

Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by
Far East Branch of the
Russian Entomological Society
and Laboratory of Entomology
Institute of Biology and Pedology,
Vladivostok

Number 79: 1-8

ISSN 1026-051X

October 1999

TWO REMARKABLE NEW GENERA OF MUTILLID WASPS (HYMENOPTERA: MUTILLIDAE, SPHAEROPHTHALMINAE, PSEUDOMETHOCINI) FROM THAILAND

A. S. Lelej¹⁾ and K. V. Krombein²⁾

1) Institute of Biology and Pedology, Vladivostok-22, 690022, Russia

2) Department of Entomology, MRC 165, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0165, U.S.A.

Cockerellidia Lelej et Krombein, **gen. n.** (type species *Mutilla sohmi* Cockerell) and *Karlidia* Lelej, **gen. n.** (type species *Karlidia peterseni* Lelej, **sp. n.**) are described from Thailand. The systematic position of new genera among subfamilies Sphaerophthalminae, Dasyabrinae and Ephutinae is discussed.

KEY WORDS: Mutillidae, *Cockerellidia*, *Karlidia*, new genera, Thailand.

А. С. Лелей¹⁾, К. В. Кромбайн²⁾. Два замечательных новых рода ос-немок (Hymenoptera: Mutillidae, Sphaerophthalminae, Pseudomethocini) из Таиланда // Дальневосточный энтомолог. 1999. N 79. С. 1-8.

Описываются роды *Cockerellidia* Lelej et Krombein, **gen. n.** (типовой вид *Mutilla sohmi* Cockerell) и *Karlidia* Lelej, **gen. n.** (типовой вид *Karlidia peterseni* Lelej, **sp. n.**) из Таиланда. Обсуждается систематическое положение новых родов среди подсемейств Sphaerophthalminae, Dasyabrinae и Ephutinae.

1) Биолого-почвенный институт, 690022, Владивосток-22, Россия.

2) Департамент энтомологии, Национальный музей естественной истории, Вашингтон, DC 20560-0165, США.

INTRODUCTION

The first author, ASL, visited the Smithsonian Institution for a month in 1998 at the invitation of the second author, KVK. The purpose of this visit was for ASL to study the numerous Ceylonese Mutillidae in that collection.

During this visit KVK showed ASL the unique holotype of the bizarre *Mutilla sohmi* Cockerell from Thailand. This specimens has been studied by the late Borge Petersen who considered it to be a new genus related to *Odontomutilla* Ashmead (in litt. to KVK, 1980). Petersen also wrote that he collected a series of another related new genus in Northern Thailand. Thanks to Dr. Rudolf Meier, Zoological Museum, University of Copenhagen, Denmark, we were able to borrow the series of this second genus. After a thorough study we concluded that both species belonged to separate new genera in the tribe Pseudomethocini (subfamily Sphaerophthalminae). We are following the classification of Mutillidae proposed by Lelej and Nemkov (1997) to replace the classification of Brothers (1975, 1999). Till now only one genus *Cystomutilla* André, 1896 from this subfamily has been known in Eurasia and Africa, but 64 genera and many species of Sphaerophthalminae distributed in the New World and Australian region (Brothers, 1975; Lelej & Nemkov, 1997; Nonveiller, 1990).

Depositories for specimens listed are as follows: IBPV - Institute of Biology and Pedology, Vladivostok, Russia; USNM - National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A.; ZMUC - Zoological Museum, University of Copenhagen, Denmark.

