

Cockroach Studies

Issue 1

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The Journal of the Blattodea Culture Group

Editorial

We are pleased to present the first issue of *Cockroach Studies (CS)*. This new journal is the organ of the Blattodea Culture Group (BCG), and its aims are to disseminate information about the taxonomy, biology and ecology of cockroaches, as well as to provide practical advice on how to rear these fascinating insects in captivity. *Cockroach Studies* will be published twice a year and it will be issued free of charge to BCG members. To join the BCG please contact the Membership Secretary, ROLAND DUST. ROLAND will tell you the cost of the yearly subscription fee, which at the time of writing has not been accurately calculated. The BCG was resurrected after a long period of dormancy at a meeting held on July 31st, 2005, in Delitzsch, Germany, at the factory of the chemical firm **frunol delicia**. The BCG committee would like to thank **frunol delicia** for the use of its excellent meetings room and also for generously funding the publication of this edition of *Cockroach Studies*.

This issue of *CS* contains a selection of articles which we hope will be of interest to both amateur and professional 'blattologists'. Beside a taxonomic paper on *Calolamprodes*, it contains an article on observations of *Epilampra* in Hispaniola, and an account of the history of the BCG by one of its founder members, ADRIAN DURKIN. Also in this issue is a bibliography of key references dealing with the breeding of cockroaches in captivity by another of the BCG's founders, DARREN J. MANN, plus an article about the cockroach collection of the Hope Entomological Collections in Oxford, UK, which is based on a talk that DARREN gave at the July Delitzsch meeting.

Please note that although this issue of *CS* lacks an ISSN number, the next issue should have one. This is because the Deutsche Bibliothek, which issues ISSN numbers in Germany, needs to see a copy of the first issue of *CS* before it can give the journal a number.

We hope that you enjoy this new journal and are able to contribute non-technical and/or more specialised articles to it. The deadline for contributions for publication in the next issue is August 19th, 2006.

Ingo Fritzsche (Editor-in-Chief)
& George Beccaloni (Deputy Editor)

Welcome!

Dear readers,

I am very pleased that my company **frunol delicia** has been able to support the production of this, the first issue of *Cockroach Studies*.

It was a great pleasure for my employees to welcome the members of the Blattodea Culture Group from Germany and abroad to our production plant in Delitzsch near Leipzig, Saxony (Germany) on July 30th/31st, 2005.

Even though we at **frunol delicia** are more engaged in researching and developing products for the control of cockroaches, the July meeting of the Blattodea Culture Group provided us with a valuable opportunity to exchange information about cockroach breeding, which is of interest to us in view of the extensive cockroach rearing facility we have built at our Delitzsch factory.

I wish the Blattodea Culture Group the very best for the future and would be pleased if we could further support its work.

I hope you enjoy studying this journal!

With best regards,

Juergen Friedel

- Managing Director of **frunol delicia GmbH**, Unna/Delitzsch -

frunol delicia is a middle sized, independent chemical company, which produces a range of plant care, plant protection and pest control products. The company is located in Unna, Northrhine-Westphalia (administration) as well as in Delitzsch (near Leipzig), Saxony, Germany (development and production location).

Founded in 1817, **frunol delicia** has 189 years of experience in producing products for homes, gardens and farms. Its core business today is based on innovative molluscicide, rodenticide and insecticide products and it has the leading market position in Germany for its rodenticide range.

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Notes on the genus *Calolamprodes* BEY-BIENKO, with descriptions of four new species (Dictyoptera: Blaberidae: Epilamprinae).

LEONID ANISYUTKIN

ABSTRACT: The genus *Calolamprodes* BEY-BIENKO, 1969 from South-East Asia is reviewed. Four new species (*C. beybienkoi* sp. n., *C. formosus* sp. n., *C. elephant* sp. n. and *C. khmericus* sp. n.) are described.

KEYWORDS: Blattodea, South-East Asia.

All specimens examined in this study are housed in the collection of the Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia), including the types of the four new species described below.

The terminology used to describe the male genitalia follows GRANDCOLAS (1996).

In order to examine the structures of the genital complex (anal plate, hypandrium and the genitalia themselves), the apex of the abdomen of specimens was cut off and treated with ~ 10% KOH. The author prefers to keep the structures of the genital complex in microvials filled with glycerin or strong alcohol, which are then pinned under the relevant specimen. There are two reasons for this. First, because (as mentioned by ROTH & PRINCIS (1973)) the shape of the genitalic structures can be considerably deformed if they are allowed to dry out, and second, that slide-mounted genitalic structures are fixed and immovable and are therefore impossible to examine from all angles.

Calolamprodes BEY-BIENKO, 1969.

Bey-Bienko, 1969, p. 840, 841. Type species: *Epilampra laevis* BRUNNER VON WATTENWYL, 1893 (misidentification of *Calolamprodes beybienkoi* sp. n.) by monotypy. ANISYUTKIN, 1999, p. 566 (as *C. laevis*).

Diagnosis: Hind metatarsus slightly longer or nearly equal (in males) to the other tarsal segments combined, with single complete row of spines along ventral margin; pulvillae small and apical (**Figs 3, 11**); arolium small. Hypandrium asymmetrical, blaberoid – type, caudally widely prominent; styli cylindrical in section, with single large microtrichia at apex, right stylus slightly curved at the base (**Figs 6, 12, 14**).

Male genitalia: apical sclerite L1 plate-like (not cup-like sensu ROTH & PRINCIS, 1973), without any outgrowths or microtrichia (**Figs 20-21, 29, 30, 34, 35**); complex of sclerites L2 without folded structure on membranous sac of L2d, sclerite L2 without sub-apical incision (**Figs 15-19, 24, 26-28, 32, 33**); complex R+N comparatively weakly sclerotized, sclerite N nearly absent, R3d with chaetae on upper side (**Figs 36, 38, 39, 41**), R3v elongated (**Figs 37, 40**).

Comparison: Peculiar structure of the hind metatarsus (armed with single complete row of spines along ventral margin) and the male genitalia (especially apical sclerite L1 and complex R+N) allow the separation of *Calolamprodes* from the other genera of subfamily Epilamprinae. Genus *Calolamprodes* is superficially most similar to genus *Calolampra* SAUSSURE, 1893, but differences in the structure of the male genitalia contradict close relationships between these genera.

Composition: Two subgenera: *Calolamprodes* s.str. BEY-BIENKO, 1969 and *Brachycalolamprodes* ANISYUTKIN, 1999.

Notes: The genus *Calolamprodes* was described as monotypical for *Epilampra laevis* BRUNNER VON WATTENWYL, 1893 (BEY-BIENKO, 1969). *E. laevis* was determined by BEY-BIENKO with a set of exemplars collected at several localities in Yunnan Province, China (BEY-BIENKO, 1969), whereas this species was originally described from Malacca peninsula, Burma (BRUNNER VON WATTENWYL, 1893). Later a new subgenus and two new species of *Calolamprodes* were described (ANISYUTKIN, 1999): *C. thailandensis* ANISYUTKIN, 1999 and *C. (Brachycalolamprodes) gorochovi* ANISYUTKIN, 1999.

Key to subgenera of *Calolamprodes* BEY-BIENKO (males only).

1. Tegmina and hind wings fully developed and extending beyond end of abdomen; tegmina not strongly sclerotized; both pairs of wings with well developed wing venation. *Calolamprodes* s.str. BEY-BIENKO, 1969.

– Tegmina and hind wings abbreviated, extending to about second abdominal tergite only; tegmina strongly sclerotized and resembling beetle elytra, smooth, without any trace of wing venation. *Brachycalolamprodes* ANISYUTKIN, 1999.

Subgenus *Calolamprodes* s.str. BEY-BIENKO, 1969. ANISYUTKIN, 1999, p. 569.

