less distinct stalk which bears the styli) (Karsch, 1891a, pl. 3 figs. 9 b-d). The subgenital plate is relatively broad, more or less lobate, the styli are strongly curved outwards.

In *Acauloplacella* the pronotum bears no distinct rows of granules, but there are generally 2 curved longitudinal dark lines, which enclose an area of a lighter colour, but which are not distinctly elevated. In lateral view the head is not strongly crenulated along the median line. The pronotum bears a number of more or less dispersed granules. In *Acauloplax* this last-mentioned character is also present. In *Acauloplacella* the cells in the two above-mentioned areas are of about equal shape and equal size. The abdominal appendages of the ♂♂ examined by me are generally more slender than those figured by Karsch, but they appear to be of a different structure. The subgenital plate is more or less tapering towards the apex which bears the styli.

The differences given by Karsch of *Acauloplax* versus *Chondrodera* and *Mustius* are distinct enough, and from his latin diagnosis as well as from his comments in german it is obvious that especially the ♂ genitalia differ much from the common type in the oriental species.

Karsch's figure of the type specimen of *Acauloplax exigua* gives the impression of not being exact as far as the tegminal nervature in the preradial area and in the top is concerned. Unfortunately I had not the opportunity to see either the type or any other specimen of *Acauloplax exigua* Karsch.

Acauloplacella (A. s. str.) asiatica (Brunner von Wattenwyl)

Acauloplax Asiatica Brunner von Wattenwyl, 1895, p. 81; Kirby, 1906, p. 305.
Acauloplax (Acauloplacella) asiatica Karny, 1931, p. 62, figs. 30, 31, 32.
Acauloplax asiatica De Jong, 1938 (1939), p. 73.
Acauloplacella asiatica Beier, 1954, p. 212.

Amsterdam Museum

New Guinea. Southern New Guinea, Versteeg 1912/13, Kloof Bivak, 6 X, 1 ♂; id. 17 X, 1 ♀; Southern New Guinea, Versteeg 1912/13, van Weelskamp, 19 IX, 2 ♂♂.

Karny (1931, p. 62) was not quite sure whether the specimens before him, from Celebes, showed differences from the type specimen from the north of the same island, the province of Minahassa. He gave an elaborate and well illustrated description of the specimens from Celebes.

Through the kindness of the late Mr. J. B. Corporaal I had the opportunity to examine a number of unidentified specimens of Pterophyllinae from the collections of the Amsterdam Museum, which comprised 1 ♀ and 3 ♂♂ of *Acauloplacella asiatica* (Brunner v. Watt.) from New Guinea. These specimens fit in with Brunner von Wattenwyl's diagnosis and with Karny's description. The only difference I could trace is the breadth of the ovipositor of the ♀, which is slightly more slender than figured by Karny.

The specimens from New Guinea show no essential differences from those from Celebes, which I examined at Basel. So I believe that the species has this rather wide distribution.

Acauloplacella (Papuaprium) immunis (Brunner von Wattenwyl), (fig. 5 d-f)

Aprion immunis Brunner von Wattenwyl, 1895, pp. 74, 77.
Morsimus Immunis Kirby, 1906, p. 305.
Acauloplax regularis De Jong, 1938 (1939), p. 73, fig. 10 f-j.
Acauloplacella (Papuaprium) immunis Beier, 1954, p. 215, fig. 124.
Acauloplacella (Papuaprim) regularis Beier, 1954, p. 216, fig. 125.

Amsterdam Museum

New Guine: 2 ♀ ♀, S. New Guinea, Kloof-camp, 11 X 1912, leg. Versteeg; 1 ♀ S-New Guinea, 19 VI 1912, leg. Versteeg.

Leiden Museum (in addition to the material already published 1938)

New Guinea: 1 ♂ larva and 1 ♀ larva, Hollandia, 1910, leg. P. N. van Kampen.

When reexamining the genus *Aprion* in Brunner von Wattenwyl's Monograph I found that there are some species closely related to the one I described (1938, p. 73) as *Acauloplax regularis*, and I am convinced now that my species is identical with *Aprion immunis* Brunner v. Watt., as both originate from the same country and show great similarity in the tegminal pattern, in so far as can be concluded from Brunner's description. For the identification of the species in this genus in my opinion great emphasis should be laid on the number of transverse veins in the areas between the radial vein and its branch, and between the branch and the first medial vein. Brunner v. W. states 10 and 12 transverse veins respectively in his *A. immunis*. In the specimens I could study the numbers of transverse veins are 10 and 13 (12). The variation of the second number is due to the number of transverse veinlets in the first cell between radial branch and first medial veins.

The localities mentioned by Brunner von Wattenwyl are: Key Islands, and Stephansort in New Guinea. — The localities of the specimens I could study are situated between these, viz. the northeastern and south-western parts of Dutch New Guinea.

The specimens mentioned above agree in every respect with the types of *regularis* m. About the identification of the larvae I am absolutely sure as the anatomical characters of the legs, body, genitals, head and thorax are already sufficiently developed, and the still small tegmina show the distinct tegminal pattern with the same number of transverse veins between the radial vein and its branch.

Acauloplacella (Papuaprium) serraticollis (Bolívar, I.), (fig. 9 f)

Morsimus serraticollis Bolívar, 1890, p. 325; Kirby, 1906, p. 305; Hebard, 1922, p. 208.
Aprion serraticollis Brunner von Wattenwyl, 1895, pp. 74, 78.
Acauloplacella (Papuaprium) serraticollis Beier, 1954, p. 217, fig. 126.

Leiden Museum

New Guinea: 1 ♀, between "Bronbeek" and "Modderlust", Expl.-detach., N.-New Guinea, 1910-11, 17 V 1910, leg. Dr. P. N. van Kampen.

This species is closely related to *A. immunis* (Brunner v. Watt.). The main character in which it differs from that species is the number of transverse veins between the R and Rs, which is 13 instead of 10. The number of cells too in the preradial area along the Sc_2 is greater than in *immunis* but like in that species they are alternately smaller and larger (fig. 9 f). In my opinion the present specimen should be identified with *serraticollis* though the number of cells is slightly differing: 13 instead of 14.

Measurements (in mm): total length 57; length body 25; length pronotum 6; breadth pronotum 6½; length tegmina 46; breadth tegmina 14½; length alae 43; breadth alae?; length anterior femora 7; length posterior femora 14½; length ovipositor 17; length antennae 52.

Unfortunately the specimen was newly hatched when captured. At present it has entirely lost its colour, which may have been light green, and the body and limbs have shrunk. The measurements may be somewhat too small.

The tegminal pattern forms the cardinal character in the species.

CYMATOMERINI

When reviewing once again the literature, especially of the indomalayan species in the tribus of Cymatomerini, I came across some data not mentoned in my previous papers, as well as some synonyms which formerly had escaped my attention.

The few african representatives in our collections are also mentioned below.

Cymatomera Schaum

Cymatomera Schaum, 1853, p. 777; Stål, 1856, p. 170; Gerstaecker, 1862, p. 122; Walker, 1870, p. 455; Stål, 1874, pp. 53, 69; Karsch, 1890, p. 274; 1891, pp. 77, 96; Brunner von Wattenwyl, 1895, pp. 12, 82; Kirby, 1906, p. 306; Sjöstedt, 1913, p. 6; Chopard, 1924, p. 179; Karny, 1926b, p. 122; Beier, 1944, p. 86; 1954, p. 226.

Without hesitation I place a new species from Tanganyika into this genus. The shape of the prothorax and the middle pair of femora, the finely punctulated head, thorax and legs, and the general resemblance to the other species in this african genus justify this place in the system.

One species from the Indo-malayan region has ever been recorded in this african genus, viz., *Cymatomera orientalis* Rehn (1909, p. 200, figs. 22 and 23). In my opinion this species was based on a small incomplete male specimen of the common *Sathrophyllia femorata* (F.). Karny (1926b, p. 122) already suggests that Rehn's species should be placed into the genus *Sathrophyllia*. He states, however, that the species has a pale forehead, but Rehn does not mention the colour of the forehead in his description! The shape of the pronotum and the head, the pattern of the tegmina, and the black knees of the hind femora all point towards *S. femorata*. The figured specimen bears the colour pattern as it is generally found in this variable species.