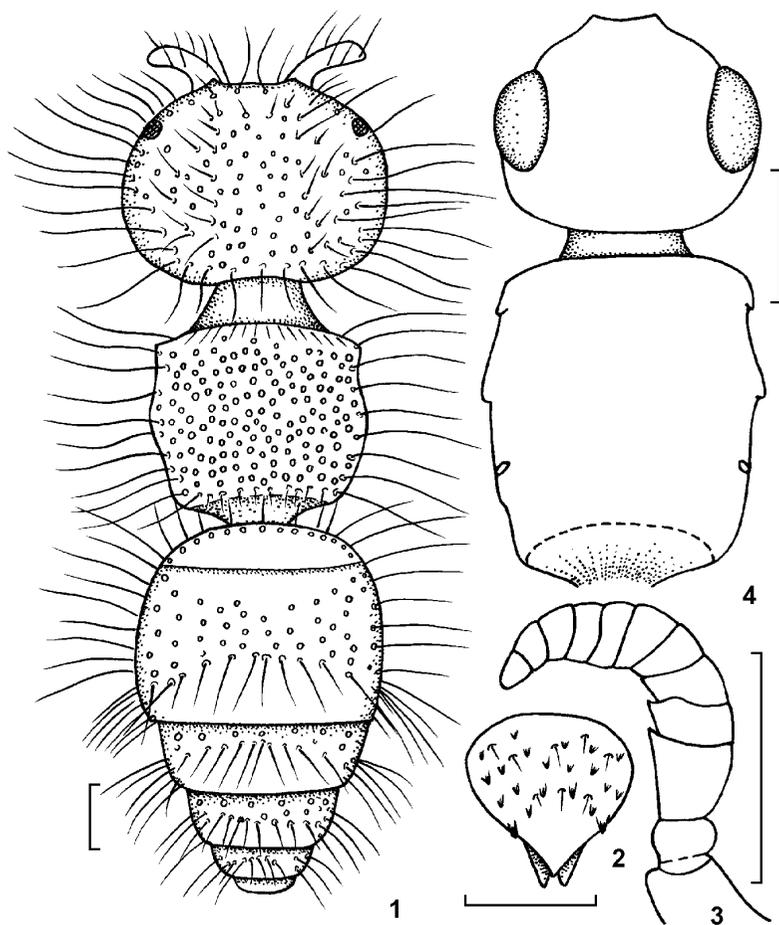
Genus *Cockerellidia* Lelej et Krombein, **gen. n.**

Figs 1-3, 9

TYPE SPECIES. *Mutilla sohmi* Cockerell, 1928.

SPECIES INCLUDED. The type species only.

DIAGNOSIS. FEMALE. Head much enlarged, 1.2X width of mesosoma (Fig. 1); eyes very small (Fig. 1), maximum eye width 0.25X distance between posterior eye margin and posterior head margin; antenna (Fig. 3) with very short flagellomeres, segment 3 as long as its maximum width and 1.8X as long as 4, the latter half as long as wide; antennal tubercle widely separated with horizontal carina between them; scape flattened and curved, carinated anteriorly and posteriorly; maxillary palpi very small, approximately as long as scape; mesosoma shortened without traces of dorsal sutures, 0.8X as long as maximum width, scutellar scale lacking; posterior margin not dentate or serrate; mesopleuron weakly but distinctly convex with a vertical row of long setae; gastral segment 1 very wide, tergum 1 with distinct anterior and dorsal surfaces, the latter smooth and shining except anterior line of punctures; tergum 2 with lateral linear felt line; terga 2-5 (Fig. 1) posteriorly with a more or less wide smooth band margined anteriorly by strong, subappressed long setae; tergum 6 (Fig. 2) microgranulated, apex weakly convex and bordered by a few large tubercles; legs short, foretarsi with strong pectinate comb, mid (Fig. 9) and hind



Figs 1-4. 1-3 - *Cockerellidia sohmi*, ♀ (holotype): 1) body dorsally, 2) pygidial area, 3) antenna; 4 - *Yamanetilla nipponica* (Tsuneki, 1972), head and thorax dorsally. Scale line 1 mm.

tibiae with a longitudinal row of 3 strong spines, apex with 4-5 close spines; body setae extremely long (Fig. 1), lateral setae as long as hind tibiae.

MALE unknown.

DISTRIBUTION. *Cockerellidia* is known from northern Thailand only, but we expect that it is more widely distributed in Oriental Region.