Description: Sexual dimorphism strongly expressed: tegmina and wings of males fully developed extending beyond end of abdomen, tegmina of females reduced to wing-scales or absent, wings absent. Surfaces smooth, only costal field of tegmina somewhat rugose; head, pronotum and (in females) meso- and metanotum with weak punctation. General colour brown-yellowish; facial part of head darkened to a variable degree (**Figs 1, 2, 8, 10**); pronotum with disk dark and lateral parts light; tegmina brownish, upper part of meso-, metathorax and abdomen in females brightly and contrastingly coloured; lower part of body more or less unicoloured. Head wide; eyes comparatively small, distance between eyes larger than length of eye. Pronotum more or less subpentagonal (in males) or bell-shaped (in females). Fore femora with 1 apical spine, 2-4 (usually 3) spines on proximal part of anteroventral margin and a row of setae between the apical spine and spine on anteroventral margin. Fore tibiae widened distally, armed with a stout spine at distal part (more pronounced in females). Abdomen without visible glan-

dular specialization. Anal plate transverse, with more or less straight caudal margin (Figs 5, 13). Cerci elongated in males (Figs 5, 13), shortened, with consolidated segments in females (Figs 7, 9). Paraprocts of males typical for Blaberidae: asymmetrical, right paraproct with tooth-like projection; ones of female simple, symmetrical, without projections. Complex of sclerites L2 of the male genitalia elongated, with accessory sclerite (L3d), no armament on inner part of hook (apical part of L2).

Included species: *Epilampra laevis* BRUNNER VON WATTENWYL, 1893, *C. thailandensis* ANISYUTKIN, 1999, *C. beybienkoi* sp. n., *C. formosus* sp. n., *C. elephan* sp. n. and *C. khmericus* sp. n.

***Calolamprodes laevis* (BRUNNER VON WATTENWYL, 1893).**

This species was described from a female (or females – the number of specimens is not indicated in original description) from "Carin Cheba, Mont Mooleyit (Tenasserim), 1000-1300 m", northern Malacca, Burma, and it was placed in the genus *Epilampra* BURMEISTER, 1838 (BRUNNER VON WATTENWYL, 1893). Later, it was transferred to the genus *Calolampra* SAUSSURE, 1893 (KIRBY, 1904) and considered in it until the erection of the genus *Calolamprodes* (BEY-BIENKO, 1969). The male of this species is still undescribed.

C. laevis differs from all new species described below by its unicoloured abdomen: "Abdomen laeve, unicolor fuscum." (BRUNNER VON WATTENWYL, 1893, p. 29).

The author has not seen material that undoubtedly belongs to *C. laevis*. At the present time, the most detailed description of this species is the original description of BRUNNER VON WATTENWYL (1893, p. 28-29). The redescription of this species is necessary for the elucidation of the status of the genus *Calolamprodes*.

***Calolamprodes beybienkoi* ANISYUTKIN, sp. n.**

(Figs 1-7, 15-23, 36, 37; Photos 1, 2)

Calolamprodes laevis

BRUNNER VON WATTENWYL, 1893 (part.) – ANISYUTKIN, 1999, p. 569-570.

Material examined: China, Yunnan Prov.: env. of Jinping, 1700 m, 13.05.1956, Hwang Ke-yen et al. – 1 male (holotype); Puerh, 1400 m, 18.04.1955, O. Kryzhanovskij – 1 female (paratype); Taveishan Mts near Pingbian, 2000 m, 23.06.1956, Hwang Ke-yen et al. – 1 nymph (paratype); env. of Simao, 26.03.1957, A. Montschadsky – 1 female (paratype); same data, but 1250-1400 m, 3.04-10.05.1957, D. Panfilov et al. – 2 females, 1 nymph (paratypes); Ganlanba (30 km SO Cheli, on Mekong, near the frontier), 540 m, 19.04.1957, Liu Ta-hwa – 1 female (paratype). Vietnam, Vihn Phu Prov., Tam Dao, 17-31.05.1995, A. Gorochov – 6 males (paratypes); Cat Ba island (Northern Vietnam), forest, lake, epiphytes, 9.01.1989, V. Yanushev – 1 female (paratype).

Description: Male (holotype). Facial part of head (**Fig. 1**), distal segments of maxillary and labial palpi and disk (central part) of pronotum brown; head with light transverse strip on vertex; eyes black; ocelli pale; scapus and pedicellum yellowish, following segments greyish-brown; lateral parts of pronotum yellowish, with a few brownish dots; tegmina, legs and abdomen yellowish-brown, tegmina more light towards apex; anal plate brownish basally, pale at caudal margin (**Fig. 5**). Head with distance between eyes slightly wider than distance between ocellar spots; interval between antennal sockets about 2.4 times the length of scapus. Hind metatarsus with single row of spines along ventral margin, no additional spines present (**Figs. 3, 4**). Anal plate with weak emargination on caudal margin (**Fig. 5**).

Male genitalia (**Figs 15-17, 20, 21, 36, 37**): Apical sclerite of complex L1 well sclerotized, large and comparatively elongated; additional sclerite over apical sclerite absent, but membrane on that place thickened (**Figs 20, 21**); basal part of L1 rod-like, well sclerotized, incrassate proximally, with lateral outgrowth at apex. Apex of sclerite L2d well sclerotized, apical tooth present (**Figs 15-17**). Complex of sclerites R+N as in **Fig. 36**.

Female: Comparatively wider than male. Lateral yellow stripes on pronotum, meso- and metathorax wider than in male; upper part of abdomen yellowish, densely covered with numerous small dark dots, partially confluent and forming 4-5 more or less expressed indistinct longitudinal stripes; upper side of cerci longitudinally divided into yellow external and dark internal parts (**Fig. 7**). Head with eyes comparatively smaller, interval between antennal sockets about 3 times the length of scapus (**Fig. 2**). Tegmina reduced to scales, frequently not completely detached from mesothorax. Anal and genital plates widely rounded posteriorly (**Fig. 7**). Cerci short, intersegmental boundaries practically invisible, apically sharp (**Fig. 7**).

Variation: Males from Vietnam slightly larger than holotype; anal plate with more expressed caudal emargination; apical sclerite L1 (**Figs 18, 19**) and apex of sclerite L2 (**Figs 22, 23**) can vary in shape.

Measurements (mm): Length: head of male 2.9-3.5 (2.9), female 3.8-4.2; pronotum of male 5-5.9 (5), female 4.7-5.5; tegmen of male 22-22.5 (22), female 3-3.7. Width: head of male 3.2-3.7 (3.2), female 3.8-4.2; pronotum of male 6.8-7.8 (6.8), female 7.6-9.4. Measurements in parentheses are those of holotype.

Comparison: The new species differs from *C. laevis* (BRUNNER VON WATTENWYL) by the contrasting coloured abdomen of females and absence of transverse strip on facial part of head ("... fascia fusca inter oculos." in *C. laevis* – BRUNNER VON WATTENWYL, 1893, p. 28). From *C. thailandensis* the new species readily differs by details of colouration, complete absence of additional (incomplete and laterally displaced) row of spines along

ventral margin of hind metatarsus and shape of apical sclerite L1 of the male genitalia.

The series from Yunnan Province was determined by BEY-BIENKO as "*Calolamprodes laevis*" and the description of the genus *Calolamprodes* was based on those specimens. Specimens from Vietnam were cited as "*Calolamprodes laevis*" in ANISYUTKIN (1999).

***Calolamprodes formosus* ANISYUTKIN, sp. n.**

(Figs 8, 9, 24, 25, 38; Photos 3, 4)

Calolamprodes laevis BRUNNER VON WATTENWYL, 1893 (part.) – ANISYUTKIN, 1999, p. 569-570.

Material examined: Thailand, Phetchaburi Prov. (in the north of Malay Peninsula), 50 km SW of Phetchaburi, env. of Nat. Park "Kaeng Krachan", ~400 m, near reservoir, 30-31.07.1996, A. Gorochov – 1 male (holotype); same data, but ~800 m, primary forest, 1-3.08.1996 – 1 female (paratype).