Two characters which could prove the doubtless synonymy are lacking in Rehn's description; viz., the colour of the forehead and the shape of the anterior femora. However, the anterior femora are missing in the type specimen. Nevertheless I am convinced that Rehn's specimen belongs to *S. femorata* (F.).

Cymatomera denticollis Schaum.

Cymatomera denticollis Schaum, 1853, p. 778; 1862, p. 123, pl. 7 fig. 9; Walker, 1870, p. 455; Stål, 1874, p. 69; Karsch, 1891, p. 97; Brunner von Wattenwyl, 1895, p. 83; Schulthess, 1899, p. 212; von Brunn, 1901, p. 272; Kirby, 1906, p. 306; Vignon, 1930, p. 400; Chopard, 1935, (sep. p. 8); Beier, 1954, p. 227, fig. 130.
Cymatomera Schaumi Stål, 1856, p. 170; Walker, 1870, p. 455; Sjöstedt, 1933, p. 10.
Cymatomera modesta Brunner von Wattenwyl, 1895, p. 84; Kirby, 1906, p. 306.

Leiden Museum

East Africa: 1 ♀, Lourenzo Marques.

The type species of the genus *Cymatomera* is represented in the Leiden collection by a single ♀ specimen which is in a rather good condition. Head and prothorax are creamy white, with a few thin black lines on the disk. The posterior border of the prothorax is rounded, the metazona bears no distinct median crest. The femora are whitish at the outside, with some black at base and apex. The tibiae are distinctly ringed with dark brown. Internal surface of the femora darker.

Cymatomera blötei nov. spec. (figs. 9 l, m, 10)

Leiden Museum

Tanganyika: 2 ♀ ♀, Tabora, 9 III 1934, leg. Father M. Lans (Cotypes).

♀. General colour greenish grey with black and ferrugineous brown spots. The tegmina are elongate, they have a curved, almost smooth anterior margin. The hind margin in nearly straight, hardly perceptibly bisinuate. The greatest breadth lies at about one third from the base. Towards the top the tegmina are faintly diminishing in breadth. The top itself is rounded. The apex lies before the extremity of the radial branch vein. The preradial area occupies about two fifths of the total surface of the tegmina. The radial vein sends off its branch at about two-fifths of the tegminal length measured from the base. The medial vein bifurcates near the base of the tegmen. The area between the branches of the radial vein and that between those of the medial vein are of about equal breadth but slightly narrower than the interjacent field. In the preradial area at the base of the costal and subcostal veins the transverse veins form a number of cells. More apically the transverse veins reach the anterior margin without bifurcations and without forming cells by tertiary veins. In the postradial field of the tegmina near the base several elevated dark brown markings are found like in *Tegra novae-hollandiae* (De Haan). More towards the top of the tegmina the black markings are hairpin-shaped with the legs pointing apically. The wings are transparent with smoky bands along the secondary and tertiary veins. The primary veins are for the greater part yellowish brown. All except the radial vein are dark brown or black at the base. The common basal part

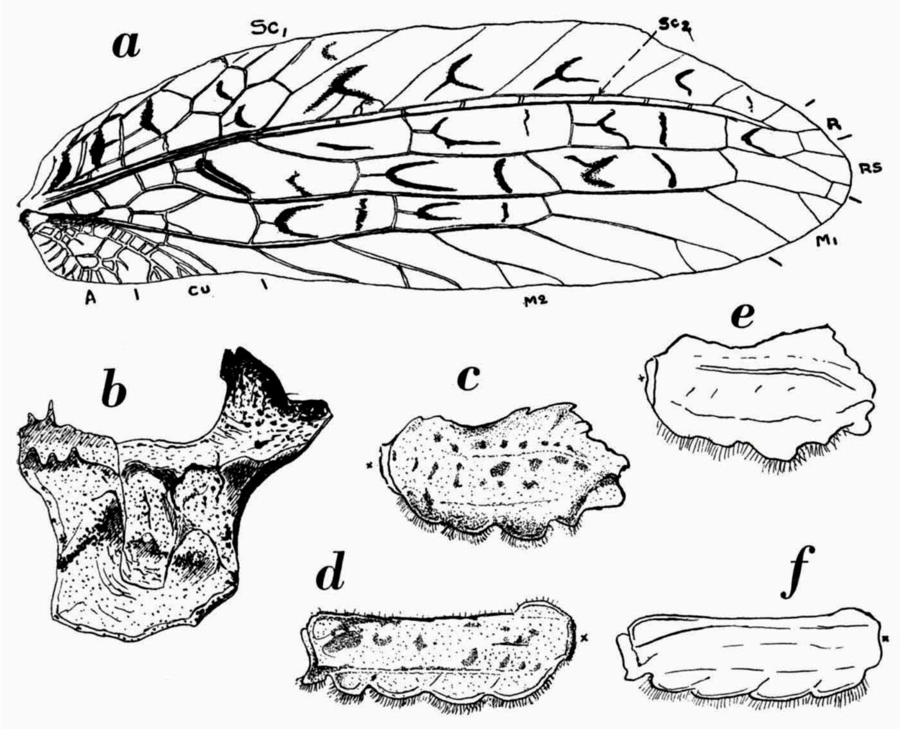

Fig. 10. *Cymatomera blötei* nov. spec., ♀. a-d, cotype 2; e, f, cotype 1. a, right tegmen; b, pronotum, seen from the left; c, e, left middle femur; d, f, left anterior femur. a, × 2½; b-f, × 5.

of the wing basis is light reddish brown. The tegminal veins are light brown.

The fore femora are smooth dorsally with only a small enlargement at the base. Ventrally they have 3 to 5 lobes, slightly varying in number, even left and right are differing. The middle femora possess dorsal and ventral lobes. Their posterior surface is black. Dorsally the hind femora are carinate in the basal half. Ventrally they are provided with 5 broadly rounded lobes. The tibiae of all legs are enlarged laterally near the top. All knees are black or dark brown.

As remarked before, the lobes of the legs are not constant in number or shape but greatly subject to variation. They may even be different at both sides.

The pronotum is saddle-shaped with a number of protuberances varying in form and size (figs. 9 m, 10 b). It has two transverse grooves, which divide it into three parts. The basal part bears a stout longitudinal medial crest and two blunt lateral thorns above the humeral curve. The posterior border forms an obtuse angle in the middle. The intermediate and anterior parts of the pronotum each bear a big conical protuberance on the lateral lobes near the dorsal disk. Moreover the frontal part of the pronotum is provided with two longitudinal rows of short conical spines. The foremost spine of these rows is biggest, and is situated on the anterior margin of the pronotum. Furthermore a few small blunt thorns are found in the median line. Two brown lines run backwards from the dorsal margin of the eyes, continuing on the pronotum and running along the row of small spines mentioned before, to end near the posterior margin.

The head is conical. The vertex is prolonged, sulcate above, and considerably surpasses the borders of the antennal grooves. The eyes are globular, brown. The head is pale, whitish, except the dorsal area bordered by the two dark lines mentioned above, the eyes, and the antennal scrobes. This area is marbled with greenish. The labrum too is yellowish white but the clypeus is more greyish brown. The genae, the dorsal part of the head, and the pronotum are minutely spotted with black; with a magnifier of about 10 times this can easily be seen. The antennae are annulated with dark brown and sparsely covered with short hairs.

The abdominal segments are black, bordered with ferrugineous brown. The last abdominal segment is totally black. The supra-anal plate is brown, almost semicircular with a crenulated border, and is faintly incised at the top. The ovipositor is straight dorsally, only faintly bisinuate basally. Ventrally it is evenly curved from the somewhat inflated base towards the top. In the apical part both the dorsal and the ventral borders are minutely serrulated. The ovipositor is chestnut brown with blackish borders. The base is brown too, as well as the cerci, which are faintly curved.

One of the specimens is slightly damaged. The measurements of the other ♀ specimen are (in mm):

Total length 53; length of the body 26½; length of the tegmina 43; breadth of the tegmina 13½; length of the pronotum 6½; length of the alae 43; length of the anterior femora 7; length of the posterior femora 12½; length of the ovipositor 14.