DISCUSSION. *Cockerellidia* differs from any genera of Odontomutillini (subfamily Ephutinae) in having a large head that is wider than mesosoma with very small eyes and extremely long body setae. It resembles the Australian *Odontomyrme* Lelej, 1983 and *Ponerotilla* Brothers, 1994 (tribe Odontomutillini), some species of which also have shortened mesosoma and similar punctuation of gastral terga 1 and 2, but lack the large head with small eyes and extremely long hairs.

Cockerellidia resembles the South African *Brachymutilla* André, 1901 (subfamily Dasylabrinae) in having a similarly shortened mesosoma with convex mesopleuron, lack of scutellar scale and wide gastral segment 1. However, *Brachymutilla* differs in having a smaller head that is narrower than the mesosoma and eyes of medium size located near the middle of the side of head.

ETYMOLOGY. We take great pleasure in naming this unusual mutillid for the remarkable entomologist Theodore Dru Alison Cockerell (1866-1948) who published 3904 scientific articles and described 5626 new insect taxa (Evans, 1985) including the type species of this new genus.

***Cockerellidia sohmi* (Cockerell, 1928), comb. n.**

Mutilla sohmi Cockerell, 1928: 597, ♀ [holotype - ♀, /Siam near Mecatin, Feb. 2 (Cockerell) [Siam, Nan region] / Holotype No 43108, U.S.N.M. / *Mutilla sohmi* Ckll., type / *Cockerellidia sohmi* (Ckll.), Lelej det., 1999/].

MATERIAL STUDIED. Holotype only (right flagellomeres 3-11 lost).

DISTRIBUTION. Northern Thailand (Nan).

Genus *Karlidia* Lelej, gen. n.

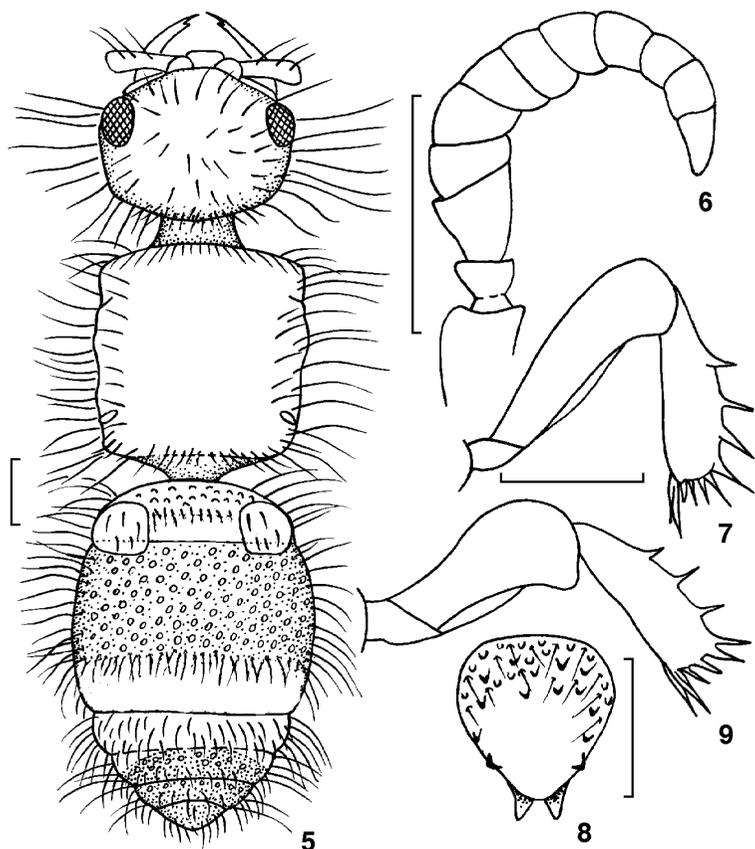
Figs 5-8

TYPE SPECIES. *Karlidia peterseni* Lelej, sp. n.