Description: Male (holotype). Similar to *C. beybienkoi*, differing from it in the following features. General colour brighter than *C. beybienkoi*, head with incomplete transverse strip below antennal sockets (**Fig. 8**), lower side of abdomen with expressed dark median stripe and pairs of dark spots on 3-7 sternites. Head wide, eyes comparatively larger (**Fig. 8**).

Male genitalia comparatively weakly sclerotized (**Figs 24, 25, 38**). Apical sclerite of complex L1 small; sclerite over apical sclerite absent; basal (**Fig. 25**). Apex of sclerite L2d well sclerotized, apical and additional teeth present (**Fig. 24**). Complex of sclerites R+N as in **Fig. 38**.

Female: Similar to *C. beybienkoi*, differing from it in more darkened cerci, with visible (especially from below) segmentation and completely absent tegmina.

Measurements (mm): Length: head of male 3.4, female 4; pronotum of male 5.9, female 5.2; tegmen of male 22. Width: head of male 3.7, female 4.2; pronotum of male 8, female 8.4.

Comparison: The new species readily differs from *C. beybienkoi* by the shape of apical sclerite L1 of the male genitalia and the completely apterous female.

***Calolamprodes elephan* ANISYUTKIN, sp. n.**

(Figs 10-12, 26-31, 39, 40; Photo 5)

Material examined: Cambodia, northern part of Elefan mts, Kiri-Rom National park (150 km NNE of Sihanoukville), 600-800 m, 7-10.10.2003, A. Gorochov, M. Berezin – 3 males (holotype and paratypes), 2 nymphs (paratypes); same data, but 130 km NNE of Sihanoukville, 300-500 m, 27.09-1.10.2003 – 6 males, 6 females, 4 nymphs (paratypes).

Description:

Male (holotype). Similar to *C. beybienkoi*, differing from it in the following features. Darker, disk of pronotum and facial part of head black; facial part of head darkened only above antennal sockets (**Fig. 10**); lateral parts of pronotum with distinct black dots; tegmina with distinct scattered black spots. Head with interval between antennal sockets about 2.7 times the length of scapus. Hind metatarsus with spines comparatively more numerous along ventral margin and additional incomplete row of spines on inner side of it (**Fig. 11**). Anal plate widely rounded on caudal margin.

Male genitalia (**Figs 26-31**). Apical sclerite of complex L1 well sclerotized, comparatively short and wide; additional sclerite over apical sclerite present, well sclerotized (**Figs 29-31**). Apex of sclerite L2d well sclerotized, with apical and additional teeth (**Figs 26-28**). Complex of sclerites R+N as in **Fig. 39**.

Female: Similar to *C. beybienkoi*, differing from it in darker colour of upper side of body, cerci with visible (especially from below) segmentation and completely absent tegmina.

Variation: Black spots on male tegmina can be weakly expressed; anal plate with more or less rounded caudal margin and weak caudal emargination. Apical sclerite of complex L1 and apex of L2d can vary somewhat in shape.

Measurements (mm): Length: head of male 3.2-3.4 (3.2), female 3.9-4.6; pronotum of male 5.2-5.7 (5.5), female 5.4-5.8; tegmen of male 19-20 (20). Width: head of male 3.2-3.5 (3.4), female 4-4.2; pronotum of male 6.1-7.6 (6.8), female 9-9.8. Measurements in parentheses are those of holotype.

Comparison: The new species differs from the other known representatives of the genus *Calolamprodes* by the presence of an additional sclerite over apical sclerite L1 of the male genitalia. *C. elephan* is similar to *C. thailandensis* in the presence of an incomplete additional row of spines on the inner side of the hind metatarsus, but differs from it in structure of the male genitalia (shape of apical sclerite L1 and presence of additional sclerite over it).

***Calolamprodes khmericus* ANISYUTKIN, sp. n.**

(**Figs 13, 14, 32-35, 41; Photo 6**)

Material examined: Cambodia, env. of Sihanoukville city near Siam bay, 22-26.08.2003, A. Gorochoy, L. Anisyutkin – 1 male (holotype), 1 female (paratype).

Description: Male (holotype). Similar to *C. beybienkoi*, differing from it in the following features. Size smaller; facial part of head darkened only above antennal sockets. Head with interval between antennal sockets about 2.6 times the length of scapus. Hind

metatarsus with single complete row of spines along ventral margin and several additional spines on inner side. Anal plate trapezoidal with nearly straight caudal margin (Fig. 13).

Male genitalia (Figs 32-35). Apical sclerite of complex L1 comparatively small, weakly sclerotized; additional sclerite over apical sclerite absent (Figs 34, 35). Apex of sclerite L2d well sclerotized, apical tooth and ridge present (Figs 32, 33). Complex of sclerites R+N as in Fig. 41.

Female: Similar to *C. beybienkoi*, sp. n., differing from it in slightly darker colour of upper side of body; colour of cerci similar to *C. formosus* with visible segmentation; tegmina completely absent.

Measurements (mm): Length: head of male 2.9, female 3.9; pronotum of male 4.9, female 5.5; tegmen of male 15.8. Width: head of male 3.2, female 4; pronotum of male 5.7, female 8.5.

Comparison: *C. khmericus* differs from the other known representatives of the genus *Calolamprodes* by the presence of clear apical ridge on sclerite L2d, shape of apical sclerite L1 of the male genitalia and, with the exception of *C. elephan*, colouration of facial part of head. From *C. elephan* the new species readily differs by the absence of an additional sclerite over the apical sclerite L1 of the male genitalia.

Subgenus *Brachycalolamprodes* ANISYUTKIN, 1999.

ANISYUTKIN, 1999, p. 570, 571. Type species: *Calolamprodes (Brachycalolamprodes) gorochovi* ANISYUTKIN, 1999, by monotypy.

Description: Similar to the nominate subgenus except for the structure of tegmina and wings. Tegmina shortened and completely elytrized; wings represented as rounded membranous flaps, with irregular venation. Abdominal tergites comparatively more sclerotized.

Included species: Only the type species, which is known from South Vietnam, Gia Lai Prov. (ANISYUTKIN, 1999).