The species is closest related to *Cymatomera paradoxa* Gerst. to which species it leads in the keys (Brunner von Wattenwyl, 1895, p. 83 and

Beier, 1954, p. 227): elevated and somewhat crenulated dorsal crest on the metazona of the pronotum, lateral tubercles on the pronotal disk, head finely mottled with dark brown, and general appearance.

However, differences are found in the lateral parts of the posterior pronotal border, which are not "trimaculate" and slightly curved upwards. The legs are not totally whitish yellow, but the femora are mottled with dark brown and reddish brown, the internal surface of the middle femora is nearly black, the tibiae of the anterior and 2nd pair of legs are for the greater part dark brown with a light band in the middle, the posterior tibiae show three dark brown transverse bands of which the apical one covers the apical quarter; the knees are dark too.

I dedicate this species to my colleague and friend Dr. H. C. Blöte.

Cymatomerella Beier

Cymatomerella Beier, 1954, p. 223.

I agree with Beier (1954) that *Cymatomera spilophora* Walker must be regarded as the type species of a separate genus. Brunner von Wattenwyl already indicates the aberrant place in the genus *Cymatomera*. Especially the shape of the ovipositor is very remarkable.

Cymatomerella spilophora (Walker)

Cymatomera spilophora Walker, 1870, pp. 455, 456; Kirby, 1902, p. 467; 1906, p. 306; Chopard, 1935, p. 8.

Cymatomera Brancsiki Brunner von Wattenwyl, 1895, pp. 83, 86, pl. 4 fig. 34; Sjöstedt, 1913, p. 7.

Cymatomerella spilophora Beier, 1954, p. 224, fig. 128.

Rotterdam Museum

Nyassa: 1 ♀, Mikalangue.

The above mentioned specimen was sent to me for identification. It had been labelled: "nov. gen., nov. spec., aff. *Cymatomera*". However, it fits in perfectly with the description and figures of *C. Brancsiki* Brunner v. Watt. which species appears to be synonymous with *C. spilophora* Walker.

Sathrophyllia Stål

Satrophyllia Stål, 1874, pp. 54, 70; Brunner von Wattenwyl, 1895, pp. 13, 86; Kirby, 1906; Maxwell-Lefroy, 1909, p. 96; Karny, 1923, p. 176; 1924, p. 202; 1926b, p. 121; De Jong, 1938 (1939), p. 76; Beier, 1944, p. 87; 1954, p. 231; Henry, 1944, p. 189.

(*Dehaania* in litt. van Vollenhoven, in Museum Leiden).

Sathrophyllia rugosa (L.)

Gryllus Tettigonia rugosa Linnaeus, 1758, p. 430; 1764, p. 132; Houttuyn, 1766, p. 186.
Conocephalus rugosus Thunberg, 1815, p. 278.
Locusta rugosa De Haan, 1842, p. 201; Karny, 1920, pp. 180, 208.
Cymatomera rugosa Walker, 1870, p. 456; Atkinson, 1882, p. 156.
Sathrophyllia rugosa Stål, 1874, p. 70; Brunner von Wattenwyl, 1893, p. 176; 1895, p. 87, pl. 4 fig. 35; Bolívar I., 1899, p. 775; Annandale, 1905, p. 209; Willey, 1905, p. 199, 1 pl.; Kirby, 1906, p. 306; Green, 1908, p. 90, pl. fig. 6; Bainbrigge Fletcher, 1914, fig. 18; Karny, 1920, pp. 180, 208; 1924, p. 179; 1927a, p. 8; Uvarov, 1927, p. 94; Vignon, 1930b, p. 400; Chopard, 1937, p. 21; De Jong, 1938 (1939), p. 79, fig. 11a; Henry, 1944, pp. 187, 188; Jellison, 1945, pp. 412, 413, 1 pl.; Beier, 1954, p. 233, fig. 134.
Sathrophyllia torrida Stål, p. 71; Bolívar, I., 1899, p. 775; Kirby, 1906, p. 307; Hebard, 1922, p. 210, Sjöstedt, 1933, p. 11, pl. 10 fig. 1; De Jong, 1938 (1939), p. 80.

From the synonymy of this species *Acanthodis rugosa* Serville, 1839, should be omitted, as from the text it is evident that *Sathrophyllia femorata* F. is meant. This has already been indicated by Stål (1874, p. 72) but it has been overlooked by later authors.

The species has been reported from Hindostan, British India (India, etc.), Ceylon, Bengal, Siam, and from Java. This last-mentioned locality is recorded by De Haan (1842, p. 201) for two specimens, and by Walker (1870, p. 456) for one only. As the species is not known from Sumatra or from the Malay Peninsula it is probable that the locality "Java" will prove to be wrong (In all probability these specimens had been brought in by a ship coming from Java).

Sathrophyllia rugosa var. **angustata** (Stoll)

Gryllus Tettigonia angustata Stoll, 1813, p. 14, pl. 5a fig. 17.
Conocephalus cornutus Thunberg, 1815, p. 277.
Acanthodis ululina Guérin, 1838, p. 73, pl. 236 fig. 2; Annandale, 1905, p. 209.
Locusta rugosa var. *angustata* De Haan, 1842, p. 202; Karny, 1920, p. 208.
Pseudophyllus angustatus Walker, 1869, p. 410.
Sathrophyllia rugosa var. b Stål, 1874, p. 70.
Sathrophyllia Cornuta Kirby, 1906, p. 307.
Tegra Angustata Kirby, 1906, p. 308.
Sathrophyllia rugosa var. *angustata* Karny, 1920, p. 208; De Jong, 1938 (1939), p. 80.
Sathrophyllia rugosa ab. *angustata* Beier, 1954, p. 234.
Sathrophyllia rugosa ab. *cornuta* Beier, 1954, p. 234.

On closer investigation it appears that the here mentioned variety of *S. rugosa* has been known to more authors than would appear from my paper of 1938. In a paper on insects from the Malay Peninsula, Annandale (1905, p. 209) mentions *Acanthodis ululina* and points to its resemblance to *Sathrophyllia rugosa.* Sherborn, 1931, Index Animalium, pt. 27, p. 6711, notes that the species *A. ululina* which is not known in recent literature, has been described and figured by Guérin-Méneville as far back as 1838, and to my surprise Guérin's elaborate description and fine figure appeared to refer to no other species than *angustata* Stoll, of which the Leiden Museum possesses the type specimen (♀). Further investigations revealed that Thunberg (1815, p. 277) and Stål (1874, p. 70) also have known *angustata* as a form separate from *rugosa*. From Beier's interpretation of his ab. *cornuta* Thbg. I deduce that he did not see the type of *angustata* Stoll.

As all localities from which the var. *angustata* has been reported are situated within the area of India, Siam, and Malaya, except the locality of the type, which is stated to come from Java, I am inclined to believe that this last mentioned locality is wrong, and that the variety is found in the same area as *S. rugosa*.

Sathrophyllia femorata (Fabricius)

Locusta femorata Fabricius, 1787, p. 233; 1793, p. 37; De Haan, 1842, p. 202.
Gryllus Tettigonia femorata Stoll, 1815, p. 16, pl. 6a fig. 22.
Pseudophyllus femoratus Burmeister, 1838, p. 698; Walker, 1869, p. 72; Atkinson, 1882, p. 155.
Acanthodis rugosa Serville, 1839, p. 454.
"*Pseudophyllus?*" Giebel, 1861, p. 120.
Sathrophyllia femorata Stål, 1874, p. 72; Brunner von Wattenwyl, 1893, p. 177; 1895, p. 88; Kirby, 1906, p. 307; Karny, 1920, p. 208; 1923a, p. 176; 1923b, p. 318, figs. 1-5; 1924, p. 202, pl. 1; 1926b, p. 122; 1927a, p. 8; Caudell, 1927, p. 33; Ebner, 1927, p. 1; 1928, p. 54; Karny, 1929, p. 194; 1932, p. 406, fig. 5, 6; Willemse, 1933, p. 9; De Jong 1938 (1939), p. 76, figs. 11 b-e; Chopard, 1938, pp. 418, 419, fig. 406; De Jong, 1945, p. 7; Beier, 1954, p. 236, fig. 136.
Dehaania femorata Koningsberger, 1902, p. 12; 1915, p. 96.
Cymatomera orientalis Rehn, 1909, p. 200, figs. 22, 23; Karny, 1926b, pp. 122, 124; 1927, p. 8.
"*Dehaania*" *femorata* (van Vollenhoven in lit.) Karny, 1920, p. 181.
Satrophyllia femorata Vignon, 1930b, p. 400.
Lathrophyllia femorata (err. typ.) Heller & Günther, 1936, p. 75.