SPECIES INCLUDED. The type species only.

DIAGNOSIS. FEMALE. Head 0.9X width of mesosoma (Fig. 5); eyes small, rounded, convex but not hemispherical, length 1.14X width; closer to base of mandible than to posterior margin of head; antenna (Fig. 6) with short flagellomeres, segment 3 as long as its maximum width, 1.5X as long as 4, the latter 0.5X as long as wide; scape flattened and curved, carinated anteriorly; front with well developed carinae between antennal tubercles and between tubercle and inner eye margin; maxillary palpi about equal to antennal length; mesosoma as long as wide, slightly convergent anteriorly and posteriorly, without traces of dorsal sutures; mesopleuron distinctly convex with vertical row of long setae; dorsum without scutellar scale, posterior dorsal margin not dentate or serrate; gastral segment 1 very wide, tergum 1 with distinct anterior and dorsal surfaces, the latter posteriorly with broad, smooth, shiny band covered by subappressed long setae; tergum 2 with short lateral linear felt line; terga 2-5 posteriorly with smooth, shiny band limited anteriorly by strong long subappressed setae (Fig. 5); tergum 6 microgranulated with sparse tubercles and setae (Fig. 8); legs shortened, foretarsi with strong pectinate comb, mid (Fig. 9) and hind tibiae with a longitudinal row of 3 strong spines and apical row of 4 spines; basal third of hind tibiae laterally compressed and without pubescence; body setae long (Fig. 5), lateral setae on head and mesosoma approximately 0.5X hind tibia. MALE unknown.

DISTRIBUTION. Known from only one locality in Thailand, but presumably more widespread in the Oriental Region.



Figs 5-9. 5-8 - *Karlidia peterseni*, ♀ (5, 8 - holotype, 6, 7 - paratypes): 5) dorsal view of body, 6) antenna, 7) mid femur and tibia, 8) pygidial area; 9 - *Cockerellidia sohmi* (holotype), mid femur and tibia. Scale line 1 mm.

DISCUSSION. The new genus resembles genera *Yamanetilla* Lelej, 1996 and *Odontomutilla* Ashmead, 1899 (tribe Odontomutillini, subfamily Ephutinae) in having the wide gastral segment 1 and weakly convex mesopleurae but easily differs from them by small rounded eyes (rather large elongated eyes in Odontomutillini - Fig. 4). The female of *Karlidia* similar to that of *Dasylabroides* André, 1901 (Fig. 10) (subfamily Dasylabrinae) in having small rounded eyes, but differs by wide gastral segment 1 and by lacking of scutellar scale. The females of *Stenomutilla* André, 1896 and *Orientilla* Lelej, 1979 (subfamily Dasylabrinae) have one row of spines on mid and hind tibia also but *Karlidia* differs from both of them by wide gastral segment 1 (petiolate in the former genera). Among the subfamily Dasylabrinae the new genus most related with South African *Brachymutilla* and probably both belong to the same generic group [regretfully we have not

possibility to study the specimens of *Brachymutilla* for clarifying of systematic position of the latter and its characters follow André (1903) and Bischoff (1920-1921)]. *Karlidia* differs from *Brachymutilla* in follows: 1) the eyes located near mandibular base (in the middle of lateral side or closer to posterior border in *Brachymutilla*); 2) frontal subantennal carinae well developed (indistinguished in *Brachymutilla*); 3) antennal segment 3 at least 1.5X segment 4 (approximately equal in *Brachymutilla*) and 2.0X segment 2 (slightly longer than segment 2 in *Brachymutilla*); 4) mid and hind tibiae with one row of spines (two rows of spines in *Brachymutilla*); 5) spurs are brownish-red (whitish in *Brachymutilla*).