Acknowledgements

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Photographs



Photo 1



Photo 2

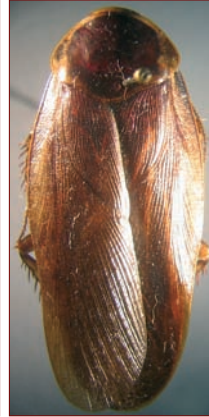


Photo 3



Photo 4



Photo 5



Photo 6



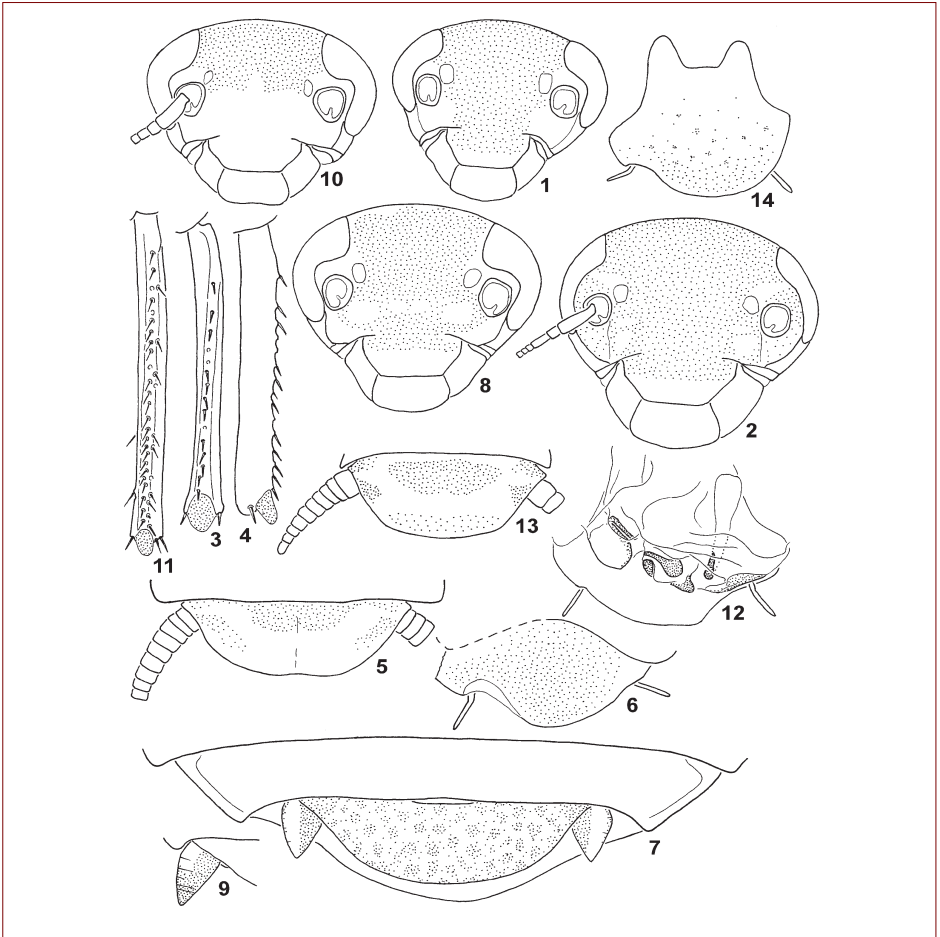
Photo 7



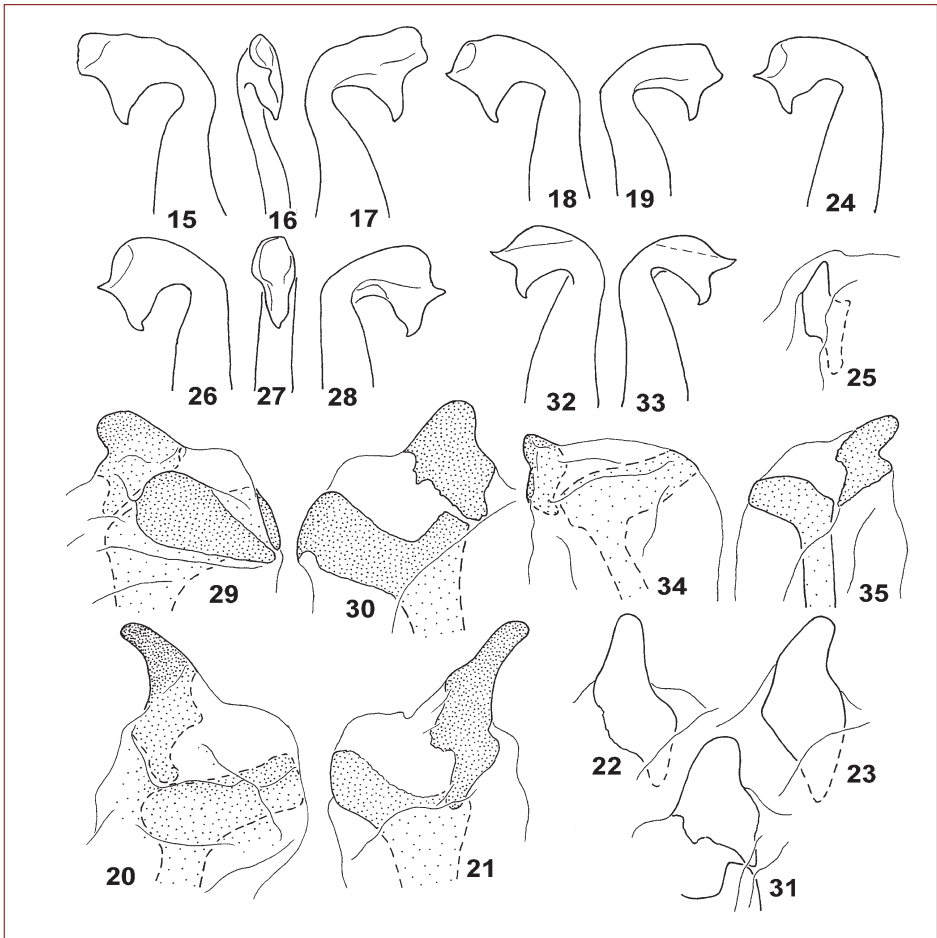
Photo 8

1. *Calolamprodes beybienkoi* sp. n., male, holotype.
2. *C. beybienkoi* sp. n., female, paratype.
3. *C. formosus* sp. n., male, holotype.
4. *C. formosus* sp. n., female, paratype.
5. *C. elephan* sp. n., male, holotype.
6. *C. khmericus* sp. n., male, holotype.
7. *C. thailandensis* Anisyutkin, 1999, male, holotype.
8. *C. (Brachycalolamprodes) gorochovi* ANISYUTKIN, 1999, male, holotype (abdominal apex removed).

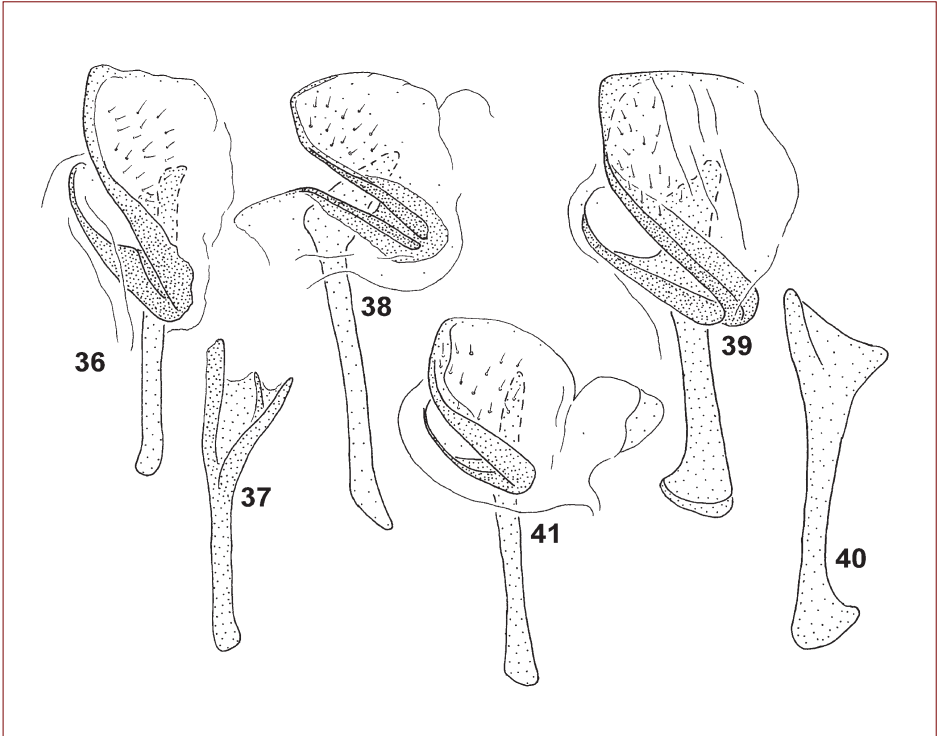
Figures



Figs 1-14. *Calolamprodes* sp., external morphology. 1-7 – *C. beybienkoi* sp. n. (1, 3-6 – male, holotype, 2, 7 – female, paratype); 8, 9 – *C. formosus* sp. n. (8 – male, holotype, 9 – female, paratype); 10-12 – *C. elephant* sp. n. (10, 11 – male, holotype, 12 – male, paratype); 13-14 – *C. khmericus* sp. n. (male, holotype). 1, 2, 8, 10 – head; 3, 4, 11 – hind metatarsus (3, 11 – from below, 4 – from side); 5, 7, 13 – abdominal apex from above; 9 – left cercus from above; 6, 14 – hypandrium from below; 12 – hypandrium and genitalia from above before treating with KOH. Dotted area shows dark colouration (1, 2, 5-10, 13, 14), membranous (3, 4, 11) and sclerotized (12) parts.