From Serville's description it is evident that *femorata* F. is meant. The most distinct characters of the present species are: thorax rounded anteriorly and posteriorly, with a slight crest on the posterior part only; anterior femora broadly lobate ventrally; elytra adorned with crescent-shaped dark figures, which character is found in *femorata* only; forehead black.

I could study a few more specimens of this rather common species, the ♂♂ of which are only scarcely found.

Amsterdam Museum

Borneo: 1 ♀, Barabei, S-E province.

The Hague Museum

Locality unknown: 2 ♀♀ and 1 ♂.

Judging by well-identified material, and reliable data in literature the distribution of this species is as follows: Malay Peninsula, Sumatra, Java, Borneo, and the adjacent islands. It has not been reported from localities east of Java and Borneo. Towards the west, however, specimens are reported from Cambodja and "India". Cambodja is closely conected with the Malay Peninsula, but "India", especially on old labels, may refer to a rather extended area, and as a "locality" this indication has no value. So the western limit of the area of distribution of this species is not exactly known.

The trouble is augmented by Walker's account of the species from Hindostan (Walker, 1896, p. 401). From "British India" no further mention was made of the species and I never saw specimens from that area. So probably the specimen mentioned by Walker will prove to belong to some other species.

Tegra Walker

Tegra Walker, 1870, p. 439; Kirby, 1906, p. 308; Karny, 1923, p. 176; 1924, p. 203; 1926b, p. 123; Chang, 1935, p. 39; De Jong, 1938 (1939), p. 83; Beier, 1944, p. 87; 1954, p. 255.

Tarphe Stål, 1874, p. 54; Brunner von Wattenwyl, 1895, pp. 13, 90.

Tegra novae-hollandiae (De Haan)

Locusta novae-hollandiae De Haan, 1842, pp. 201, 202, pl. 19 fig. 4 (♀, Sumatra, Australia); Karny, 1920, p. 208.

Tegra novae-hollandiae Walker, 1870, p. 439 (cit. Australia); Kirby, 1906, p. 308; Karny, 1920, p. 208; 1923, p. 176; 1924, p. 203; 1926a, p. 276; 1926b, p. 123; 1927a, p. 8; Hingston, 1927, p. 67, pl. 9 fig. 4; Uvarov, 1927, p. 94; Vignon, 1930b, p. 396; Willemse, 1933, p. 28; De Jong, 1938 (1939), p. 84, fig. 13a; 1945, p. 8; Beier, 1954, p. 256 ff., fig. 146.

Tarphe novae-hollandiae Stål, 1874, p. 72, Brunner von Wattenwyl, 1893, p. 177; 1895, p. 90, pl. 4 fig. 37; Griffini, 1897, p. 140 (♀, Perak); 1899, p. 64 (geogr. distr.); Rehn, 1909, p. 202; Willemse, 1933, p. 28.

"*Dehaania*" (van Vollenhoven, in lit.) *novae-hollandiae* Karny, 1920, p. 181.

Rehn (1909, p. 202) mentions ♀ and ♂ of this species. This is the only record of a ♂ specimen. Unfortunately Rehn did not describe it, nor did he give a figure. I myself never saw any ♂ of this species; they appear to be very rare.

The list of literature and synonyms contains many more items than I could give in 1938. From the literature the distribution of the species appears to be as follows: Ceylon, India, Himalaya, Assam, Malay Peninsula, Sumatra, Java, Borneo, and Port Jackson in Australia. One of the cotypes in the Leiden Museum is labelled from this last-mentioned locality but I sincerely doubt whether the locality-label is right.

Tegra novae-hollandiae var. **albostriata** De Jong

Tegra novae-hollandiae var. *albostriata* De Jong, 1938 (1939), p. 85; 1945, p. 8.
Tegra novae-hollandiae ab. *albostriata* Beier, 1954, p. 256.

In the original paper two specimens are erroneously indicated as "allotypes". This should be "cotypes".

Tegrolcinia De Jong

Tegrolcinia De Jong, 1938 (1939), p. 87; Beier, 1944, p. 87; 1954, p. 253.

Tegrolcinia karnyi nov. spec.

Sathrophyllia fuliginosa Karny (nec Stål), 1926b, pp. 121, 122, fig. 30.
Malay Peninsula: 1 ♀ from Perak, F.M.S., Wray's Hill, 3000 ft., near Taiping, VIII-IX 1924, leg. Major C. M. Enriquez (holotype in F.M.S. Mus., Kuala Lumpur).

The specimen from Perak, described and figured in some detail by Karny (1926 b, pp. 121, 122, fig. 30) and which he thought to be *Sathrophyllia fuliginosa* Stål, appears to be altogether different from that species as I could decide after comparison of his description and figure with the photograph of the holotype of *fuliginosa* by Sjöstedt (1933, pl. 8 fig. 1). It differs distinctly in the tegminal pattern, and in the shape and crenulations of the prothorax. In my opinion it fits in with *Tegrolcinia,* the genus I established for the species *superba* De Jong (1938, p. 87). For the Perak specimen I propose the new name *Tegrolcinia karnyi.*

Though Karny's description of the specimen concerned is far from complete his details are sufficient to recognize the species. I therefore refer to these for the description of the species.

As *karnyi* agrees in many details with *superba,* I therefore placed it into *Tegrolcinia.* The differences from and resemblances to *superba* may follow here: the tegmina more or less resembling those of *Tegra novae-hollandiae* De Haan, but somewhat more slender, slightly tapering towards the apex; the rather peculiar tegminal pattern like in *superba*; the shape of the middle femora, which are distinctly lobate dorsally; the general shape of the pronotum; the blackish brown forehead.

A distinct difference is found in the median crest of the pronotum. In *superba* De Jong this crest is very low, whereas in *karnyi* it is elevated and crenulated, and prolonged as a low crest towards the anterior pronotal border. The type specimen of *karnyi* is somewhat larger than that of *superba.*

Olcinia Stål

Olcinia Stål, 1877, p. 45; Brunner von Wattenwyl, 1895, p. 92; Elera, 1895, p. 210; Kirby, 1906, p. 308; Karny, 1923, p. 177; 1924, p. 203; 1926b, 123; De Jong, 1938 p. 89; Beier, 1944, p. 87; 1954, p. 238.

Since Brunner von Wattenwyl's Monographie der Pseudophylliden (1895) in which only two species are mentioned in the genus *Olcinia,* i.e., *crenifolia* De Haan and *erosifolia* Stål, 7 new species have been described. However, two of them lost their specific status: *Olcinia pilifrons* Karny (1925, pp. 42-45, figs. 3, 4) = *Sathrophylliopsis longe-pilosa* (Brunner v. W.), and *Olcinia tuberculata* De Jong (1938, p. 101, figs. 17, 18) = *O. pallidifrons* Karny (1926 b, p. 123, fig. 13). The first mentioned synonymy has been established in my paper of 1938, the second will be shown below. To identify the 7 species of the genus *Olcinia* I made a key which will be found below. Though Beier (1954, p. 239) composed a key to the species, I still think it useful to publish mine, as very different characters are chosen, and in case of doubt the two keys may amplify each other.

Key to the species

1. Head with 2 small thorns on dorsal surface, one on each side close to the eye . 2
— Dorsal surface of the head without such thorns 4
2. Forehead dark brown . . . . *mahakamensis* De Jong, ♀, ♂.
— Forehead pale 3
3. Pronotum of normal shape . . . . *dentata* De Jong, ♂, ♀.
— Pronotum deeply and broadly incised on posterior margin . . *excisa* Karny, ♀.
4. Forehead dark brown. No thorn on dorsal surface of middle tibiae near knee . 5
— Forehead pale. Middle tibiae with small thorn on dorsal surface below knee . 6
5. Costal row of cells in the alae about half as broad as the interval between the branches of the medial vein in the tegmina. Length ♀ about 52 mm . . . . *crenifolia* De Haan, ♀, ♂.
— Costal row of cells in the alae about equally broad as the interval between the branches of the medial vein in the tegmina. Length ♀ about 65 mm . . . . *erosifolia* Stål, ♀.
6. Pronotum crenulated but without a crenulated median crest or distinct median row of tubercles on the basal half . . . . *grandis* De Jong, ♀.
— Pronotum with a strongly crenulated crest (♀) or a distinct indication of such (♂) on the posterior half of the disk *pallidifrons* Karny, ♂. (*tuberculata* De Jong, ♀).