SYSTEMATIC POSITION. In spite of large differences in head, eyes and palpi the genera *Cockerellidia* and *Karlidia* have similar wide mesosoma with weakly but distinctly convex mesopleuron, similar pygidial area on gastral segment 6, shortened flagellomeres, shortened legs with wide apical lamellae on mid and hind femur and one row of spines on mid and hind tibiae as extremely long setae throughout body and both belong to the same generic group. Though the males of new genera still unknown, such characters of females as small round convex eyes, wide thorax without scutellar scale and very wide gastral segment 1 correspond to those of subfamily Sphaerophthalminae, especially tribe Pseudomethocini (tribe Sphaerophthalmini, subtribe Pseudomethocina *sensu* Brothers, 1975, 1999) with sessile gaster and less convex eyes (Fig. 11).

ETYMOLOGY. ASL takes great pleasure in naming this remarkable mutillid for Karl V. Krombein, splendid entomologist, who collected during his long scientific life more than 1000 new species and published nine volumes of the scientific papers (Norden, 1996a, 1996b).

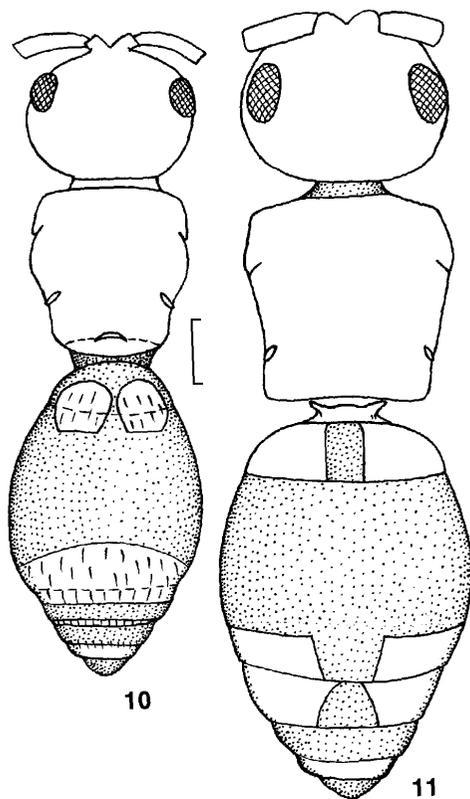
***Karlidia peterseni* Lelej, sp. n.**

Figs 5-8

TYPE MATERIAL (28 ♀♀). Holotype - ♀, Thailand, Doi Suther-Pui natn. Park, Konthathan waterfall area, 600 m, 20-27.X.1979 (Zool. Mus. Copenhagen Exped.) [ZMUC]. Paratypes: 27 ♀♀ with the same label [24 ♀♀ - ZMUC, 2 ♀♀ - IBPV, 1 ♀ - USNM].

DESCRIPTION. FEMALE. Length 6.5–9.0 mm. Head and gaster black, mandible reddish with dark apex; antenna reddish-brown, flagellomeres above black; thorax red; legs red with darkened tibiae and tarsi, palps pale brown, gaster ventrally brown.

Frons, vertex and thoracic dorsum with long, erect, copper setae mixed with shorter subappressed ones on thoracic disc; mesopleuron with long, erect, whitish setae in lower part and darker ones in upper part; gastral tergum 1 anteriorly, terga 2-5 laterally, legs and gaster ventrally with sparse yellowish hairs; sterna 2-5 posteriorly with fringe of long, subappressed, pale setae; tergum 1 dorsally with two lateral spots; tergum 3 with band of golden pubescence (Fig. 5); terga 1, 2,



Figs 10, 11. Dorsal view of female body. 10) *Dasylabroides remota* Nonveiller, 1980, Cameroon; 12) *Tallium catulus* (Burmeister, 1875), Argentina. Scale line 1 mm

Gastral sternum 1 with longitudinal carina which ends posteriorly by tubercle; sternum 1 and 2 with a deep transverse groove between them; sternum 2 with weak anterior longitudinal carina, without lateral felt lines; tergum 2 coarsely confluent punctate (punctures much smaller than ones on thoracic dorsum), the punctures sparser and larger on sternum 2; pygidial area (Fig. 6) of tergum 6 microgranulated in apical and central part, basally and laterally tuberculate.