Figs 15-35. *Calolamprodes* sp., male genitalia. 15-23 – *C. beybienkoi* sp. n. (15-17, 20, 21 – holotype, 18, 19, 22, 23 – paratypes); 24, 25 - *C. formosus* sp. n. (holotype); 26-31 – *C. elephant* sp. n. (holotype); 32-35 – *C. khmericus* sp. n. (holotype). 15-19, 24, 26-28, 32, 33 – apex of sclerite L2d; 20, 21, 29, 30, 34, 35 – apex of complex L1 (20, 29, 34 – from above, 21, 30, 35 – from below); 22, 23, 25, 31 – apical sclerite L1, outlines. Dotted area shows sclerotized parts.



Figs 36-41. *Calolamprodes* sp., male genitalia, structures of complex R+N. 36, 37 – *C. beybienkoi* sp. n. (holotype); 38 – *C. formosus* sp. n. (holotype); 39, 40 – *C. elephan* sp. n. (holotype); 41 – *C. khmericus* sp. n. (holotype). 36, 38, 39, 41 – complex R+N from above; 37, 40 – sclerite R3v from below. Dotted area shows sclerotized parts.

***Epilampra haitensis* REHN & HEBARD, 1927
(Dictyoptera: Blattodea: Blaberidae): first record from the Dominican Republic (West Indies), with some observations in nature.**

ESTEBAN GUTIÉRREZ

ABSTRACT. *Epilampra haitensis* REHN & HEBARD, 1927, previously known from Haiti is recorded for the first time from the Dominican Republic (Hispaniola Island). Some field observations of the species, taxonomic comments, as well as the first picture of this species alive in nature are given in the present paper.

KEYWORDS: Blattaria, Epilamprinae, Hispaniola Island, Insecta, new distribution record.

REHN & HEBARD (1927) described *Epilampra haitensis* from three specimens (one male and two females) deposited at the Academy of Natural Sciences of Philadelphia (ANSP) and the American Museum of Natural History, New York (AMNH). These specimens of the type series came from "Port-au-Prince" (type locality) and "Pétionville", Haiti (Fig.1). PRINCIS (1967) listed the species from Haiti, based on REHN & HEBARD's 1927 original description. Later, ROTH (1970) concluded "The male genitalia of the species of *Epilampra* are not only useful for specific determinations but can also be used to show species relationships". In this same paper, ROTH gave figures of the male genitalia of *E. haitensis* from one specimen collected at Port-au-Prince, and placed it in the *E. burmeisteri* species group, subgroup A, based on the male genitalia relationships among the species. GUTIÉRREZ & PÉREZ-GELABERT (2000) listed this species as occurring only in Haiti.

In 2003, during a collecting trip to Dominican Republic, a series of 16 specimens of *Epilampra haitensis* were observed and collected at night in Fondo Paradí, Oviedo, Pedernales Province, Jaragua National Park, Dominican Republic (**Fig. 1**). These specimens constitute the first record of this species for the Dominican Republic cockroach fauna.

Material Examined: 13 males, numbers MNHNCu 13.2741-13.2753 and 3 females, numbers MNHNCu 13.2754-13.2756, from "Fondo Paradí, municipio Oviedo, provincia Pedernales, colecta nocturna sobre vegetación, 14-XI-2003, col. E. Gutiérrez"; 2 nymphs numbers MNHNCu 13.2509-13.2510, same data as adults, except that these were collected under rotten logs, 2-II-2002. All specimens are deposited at the National Museum of Natural History (Cuba).

Observations: *Epilampra haitensis* was observed at night perching on leaves of the plant *Apoleia monandra* (Commelinaceae) drinking water from rain drops on the leaves (**Fig. 2**). During the day the species was hidden under stones and in leaf litter. In addition, two nymphs were collected under rotten logs in February, 2002. These are the first published observations of *E. haitensis* alive in its natural habitat.

Taxonomic comments: Average body length 19.2 mm. This species can be differentiated from the rest of the known taxa of *Epilampra* by the following characters: colour pattern with black marks on pronotum, tegmina costal margin, head and abdomen (**Figs. 3A-C**) and on the male genitalia (**Fig. 3D**), principally the median phallomere. The patterns of the interocular region and distal section of venter of abdomen, vary slightly from the type specimen, but are always present in the series studied.

Epilampra haitensis probably had a wider distribution in the past, particularly on the Haitian side of the border. Nowadays after many years of deforestation, areas of natural vegetation are rare in Haiti. Because endemic species such as *E. haitensis* are generally restricted to such habitat there is an urgent need to protect what little remains before it too disappears.

Acknowledgements:

I would like to thank YVONNE ARIAS, CARLOS RODRÍGUEZ, SIXTO INCHÁUSTEGUI, HECTOR J. ANDUJAR ("Grupo Jaragua inc."), and the workers of the Jaragua National Park, for their great help during my collecting trip to the Dominican Republic, and my colleagues FRANCISCO JIMÉNEZ and BRÍGIDO PEGUERO (Santo Domingo Botanical Garden, Dominican Republic) for their help in identifying the plant mentioned in this paper. I also wish to express my gratitude to my colleagues at the "Secretaría de Estado de Medio Ambiente y Recursos Naturales" of the Dominican Republic, for helping me with field and exportation permits; and my colleagues GILBERTO SILVA, LUIS M. DÍAZ and GIRALDO ALAYÓN (MNHNCu) for their critical revision of this paper. My special thanks go to LAURA WATSON (Nature Edge, inc., USA) for the excellent picture of a living *Epilampra haitensis* featured in this paper. The present research was conducted under the project "Estudio taxonómico de algunos grupos de la biota del Caribe, su exhibición y divulgación" of the National Museum of Natural History (Cuba).

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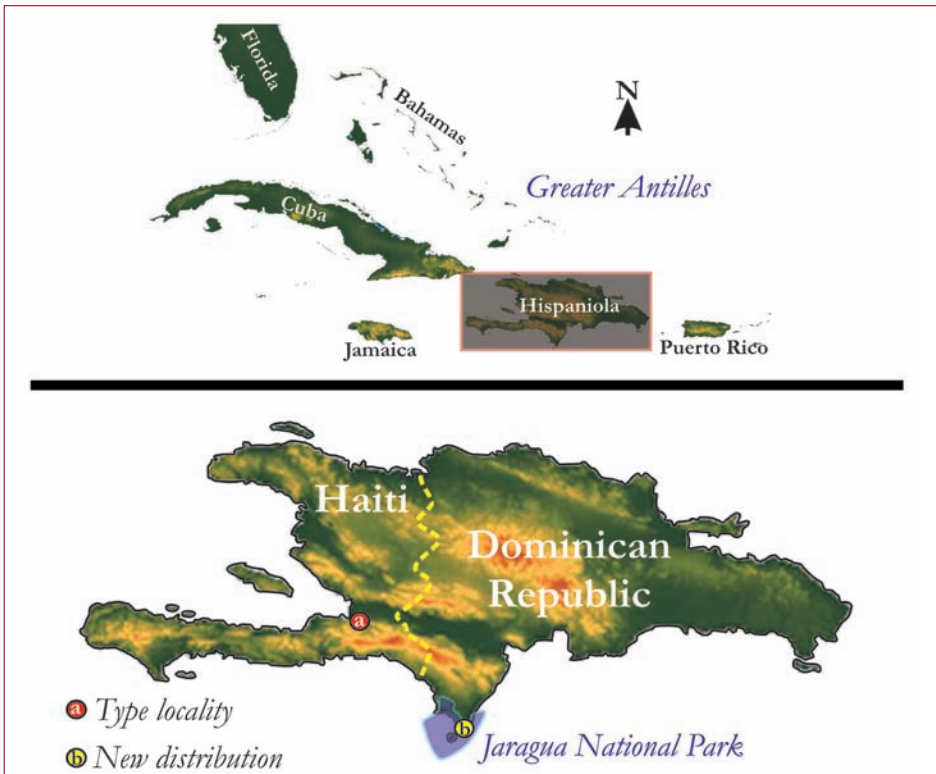
Figures:

Fig.1. Distribution of *Epilampra haitensis* in Hispaniola Island: **a**, type and paratypes localities, "Port-au-Prince" and "Pétionville" (included both in the same red circle), Haiti; **b**, new distribution record, "Fondo Paradi" in the Jaragua National Park, Dominican Republic.