The special characters given by various authors are not always sufficient to identify their species. The genotype *O. erosifolia* Stål has been compared to *Locusta crenifolia* De Haan, a species, which undoubtedly belongs to the same genus. However, the differences given by Stål are not in accordance with the facts, as his species is not smaller, but larger than *crenifolia,* the posterior femora are coloured in nearly the same way, and the shape of the tegminal apex in *crenifolia* appears to be slightly variable to the extend that the specimen from Java (De Jong, 1938, p. 92) shows no essential differences in this respect from *erosifolia.* The only distinct differences I could find are: a) the total length (*crenifolia,* 52 mm; *erosifolia,* 65 mm);

b) the breadth of the costal range of cells in the alae, which is narrow in *crenifolia*, less than $^1/_2$ of the breadth of the area between the branches of the medial vein in the tegmina, against a row of broader cells in *erosifolia*, almost equally broad as the area between the branches of the medial vein in the tegmina; c) the locality (*crenifolia*: Borneo, Java; *erosifolia*: Philippines).

Karny described two species: *O. excisa* (♀, 1923, p. 177, pl. 2 fig. 4) from Borneo, and *O. pallidifrons* (♂, 1926 b, p. 123, fig. 31) from Perak. The principal character for *excisa* is the incision of the posterior border of the pronotum. However, in my opinion this incision is an individual aberration without systematic value [6]. As the description of *O. excisa* is rather vague in the other characters, not more than a recapitulation of the generic characters, a study of the type specimen will be necessary do decide to which species it should be reckoned. In my opinion it is closest related to *O. dentata* De Jong (1938, p. 94, fig. 15).

For *O. pallidifrons* Karny emphasizes the pale forehead, but this character has no specific value as it is also found in a number of other species. The other characters are all in common with other species, e.g., *O. grandis* De Jong (1938, p. 92, fig. 14 f-j) and *O. dentata* De Jong. The shape of the ♂ abdominal appendages differs only slightly in the various species, and in my opinion this character is of no specific value.

From the material which I could study I could derive some characters which in combination may prove to be useful to separate groups of species: 1° the colour of the forehead (frons) and of the meso- and metasternum; 2° the small but distinct thorns or tubercles which are found on the dorsal surface of the head, one on each side close to the eye; 3° the small, more or less distinctly developed blunt whitish thorns on the dorsal surface near the base of the intermediate and posterior tibiae (cf. De Jong, 1938, pp. 93, 95, fig. 15 d).

Further I established the synonymy *O. tuberculata* De Jong (1938, p. 101, figs. 17, 18 a-d) with *O. pallidifrons* Karny (1926 b, p. 123, fig. 31) which will be discussed below.

Olcinia dentata De Jong (fig. 11 a-d)

Olcinia dentata De Jong, 1938 (1939), p. 94, fig. 15; Beier, 1954, p. 243, fig. 140.

Amsterdam Museum

Borneo: 1 ♂, E-Borneo, Semberah, ± 50 km N. of Mahakam-delta, IV/V 1935, leg. Pijpers & Heyne (ex coll. Dr. D. Mac Gillavry) (allotype).

6) Similar aberrations sometimes occur in other insects.

The Hague Museum

Sumatra: 1 ♀ Tandjong Merah Estate near Medan, 1914, leg. J. H. Houwing Jr. (ideotype).

From the specimen of the "Museum voor het Onderwijs" in the Hague, the locality of which is undoubtedly correct, we see that the distribution of the species is more extended. It may also be expected in the Malay Peninsula. The number of known specimens being only 2 ♀♀ and 1 ♂ I shall abstain from speculations.

In general features the ♂ corresponds with the ♀, but it is slightly smaller. As characters of specific value I regard the following: the shape, structure and colour pattern of the pronotum (fig. 11a), the place of origin of the radial branch vein and its course in comparison with the other veins in the tegmina, the shape of the intermediate legs, especially the ventral margin of the femora, the presence of a small thorn on the tibiae just below the knee, the presence of 2 small whitish tubercles on the head between the eyes, one on each side just beside the inner margin of the eyes.

The specific name was given after the tooth-shaped lobes of the anterior femora. These lobes, however, are less apparent in the ♂ than in the ♀. The ventral lobes of the intermediate femora appear to be more constant. In both sexes a small whitish tubercle is found on the dorsal surface of the intermediate and posterior tibiae just below the knee.

The colour of the ventral surface of the body of the ♂, and of the legs, head and prothorax is ochraceous, in various parts speckled with dark brown. Like in the ♀ the middle femur bears a dark patch on the external surface at about one third of the length. The colour of the legs nearly completely corresponds in ♀ and ♂. So does the dark longitudinal stripe on the thorax. In the figure of the thorax ♀ (l.c., fig. 15 c) this stripe has only been drawn where it is nearly black. However it extends towards the anterior margin, growing gradually paler like in the figure of the thorax of the ♂ (fig. 11 a).

The tegmina are light greyish brown, mottled with dark brown and light pinkish brown patches, not unlike he pattern of the ♀.

The shape of the abdominal appendages is as follows (fig. 11 b-d). The subgenital plate is broad, almost parallel-sided in its basal part, then tapering towards the deeply incised top. The basal part is approximately as long as it is broad. The two apical lobes bear the lancet-shaped styli. The cerci are rather strong, almost parallel-sided in their basal half, then tapering towards the top. They are curved slightly outwards in their basal third, upwards in their apical fourth and inwards in their apical sixth, ending into a strong brown thorn, which points inwards. The basal part