MALE. Unknown.

DISTRIBUTION. North Thailand.

ETYMOLOGY. This species dedicated to Borge Petersen, who designated this species as a new one.

4, 5 with smooth, shiny posterior fascia limited anteriorly by fringe of long, suberect, black setae, golden ones on tergum 3 (Fig. 5); other parts of tergum 2 with erect and subappressed usual setae.

The relation of longitudinal diameter of eye to distance between eye and base of mandible is 2.6-2.8; clypeus concave, limited above by transverse elevated carina; gena limited beneath by ridge which ends at hypostomal carina as a tubercle; occipital carina connected with hypostomal one by ridge; antenna see Fig. 6; mandible rather long with small preapical inner tooth; front, vertex and genae densely often coarsely confluent punctate.

Propodeum abruptly sloping to the gastral base (Fig. 5); dorsum of mesosoma coarsely confluent punctate, sometimes longitudinally rugose, laterally with dense small punctures; pleurae smooth and shiny except mesopleural vertical row and dark sparse punctures on metapleuron.

ACKNOWLEDGEMENTS

We thank Dr. Rudolf Meier (Zoological Museum, University of Copenhagen, Denmark) for the loan of material previously studied by late B. Petersen; Prof. Guido Nonveiller (Yugoslavia) and Dr. Manfredo Fritz (Argentina) for valuable comparative material from Africa and South America. Thanks to Short-Term Visitor travel grant of Smithsonian Institution (Washington, DC) ASL was able to study the Mutillidae in the National Museum of Natural History collection. We are grateful to Galina Sinelnikova (Institute of Biology and Pedology, Vladivostok) for the help in preparing Figures 1-11.

REFERENCES

- André, E. 1903. Mutillidae. Genera Insectorum. Vol. 11. Paris: 1-77 + pl. 1-3.
 Bischoff, H. 1920-1921. Monographie der Mutilliden Africas. - Archiv fur Naturgeschichte. 1920, 86A(1-3): 1-480; 1921, 86A(4, 5): 481-830.
 Brothers, D. J. 1975. Phylogeny and classification of the aculeate Hymenoptera with special reference to Mutillidae. - The University of Kansas Science Bulletin 50(11): 483-648.
 Brothers, D. J. 1999. Phylogeny and evolution of wasps ants and bees (Hymenoptera, Chrysidoidea, Vespoidea and Apoidea) - Zoologica Scripta 28: 233-249.
 Cockerell, T. D. A. 1928. Mutillidae from Siam. - The Annals and Magazine of Natural History 2(ser. 10): 596-600.
 Evans, H. E. 1985. The pleasures of Entomology. Portraits of Insects and the people who study them. Washington D.C.: Smithsonian Institution Press. 238 p.
 Lelej, A. S. & Nemkov, P. G. 1997. Phylogeny, evolution and classification of Mutillidae (Hymenoptera). - Far Eastern entomologist 46: 1-24.
 Nonveiller, G. 1990. Catalogue of the Mutillidae, Myrmosidae and Bradynobaenidae of the Neotropical region, including Mexico (Insecta, Hymenoptera). Den Haag. 150 p. (Hymenopterorum catalogus: nova editio).
 Norden, B. B. 1996a. Karl V. Krombein - biographic highlights. - Memoirs of the Entomological society of Washington 17: 8-10.
 Norden, B. B. 1996b. Bibliography of Karl V. Krombein, 1936-1995. - Memoirs of the Entomological society of Washington 17: 209-216.

© Far Eastern entomologist (Far East. entomol.)

Editor-in-Chief: S.Yu.Storozhenko

Editorial Board: A.S.Lelej, Yu.A.Tshistjakov, N.V.Kurzenko

Address: Institute of Biology and Pedology, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.

FAX: (4232) 310 193

E-mail: entomol@online.marine.su