Fig.2. *Epilampra haitensis* perching on leaves of the plant *Apoleia monandra* (Commelinaceae) during a rainy night (Photograph by LAURA WATSON).

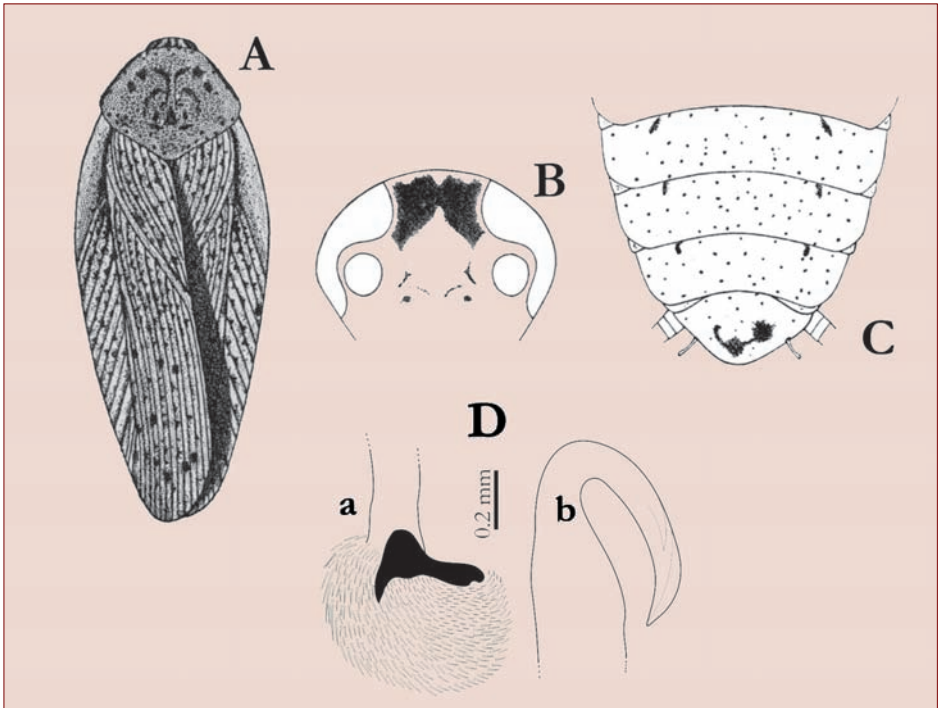


Fig. 3A-D. *Epilampra haitensis*: A-C are from REHN & HEBARD (1927). Male holotype: A, dorsal view; B, head (pattern of interocular region); C, abdomen (ventral). D, male genitalia from specimen number 13.2747 at MNHNCu (KOH preparation): a, median phallomere (dorsal); b, genital hook (ventral).

Cockroaches in The Hope Entomological Collections: The SHELFORD & HANITSCH legacies

DARREN J. MANN

The Hope Entomological Collections (HEC), is a department of the Oxford University Museum of Natural History which was founded around 1849 from a Deed of Gift from the Reverend FREDERICK WILLIAM HOPE to Oxford University. The collection now forms the second largest entomological collection in the U.K., and along with its associated library and archives it represents a globally important source of entomological information. The HEC contains collections of insects, arachnids and myriapods, both in spirit and dried, from around the World, totalling some 25,000 drawers and an estimated 5 million specimens, including 22,000 types.

The staff of the HEC are involved in a number of activities. As part of the university commitments they teach on undergraduate and post graduate courses and supervise undergraduate and postgraduate projects. Museum work ranges from the design and maintenance of public gallery displays and an enquiry service, to being involved in primary and secondary school 'outreach' activities and 'in-house' education activities. The gallery displays include a large cage of living cockroaches. These are the 'child-friendly' Madagascan hissing cockroach *Gromphadorhina oblongonota* VAN HERREWEGE and the death's head cockroach (*Blaberus craniifer* BURMEISTER), both of which are used in numerous handling sessions for various age group activities.



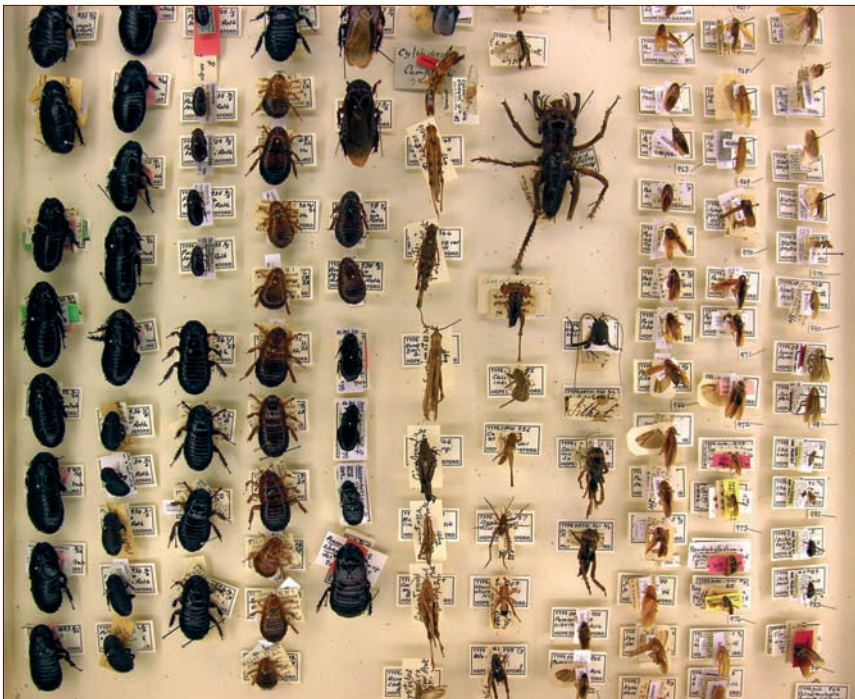
Education officer with a handful of hissers

As well as non-collection based education work, the HEC has an active policy of both research and collections enhancement. On average staff publish ten papers a year and add

around 20,000 specimens the collections from both donations and staff research trips. The department also receives around one hundred visitors a year who come to use the collections for scientific research, and HEC staff send out over one hundred separate loans of specimens per year to researchers around the world, ranging from single types to large series of unidentified material. One of the major projects within the department over the last few years has been the databasing of the collections and their associated archives, and some of this information is now available online (see <http://www.oum.ox.ac.uk/onlinedb/entsumm/caaintro.htm>).

The HEC's cockroach collection

The HEC cockroach collection consists of around 60 drawers of specimens, which remain in the same arrangement as HANITSCH left them, some seventy years ago. The collection consists mostly of historical material dating from the time of WESTWOOD in the mid to late eighteenth hundreds, as well as large donations made by SHELFORD, HANITSCH and others during the early part of the twentieth century, and around 6 drawers of material collected by departmental staff in recent years. The collection totals some 6,500 specimens, plus 573 catalogued types.