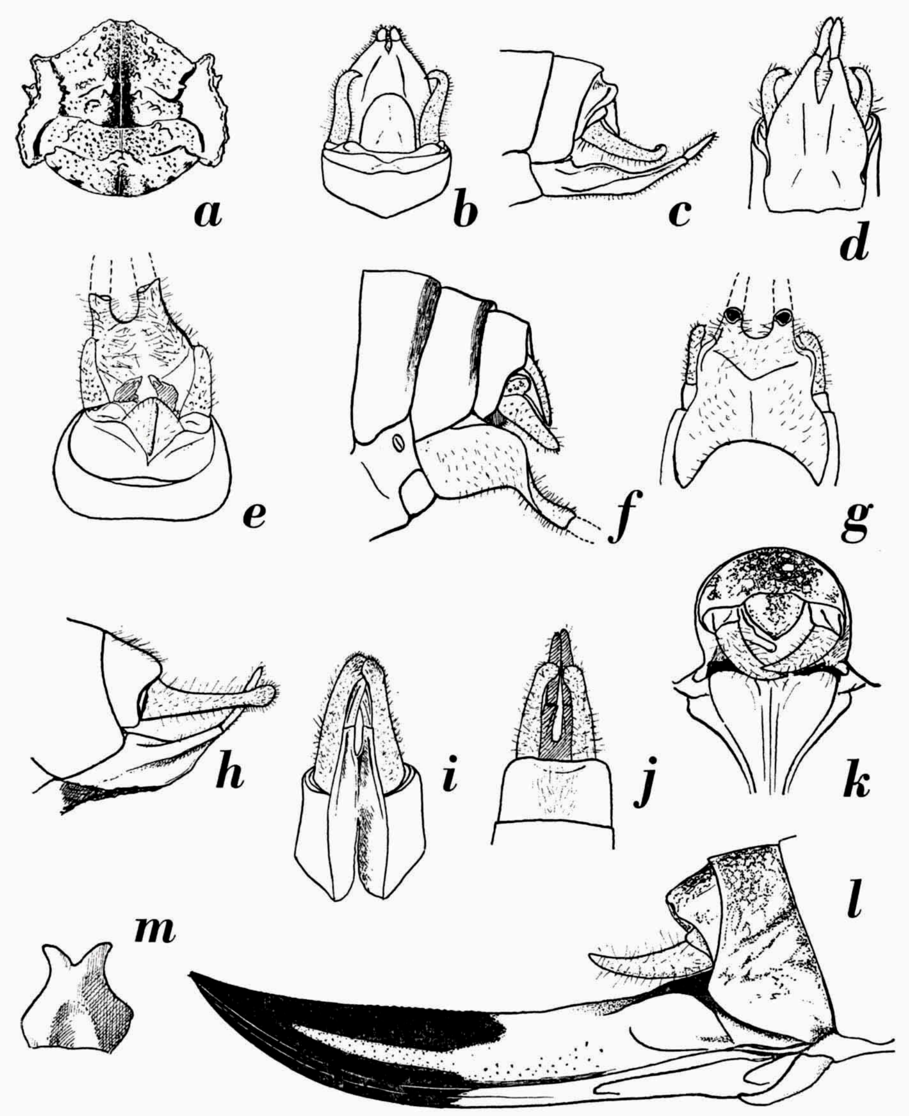

Fig. 11. a-d, *Olcinia dentata* De Jong, ♂ allotype; a, prothorax, dorsal view; b-d, abdominal appendages, dorsal, lateral, and ventral view respectively; e-g, *Pantecphylus cerambycinus* Karsch, ♂, abdominal appendages, dorsal, lateral, and ventral view respectively; h-m, *Lichenochrus maculosus* Sjöstedt; h-j, ♂ abdominal appendages, dorsal, lateral, and ventral view respectively; k-l, ♀ abdominal appendages, dorsal and lateral view respectively; m, ♀ subgenital plate. × 5.

is light brown, the apical part is light yellowish. The supra-anal plate is shield-shaped, distinctly bordered, rounded apically. The subgenital plate, the cerci, and the border of the supra-anal plate are thinly adorned with long and thin pale hairs.

Measurements of the ♂ (allotype) and the 2nd ♀ (ideotype) in mm (those of the ♀ in parentheses):

Total length, antennae excluded 45 (64½); length body 23 (32); length pronotum 5 (8); breadth pronotum 5½ (8); length tegmina 34 (53½); breadth tegmina 9½ (16); length alae 36 (54½); length anterior femora 7 (11); length posterior femora 11½ (19); length antennae 62 (damaged); length ovipositor ♀ 23.

Olcinia pallidifrons Karny

Olcinia pallidifrons Karny, 1926b, 123, fig. 31; De Jong, 1945, p. 8; Beier, 1954, p. 242.
Olcinia tuberculata De Jong, 1938 (1939), p. 101, figs. 17, 18 a-d; Beier, 1954, p. 244, fig. 141.

Leiden Museum

Borneo: Sugut, Pandakan Bay, leg. Prakke, 1 ♀ (holotype *O. tuberculata* De Jong).
Locality unknown: 1 ♀ (paratype *O. tuberculata* De Jong).

Ir. P. A. Blijdorp's Collection (Wageningen)

Sumatra: Benkoelen, Boekit Itam, 600-700 m, 11 VI-2 VII 1935, leg. M. E. Walsh, 1 ♀; Benkoelen, Tandjong Sakti, 600-700 m, 26 V-19 VII 1935, leg. M. E. Walsh, 1 ♂.

When examining the collection of Ir. P. A. Blijdorp I found 1 ♀ and 1 ♂ undoubtedly belonging to the genus, both captured at Benkoelen, S. Sumatra. The ♀ was not identified but appeared to belong to *O. tuberculata* De Jong (1838, l.c., p. 101, figs. 17, 18). The ♂ was labelled *O. pallidifrons* Karny, but it corresponds with the ♀ in many details, e.g., in details of the pattern on the head, and in the shape of the fastigium verticis, the antennal scrobes and basal joints. There is, however, one distinct point of difference, viz., the armament of the disk of the pronotum. In the ♀ the strong crenulated crest on the basal part, and the groups of tubercles on the rest of the disk, as well as the crenules along the borders are arranged in nearly the same way as in the holotype of *tuberculata*. In the ♂, however, no strong median crest is found on the basal half, only a few distinct granules, the groups are smaller and the tubercles less acute. The posterior border is not crenulated, but distinctly marginate. The colourpattern of the pronotum strongly resembles that of *O. dentata*, but the colour is more greyish green. The borders are distinctly green in this relatively fresh specimen. The genitalia and the shape of the middle femora correspond with Karny's description of *O. pallidifrons*. From that description I could not derive any difference which would suggest another species. So, the rather scanty material leads to the following conclusions:

a. the ♀♀ have been captured on Borneo and S. Sumatra, and those from Borneo have been described as *O. tuberculata* De Jong.

b. The ♀ and ♂ captured on S. Sumatra evidently belong to one sexually dimorph species.

c. The ♂ corresponds with the description and figures of *O. pallidifrons* Karny from Perak.

d. If *b* and *c* are true, which is most probable, the two species should be united as *O. pallidifrons* Karny, a species distributed in a more extended area than was hitherto known.

The ♀ from Sumatra at first sight strongly resembles the common *Sathrophylia femorata* (F.), especially in the colour-pattern. This specimen is relatively fresh and it has not yet lost its colour in such a degree as the type specimens of *tuberculata*. The general colour is light bronze-grey dorsally, with the basal half except the basal eighth of the elytra whitish grey like lichens. The apical sixth of the elytra too is of a lighter greysh colour. The venae are greenish, especially in their apical part. The posterior legs are light green, marbled with dark brown, with nearly black knees and very dark apical parts of the tibiae.

Measurements of the ♀ and ♂ in Ir. Blijdorp's collection in mm (those of the ♂ in parentheses):

Total length 67½ (45); length body 25 (18½); length pronotum 8 (5½); length tegmina 53½ (35); breadth tegmina 14 (10); length alae 52½ (35); length anterior femora 8½ (7); length posterior femora 18½ (15); length antennae 71 (67); length ovipositor 19.

PANTECPHYLINI

Pantecphylus Karsch

Pantecphylus Karsch, 1890, p. 274; 1891a, pp. 78, 99; 1891b, p. 337; Brunner von Wattenwyl, 1895, pp. 13, 98; Kirby, 1906, p. 310; Rehn, 1914, p. 187; Beier, 1944, pp. 86, 87; 1954, p. 271.

Pantecphyllus Bolívar, I., (err. typ.), 1906, p. 359.

Pantecphylus cerambycinus Karsch, (fig. 11 e-g)

Pantecphylus cerambycinus Karsch, 1891a, p. 100, pl. 3 figs. 11a, b; 1891b, p. 337; Brunner von Wattenwyl, 1895, p. 98, pl. 4 fig. 41; Kirby, 1906, p. 310; Griffini, 1908, p. 46; Sjöstedt, 1912, p. 21; Ebner, 1943, p. 262; Beier, 1954, p. 272; 1957, p. 60.

Pantecphyllus cerambycinus Bolívar I., 1906, p. 359.

Amsterdam Museum

Central Africa: 1 ♂, Congo Territories, Landana, leg. J. Jac. de Groot, 1910.

The genus is at once recognizable by the spinous pronotum and the strangely shaped elytra which form a kind of hunch, beginning at one-fourth from the base, and proceeding as an elevated crest towards the apex. This hunch is very obvious in lateral view. From the literature it was not clear whether there is a real difference between *P. cerambycinus* Karsch and *P. cerambycinus* subsp. *major* Griffini, though Rehn ragarded them as separate species. This was confirmed by Beier (1954, p. 272) who found a useful character to separate the two: femora dorsally devoid of spines: *P. cerambycinus* Karsch, femora dorsally with two rows of spines: *P. major* Griffini.

As the obdominal appendages of the ♂ before me differ slightly from Karsch's figure, I figured the somewhat damaged abdominal end (fig. 11 e-g).

PLEMINIINI

Lichenochrus Karsch

Lichenochrus Karsch, 1890, pp. 268, 275; 1891a, pp. 105-107; 1891b, p. 337; Brunner von Wattenwyl, 1895, pp. 16, 125; Pictet & Saussure, 1898, p. 409; Sjöstedt, 1901, p. 32; Kirby, 1906, p. 317; Bolívar I., 1906, p. 361; Rehn, 1914, p. 187; Griffini, 1908, p. 53; Beier, 1954, p. 325.

Lichenochrus maculosus Sjöstedt (fig. 11 h-l)

Lichenochrus maculosus Sjöstedt, 1901, p. 34, pl. 2 fig. 2; Kirby, 1906, p. 317; Rehn, 1914, p. 187; Sjöstedt, 1933, p. 12.
Lichenochrus marmoratus (partim) Beier, 1954, p. 329.

Mr. Willemse's collection

Cameroons: 2 ♀♀ and 2 ♂♂, Victoria.

The four specimens in Mr. Willemse's collection evidently belong to the same series. One of the ♂♂ bears a label by Brunner von Wattenwyl: *Lichenochrus* nov. spec., but the species was never described by that author. When I tried with Brunner von Wattenwyl's monograph (1895) to ascertain to which species it is closest related, I came to *L. decoloratus* (l.c., pp. 126 and 128). The most prominent difference from that species is the colour of the sternum. In *decoloratus* it is bluish grey like the face but in the present species the sternum is very dark brown to black. Sjöstedt (1901, p. 34) described *L. maculosus,* with which species the specimens before me fairly well agree in their principal characters. His description, however, is based on 1 ♀ only. It appears that the species is slightly variable, especially in the number of spines on the legs and in some minor details. I shall discuss the various points of the descriptions and the differences, in about the same order as they are given by Sjöstedt.

The forehead of 3 of the specimens is of a faint greyish blue; in one ♀ it is for the greater part pale yellowish. The labrum in this ♀ specimen is nearly white, in the other ones it is more greyish blue, like the face. The base of the labrum is whitish. The base of the clypeus is greyish blue, the apical half is dark brown. The sternum was described as shining black, with the thorns of the prosternum, the anterior corners and hind margin of the mesosternum, and the sides and posterior border of the metasternum yellowish. In the present specimens these peculiarities occur in nearly the same way but the colour is not black but dark brown. The legs are as described, yellowish, shaded and mottled with brown. The ♀♀ show a broad but indistinct band at the apical half of the anterior femora. The anterior tibiae in both sexes show a distinct black spot on the posterior surface near the apex. The middle tibiae are broadened in their basal two thirds, darkened in the ♀♀ over about the whole of their length, in the ♂♂ apically only. The posterior femora are distinctly ringed before the knee in the ♀♀, less distinctly in the ♂♂. In both sexes on the posterior (= inner) surface a dark spot is found forming part of the ring. Before this dark band there is a zone which is almost devoid of dark markings. On the inner surface this zone is present as a yellowish band. In both sexes the anterior surface of the hind femora is light reddish brown, more yellowish towards the ventral margin.

The armament of the legs shows some variation. In the description of the ♀ one spine only is mentioned on the dorsal surface of the middle tibiae. In the specimens under consideration one of the ♀♀ possesses one spine on that part of the right leg and 2 on the left, the other ♀ has one spine and 2 small tubercles at the right and two spines at the left. The ♂♂ possess 2 spines at the right as well as the left side. In the following table the complete armament of the legs is given.

	surface	type ♀	♀	♀	♂	♂
anterior femora	ventro-internal (near apex)	3–3	3–2	3–3	3–2½	2–2
ant. tibiae	dorsal	—	—	—	—	—
	ventro-internal	(–)	6–6	6–6	6–7	7–6
	ventro-external	(–)	7–6	6–6	7–7	7–7
middle femora	dorsal	—	—	—	—	—
	ventral	4–4	4–4	4–4	4½–4	4–4
middle tibiae	dorsal	1–1	2–1½	2-1²/2	2–2	2–2
	ventro-internal	(–)	7–7	7–7	(1½)–5	7–6
	ventro-external	(–)	7–7	7–7	(1)–7	7–7

posterior femora	dorsal	—	—	—	—	—
	ventral	6–7	7½–7	7–7	7–7	7–6½
post. tibiae	dorso-internal	(–)	12–12	12–12	11–10	11–10
	dorso-external	(–)	9–9	8–9	9–7	9–9
	ventro-internal	(–)	5–4½	5–5	5–6	7–7
	ventro-external	(–)	10–10	10–10	11–10	10–9

— means: no theeth nor crenulations.
(–) means: number of teeth unknown.
7-6 means: left 7, right 6 spines.
½ means: one small spine or tubercle; ²/₂ means: two tubtrcles; number in brackets: abnormality.

In the middle of the anterior border the pronotum slightly extends over the head, and on the top of this obtusely angular processus in all specimens a distinct tubercle is found.

The tegmina(elytra) are slightly transparent, for the greater part yellowish grey. In the ♀♀ the elytra bear a number of rather large dark brown patches, especially in the hind margin. In the ♂♂ these patches are little apparent but the elytra show a faint greenish hue. In the ♀♀ the elytra just reach the tip of the abdomen, in the ♂♂ they surpass the apex with about a quarter of their length. In the ♂♂ the tympanal area of the elytra is half as long as the pronotum.

The hind wings are as described, unicolorous, darkly infumated.

The ovipositor (fig. 11 l) is as described by Sjöstedt, evenly curved, black at the upper base and in the apical half. The subgenital plate (fig. 11 m) is incised at the apex, the lobes slightly diverge and are rounded at their top. The sides of the incision form an angle of approximately 90°. The cerci (fig. 11 k and l) are moderately long, faintly curved inwards, stronger at the apex, and terminate into a short spine of the same yellowish colour. They are covered with rather long, scattered whitish hairs. The supra-anal plate shield-shaped, more or less distinctly angulate apically. Its position is almost perpendicular to the longitudinal axis of the animal. It is yellowish, marbled with dark grey like the abdominal segments.

In the ♂♂ (fig. 11 h-j) the supra-anal plate is of the same shape and position as in the ♀♀. The cerci are green, they are relatively longer and more slender than in the ♀♀, their top is somewhat inflated and bears a small brown spine which points inwards. The subgenital plate is elongate, the basal part is faintly crested. The apical fifth is incised, each lobe bearing a long style, which is as broad as the lobe and twice as long as the incision.

I do not agree with Dr. Beier's view that *L. marmoratus* Sjöstedt and *L. maculosus* Sjöstedt constitute one species only. The here-mentioned specimens in my opinion do not show characters that point towards *marmoratus* Sjöstedt.

Habrocomes Karsch

Habrocomes Karsch, 1890, p. 275; 1891a, pp. 78, 102; Kirby, 1906, p. 316; Beier, 1954, p. 333.
Pleminia Brunner von Wattenwyl, 1895, p. 122 (part.); Bolívar I., 1906, p. 360 (nec *Pleminia* Stål 1874).

Habrocomes personatus (Sjöstedt)

Habrocomes lanosus Karsch, 1892, p. 77, ♂ (nec *lanosus* Karsch 1891).
Pleminia personata Sjöstedt, 1901, p. 31; Griffini, 1906, p. 372; Kirby, 1906, p. 316; Sjöstedt, 1933, p. 11, pl. 7 fig. 7.
Pleminia lanosa Griffini, 1908, p. 52.
Habrocomes personatus Beier, 1954, p. 335, fig. 181.

Mr. Willemse's collection

Cameroons: 5 ♀♀, Victoria.

Two of the available specimens of this rather variable species show a somewhat "lichenoid" pattern, with small pustules on some of the transverse veins of the tegmina, and a more or less marbled pattern on the legs. One of them shows a transverse row of black spots on the upper part of the head, which peculiarity seems to be rather scarcely occuring.

The other three specimens are more evenly brown with more or less distinct light longitudinal stripes, showing a "bark" pattern. The tegminal length in this species is rather variable, from $1^1/_4$ to $1^1/_2$ times as long as the posterior femora.

Tympanocompus Karsch

Tympanocompus Karsch, 1891a, pp. 79, 167; 1891b, p. 337; Brunner von Wattenwyl, 1895, pp. 17, 157; Kirby, 1906, p. 324; Beier, 1954, p. 339.