Example drawer from Type collection

ROBERT WALTER CAMPBELL SHELFORD

- Born Singapore: August 3rd 1872
- Curator Sarawak Museum: 1897-1905
- Assistant Curator HEC: 1905-1911
- Died England: June 22nd 1912

SHELFORD published papers on several groups of insects including Lepidoptera, Orthoptera and Phasmatodea. He also worked on Arachnida and even on anthropology (the latter relating to his earlier days living in Sarawak). SHELFORD'S first paper on cockroaches was published in 1906 (*Studies of the Blattidae. Transactions of the Entomological Society of London, 1906: 231-280*) and in it he described thirty-eight new species and five new genera. In his last paper (on South American cockroaches) which was published posthumously in 1913 (i.e. *Orthopteres, Blattides, Mantides et Phasmides. Mission du Service géographique de l'armee pour la mesure d'un arc du meridiem equatorial en Amerique du Sud, 1899-1906. 10(1): 57-62*), SHELFORD described just three species and one genus. *A Naturalist in Borneo*, a book which SHELFORD left as an unfinished manuscript, was finalised and edited by E. B. POULTON, the then Hope Professor and a friend of SHELFORD. This book is a great collection of natural history and anthropology, including a chapter of his observations on cockroaches in Sarawak.



According to POULTON in the Editor's introduction to *A Naturalist in Borneo*, SHELFORD was most interested in the work he did for his paper "Mimicry amongst the Blattidae" (*Proceedings of the Zoological Society of London, 1912: 358-376*), because it combined both systematics and bionomics which were "equally dear to him". It was also "a special delight to him to show the high interest and in many species the extreme beauty of the universally despised cockroaches." This paper was primarily based on his observations made in Sarawak and on material in the HEC and it included a beautiful coloured plate which depicts both the models and the mimetic cockroaches.

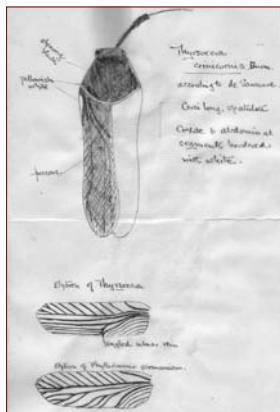
The colour plate from SHELFORD'S paper on mimicry in cockroaches



Types of *Prosoplecta* studied by SHELFORD

In total SHELFORD published 27 papers on cockroaches over a period of just eight years. In these he described some 284 new species of cockroaches, of which only 13% have since been synonymised, clearly indicating the care with which he took his studies. Although SHELFORD's own material (and indeed numerous specimens of his contemporaries which he received in exchange) are deposited in the HEC collections, only 141 of his types are held in the HEC (some 24% of the HEC's total cockroach type holdings). The Hope Entomological Library contains extensive archives of his correspondence, manuscripts and original artwork. SHELFORD

received patronymy from a number of authors e.g. *Robshelfordia* PRINCIS, *Shelfordella* ADELUNG, *Shelfordina* HEBARD, plus over 16 species names.



SHELFORD manuscripts in Hope Entomological Library

KARL RICHARD HANITSCH

- Born Germany: December 22nd 1860
- Curator Raffles Museum, Singapore: 1895-1919
- Associate Curator HEC: 1919-1940
- Died England: August 11th 1940

Like SHELFORD, HANITSCH studied a number of animal groups, including molluscs, sponges and Lepidoptera, although he mainly concentrated his efforts on cockroaches. In his first paper, entitled "Malayan Blattidae" (1915. Journal of the Straits Branch of the Royal Asiatic Society, 69: 17-178) HANITSCH only described nine new species. However, he brought together the descriptions of more than 180 species of Malayan cockroaches and in many cases gave a more complete description than the original describer, thus creating a baseline for future studies of the region's fauna. This paper not only included good descriptions of each of the species, but it also gave keys to most of the genera and in some cases to the species. It also included distributional data plus seven colour plates of forty-one species. It was eight years later that he provided a supplement to this paper (1915. Journal of the Malayan Branch of the Royal Asiatic Society, 1(89): 393-474), and in it he redescribed a number of species he had omitted from his earlier work (chiefly species named by BRUNNER VON WATTENWYL), added new locality data, and described a further 23 new species. His last paper was a description of *Salganea shelfordi* (1939. A new species of Blattidae from Singapore. Journal of the Federated Malay States Museums, 18(3): 379), which was based on material collected by and named after his friend ROBERT SHELFORD.

In total HANITSCH published 36 papers on cockroaches, in which he described some 300 species (10% have since been synonymised). The HEC houses some 162 of his types, which account for around 28% of the HEC's total cockroach type collection. HANITSCH was patronised by fewer authors than SHELFORD (*Hanitschella* PRINCIS, *Hanitchia* BRUIJNING, *Richanitscha* PRINCIS, plus 6 species) and as he died during the Second World War, there were few obituaries, none of which did justice to this great cockroach taxonomist. As well as the collection that he amassed, HANITSCH also left a substantial archive of manuscript notes, original artwork and catalogues pertaining to his research on the Blattodea.

HANITSCH increased the HEC's cockroach collections more than any other person, through his own collecting trips and from exchanges and donations from numerous contemporary entomologists including: L. CHOPARD (Java and Borneo); R. EBNER (East Sumatra); E. HANDSCHIN (Java and northern Australia); SVEN HEIDN, via SJOSTEDT (China); J. HEWITT (South Africa); E. JACOBSON (West Sumatra); C. B. KLOSS & H. H. KARNY (Vietnam, Mentawi Island, Sumatra); W. R. LADELL (Siam); E. MJOBERG (Deli, north-east Sumatra); E. MODIGLIANI, through Prof. GESTRO (Sumatra, Mentawi, & Engamo); H. M. PENDLEBURY (Malay Peninsula, Sabah); H. C. SIEBERS (South Sumatra); Y. SJOSTEDT (China and Amazon); N. SMEDLEY (West Sumatra); H. J. SNELL & H. P. THOMASSET (Rodriguez).



Original artwork for colour plate in *Malayan Blattidae part 1*. Hope Entomological Library



Type specimen of
Methana dacrydii HANITSCH, 1923



Type specimen of
Panesthia shelfordi HANITSCH, 1923

The HEC also contains a number of types from other eminent entomologists; some of which were obtained through early exchanges and purchases of collections by HEC professors, namely WESTWOOD and later POULTON. Some species were described from the HEC holdings (e.g. by ROTH), whilst others were gained through exchange or donations, mostly though the connections of SHELFORD and HANITSCH. Many of these HEC's types are commonly thought to be deposited elsewhere, or in some cases are even believed to have been

lost! A few examples are given below in the following order: HEC type number/species/author/original citation.

IGNACIO BOLIVAR Y PIELTAIN

ORTH0834 *Hololampra larrinuae* BOLIVAR, 1881

Anales de La Sociedad Española de Historia Natural, Madrid, 10: 500



KAREL BRANČIK

ORTH0245 *Exedra sacalava* BRANČIK, 1892 (1893).

Jahresheft des naturwissenschaftlichen Vereines des Trencsener Komitates, 15: 175

ORTH0210 *Heterogamia roseni* BRANČIK, 1897

Société Histoire Naturelle du Trencsén, 19-20: 59

Type specimen of *Exedra sacalava* BRANČIK, 1892 (1893)

BRUNNER VON WATTENWYL

ORTH0835 *Blatta albicinctus* BRUNNER, 1861

Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien, 11: 98, 286

MALCOLM BURR

ORTH0833 *Hololampra schelkovnikovi* BURR, 1913

Mitteilungen des Kaukasischen Museums, 7: 172

WOLFGANG LUDWIG HEINRICH DOHRN

ORTH0123 *Nyctibora humeralis* DOHRN, 1888

Stettiner entomologische Zeitung, 49: 129

CARL EDUARD ADOLPH GERSTÄCKER

ORTH0239 *Perisphaeria oniscina* GERSTÄCKER, 1883

Mitteilungen des naturwissenschaftlichen Vereines für Neuvorpommern und Rügen, 14: 75

ORTH0062 *Ischnoptera relucens* GERSTÄCKER, 1883.