Tympanocompus acclivis Karsch (fig. 12 a-d)

Tympanocompus acclivis Karsch, 1891a, p. 108, pl. 4 fig. 16; 1891b, p. 337; Brunner von Wattenwyl, 1895, p. 157, pl. 7 fig. 70; Griffini 1906, pp. 268, 269; Kirby, 1906, p. 324; Griffini, 1908, p. 62; Beier, 1954, p. 341.
Mormotus insignis Brunner von Wattenwyl, 1895, p. 156.
Lichenochrus flavifrons Sjöstedt, 1901, p. 35; 1933, p. 12, pl. 8 fig. 3.

Leiden Museum

Cameroons: 1 ♂ (ex coll. Dr. H. C. Blöte).

Mr. Willemse's collection

Africa: exact locality unknown: 1 ♀.

The species was elaborately described by Karsch and Brunner von Wattenwyl. In addition Karsch figured the ♂, and Brunner gave a good figure of the ♀. As an addition I figured the ♂ abdominal appendages (fig. 12

a-c). The original description of these runs as follows: "Lamina subgenitalis ♂ apice profunde incisa, stylis liberis longis instructa. Cerci ♂ crassi, breves, curvati, apice clavati, inermes". The last-mentioned character was not con-

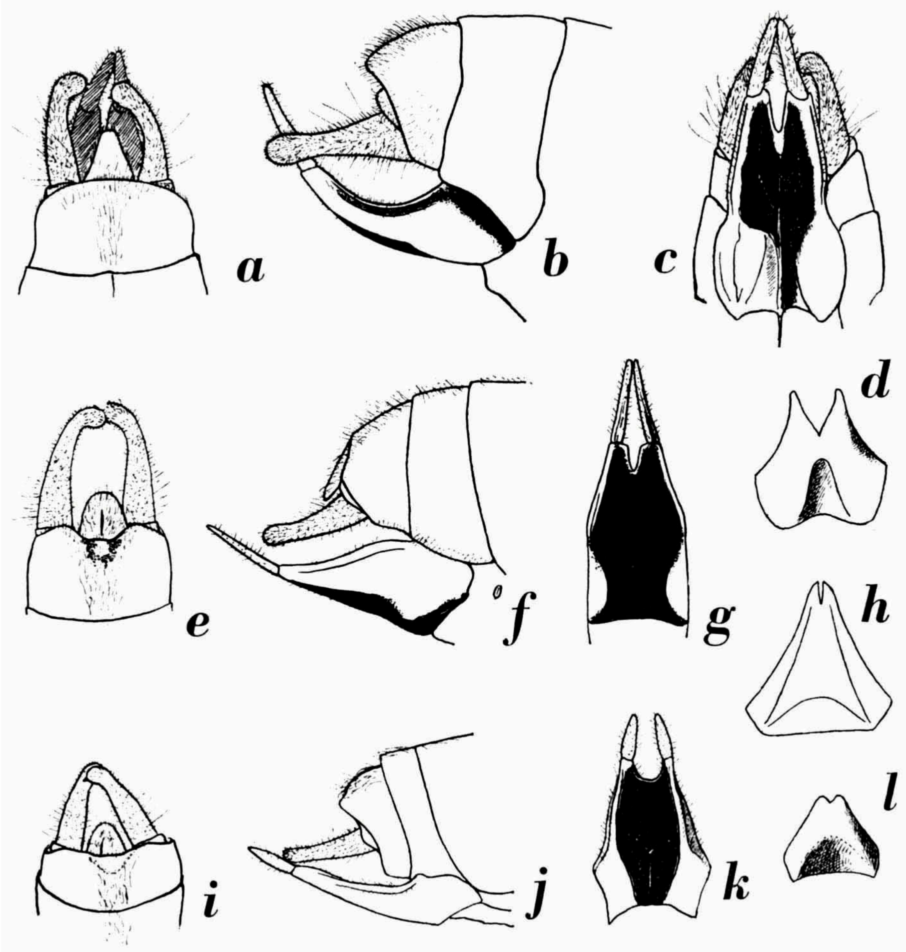

Fig. 12. a-d, *Tympanocompus acclivis* Karsch; a-c, ♂ abdominal appendages, dorsal, lateral, and ventral view respectively; d, ♀ subgenital plate; e-h, *Mormotus montesi* (Bolívar); e-g, ♂ abdominal appendages, dorsal, lateral, and ventral view respectively; h, ♀ subgenital plate; i-l, *Adapantus osorioi* (Bolívar); i-k, ♂ abdominal appendages, dorsal, lateral, and ventral view respectively; 1, ♀ subgenital plate. × 5.

firmed by later authors. The specimen I could examine shows a small but distinct spine on the apex of the cerci. Beier (1954, p. 341) also mentions this character.

The ♀ subgenital plate is represented in fig. 12 d.

An easy character to recognize the species from the closely related and very similar species is the beautiful reddish-brown forehead with a thin black line along the antennal scrobes, and along the clypeus.

Mormotus Karsch

Mormotus Karsch, 1890, pp. 269, 276; 1891a, p. 109; Brunner von Wattenwyl, 1895, p. 153; Kirby, 1906, p. 323; Bolívar I., 1906, p. 361; Beier, 1954, p. 342; Rehn, 1914, p. 189.

Mormotus montesi (Bolívar I.), (figs. 12 e-h)

Platyphyllum Montesi Bolívar I., 1886, p. 347.
Mormotus nigrispinosus Karsch, 1890, p. 270; 1891a, pp. 110, 111, pl. 4 figs. 17, 17a.
Mormotus Montesi Brunner von Wattenwyl, 1895, p. 155; Sjöstedt, 1901, p. 37; Kirby, 1906, p. 323; Griffini, 1906, p. 369; 1908, p. 64; Bruner, 1919, p. 126; Bolívar I., 1906, p. 361; Beier, 1954, p. 344, fig. 183; 1957, p. 66.
Mormotus nigrospinosus (err. typ.) Kirby, 1906, p. 324.

Leiden Museum

Cameroons: 1 ♀ (ex coll. Dr. H. C. Blöte).

Mr. Willemse's collection

Africa: exact locality unknown: 1 ♂.

This species strongly resembles *Tympanocompus acclivis* Karsch, but it can be recognized by the whitish grey colour of the forehead, by the more evenly brown tegmina, without distinct dark, "bare" patches. The tegminal surface is covered by a fine network of nervures which fills all the cells, in the ♂ even the tympanal area of the left tegmen. Furthermore the shape of the ♀ subgenital plate is rather characteristic (fig. 12 h), and the shape of the ♂ abdominal appendages too can be used as a character to identify the species (figs. 12 e-g).

Adapantus Karsch

Adapantus Karsch, 1891a, p. 103; 1891b, p. 337; Brunner von Wattenwyl, 1895, p. 158; Kirby, 1906, p. 325; Bolívar I., 1906, p. 363; Beier, 1954, p. 352.

Adapantus osorioi (Bolívar I.), (fig. 12 i-l)

Platyphyllum Osorioi Bolívar, 1886, p. 346.
Adapantus egenus Karsch, 1891a, p. 105; 1891b, p. 337.
Adapantus transmarinus Brunner von Wattenwyl, 1895, p. 159 ♀ (partim, nec ♂).
Adapantus ossorioi Bolívar I., 1906, p. 363; Griffini, 1908, p. 62.
Adapantus osorioi Sjöstedt, 1913, p. 23; Beier, 1954, p. 353; 1957, p. 66.

Mr. Willemse's collection

Cameroons: 2 ♀♀ and 2 ♂♂, Victoria.

Some difficulties have arisen in connection with the synonymy of this species. Brunner von Wattenwyl suggested synonymies with *Meroncidius transmarinus* Krauss (1890, p. 664, figs. 10, 10 a, b), ? *Platyphyllum Osorioi* Bol., *Adapantus egenus* Karsch, and *Adapantopsis Ossorioi* Karsch. But as the author of *Platyphyllum Osorioi*, Bolívar himself (1906, p. 363) affirmed the identity of his species with *transmarinus* Krauss, this was generally accepted.

After a careful study of all forms under consideration Beier (1954) succeeded in solving the problems at last.

As a contribution to a better identification of the species I figured the ♂ abdominal appendages, and the ♀ subgenital plate (figs. 12 i-l).

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* I could not study this paper. Neither could I get more information about it.

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