Mitteilungen des naturwissenschaftlichen Vereines für Neuvorpommern und Rügen, 14: 65

ERMANNO GIGLIO-TOS

ORTH0069 *Ischnoptera hamata* GIGLIO-TOS, 1898

Bollettino dei musei di zoologia e di anatomia comparata della R. Università di Torino, 13(311): 4

ORTH0068 *Ischnoptera josephina* GIGLIO-TOS, 1898

Bollettino dei musei di zoologia e di anatomia comparata della R. Università di Torino, 13(311): 6

MORGAN HEBARD

ORTH0396 *Shelfordina jaraekæ* HEBARD, 1929

Proceedings of the Academy of Natural Sciences of Philadelphia, 81: 48

ORTH0399 *Symploce disema* HEBARD, 1929

Proceedings of the Academy of Natural Sciences of Philadelphia, 81: 40

**WILLIAM FORSELL KIRBY**

ORTH0167 *Pelmatosilpha antipoda* KIRBY, 1903

Annals and Magazine of Natural History, 12(7): 376

Type specimen of *Pelmatosilpha antipoda* KIRBY, 1903

KARLIS ALEKSANDER PRINCIS

ORTH0491 *Theganopteryx shelfordi* PRINCIS, 1978

Systematic Entomology, 3(1): 30, figs 24-25

LOUIS M. ROTH

ORTH0936 *Salganea evansi* ROTH, 1979

Australian Journal of Zoology Supplementary Series: 91

ORTH0966 *Symploce perakensis* ROTH, 1985

Entomologica Scandinavica, 16(4): 375-397

HENRI LOUIS FREDERIC DE SAUSSURE

ORTH0486 *Periplaneta heydeniana* SAUSSURE, 1864

Revue et magasin de Zoologique pure appliquée, 16(2): 317

JEAN GUILLAUME AUDINET-SERVILLE

ORTH0176 *Blatta decorata* SERVILLE, 1839

Histoire naturelle des insectes. Orthoptères: 99

ORTH0191 *Blatta corticum* SERVILLE, 1839

Histoire naturelle des insectes. Orthoptères: 90

JOHANN GOTTIEB OTTO TEPPER

ORTH0122 *Temnelytra abbreviata* TEPPER, 1895

Transactions of the Royal Society of South Australia, 19: 164

ORTH0166 *Temnelytra subtruneata* TEPPER, 1895

Transactions of the Royal Society of South Australia, 19: 164



FRANCIS WALKER

ORTH0244 *Brachycola interna* WALKER, 1868

Catalogue of the specimens of Blattariæ in the collection of the British Museum: 188

ORTH0078 *Blatta humeralis* WALKER, 1869

Catalogue of the specimens of Dermaptera Saltatoria in the collection of the British Museum: 140

Type specimen of *Brachycola interna* WALKER, 1868

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The Blattodea Culture Group: A History

ADRIAN DURKIN

Many years ago, on a dark and wet Saturday in October, I attended the Amateur Entomological Society (A.E.S.) fair at Hounslow Civic Centre, London, England. In many ways this was an ideal location for such an event because the building is clad in what appears to be Purbeck Roach Stone. Regrettably this does not refer to the fossil content but none the less it is of interest as it is mostly composed of the internal moulds of gastropods.

Quite close to the entrance I encountered a young entomologist selling quite a number of different invertebrates but with a marked bias towards cockroaches. At that stage I had been collecting them myself for about a year or two and had possibly eight or so species. It is so long ago now that I cannot recall what first attracted me to these insects. I think it was probably the number of different forms and the subtle variation within the group. I had graduated to cockroaches from their fellow orthopteroids stick insects. It is hard to imagine a greater contrast between groups which in evolutionary terms are quite closely related.

As the day went on and the stalls became less busy it was possible to engage the proprietor of the stall in conversation. Surprisingly he had not sold all of his roaches, indeed far from it, there seemed to be little demand. His name was DARREN MANN and as our conversation progressed it became clear that he too was a cockroach enthusiast and had a similar number of species to myself, although different ones. Instantly, allowing for some duplication, the combined culture list had grown to about 12 species.

It was instantly apparent that the same idea was forming in each of our minds, that of forming an appreciation society. However the revelations of the day did not end there because Darren introduced me to his friend GEORGE BECCALONI, who, like DARREN, was just a young innocent (!) and fresh-faced student in those days. It transpired that GEORGE too kept cockroaches and had a few that neither of us had. The collective culture list jumped for the second time that day to about 15 and the likelihood of there being an appreciation group evolved further.

As time went on it was decided to develop the idea and we publicised ourselves through appearances at fairs such as one in Leicester and of course the A.E.S. The first hurdle was to find a name for the group. I personally felt that it was a bit pretentious to call ourselves a study group as there was no guarantee that we would do any studying. I was also anxious to keep the group down-to-earth by calling it the Cockroach Culture Group. I was able to convince the others about the culture element but they felt that a scientific name was preferable and so we became the Blattodea Culture Group. I now realise that this was the right decision, not because it was scientific, but because it

obscured the truth. No one feels threatened by blattids whereas they start getting paranoid if you keep cockroaches!

In the early days the group went well and membership peaked at around 120, whilst I think that the species list went up to about 40. We began the newsletter too (that was in 1986). The first edition was just two pages and did not have much about cockroaches. Even the second edition was not a major study document although it did carry an article pondering how many different *Blaberus* species there were in captivity. However after five or six years problems began to develop. It seemed to be the usual one, amateur members did not consider themselves competent enough to write articles whilst many of the professional entomologists in the group could not get the time to write articles. None the less the group continued producing newsletters up until Volume 14 in 2000. Both DARREN and GEORGE became professional entomologists although GEORGE corrupted himself by doing his PhD on butterflies (traitor). Fate however has moved events full circle. DARREN is now a curator at one of the two most important collections of cockroaches in England, that of the Hope Collection at the Natural History Museum in Oxford. GEORGE on the other hand has recently become curator of the other, the Orthopteroidea collection of The Natural History Museum in London. Neither of these things in themselves would have resurrected the fortunes of the group but we have been fortunate to get the interest of INGO FRITZSCHE who has managed to mobilise much support for the group in Germany. He has been able to bring on board the valued services of ROLAND DUSI from the German chemical firm **frunol delicia**. It was with kind support from them that we were able to have a re-inaugural meeting at Delitzsch near Leipzig in Germany. The company keeps over 100 different species of cockroaches in their research collection and they were kind enough not only to host the meeting but to give us access to the collection. In the face of inspiration like this it would be impossible for the group not to feel a new sense of purpose and we therefore hope to resurrect the society. Who says phoenixes have to be birds?

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Cockroach Culture Techniques: A Bibliography

DARREN J. MANN

The list of papers on cockroach rearing techniques compiled by BODENSTEIN & FALES (1969) is now somewhat out of date, although many of the works cited are still useful. The bibliography provided here includes some of the more important works listed by these authors and updates their list to the end of 2004, with papers considered to contain valuable culturing techniques for cockroaches.

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The Blattodea Culture Group's Panel of Experts

Listed below are the contact details of most of the World's currently active cockroach taxonomists. All have kindly agreed to help identify cockroaches in their area of expertise for members of the BCG. If you would like to get a cockroach identified then please e-mail or write to the relevant taxonomist first before sending any specimens.

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A male of the bioluminescent cockroach *Lucihormetica fenestrata*
ZOMPRO & FRITZSCHE, 1999 from Brazil.

Photo by GEORGE BECCALONI